Afghanistan Research and Evaluation Unit
Issues Paper Series

Water Strategy Meets Local Reality

Kai Wegerich

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About the Afghanistan Research and Evaluation Unit

AREU is an independent research organisation based in Kabul. AREU's mission is to conduct high-quality research that informs and influences policy and practice. AREU also actively promotes a culture of research and learning by strengthening analytical capacity in Afghanistan and facilitating reflection and debate. Fundamental to AREU's vision is that its work should improve Afghan lives.

AREU was established in 2002 by the assistance community working in Afghanistan and has a board of directors with representation from donors, United Nations and other multilateral agencies, and non-governmental organisations. Current funding for AREU is provided by the European Commission (EC), the United Nations High Commissioner for Refugees (UNHCR), the United Nations Children's Fund (UNICEF), the United Nations Development Fund for Women (UNIFEM), the World Bank and the governments of Denmark, Japan, Norway, Sweden, Switzerland and the United Kingdom.

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Kai Wegerich
April 2009

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Acronyms

ACTED	Agency for Technical Cooperation and Development
AREU	Afghanistan Research and Evaluation Unit
CDC	Community Development Council
DACAAR	Danish Committee for Aid to Afghan Refugees
EIRP	Emergency Irrigation Rehabilitation Programme (World Bank-financed, FAO-implemented)
FAO	Food and Agriculture Organisation
GAA	German Agro-Action
GoA	Government of Afghanistan
IWRM	Integrated Water Resources Management
KRBP	Kunduz River Basin Project
MAAH	Ministry of Agriculture and Animal Husbandry
MAAHF	Ministry of Agriculture and Animal Husbandry and Food
MAIL	Ministry of Agriculture, Irrigation and Livestock
MEW	Ministry for Energy and Water
MIWRE	Ministry of Irrigation, Water Resources and Environment
MMI	Ministry of Mining and Industry
MRRD	Ministry of Rural Rehabilitation and Development
MUD	Ministry of Urban Development
MWP	Ministry of Water and Power
NGO	Non-governmental Organisation
NSP	National Solidarity Programme
RBA	River Basin Authority
RBC	River Basin Council
RBO	River Basin Organization
SWM	Social Water Management
UNICEF	United Nations Children's Fund
WMD	Water Management Department
WSS	Water Sector Strategy
WUA	Water Users Association

Glossary

Dari/Pashto Terms

arbab	village or community leader
chak bashi	community-level water bailiff on tertiary canals (northern Afghanistan)
hasher	community maintenance contribution on canals, imposed on irrigators as part of their social obligations
jerib	a jerib is one-fifth of a hectare or 2,000 square metres
juftgaw	unit of irrigated land: flow/volume to area ratio under which water rights or turns are allocated on main canals; derives from a yoke of paired, ploughing oxen and reflects area ploughed by two oxen for different soil types and land slopes; directly proportional to irrigated area and often approximated by jerib; the entitlement of any particular community is the sum of all individual juftgaw of that community
karez	underground canal system that taps aquifers by gravity through a series of underground galleries or tunnels; often extends many kilometres before surfacing to provide water for drinking and irrigation
kok bashi	tertiary, or community-level, water master
malik	clan or tribal head; representative of a mahalla
mardi kar	the ratio of community-labour (*hashar kar*) any individual is required to perform as part of the social obligations as an irrigator
mirab	water master assistant
mirab bashi	water master
paw	flow/volume to area ratio under which water rights or turns are allocated on main canals
sawab	religious merit, or an act done to accrue religious merit
shura	traditional community council of elders
wakil	deputy; in Herat, the term is also used for the primary canal water master

Executive Summary

> *"Even though you may be the son of the mirab, it's better to be one intake higher up [the canal]."*
>
> *"Better to be a servant in the upstream area than a king in the downstream area."*
>
> *— Afghan proverbs*

This report has three objectives:

1. To synthesise and analyse the current water resources management policy environment as it pertains to engaging community structures in development planning

2. To describe and comparatively analyse the social, structural and operational characteristics of traditional water management institutions around the country

3. Drawing upon these findings, to analyse the principal opportunities and challenges of using community institutions within formal water rights management structures

Recent drafts of the Water Sector Strategy (WSS) and the Water Law provide the main policy environment for water management. The drafts of the WSS pay tribute to integrated water resources management (IWRM) by incorporating stakeholder participation at the local level (with a focus on water user associations or WUAs) and at the basin level (with a focus on river basin councils). This is also emphasised in the Draft Water Law, with its section on river basin councils and sub-basin councils. The law on WUAs, however, is less explicit. While the July 2007 Draft WSS focused on water pricing, the February 2008 draft focused on poverty alleviation and did not discuss water pricing (although cost recovery for construction and services is still anticipated). The June 2008 Draft Water Law continues to focus on establishing a modern permit system, with the exception of right-of-way areas (areas that are protected and free from interventions). All versions of the Draft WSS have a strong focus on infrastructure rehabilitation and expansion. The drafts highlight the role of NGOs and donors in achieving this, but not all of them deal with the negative consequences that these efforts might have for downstream riparian states.

The WSS drafts portray the existing mirab water system as dysfunctional and promote the WUA system to take its place, but they also admit that the mirab system has not been researched. Although the WSS drafts emphasise the necessity for river basin organisations, such as river basin councils (RBCs) and river basin agencies (RBAs), the July 2007 draft questions their feasibility. The February 2008 draft highlights the constraints of the water sector, thus also implicitly raising concerns about whether or not RBAs and RBCs are feasible. The July 2007 draft identifies river basins and sub-basins with maps, however, and even presents an organisational chart for how basin organisations should be set up. The latest draft of the WSS (February 2008) includes neither maps nor organisational charts and therefore reveals fewer details. The opportunities the basin approach provides for the end-user are frequently stated, and the organisational chart demonstrates the bottom-up nature of the basin councils. However, the main outline in the June 2008 Draft Water Law shows that the Ministry for Energy and Water is responsible for establishing the basin and sub-basin councils as well as basin agencies, which are supposed to facilitate and implement the decisions of the basin councils. Although the basic framework for basin organisation is defined and roles are allocated, important questions about decision-making in the basin councils are

not specifically articulated. It is not evident, therefore, who will be represented in the councils and how votes in the councils will be shared among different stakeholders. The June 2008 Draft Water Law contains references to right-of-way areas and suggests that these areas will not be included in the basin approach or represented in the councils. The implication is that there is no basin approach and no integrated water management with stakeholder participation. The right-of-way reference does reflect the reality on the ground. Nevertheless, why have a law on basin management if substantial parts of the basin are excluded?

While a previous draft of the Water Law made reference to the "praiseworthy customs and traditions of the Afghan people," the June 2008 draft uses weaker terminology, "considering the appropriate/suitable water use traditions and customs," which boils down to having a mirab (water master's assistant) or mirab bashi (water master) in a WUA. While previous drafts focused on "fair, effective and economical allocation of available water resources," the current draft only makes statements on cost recovery, but it has also a focus on irrigation norms and the establishment of a permit and license system. Currently, three terms are used within the law: permit (water use), license (for infrastructure) and water right.

The term water right is not defined and is used in the law to refer to individual as well as collective (canal-level) rights. It is foreseen in the Draft Water Law that currently existing water rights will be transformed into permits and that to be established WUAs will obtain permits only. No reference is made to licenses for traditional intakes. Since current water rights are not measured and depend on water availability in the river as well as on the construction of the intake, it is not evident what permits should entail. In any case, basin councils will be able to change or even cancel permits. Water rights can be cancelled if users do not pay. Permits are required both for water extraction and for drainage flows. This implies that WUAs have to have at least two permits (assuming one intake and drain only). The issuing of permits depends on gauging, not only for extraction but also for drainage. Currently there is little if any gauging capacity; hence, it is questionable whether meaningful permits can be issued. In addition to the problem of gauging, there is the problem of law enforcement, and this may explain the emphasis on right-of-way in the law. The February 2008 Draft WSS therefore makes a distinction between urban and rural water supplies. The focus in urban areas is on rule enforcement, including building the capacity of the Ministry of the Interior, but in rural areas the focus is only on governance.

There are also inconsistencies of terminology regarding associations of water users, which are supposed to be set up by the Ministry of Energy and Water. The term "association of water users" is defined, but the terms "irrigation associations" (which are set up by the Ministry of Agriculture, Irrigation and Livestock) and "associations of users" are also mentioned in the law. This is despite the fact that "association of water users" implies a variety of stakeholder groups that might use a water source for variety of purposes, such as irrigation, livestock, drinking water, sanitation and even electricity production. The definition given in the Draft Water Law focuses on the common objective of the water users in the association, however, suggesting that the focus will only be on one particular use—irrigation—and the approach will not be an integrated one. Articles in the *Draft Water Law* that refer to associations of water users or that specify the responsibilities of the Ministry of Agriculture, Irrigation and Livestock and the Ministry of Energy and Water use differing terminology, which creates both overlaps of responsibility and ambiguity regarding which ministry will be responsible for addressing which areas.

The second objective of this study was to describe and comparatively analyse the social, structural and operational characteristics of traditional water management institutions in Afghanistan. To achieve this, fieldwork and a review of studies on social water management were conducted in Afghanistan in September and October 2007. The literature review included an earlier study[1] that was highly

1 J.L. Lee, "Water Resource Management on the Balkh Ab River and Hazhda Nahr Canal Network: From Crisis to Collapse" (report commissioned by United Nations Assistance Mission in Afghanistan [UNAMA], Northern Region, implementing agency: Central Asian Free

negative regarding the functionality of the mirab system and made assumptions on the structure of this system for the whole of Afghanistan. Later studies[2] revealed that the mirab system is still functioning and that its structure is highly varied. The reviewed studies show that, at the community level, the mirab system appears to be equitable in terms of water distribution and maintenance work. These studies also show, however, that water allocation among communities along main canals is inequitable. The review illustrates that the mirab system is not isolated; instead, it is linked to administrative units at the district or province levels. In the past, the government used taxes to partially decrease inequities in water distribution. Linkages between the mirab system and administrative units have also been used to resolve conflicts at the canal level and between canals.

The fieldwork conducted for this study confirmed that the system has high levels of inequity in terms of water allocation and maintenance work along the main canal. Head-enders receive more water than mid- and tail-enders but are required to contribute less maintenance work (primarily at the canal intake). Tail-enders often end up cleaning the whole canal but receiving the least water. Consequently, the mirab often comes from the tail-end, because head-enders do not need him and in some cases even refuse to contribute to his wages. The built-in inequity is highlighted in the Afghan proverb introduced at the beginning of this report, "Even though you may be the son of the mirab, it's better to be one intake higher up [the canal]." The proverb highlights inequity between canals as well as within them, suggesting that the further upstream, the better the water supply. This was also partly confirmed during the fieldwork.

The fieldwork showed that measuring water only at the intake is not sufficient for understanding how much water is used for irrigation, and that water measuring at the off-take level would be difficult, since different technologies are in use and water from one off-take might supply more than one farmer. The fieldwork also brought to light a new threat to the traditional mirab system from wheat and rice mills and micro-hydropower plants. Even though their use is nonconsumptive, their location at head-end or mid-end secondary canals causes substantial amounts of water to be diverted from the main canal into secondary canals and from there back to the river or to other canals. Hence, they are mainly a threat to tail-enders. The June 2008 Draft Water Law has one article dealing with this issue (though it only mentions micro-hydropower plants, not mills), but the main shortcoming is that micro-hydropower plants and mills, unlike other infrastructure, do not need a license for construction or a permit for operation. The general problem of enforceability in the rural areas makes it unlikely that the threat to tail-enders can be sufficiently dealt with. In addition, the most recent Draft WSS (February 2008), unlike the July 2007 draft, encourages the construction of micro-hydropower plants with the reasoning that they "will contribute to the counter-narcotics efforts through strengthening the options for alternative livelihoods."

Five major conclusions can be drawn:

1. Although the Draft Water Sector Strategy and the Draft Water Law have a modern outlook, it appears that the local system is still functioning in a traditional way, but without the support it used to get from government agencies. This implies that the transaction costs will be very high if a completely new system of "modern" WUAs is established based on self-governance and equity between members. It might be more effective to focus on the special needs of individual canal communities and to work with the communities on rules that are locally needed and locally agreeable. However, rule enforcement has to be facilitated by the government, which is currently a demand of the canal communities.

2. The focus on permits does not reflect the local reality and the technology in use. At the present, it would be impossible to

Exchange, 2003).

2 J.L. Lee, "Water Management, Livestock and the Opium Economy: Social Water Management" (Kabul : Afghanistan Research and Evaluation Unit, 2006); J.L. Lee, "Water Management, Livestock and the Opium Economy: The Performance of Community Water Management Systems" (Kabul: Afghan Research and Evaluation Unit, 2007);

measure how much water is consumed within one canal. Furthermore, the inequity within the current system would imply that, if the amount of water allowable under a water permit was reduced, the reduction would not be equitably distributed within the canal system, and tail-enders would suffer the most. Given the absence of gauging stations, one has to question the purpose of the law's focus on permits. Permits should only be seen as a long-term strategy, only implementable when the technology is in place, local management systems have been strengthened and the government is able to control water use and, if needed, enforce the limits stated in the permits. As a long-term strategy, it is questionable whether it merits a section in the current law. Pessimism about a permit system, licenses for new infrastructure (including micro-hydropower plants and mills) and restrictions on operation appears appropriate.

3. There is a danger that externally funded projects, involving either construction of intakes or maintenance work, might weaken collective action within the canal communities or increase already existing inequity in maintenance work requirements. Building permanent intake structures further reduces the labour contribution of the head-enders and therefore reduces their need to participate in collective action or to acknowledge the position of the mirab. Therefore, it is recommended that prior to rehabilitation of intakes the communities agree on the future sharing of water and of maintenance tasks. These agreements should be presented to the irrigation departments, which then would have the responsibility to enforce them. Again, this would require support from government agencies.

4. The implication of the right-of-way clause in the June 2008 Draft Water Law is that there will not be a basin approach or IWRM. Hypothetically speaking, even in the very unlikely event that a basin has no right-of-way area, the question of representation and voting power within the councils still has to be addressed. One danger might be that the councils do not reflect current water allocation and therefore the local canal communities will not support their decisions. Since this is in any case an unlikely event, one has to question the purpose of the section of the law that focuses on basin management. Hence, it appears questionable whether the basin organisations (agencies and councils) will have the power to enforce decisions, already the governmental departments on the provincial or district level struggle with enforcement of decisions and rules. Therefore, one might raise the question as to whether priority should be given first to re-establishing the linkages between canal-level and government administrations, especially since the canal communities want support from the government.

5. Last but not least, the mirab system is very complex and diverse and remains under-researched. More fundamental and long-term research is necessary to facilitate appropriate water sector strategies and current NGO involvement at the canal level. Even though the drafts of the WSS admit that research has not been conducted, they do not call for future research.

1. Introduction

Afghanistan, like other Central Asian countries and many other countries of the global South, is adopting internationally recommended water management policies. Since the 1990s, the concept of integrated water resources management (IWRM) has been promoted for the river basin level. Consequently, water management systems reflecting natural boundaries instead of administrative boundaries are promoted. In addition, since the financial crises experienced in the Countries of the South from the 1980s onwards, these countries have been advised to establish standardised models of water user associations (WUAs) at the local level to take over the operation and maintenance of irrigation systems.

Different Afghan drafts of the Water Sector Strategy (WSS)[1] and the Water Law[2] reflect these international recommendations to different degrees. The research undertaken for the present report had the purpose of critically analysing these drafts and comparing them with local water management practices. These practices are discussed in more detail in Section 5, but initially it may be useful to explain that, in general, the overseer, or water master, is called a mirab bashi and his assistant is called a mirab.

1.1 Methodology

The research is based on a literature review of fieldwork reports, case studies of local water management, and recent drafts of the WSS and the Water Law. In addition, fieldwork was conducted in Afghanistan from 5 September to 4 October 2007. During this period, eight provinces were visited and individual local mirab bashis or groups of mirab bashis and mirabs were interviewed prior to visiting their irrigation schemes. Questions addressed the mirab system, water and maintenance sharing between head-end, mid-end, and tail-end users along the main canal, and accountability (what is done about water theft). International staff members from various international social water management projects in different provinces were consulted, such as German Agro Action (GAA), the Kunduz River Basin Program (KRBP), and the Emergency Irrigation Rehabilitation Project (EIRP), and some of their project sites were visited. The choice of field visits was influenced by the local security situation and by the pre-selection of the EIRP engineers who facilitated the field visits. Therefore, the study sites may not be representative of the different provinces. In particular, larger canal systems (20-60 km) were chosen on many occasions, and visits to smaller canals (under 6 km) were the exception. Table 1 presents an overview of the research schedule.

Table 1. Research locations by date

Province	Date
Kabul	5-10 September 2007
Kapisa	11-14 September 2007
Kunduz	14-19 September 2007
Takhar	16 September 2007
Baghlan	18 September 2007
Herat	20-25 September 2007
Kabul	25-27 September 2007
Nangarhar	27-29 September 2007
Laghman	30 September – 1 October 2007
Kabul	2-4 October 2007

1 Islamic Republic of Afghanistan, "Draft Water Sector Strategy 2008-2013," Afghanistan National Development Strategy, July 2007, October 2007 and February 2008.

2 Government of Afghanistan, Draft Water Law, July 2007, November 2007 and June 2008.

Limiting factors to the fieldwork were security, the timing of the visit and cultural considerations. The security situation did not allow in-depth field visits to be undertaken, and the tight schedule of the visits to different provinces and irrigation schemes did not allow feedback loops with the local community. Each irrigation scheme was visited only once. Nevertheless, feedback loops took place in the form of discussions with the accompanying engineers. Unfortunately, the fieldwork fell within the month of Ramadan. Consequently, it seemed appropriate to conduct interviews in the field only during the morning and early afternoon. In addition, the fieldwork was conducted at the end of the agricultural season, and therefore the competition between farmers over water resources was less intense. Nevertheless, the differences between head-end, mid-end, and tail-end cropping patterns were evident.

Most of the research for this report was started in September 2007 and completed in October 2007. The first draft of this report was submitted in December 2007. New drafts of the WSS were issued in October 2007 and February 2008, and new drafts of the Water Law were issued in November 2007 and June 2008. Those changes were incorporated in January 2009 into the current version of this report.

1.2 Structure of the report

The rest of the report is structured into seven sections. Section 2 presents the theoretical underpinnings and gives an overview of concepts and critical reflections that are relevant to understanding the interplay between the policy strategy (river basin management, WUAs, water law) and the current local systems of social water management in Afghanistan. Section 3 discusses the background to national water policy and introduces the different versions of the proposed new water sector strategy for the irrigation sector in Afghanistan at the basin and local levels. Dissenting views, and ambiguities and inconsistencies within and between the different versions, are also considered. Section 4 deals with the proposed new water law, but also gives a short background on previous water laws. Again, dissenting voices as well as ambiguities and inconsistencies within the law are considered. Section 5 opens with a critical review of literature on local social water management systems in Afghanistan. It especially focuses on the differences in the mirab system, who it represents, and perceptions about water and maintenance sharing between communities, and finally the influence of the different administrative levels. Section 6 presents and analyses the research findings, again emphasising water and maintenance sharing between communities. In Section 7, policy and local reality are juxtaposed. The focus is on the Kunduz River Basin Program, the emphasis on WUAs and the current trend of small water infrastructure projects, their influence on the local communities and the experience of the Participatory Management of Irrigation System project. Section 8 offers some conclusions about the implications of the research.

2. Theoretical Underpinnings

Irrigation systems and shared water resources are usually identified as common-pool resources. Ostrom *et al.*[3] distinguish between two types of problems with common-pool resources: appropriation and provision. Appropriation problems relate to the benefits consumed by one member, which are then unavailable to others. Provision problems relate to the operation and maintenance of the resource delivery system. When river basins began "closing," (a basin is said to close when little or no water gets out of the system) basin management came into focus, and it became evident that most rivers have similar problems: appropriation by one riparian entity (either country or province), provision through large-scale water infrastructure (dams), but also pollution problems. Interventions at one point in the system are likely to have third-party effects elsewhere in the basin. Consequently, from an engineering perspective, it was argued that the appropriate management unit for an irrigation system was its hydraulic boundary, and for a river, its basin. Today, IWRM in a river basin context is a widely accepted principle to address water management complexities:

> *IWRM is defined as a process that "promotes the co-ordinated development and management of water, land, and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.*[4]

The emphasis in the WSS is on IWRM. While the July 2007 Draft WSS[5] focused more on economical approaches (water pricing), the February 2008 Draft WSS emphasised welfare and a livelihood approach.

> *Implementation of IWRM policies generally does not focus on providing water for people's use but on water demand management, cost recovery, reallocation of water use to higher-value users, and environmental conservation. It is obvious that a livelihood-centred IWRM approach is required and needs to be implemented in any effective Afghanistan poverty alleviation programme. Poverty alleviation has to be constructed on a broader foundation of stakeholder capacity building, and the emphasis should be to support farmers' and other poor water users' desires to achieve sustainable livelihoods.*[6]

2.1 River basin management and multi-stakeholder platforms

Setting new water management boundaries may create conflicts between boundaries of river basins and those of political units. Bandaragoda[7] argues that in most cases the interests of the administrative units dominate the interests of the hydrological units. There are three fundamental critiques. First, one can question the naturalness of hydrological boundaries and watersheds. Wester and Warner[8] argue that political processes determine boundaries. Hence, stakeholders can be included or excluded according to how the boundaries are drawn. No matter how natural the technical discourse presents the boundaries as being, the definition of scale is finally a political decision. A second critique comes from Barham,[9] who argues that the geographic unit is imposed over the different forms in which societies

3 E. Ostrom, R. Gardener and J. Walker, Rules, Games, and Common-Pool Resources (Ann Arbor, MI, USA: University of Michigan Press, 1994).

4 Global Water Partnership Technical Advisory Committee, "Integrated Water Resources Management," (TAC Background Paper No. 4, 2000, http://www.gwpforum.org/gwp/library/TACNO4.PDF), 22.

5 Draft WSS, July 2007, 31.

6 Draft WSS, February 2008, 3.

7 D.J.A. Bandaragoda, "Framework for Institutional Analysis for Water Resources Management in a River Basin Context" (Working Paper 5, International Water Management Institute, 2000).

8 P. Wester and J.F. Warner, "River Basin Management Reconsidered," in Hydropolitics in the Developing World: A Southern Africa Perspective, ed. A.

9 E. Barham, "Ecological Boundaries as Community Boundaries: The Politics of Watersheds," Society and Natural Resources, 14 (2001): 181-91.

have historically constructed their administrative units, their social interrelations and their political divisions. Third, Barham points out[10] that "we do not have established social and political institutions in place that can assure that deliberation over these new rules will be broadly democratic."

For the implementation of IWRM, the participation of river basin organisations and stakeholders is promoted. Multi-stakeholder platforms are presented as neutral spaces for negotiations in order to solve water conflicts among different actors, who are all invited to participate in the discussion. Edmunds and Wollenberg[11] argue that, although multi-stakeholder platforms by definition are presented as a space for diversity, the search for consensus in the implementation process eliminates such diversity by homogenising the discussions ("let's start by finding the common interest!"). Moreyra and Wegerich[12] argue that the questions of who presents what kind of data and for what purpose seem to cause a struggle in the agenda-setting process of multi-stakeholder platforms. In addition, top-down appointed representatives do not actually represent all the different interests of the actors involved, and may not reflect the proportionality of the existing water allocation.

2.2 Social water management

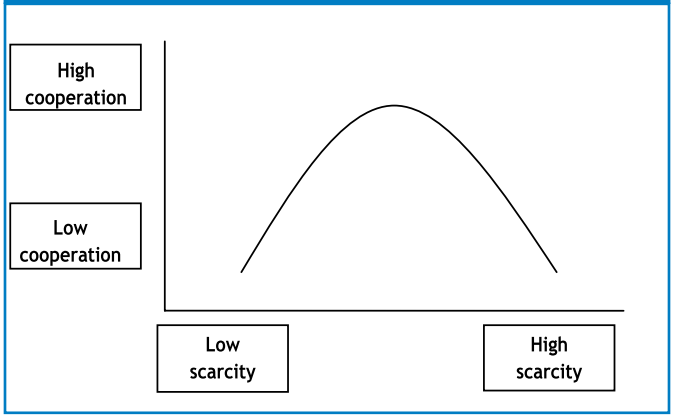
The first question to ask is when, and in what circumstances, cooperation between different water users is necessary. The previously mentioned closing of basins suggests that scarcity could be a relevant factor. However, it appears that there is no agreement on the link between scarcity and cooperation within the academic literature. Some point out that scarcity and uncertainty may lead to cooperation between users,[13] while others are more sceptical.[14]

Wade[15] develops an approach in which a certain level of natural resource scarcity is seen as the major factor explaining the existence of collective action. He argues that the relationship between physical scarcity and the level of collective action is understood as being akin to an inverted U-shaped curve (see Figure 1), peaking at some medium level of scarcity. The essence of his argument is that if there is enough water or water abundance there is no need for cooperation, and if there is severe water scarcity, individual interest will prevail.

This discussion on cooperation includes only water sharing and not the work required to maintain the water management infrastructure.

Along with the debate on irrigation management transfer came the debate about what kind of rights should be transferred to the local community. Even

Figure 1. Relation between scarcity and cooperation



Source: based on Wade (1987)

10 Barham, "Ecological Boundaries," 189.

11 D. Edmunds and E. Wollenberg, "A Strategic Approach to Multi-Stakeholder Negotiations," Development and Change, 32 (2001): 231-53.

12 A. Moreyra and K. Wegerich, "Multi-Stakeholder Platforms as Problems of Eating Out: The Case of Cerro Chapelco in Patagonia, Argentina" (http://www.brad.ac.uk/acad/dppc/seminar/water/seminar3/waterConsensusSeminar3-MoreyraWegerichPaper.pdf, 2005) (accessed March 2009).

13 C.J.N. Gibbs and D.W. Bromley, "Institutional Arrangements for Management of Rural Resources: Common-Property Regimes," in Common Property Resources: Ecology of Community-Based Sustainable Development, ed. F. Berkes (London: Belhaven, 1989); M. Hobley and K. Shah, What Makes a Local Organisation Robust? Evidence from India and Nepal (ODI Natural Resource Perspective No. 11, 1996).

14 A. Alchian and H. Demsetz, "The Property Rights Paradigm," The Journal of Economic History, 33 (1973): 16-27; R. Wade, Village Republics, Economic Conditions for Collective Action in South India, Cambridge South Asian Studies No. 40 (Cambridge: Cambridge University Press, 1987).

15 Wade, Village Republics.

though in Afghanistan it is not a question of irrigation management transfer, local water management implies certain rights for the community, commonly referred to as the bundle of rights. Schlager and Ostrom[16] (quoted in Meinzen-Dick and Bakker[17]) propose a classification of these bundles of rights, distinguishing between access, withdrawal, exclusion, management and alienation. Ownership is often conceived of as holding the full bundle of rights.

The concept of a bundle of rights implies equity between water users. Cremers *et al.*[18] distinguish several levels of equity in irrigation and water management:

> *Equitable water distribution and allocation among different water users and uses; equitable distribution of the services involved in irrigation development; equitable distribution of the added agricultural production and other benefits under irrigation; equitable distribution of the burdens and obligations related to functions and positions; and equitable distribution of the rights to participate in the decision-making process.*

In general, equity has two components, proportionality and egalitarianism. According to Syme *et al.*,[19] proportionality implies that resources should be distributed according to people's effort or "deservedness." Egalitarianism suggests that everyone should be treated equally. Similarly, Waters[20] distinguishes between vertical and horizontal equity.

The irrigation management approach of local communities follows their own understanding of equity. For example, Beccar et al.[21] show how in the Andes local communities manage their irrigation system according to proportional principles (input of maintenance labour determines water rights). On the other hand, Yoder and Martin[22] present in their Nepali case study junior and senior water rights of different individuals within one community and between different communities. Junior and senior water rights differ substantially, not only in terms of the right to water, but also in the amount of maintenance work that newcomers are required to undertake. This is similar to the practice in the western United States, where juniors cannot interfere with the established rights of a senior rights holder.

Because of the different understandings of equity, Cremers *et al.*[23] state that "water equity is not determined by fixed standards of correctness or equality, but based on what is locally considered fair." Davidson[24] goes even a step further and concludes, "equity is considered to lie in 'the eye of the beholder.'" Given the difference in local perceptions of equity, institutionalising a new standard of equity in water management (through WUAs) may look to the outsider as more equitable, but may contravene local customs and therefore not be acceptable.

16 E. Schlager and E. Ostrom, "Property-Rights Regimes and Natural Resources: A Conceptual Analysis," Land Economics, 68, no. 3: 249-62.

17 R. Meinzen-Dick and M. Bakker, "Water Rights and Multiple Water Uses: Framework and Application to Kirindi Oya Irrigation System, Sri Lanka" (EPTD Discussion Paper no. 59, International Food Policy Research Institute, Environment and Production Technology Division, 2000).

18 L. Cremers, M. Ooijevaar and R. Boelens, "Institutional Reform in the Andean Irrigation Sector: Enabling Policies for Strengthening Local Rights and Water Management," Natural Resources Forum, 29 (2005): 40.

19 G.J. Syme, B.E. Nancarrow and J.A. McCreddin, "Defining the Components of Fairness in the Allocation of Water to Environmental and Human Uses," Journal of Environmental Management, 57 (1999): 51-70.

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23 L. Cremers, M. Ooijevaar and R. Boelens, "Institutional Reform in the Andean Irrigation Sector: Enabling Policies for Strengthening Local Rights and Water Management," Natural Resources Forum, 29 (2005): 40.

24 B. Davidson, "A Test of Equity Theory for Marital Adjustment," Social Psychology Quarterly, 47, no. 1: 39.

3. Water Policy

This section discusses past policies as well as recent and present draft strategies in relation to the water sector in Afghanistan.

3.1 Background to national policies

The following is a summary of the history of water sector policy in Afghanistan from the 1960s to the present, summarizing the various steps and events that helped form the water sector before and after 2001.[25] (See Box 1, over page).

In 2001, at the time of the international community's intervention, state institutions were weak or nonexistent after 24 years of war and instability, and the country lagged severely behind in terms of water management policies, laws and regulations. This legacy is still apparent and should be taken into account when policies and institutions are being established. Institutional memory remains in the hands of a few people, and written material covering this history is scarce.

3.2 Critical voices on water sector strategy or policy

Anderson appears to be positive about the creation of sub basin agencies and river basin agencies (RBAs). He points to the bottom-up nature of the new organisations ("these authorities will be elected from WUAs and other stakeholders"), and he sees the river basin approach as a "significant step." His only concern is about the time frame, because "it assumes that mirab associations will be formed."[26] Mollinga et al. have a very critical view of the basin approach. Even though they do not analyse the draft law or policy but just present one version of the organisational chart of the anticipated arrangements for all river basins in Afghanistan, they state, "It seems clear that the project design is informed more by global notions of irrigation development/reform policy than by an analysis and understanding of the Kunduz region's specific characteristics and issues," and specifically, "The KRBP uses a blueprint of the river basin organisational framework, developed mostly by foreign consultants."[27] Osenberg commented on this critique:

> *There might be some truth in this, yet the river basin approach was choice during a Kabul conference in 2002, by Afghan officials and few foreign advisors. The final institutional model was chosen in September 2004 in series of workshops in the Kunduz basin and MIWRE as the best of 5 different possibilities. It has subsequently been adapted on basis of requests from the MIWRE deputy minister in November 2004 and has gone through a number of revisions. In April 2005 it was presented by the Director General Water Management in a two days large multi stakeholder conference in Kunduz. More than 80 mirabs formed part of this conference and have been commenting on it through small group works.*[28]

3.3 Different versions of the Water Sector Strategy 2007-08

In this section, three different drafts of the Water Sector Strategy are analysed (July 2007, October 2007 and February 2008).[29]

25 N. Riviere, "Lesson Learning from the Transition between Relief and Development in Afghanistan—Water Sector Review" (Groupe Urgence, Réhabilitation, Développement, 2005).

26 Anderson, "Irrigation Systems," 7 and 8.

27 P. P. Mollinga, K. Mielke, J. Monsees, C. Schetter, U. Shah and B. ter Steege, "Water, War and Reconstruction: Irrigation Management in the Kunduz Region, Afghanistan" (paper presented at "The Last Drop?" Water, Security and Sustainable Development in Central Eurasia International Conference, Institute of Social Studies, The Hague 1-2 December 2006), 8.

28 Walter Osenberg (Project Manager, Welt Hunger Hilfe), review comments on this report.

29 Walter Osenberg (Project Manager, Welt Hunger Hilfe), review comments on this report. In reviewing this report, Osenberg

The strategic vision of the July 2007 Draft Water Sector Strategy paraphrases the Afghan institutional baseline viewpoint, which emphasises improving livelihoods. Even though it is argued that the new strategic vision makes the statement simpler, the new statement emphasises development and management of the water sector, which will lead to improved livelihoods. It states that it will do the following:

> *Improve through the development and management of the water sector, the livelihoods and sources of income of the Afghan people; provide access to safe drinking water; guarantee against food insecurity; protect against droughts and floods; and maintain a sustainable bio-diversity.*[30]

Hence, the emphasis is on development and management of water resources, the assumption being that this will lead to improved livelihoods.

The February 2008 Draft WSS[31] puts more direct emphasis on poverty reduction. "Poverty remains a core issue for Afghanistan ... Contribution of the Water Sector to poverty alleviation therefore becomes of paramount importance."

The Water Sector Strategy and development

By the mid-1970s 3.3 million ha of agricultural land was under irrigation. Presently in Afghanistan, about 1.8 million ha of irrigated land is cultivated.[32] According to the July 2007 Draft WSS[33], the FAO has estimated that there is the potential for five million ha of irrigable land in Afghanistan. This estimate was not, however, restated in the February 2008 draft. Given the decline in irrigated area during the last 40 years and the high potential for irrigable land, it is not surprising that water strategy is driven by an ambitious plan to improve, rehabilitate and re-establish irrigation areas. Table 2 shows the planned hectarage presented in the Draft WSS of July 2007.

Table 2. Strategy for development of irrigation

Year	Improve or rehabilitate existing irrigation areas	Re-establish irrigation areas
2004	50,000 ha	20,000 ha
2005	150,000 ha	30,000 ha
2006	150,000 ha	50,000 ha
2007	150,000 ha	50,000 ha
2008	150,000 ha	50,000 ha
2009	150,000 ha	40,000 ha
2010	150,000 ha	
2011	150,000 ha	
2012	150,000 ha	
2013	50,000 ha	

Source: Draft WSS, July 2007, 39.

The Draft WSS of February 2008 gives detailed information on major infrastructure projects that have been identified for implementation and in some cases already started (See Annex 1). As justification for these projects, it states that "the needs of the population and the growth in the economy of Afghanistan will require continued and accelerated implementation of projects."[34] It is not clear whether the projects are based on older or new feasibility studies.

An earlier draft (July 2007) was very critical of the same water management projects. The July draft states, "Sociological and environmental considerations tend to nullify much of the planning study selection criteria upon which most of these

commented, "The different draft WSSs are not really a strategy yet and suffer from the different viewpoints of the various donors and national institutes. For example, the first version was made by USAID without much consultation. Furthermore, the February Draft was mainly meant for the Paris conference (June 2008). It is also because of course the ministries want tangible results to show to the people. The WSSs are too much an investment plan and not really a strategy." On the other hand, he also stated, "Many of the versions of WSS and law were for comments and internal circulation only."

30 Draft WSS, July 2007, 36. All WSS quotations use the official English translation provided by the Government of Afghanistan.

31 Draft WSS, February 2008, 3.

32 Draft WSS, February 2008, 24.

33 Draft WSS, July 2007, 24.

34 Draft WSS, February 2008, 34.

Box 1. A Timeline of Water Strategy in Afghanistan

1960s and 70s:

Construction and establishment of formal and large multi purpose irrigation schemes with the development of hydropower.

1971-72:

Split within the Ministry of Agriculture and Irrigation (MAI) between agriculture and irrigation. A department is created to survey soil and water, then a general directorate, which finally became an independent Ministry of Water and Power (MWP).Finally, at the end of the nineteen seventies, the MWP was in charge of administering the irrigation and hydropower sub-sectors, the RDD (Rural Development Department) was responsible for the water supply and sanitation sector and the traditional irrigation systems, and the Ministry of Public Works controlled the urban water sanitation. The Ministry of Agriculture and Animal Husbandry and Food (MAAHF) could keep on influencing research work on the irrigation and water management topics within its research department.

1981:

Creation and adoption of the water law that combined customary laws or principles, and new principles and inputs brought in by the Soviet regime.

1988:

The Ministry of Irrigation, Water Resources and Environment (MIWRE) is created in addition to the MWP in order to manage hydrological networks, the development of water resources, and large-scale irrigation facilities. During this period, the MAAHF, and the agriculture sector as a whole, were relieved of the majority of their responsibilities on irrigation and water management, even though the largest proportion of water consumption goes towards agricultural activities. The division between irrigation and the Ministry of Agriculture created an institutional gap on water management. As a result of the strong influence of the Soviet regime, the institutions created for managing water resources and irrigation have focused their work and influence mostly on civil engineering aspects, omitting the overall water management issues and their role in agriculture. The nineteen seventies and eighties were marked by serious tensions and conflicts among the Afghan institutions. NGOs were mostly in charge of the rehabilitation and construction of canals/karez, via UN-led programs (Food for Work or Quick Impact Project implemented by the United Nations Office for Project Services, World Food Program, FAO, or other agencies).

Post 2001:

Pressure and/or high expectations from donors and communities persuaded some NGOs to expand the surface area of irrigated land. The extension of primary canals, creation of surface irrigation schemes, diverting water from rivers, development of groundwater irrigation with the construction of wells equipped with motor pumps, drainage of wet and barren zones unfit for agriculture have taken place. The overall results and outputs vary according the programs and the implementing NGOs. In many cases, the ex-ante evaluations did not sufficiently take into consideration technical specificities and requirements, as well as socio-economic and environmental conditions and long-term effects.

April 2002: *National Development Framework* by the transition Government.

May 2002: *Kabul Understanding on Water Resource Management & Development in Afghanistan* workshop by MIWRE and UNICEF

2002-03: Country divided up into five river basins, pivot of the new IWRP policy by AIMS (Afghan Information Management Service) and FAO; editing of the watershed atlas of Afghanistan

January 2004: *Management and Development of Water Resources and Environment in Afghanistan* seminar by MIWRE and FAO

2004-05: *Strategy Policy Framework for Water Sector* drafted and amended

2004-05: Sub-sectors policies drafted *Water Resource Management Policy and Strategy* and *Irrigation Policy.*

Mid-2004: Start of the Kunduz River Basin Programme (KRBP) seen at the Ministry of Energy and Water (MEW) and at the institutional level as a pilot experience on the implementation and development of river basin management - the concept of integrated management of the country's water resources that forms the basis for the new water policy.

Dec. 2004: Merger of the MWP and MIWRE to MEW;

June 2005 NGO Law: The new NGO law was an effort to reduce the number of for-profit companies operating as NGOs. Consequently, the construction and rehabilitation of schemes and research on water management is not conducted by NGOs. However, along with their operational work in various parts of the country, some NGOs, such as DACAAR, GAA, Solidarités, ACTED, AREU, etc., have continued to play an important role within the (sub-) sector and the Water and Sanitation Group (WSG).

Source: N. Riviere, "Lesson Learning from the Transition between Relief and Development in Afghanistan - Water Sector Review" (Group Urgence, Rehabilitation, Développement, 2005)

former studies have been based."[35] Sociological considerations include the return of refugees who are now living in areas that had been previously considered for water developments. For example:

> *In the recent MEW plans to elevate the Kajakai Reservoir, socio-environmental assessments discovered that an estimated 45,000 people now inhabit lands within the reservoir area, which had been formerly acquired thirty years earlier by the GOA [Government of Afghanistan].*[36]

These critical remarks are not restated or addressed in the February 2008 draft. Hence, it is questionable whether all the projects the draft identifies are feasible and as beneficial as estimated in terms of irrigation or hydropower, or whether they can be carried out without negative consequences.

It is likely that the focus on irrigation and dam development is negatively influencing neighbouring countries. For example, the Upper Amu Darya project, which started in 2008, anticipates the development of 500,000 ha of agricultural land. However, today the Amu Darya basin is already "closed" and sends hardly any water to the Aral Sea. (For additional discussion of river basin management, see the next section.)

It is not clear whether identified projects are new developments or rehabilitations of existing irrigation systems. The July 2007 Draft WSS stated, "Currently the World Bank (WB) has been funding the Emergency Irrigation Rehabilitation Project (EIRP). Focus of this programme is primarily on traditional irrigation schemes."[37] EIRP's focus on local systems may be contradictory to the aims of the WSS, which assumes that the local systems are "badly fragmented," "often ineffective" and "dysfunctional."[38] (These remain assumptions, however, because there has been no detailed study of the issue.) If the mirab system does not function and only represents part of the local population, or, as a 2004 MIWRE report states,[39] is unfair, then the EIRP would be perpetuating unfair local practices.[40]

While the July 2007 Draft WSS mentioned hydropower production only in the context of large infrastructure, the October 2007 draft incorporated micro-hydropower plants at the local level. It stated:[41]

> *Several rural areas are too remote for connection to the national electricity grid. Micro-hydropower plants in areas with sustainable resources of water can function as proper alternative to optimise the electrification of remote rural areas. Power generation within irrigation schemes is another alternative.*

The February 2008 draft further emphasises micro-hydropower plants as a solution for rural areas:[42]

> *In principle, rural areas are often much too remote for connection to the national electrical grid. Micro-hydropower plants in areas with sustainable water resources can therefore function as effective alternatives to provide electrification to rural areas. Power generation facilities constructed within irrigation schemes can also sometimes become viable alternatives.*

In principle micro-hydropower plants are nonconsumptive users of water; therefore, to put an emphasis on local electricity production through micro-hydropower plants can be considered very positive. However, the nonconsumptive nature of micro-hydropower plants within an irrigation system and for a particular WUA depends on the location of the plant.[43] In any case, where a micro-hydropower

35 Draft WSS, July 2007, 20.

36 Draft WSS, July 2007, 20.

37 Draft WSS, July 2007, 38.

38 Draft WSS, February 2008, 1 and 12.

39 Ministry of Irrigation, Water Resources and Environment (MIWRE), "A Strategic Policy Framework for the Water Sector" (Kabul: Ministry of Irrigation, Water Resources, and Environment, 2004).

40 It was argued in irrigation departments in Kunduz and Herat that the infrastructures of the local water distribution systems had not been changed but only improved and made more permanent. See an analysis of these kinds of projects below.

41 Draft WSS, October 2007, 30.

42 Draft WSS, February 2008, 25.

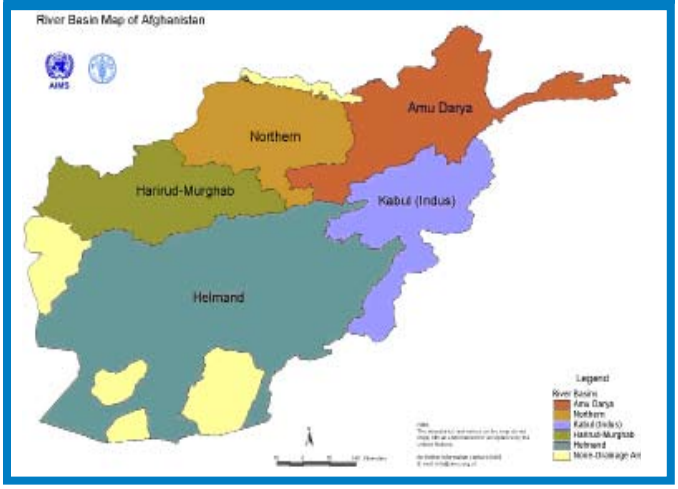
43 See an analysis of specific micro-hydropower plants below.

plant consumes water from a canal, it would have to be recognised as a water user both in the law and within the WUAs. A recent report[44] recognised other users besides farmers within WUAs, but only if they use more than ten percent of the water, which might not be the case with one micro-hydropower plant or rice mill. Hence, even in the current WUA framework, they are not included.

Social water management at the basin level

The different WSS drafts include plans for the establishment of river basin authorities (RBAs) and river basin councils (RBCs). The July 2007 draft WSS even identifies basins, as shown in Map 1, as well as sub-basins, as shown in Map 2.

Map 1. River Basins of Afghanistan



Source: Draft WSS, July 2007, 22.

Even though RBAs, RBCs and hydrological boundaries are supposed to be nonpolitical, it appears that the very nature is political. Four of the five river basins identified in Afghanistan are transboundary basins that contribute surface water to neighbouring countries. (The one exception is the so-called Northern River basin; it may, however, contribute groundwater to the Amu Darya River basin.)[45] Because the transboundary natures

Map 2. Watershed Map of Afghanistan

Source: Draft WSS, July 2007, 19.

of these basins, and the needs of stakeholders in neighbouring countries, are not recognized in the proposed structure of the RBAs and RBCs, they are not basin but rather sub-basin authorities and councils, their territory limited by the political boundaries of the state of Afghanistan. The national emphasis was even highlighted in the July Draft and the transbounday concerns strongly raised in the October Draft WSS:

> *Because of Afghanistan's innate land locked setting, virtually all of Afghanistan's major riversdrainoffintoriparianneighboringstates. Transboundary concerns are intensifying from all of Afghanistan's borders. These concerns are like a snowball rolling downhill, and with the added impetus of climate change and diminishing glaciers, the buildup in momentum of this problem can no longer be avoided. Afghanistan has been preoccupied with so many other problems, it has not had either adequate resources or sufficient time to thoroughly address and study these problems. Afghanistan requires solid support from the donor/financing community to study and add dimension to both its current and future water requirements. Upon definition, Afghanistan can approach its neighbors on*

44 Development Alternatives Inc., "Water Users Associations (WUAs) in Afghanistan Report" (Report for RAMP/USAID, Job Order #44, 2006).

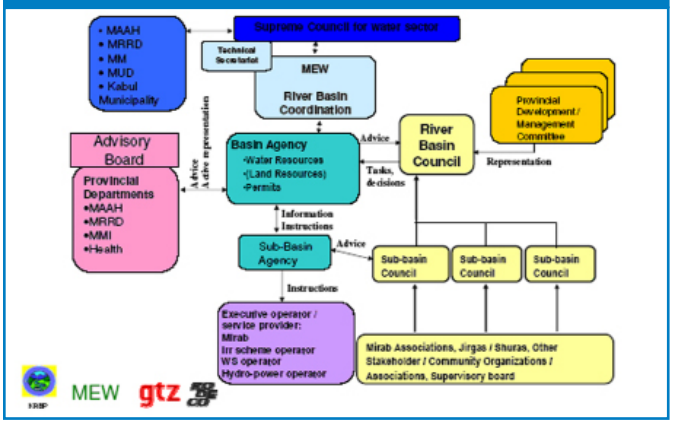
45 M.Q. Naimi, "Conflict Prevention and the Politics of Central Asia Water Cooperation from the Point of View of Afghanistan" (paper presented at University of Peace, Central Asia Program, Regional Water Resources and Peace Building workshop, Almaty, Kazakhstan, 23-27 April 2005).

> *an equal footing, and it can then participate in achieving optimal efficiency in regional development of these waterways.*[46]

Discussion of river basins in the July 2007 Draft WSS had a national emphasis, and the transboundary concerns were strongly raised in the October 2007 draft. The transboundary concerns are not mentioned in the Draft WSS of February 2008, where the focus is strictly on the national level without mentioning implications for downstream riparian states.

Figure 2 illustrates how the different versions of the WSS determine the structure of the river basin organisations.

Figure 2. River basin organizational structure



Source: Vincent Thomas, updated from Draft WSS, October 2007, 20; this figure is not included in the February 2008 draft.

From Figure 2 it appears that the Ministry of Energy and Water (MEW) plays a central role in determining the river basin agency and that the river basin council is based on a bottom-up process. Nevertheless, the February 2008 Draft WSS is not specific about the ministry's role, stating only that "the national bodies will provide the necessary support and know-how through the River Basin Agencies."[47]

The February 2008 draft identifies the different "line ministry and agency responsibilities of those entities directly involved with water sector activities."[48] However, the focus is on agency-specific functions rather than on how, and on what specific issues, these entities would collaborate.

While detailed aspects of the functions, roles, and procedures of the RBAs were not spelled out in the July 2007 draft, the February 2008 draft assigns "administrative, advisory and executive tasks related to irrigation, water resources and infrastructure management" to the river basin agency and "decision-making" to the river basin councils.[49]

The July 2007 Draft WSS noted several challenges to implementing the RBA/RBC system, saying that it "will need to gradually mould itself to serve the specifics in jurisdictional parameters as encountered" and that "it will take time and resources to put the respective water and infrastructure databases for the RBAs into place."[50] "Also, not until an effective governance system is re-established in outlying provinces can any law become effective."[51]

> *Involvement of stakeholders in developing countries into an effective integrated water resources management (IWRM) mechanism is thwarted principally by lack of education and mechanisms, which again are deflected by the hardship associated with poverty.*[52]
>
> *Sustainable planning processes in developing countries such as Afghanistan need to initially overcome the following:*
>
> - *Fragmented institutional setups*
> - *Institutional implementation bottlenecks*
> - *Lack of human resources or capacity*
> - *Ministries inherently opposed to planning concepts or implementation of programs (turf battles), and*

46 Draft WSS, October 2007, 9.

47 Draft WSS, February 2008, 21.

48 Draft WSS, February 2008, 11.

49 Draft WSS, February 2008, 29.

50 Draft WSS, July 2007, 7.

51 Draft WSS, July 2007, 11.

52 Draft WSS, July 2007, 30.

- *Poorly coordinated or organised administrative entities*
- *Lack of effective governance mechanisms*[53]
- *Because of the vastly different environmental conditions in Afghanistan's different regional settings, comprehensive implementation of RBAs may never materialise.*[54]

The focus in the different WSS drafts on RBAs and RBCs appears positive as it highlights the importance of user and stakeholder participation. However, it is not evident how this is supposed to be achieved. "The water sector can achieve total user and stakeholder participation is of real importance. How the sector gets there is of secondary consideration. Instituting RBAs will take time and resources."[55] The February 2008 draft omits these critical comments, but it does raise other concerns: data availability and capacity.

To cope with the lack of skilled and experienced human resources, the February 2008 draft looks to NGOs and universities for help. It gives emphasis to NGOs, which could facilitate stakeholder participation at the community level and therefore in RBCs. Nevertheless, this does not address the internal problems of the RBAs. The February 2008 draft says that the water sector is "impaired by a shortage of adequately experienced and trained staff" and thus a long-term strategy of capacity building at universities and colleges is needed.[56]

At the same time, the February 2008 draft points out that not only human capacity is necessary:[57]

> *Capacity development is not only limited to human capability, but extends to having overall capability in three areas: financial, technical, and managerial. Having financial capacity implies that the sector has the capability to acquire and manage sufficient financial resources to permit compliance with regulations and policies as well as facilitate necessary expansion ... Likewise, technical capacity implies also having the physical infrastructure to permit implementation of programmes and projects.*

The July 2007 draft did not mention local stakeholders, focusing only on national and international players involved in river basin organisations.[58] The February draft mentions "Water User Associations and other stakeholders, including women"[59] as members for basin and sub-basin councils. The role of traditional shuras and mirabs in water management is only mentioned in reference to the absence of basin and sub-basin councils. Having stated this, based on Figure 2 it appears that mirab associations, shuras, jirgas and other community associations are anticipated to be in the councils. One important question is how mirab associations are defined. The traditional mirab system is perceived as being dysfunctional, but in Figure 2 the alternative, WUAs, are not mentioned at all.

The July draft WSS states: "Effective river basin management can be expected to take decades to transpire. Current endeavours should therefore be accepted as pilot programmes forming the nucleus of future RBAs." It goes on to say, "Before adopting any legislation, it is wise to test the logistics, implementability, and enforceability of drafted legislation."[60] Hence, it may be useful to look at current pilot projects to get a better understanding of what is happening and who is represented on the current platforms.[61] Even so, it is questionable whether that will yield a reliable prediction of what may follow on a countrywide level. As the July 2007 draft acknowledges,[62] "Afghanistan is not a homogenous physical entity ... Experiences learned in one area of the country may be totally inapplicable elsewhere."

53 Draft WSS, July 2007, 31

54 Draft WSS, July 2007, 43.

55 Draft WSS, July 2007, 45.

56 Draft WSS, February 2008, 15.

57 Draft WSS, February 2008, 33.

58 Draft WSS, July 2007, 69.

59 Draft WSS, February 2008, 20.

60 Draft WSS, July 2007, 54 and 42.

61 A closer look at the Kunduz River Basin Program and its working group is presented below.

62 Draft WSS, July 2007, 45.

The February 2008 draft does not raise these concerns, but states positively, "Experience gained from this major pilot project [KRBP] will help pave the way for implementing additional RBO [river basin organization] undertakings throughout the country in a progressive manner."[63]

Social water management at the local level

The different versions of the WSS are based on an assumption similar to that expressed in MIWRE's 2004 water strategy, "The local and traditional water distribution and water rights systems have been weakened, and...therefore upstream-downstream conflicts have been intensified with the result of unfair distribution."[64] Despite this sweeping statement, it appears that after the fall of the Taliban and before 2004 there was no countrywide study on social water management.[65] MIWRE was likely influenced by the negative findings of more localized studies.[66]

Although the 2004 strategy was pessimistic about the effectiveness of local systems, it nevertheless retained the local concepts, thereby acknowledging that not all local systems have been disrupted, calling for "support to and promotion of local, regional and inter-provincial institutions and community-based organisations, such as Mirabs, Shuras, and promotion of similar water user associations."[67]

Findings from research mirab systems conducted later are quite positive and encouraging.[68] The Draft WSS of July 2007 appears to have ignored these studies when it argued, "Afghanistan has been preoccupied with so many other problems, it has not had either adequate resources or sufficient time to thoroughly address and study these problems."[69] Arguably, the above-mentioned studies are not thorough and have their limits. They include comparative studies in different provinces[70] and a more in-depth study along two canals in Kunduz Province.[71] All of these studies had to take into consideration local security situations that influenced the choice of the study area, and had the additional disadvantage that the study areas were chosen by NGOs to support other programmes. They are nonetheless informative and should have triggered more thorough studies before any water strategy or law was drafted. At least, they should have informed the drafts of the WSS. The most recent draft, of February 2008, makes no statement about the need for further studies and gives the impression that that the dysfunctionality of the traditional mirab system is an established fact.

The drafts of July 2007 and February 2008 describe the dysfunction of the traditional mirab system as follows:

> *Water resources were typically managed by a Mirab (water master) who was elected by farmers ... Extensive years of conflict damaged this traditional governance structure, and today governance is not only badly fragmented, but it is often ineffective...Recognizing this plight, there is strong governmental incentive to re-establish local level governance structures with WUAs. Through this mechanism, vestiges of direct stakeholder (community) participation are the goal.*[72]

63 Draft WSS, February 2008, 1.

64 MIWRE, "A Strategic Policy Framework for the Water Sector," 7. There might be one misconception within the statement. It implies that the local water management system is now unfair and that the earlier system was fair. For an analysis of the local system, see the next section.

65 Whether there were studies before that is unclear, because the public libraries have been burned, and today it is difficult to find older documents.

66 One such study is J.L. Lee, "Water Resource Management on the Balkh Ab River and Hazhda Nahr Canal Network: From Crisis to Collapse." (For further discussion of this, see Section 5 of this report.)

67 MIWRE, "A Strategic Policy Framework for the Water Sector," 10.

68 J.L. Lee, "Water Management, Livestock and the Opium Economy: Social Water Management" (Kabul : Afghanistan Research and Evaluation Unit, 2006); J.L. Lee, "Water Management, Livestock and the Opium Economy: The Performance of Community Water Management Systems" (Kabul: Afghan Research and Evaluation Unit, 2007); Anderson, "Irrigation Systems"; B. ter Steege, "Infrastructure and Water Distribution in the Asqalan and Sufi-Qarayateem Canal Irrigation Systems in the Kunduz River Basin" (Amu Darya Series Paper No. 5, SMWA Paper No. II, Center for Development Research, 2006, http://131.220.109.9/fileadmin/webfiles/downloads/projects/amudarya/publications/ZEF_Working_Paper_Amu_Darya_Series_30.pdf) (accessed March 2009).

69 Draft WSS, July 2007, 7.

70 Lee, "Social Water Management"; Lee," Performance of Community Water Management Systems"; Anderson, "Irrigation Systems."

71 ter Steege, "Infrastructure and Water Distribution."

72 Draft WSS, July 2007, 10.

> *WUAs will, in many regions of the country, supplant the traditional governance mechanisms, which have long since become dysfunctional.*[73]

The July 2007 Draft WSS sees the current donor-established community development councils (CDCs) as a platform for WUAs, and even mentions internationally promoted bylaws for WUAs.[74] Similarly, the February 2008 draft mentions the 2002 international conference that "laid the foundation for development of the water sector in Afghanistan."[75] At this conference, regulations for WUAs were determined. The July 2007 draft argued that "these associations were expected to improve water conservation techniques and increase efficiency in water use."[76] The February 2008 draft presented similar reasoning.

However, there seems to be still quite some ambiguity in terms of the establishment of WUAs and the traditional local water management system. The July 2007 draft stated, "The Provincial governments and rural communities are recommended to set up water management institutions (WUAs) and/or traditional governance systems."[77] The February 2008 draft states, "Water User Associations based on traditional Mirab system have been formed by water users [from 2007 onward]."[78] Nevertheless, the mirab system, as will be shown below, differs from the internationally promoted WUAs.

In addition, contradictory to statements about the "dysfunctional" mirab system is the following statement: "Water law and policy should formally recognise the validity and legitimacy of local community-based water arrangements, so long as these are in compliance with constitutional imperatives and principles of human rights."[79] It is not clear whether "community-based water arrangements" refers to the mirab system or the water allocations established between and within the canal communities.

There might be a romantic belief about local water management systems that in the mirab system farmers had an equitable (or maybe even equal) right to water. As the fieldwork data presented in Section 6 will show, existing social water management systems are not necessary equitable; therefore, the demand for social equity may be at variance with existing local water management.

Water charges for agriculture

The message concerning local water management is twofold. On the one hand, the February 2008 draft clearly states, "Poverty alleviation has to be constructed on a broader foundation of stakeholder capacity building, and the emphasis should be to support farmers' and other poor water users' desires to achieve sustainable livelihoods."[80] On the other hand, it was clearly stated in the July 2007 draft:

- "Water has an economic value in all its competing uses and should be recognised as an economic good."[81]
- "Define secure and transferable (tradable) water rights for possibilities of improving economic efficiencies."[82]
- "Develop water pricing which realistically reflects cost recovery mechanisms."[83]

The February 2008 draft no longer emphasises water pricing and water as an economic good. However, it does still set as long-term objectives full cost recovery for water services from users and financial autonomy for RBAs and other public utility organisations.[84]

It will become evident in Section 5 that the suggestions in the July 2007 Draft WSS are at variance

73 Draft WSS, February 2008, 1.

74 Draft WSS, July 2007, 12 and 13.

75 Draft WSS, February 2008, 12.

76 Draft WSS, July 2007, 7.

77 Draft WSS, July 2007, 70.

78 Draft WSS, February 2008, 14.

79 Draft WSS, July 2007, 42; restated in Draft WSS, February 2008, 1.

80 Draft WSS, February 2008, 3.

81 Draft WSS, July 2007, 33.

82 Draft WSS, July 2007, 41.

83 Draft WSS, July 2007, 41.

84 Draft WSS, February 2008, 31.

with customary systems. It is unclear why that draft retained traditional governance systems as part of the strategy. It may suggest the possibility of having two water management systems side by side, with traditional irrigation systems in existing irrigated areas and a different system in newly irrigated areas. Since full cost recovery is only stated as a long-term objective, this might not conflict with the current emphasis on poverty alleviation. However, it should influence the construction of new irrigation systems and critically reflect whether they could remain economically viable when the policy of cost recovery is implemented.

4. Water Law

This section discusses the current *Draft Water Law* against the backdrop of previous legislation.

4.1 The water laws of 1981 and 1991

There are many similarities between the water laws of 1981 and 1991, but the 1981 law was more specific than the 1991 law.[85] Both laws state that water belongs to the people and that the government protects it.[86] Perhaps it is because of this that water is free of charge.[87]

Whereas the 1981 law stated that water distribution should be "just and equitable,"[88] the 1991 law only mentions "proper distribution."[89] The 1981 law went so far as to state that water rights should be determined for each jerib (a jerib is one-fifth of a hectare or 2,000 square meters).[90] However, whether this implies a fixed amount is questionable, and whether the state had the ability to determine the amount is doubtful. The 1981 law stated, "The amount of water needed for irrigation shall be determined according to the area under cultivation, the kind of crop, the irrigation regime, the water rights documents, the local practice and the amount of water in its resource."[91] The first part of this article reads like the principles that the Soviet Union applied in Central Asia; however, the addition of the phrase "local practice" leaves it flexible and open to interpretation.

The 1991 law explicitly states that water rights can be taken away if they are surplus to requirements.[92] The 1981 law, on the other hand, determined the exact water right per jerib and therefore only implicitly stated that additional water will be redistributed.[93]

Under both laws, the chief water supervisor (mirab bashi) and assistant (mirab)[94] are responsible for water distribution. Both laws state that during the election of these officials and at the general assembly meetings, the local government organ[95] and the Water Management and Agricultural departments[96] should officiate. In addition, even though the mirab bashi and mirab should receive their wages from the farmers, both laws state that the "Ministry of Water and Power will reward and will pay bonuses to them."[97] In this sense, the state has direct influence on the local water manager and water distribution.

In both laws, the higher administrative levels are responsible for dispute resolution[98] between the irrigation systems; therefore, it appears that water is supposed to be managed according to administrative boundaries at higher levels.

Article 13 of the 1981 Law concerning the use of water in agriculture appears to have been very much ahead of its time and remains very important for today's regulation in relation to micro hydropower plants. It states:

> *"Flour mills operated by water and non-agricultural organisations can get the water*

85 It is questionable whether the 1981 law was ever implemented, since the 1980s and 1990s were the time of the Russian invasion and the mujahiddin period. Nevertheless, one could also argue that the 1981 law was a reflection of the Daoud period (1970-1980). During this period the influence of the government and the Agricultural Department was very strong in the rural areas.

86 Water Law 1981, Article 2; Water Law 1991, Article 2.

87 Water Law 1981, Article 6; Water Law 1991, Article 6.

88 Water Law 1981, Article 14.

89 Water Law 1991, Article 19.

90 Water Law 1981, Article 17.

91 Water Law 1981, Article 6.

92 Water Law 1991, Article 25.

93 Water Law 1981, Article 17.

94 Water Law 1981, Article 27; Water Law 1991 Article 27 and 28.

95 Water Law 1981, Article 24.

96 Water Law 1991, Article 33.

97 Water Law 1991, Article 31; Water Law 1981, Article 22.

98 Water Law 1981, Article 40; Water Law 1991, Article 50.

they need from the main or subsidiary canals under the following conditions:

1. *if there exists in the canal some surplus of water;*
2. *if the lands under irrigation and the residential are not affected;*
3. *if the water for drinking is not polluted and its quality not changed; and*
4. *special permits shall be necessary from the organs of the Ministry of Water and Electricity in agreement with the Ministry of Agriculture and Land Reform."*

4.2 Critical voices on the revised draft versions of the 1991 Water Law

Although the July 2007 Draft WSS emphasises the importance of the law, it also highlights the difficulties of implementing the law:[99]

> *Unlike the social-political situation that existed in the past, strict enforcement of any enacted water law may present an immediate problem in the rural areas of the country. Not until an effective governance system is re-established in outlying Provinces can any law become effective. These enforcement constraints are expected to influence and diminish the development of desired achievements: Their resolutions are extremely time dependent as the Ministry of Interior re-establishes a national policing capacity.*

The February 2008 Draft WSS is not that explicit, it only mentions the ongoing process. However, it makes a clear distinction between urban and rural areas. Enforcement is only mentioned for the urban areas, while for the rural areas the only reference is to governance:

> *In urban water supply ... With respect to governance, new water law legislation is being prepared, environmental regulations have already been legislated, and enforcement capabilities are being established through the Ministry of the Interior. In the rural sector, governance is also being redressed through the establishment of Community Development Councils (CDCs) under the National Solidarity Program (NSP).*[100]

Comments such as these put into question the enforceability of the proposed new water law in the rural areas. Furthermore, a reference is made to Community Development Councils, as the analysis of the draft water law will highlight: councils are only mentioned at the basin and sub-basin level, but only with decision-making capacity. Enforcement is left with the Basin Agency, hence with the government.

In general terms, the drafts of the WSS emphasise the opportunities the water law gives to the end-user.

> *The Water Law provides significant opportunities for "end-user" and include participation in decision-making relating to (1) water resources, planning, implementation and management; (2) operation and maintenance of water supply systems and services; and (3) determinations of water use allocations. All rights of "end-users" in these processes are described in the Water Law.*[101]

The analysis of the draft law will show whether it provides significant opportunities for the end-users and what those opportunities are.

4.3 Analysis of the Draft Water Law (of June 2008)

The Draft Water Law has been approved by Parliament and by the Senate but still needs to be approved by the President. It is not clear whether

99 Draft WSS, July 2007, 11.

100 Draft WSS, February 2008, 2.

101 Draft WSS, February 2008, 16.

it is synchronised with other draft laws or with existing laws, for example the environmental law.

Most of the following comments are based on an informal January 2009 translation of the 2008 draft, and all quotations are taken from that translation. The final subsection, "Transboundary issues," is based on the November 2007 draft.

Scope of the law

Article 1 gives the law's purpose and objectives.

> *This Law is based on the values of Article 9 of Constitution of Afghanistan to conserve/ protect water resources, to ensure fair distribution of water and effective and sustainable use of water, strengthening of national economy, and fulfilling the rights of water users considering the appropriate/ suitable water use traditions and customs in the country.*

In previous drafts, the first article specifically stated that the water law should be "based on praiseworthy customs and traditions of the Afghan people." The June 2008 draft, however, only calls for "fulfilling the rights of water users considering the appropriate/suitable water use traditions and customs in the country." This suggests that there will be a selective process to determine which traditions and customs should be kept.

Article 2 states, "Water is a public property and the government is responsible for facilitating its protection and management." It seems that it is in direct contradiction to the traditional water rights system. Article 2 implies that there is no local right to water without the agreement of the state, since the water is the property of the state.

While Article 6 still refers to "the best accepted customs and traditions," by Article 7 this reference has been dropped. Article 7 states:

> *Water is free, but the cost of investment and provision of services relating to supply, delivery, storage, diversion, treatment, operation and maintenance can be charged by the service provider. A separate regulation shall be developed for this purpose.*

The focus in the Draft Water Law on the costs of service delivery appears to conflict with the focus in the most recent Draft WSS on poverty reduction. Article 7 implies that even the construction costs of the water infrastructure might have to be paid by the users. In that case, the costs of the water services could be significant. This could imply that only commercial farmers and not subsistence farmers would be able to pay for water services. Nonpayment for services leads directly to the loss of the water use right, according to Article 28 (Paragraph 1). It is also indicative that there is no direct link between water rights and maintenance requirements as might be found in a customary system.

The ambivalence between a customary system and a more modern system with cost recovery becomes more evident in Article 8.

While in Article 8, Paragraph 1 and 4, the responsibilities of Governmental Institutions in terms of planning and management on surface water are stated:

- Paragraph 1: *Planning, management and development of water resources is the responsibility of Ministry of Energy and Water (MEW) in close collaboration with concerned ministries and agencies.*
- Paragraph 4: *Identification of norm of irrigation in different river basins and researches on irrigation and drainage systems is responsibility of Ministry of Irrigation and Agriculture (MAIL) in close collaboration with MEW, MPH and NEPA.*
- In Paragraph 7 of the same Article an exception is pointed out: *Right-of-way for water resources and water infrastructures such as reservoirs, dams, diversions, rivers, traditional and engineered canals, Karezes, springs, wells and other water streams shall be protected and free from interventions that bring negative impact. The ministry of Energy*

and Water MEW shall determine the right-of-way area in cooperation with MAIL, MM, MRRD, MUD and other relevant agencies.

One has to point out, that in the terminology section the term "right-of-way" is not defined, neither are the terms traditional or engineered canal. Anyhow, according to the Irrigation Policy of the former Ministry of Irrigation, Water Resources and Environment (MIWRE) 90 percent of all the irrigated land in Afghanistan fall under the category of traditional community managed irrigation systems and ten percent fall under formal irrigation systems. The latter are government built and operated large-scale irrigation systems with permanent diversion structures and well defined water distribution structures. Since it is makes reference to traditional and engineered systems it is not evident to what the law might apply. Furthermore, it is not evident what is meant with the phrase "interventions that bring negative impact," it might be very doubtful, whether this could be determined before the intervention takes place, or at least it would be a very time intensive process. In addition, one might have to question a negative impact for whom, for the whole canal community or for some groups within the canal community. A negative impact for some (i.e. head-enders) could imply a positive impact for the larger majority along the canal (mid and tail-enders). In any case, Paragraph 7 calls for a detailed survey on each system. Finally, the right-of-way Paragraph might put into question any basin or sub-basin approach.

Water management organisations

The June 2008 Draft Water Law mentions the function of the Ministry of Energy and Water (MEW) in Article 10 and the Ministry of Agriculture, Irrigation and Livestock (MAIL) in Article 11. In the November 2007 draft, these ministries were only mentioned in an annex. While there appears to be a clear distinction between the functions of MEW and MAIL, with MEW responsible mainly for basin management and MAIL mainly for canal management, there are some overlapping functions, such as the establishment of associations, main canal works or working within the irrigation system. For example, MEW has the function of establishing water user associations (Article 10, paragraph 12), and MAIL is responsible for establishing irrigation associations. It appears that the term irrigation association will not be defined within the law's terminology section (Article 3), where only the term water user association is mentioned. Article 10, paragraph 6 lists MEW responsibilities as "building and rehabilitating main-dams, canals and other hydrological facilities, their maintenance and safety," and Article 11, paragraph 8 lists MAIL responsibilities as "protecting and conserving main canals and active ditches." Hence, there might be some overlap regarding the responsibility for main canals. This might be aggravated by the absence of a definition of the term main canal.

Although there could be an overlap, it might also be possible that there is a clear distinction, depending on the interpretation of the terms in use. There appears to be a distinction regarding the responsibility for different irrigation systems. Article 10, paragraph 9, assigns to MEW "architecting the construction of traditional canals," and Article 11, paragraph 1 assigns to MAIL "rehabilitating, developing and protecting irrigation schemes." Based on the terms in use, it appears that MEW is responsible for the traditional community-managed irrigation systems and MAIL for formal irrigation systems. This could also explain the different names of the associations, the assumption being that formal irrigation systems had a single purpose. However, this could imply, given language in Article 11, paragraphs 2, 6 and 7, that MAIL would only be responsible for formal irrigation systems. These paragraphs state:

- Paragraph 2: *Managing irrigation schemes together with users and maintaining fair allocation of water rights the system.*
- Paragraph 6: *Conducting studies to establish standards and enhance irrigations' economic effectiveness.*
- Paragraph 7: *Mainstreaming appropriate irrigation technology to mitigate water wastage and increase the effectiveness of water consumption.*

Accepting that irrigation schemes reveres only to formal systems, the underlying assumption appears to be that "fair allocation of water rights" would not be considered in traditional community-managed irrigation systems, and that fairness in the formal systems is based on norms of irrigation (Article 8, paragraph 4), for example crop water requirements.

Article 12 determines that river basin agencies shall be established but does not state which ministry is responsible for this task and which ministries should be represented within the basin agencies, or whether this is just a restructuring of MEW (which is responsible for basin management) from administrative to hydrological boundaries. Article 10, paragraphs 10 and 11, state the following on the functions of MEW:

- *Establishing bodies for river basins study teams and evaluating their activities*
- *Facilitating technical and financial assistance and capacity building programmes for river basins in cooperation with MAIL, the Ministry of Urban Development, MRRD [Ministry of Rural Reconstruction and Development] and NEPA [National Environmental Protection Agency]*

Article 12, paragraph 2 outlines the function of the river basin agencies. They are supposed to develop plans and manage water resources, consult with river basin councils and implement the decision of the councils.

Article 12, paragraph 1 makes explicit reference to fairness. It states, "River basin agencies shall be established to facilitate...fair distribution of water rights." Since the emphasis is on the basin, it appears that the article refers to fairness of water allocation only between main canals and not within irrigation systems. Establishing fairness between canals within a basin without addressing fairness within individual canals could aggravate the situation for tail-enders. Given what Article 8, paragraph 7 says about right-of-ways, it is not evident that fairness within a whole basin can be achieved. Technical challenges could make this even more difficult.

Even though it seems that there is only consideration for fairness at the basin level, Article 12, paragraph 2 section 3, speaks directly to the local level as well. However, it is not evident whether there is a link to intra- or inter-canal water rights. Paragraph 2, section 3 states: Develop local programs for development, use, conservation and management of water resources with regard to water right allocation.

Special attention is given to water allocation between canals within a basin, in risk situations, in paragraph 2, section 5: Design short, mid and long term measures to minimize the impact of droughts, floods and other hazards.

Article 8, paragraph 7, on right-of-ways, might limit the design and implementation of measures, which can be interpreted as having a negative impact.

In Article 13, on river basin councils, it is stated that MEW has the responsibility to establish councils and that the Ministry "can delegate authority to the councils...when appropriate." However, it is not stated under which conditions this would be the case. Furthermore, even though it is stated that councils are "comprised of members representing water users, relevant national and local agencies and other stakeholders in the river basin" (Article 13, paragraph 1), it is left open how this will be operationalised in terms of seats and voting power[102] and just assumes the possibility of a council representing the whole basin. Since the councils are introduced in a top-down manner, real representation is unlikely. Again, keeping in mind Article 8, paragraph 7 on the right-of-way, it seems that they might not be representing the whole basin, and this puts their legitimacy to operate as a river basin councils or sub-basin councils even more into question.

In Article 14, paragraph 1, the functions of the river basin councils are outlined:

102 For additional discussion, see the section on KRBP below.

1. *Prepare water resources management strategy for its basin in accordance with the national water policy upon considering the conditions and needs of the basin.*

2. *Regulate and supervise the exercise of rights and use of water.*

3. *Setting of required conditions to evaluate, modify and cancellation of permits and refusal of applications in the relevant basin.*

4. *Issuance, record, change or cancel the permits and ensure proper compliance with the condition of permit.*

5. *Solve disputes related to water distribution and use in its basin.*

6. *Make decisions on imposing and collecting of fines in accordance with the law.*

The previous (November 2007) Draft Water Law also stated "charge a fee for services rendered."[103] The current draft's Article 7, discussed above, could imply that river basin councils or agencies could charge for their services.

Given that the river basin agency is supposed to implement the decisions of the councils and that councils have administrative as well as decision-making functions, it would seems more appropriate that the function set out in Article 14, paragraphs 1-3, would be given to the agency. The underlying assumption is that the council has authority to make decisions; in this respect, Article 13, paragraph 1 on representation is crucial. It is also essential to have the right infrastructure in place in order to be able to measure abstraction and drainage, determine usage within an irrigation system, forecast water availability and adjust permits accordingly. This includes sufficient gauging stations within the basin and the control infrastructure to allocate the water amounts set out in the permits. So far this is not the case.

Article 22 specifically mentions control infrastructure but does not specify who will be responsible. It states, "Water abstraction from a source and waste water discharge to a stream need to be measured with a reliable and approved measuring device by the relevant agencies."

It seems that the term waste water is not included in the definitions in Article 3, hence it is not evident whether it incorporates drainage water, for which a permit is needed (Article 21, paragraphs 2-3). Furthermore, as will be argued below, irrigation systems can be interlinked in a mesh system, so to metre at the main intake and at the main drainage canal might not be sufficient to determine the amount used within an irrigation canal.

Finally, it appears that the river basin councils only deal with permits and not with licenses. It is not evident who is responsible under the Draft Water Law for issuing and regulating licenses.

Although the councils derive their authority from MEW, the Draft Water Law does not state that MEW can issue permits. This situation could imply that, as long as the councils are not set up, permits will not be issued.

Article 17 states that MEW may establish sub-basin councils, and Article 14, paragraph 2 states that basin councils can delegate part of their function and power to sub-basin councils. However, it appears that neither basin councils nor sub-basin councils influence who is represented on the higher- or lower-level councils.

Article 9 determines that a Supreme Council of Water Affairs' Management will be established. Unlike in the draft of November 2007, which clearly outlined this body's responsibilities both for coordination and for representing Afghanistan's interests on transboundary rivers, the June 2008 draft only states that its functions will be determined by a separate regulation.

The most local level organisations are the water user associations and irrigation associations. The June 2008 Draft Water Law uses different terms for associations, but only one term is mentioned in the definition section: water user associations.

103 Article 14, Paragraph 1 (11)

Unfortunately the definition is not given. In the November 2007 draft the term defined was associations of water users. Article 3 says "Associations of water users: is the volunteer group of real and legal persons to meet common social, economic and professional objectives with regard to the use of water." It is not evident, whether in the June 2008 Draft Water Law only the term or also the definition will have changed.

A problem with the definition "association of water users" is that it assumes common objectives. However, water in irrigation canals is used by different interest groups, such as herders for cattle watering and households for drinking water, sanitation and washing as well as mill owners or micro-hydropower plant owners for producing electricity. Hence, with this definition it is possible to separate these different interest groups, which might lead to the problem that the "association of water users" has no control over these different interest groups and only focuses on one specific target, water for irrigation. In addition to this, irrigation canals are also used by cities and towns, and it is not evident how these are integrated into "association of water users" on the one hand and river basin councils on the other. (A similar issue appears in the WSS drafts.)

Article 18, paragraph 2 states, "Terms of function, responsibilities, power and others relevant issues of these associations shall be regulated in the charter/regulation."

In principal, this could imply that each association could have its own charter with relevant bylaws regarding membership and organizational structure. Both MEW and MAIL are assigned to register, recognize, support and cooperate on capacity building for these two forms of associations.

Article 23, on water use in agriculture, makes reference to "irrigation water association" as well as irrigation associations, and the term water user associations is not used. Article 23 paragraph 1 refers to a ministry that shall confer responsibility for allocation and distribution; however, it is not evident which ministry is referred to. From the term irrigation association one could deduce that the ministry would be MAIL. If that were the case, then Article 11, paragraph 2 would be a direct contradiction, since it states that MAIL's responsibility is, "Managing irrigation schemes together with users and maintaining fair allocation of water rights the system."

Article 23, paragraph 2 makes reference to a mirab bashi and mirab. "Irrigation Association may confer the responsibility for allocation and distribution of water within the irrigation network to Mirab Bashi and/or Mirab, appointed by the irrigation association."

As MAIL appears to be responsible for establishing irrigation associations in formal irrigation systems, the introduction of the traditional terms for water manager in these formal systems is an appearance of a link with traditions and customs.

Water rights, permits and licenses

Article 3 of the Draft Water Law explains the terminology of the water law. The translation of the June 2008 draft did not include these definitions. However, it was possible to note that, while the November 2007 version distinguished between permit and usage permit, the June 2008 version uses the terms licence and permit and has dropped the term usage permit. Taking into consideration the other articles of the law (for example Articles 15 and 20), one can deduce that the term permit in the 2008 draft might have the same meaning as the term usage permit in the November 2007 draft and that the 2008 term license might have replaced the 2007 term permit. The November 2007 version gave the following definitions:

- *Permit* [apparently corresponding with 2008 license]: *an official document to be issued to allow undertaking of an activity related to reserve of water in accordance with this law.*

- *Usage permit* [apparently corresponding with 2008 permit]: *an official document to be issued for using of water resources according to the provision of this law.*

It is not evident whether the definitions have

changed in the 2008 draft.

The term water right is not described in Article 3, even though later articles use the term. For example, Article 20 discusses changing traditional rights into permits, and Article 28 discusses water right suspension.

Article 19, on water use, states that no permits are needed for water for drinking and basic domestic use (not to exceed 5 cubic meters per family per day), use of a boat for transport and use of water for fire extinguishing and that "the existing water rights subject to compliance with Article 21 (1) of this law."

Article 20 on permits states that, "Existing water rights of traditional systems, based on river basin management policy, will be gradually changed into permits. The water user associations in the existing systems, after registration, are considered to be eligible for permits."

The term license is not used here. This could imply that nonpermanent structures do not require licenses, or documents on the infrastructure. In addition, it appears that only new irrigation systems might require a license as outlined in Article 21.

Article 21, paragraphs 1-3 says licenses or permit are issued based on the application of water users, including governmental water projects, in accordance with this law.

It is mandatory to submit an application to obtain a license or permit in the following instances:

1. *To abstract surface or ground water in newly established development projects*
2. *To discharge waste water into public water resources*
3. *To discharge drainage water into water resources*
4. *To use water resources for commercial and industrial purposes*
5. *To use water from natural springs with minerals or hot water for commercial purposes*
6. *To drill a borehole or construct a deep or shallow well for commercial, industrial, agricultural and urban water supply purposes*
7. *To construct dams and any other structures for impoundment of water, exceeding a volume of 10,000 cubic metres*
8. *To construct any infrastructure which interferes with the banks, bed, course or protected right-of-way area of public streams, marshes, Karezes and springs*

Purchase and sale of license and permits written in this law are prohibited.

Article 15 explains the conditions when permits can be cancelled or revised. *The river basin council may revise or cancel the permits if and when:*

1. *The water user, without having justified reasons, could not use his or her allocated amount of water or water usage amount exceed more than allocated.*
2. *There is insufficient water available for different sectors.*
3. *Another usage of greater national benefit emerged.*

Article 26 makes reference to licenses for WUAs and irrigation associations. It appears that only licenses are given to these two associations in case the government transfers a water resources project (nevertheless it is not clear what the term project entails). The article states:

- *The government may transfer the water resources projects to water user associations or irrigation associations under clear terms and conditions of which licenses is part of.*

- *Water user associations and irrigation associations covered have the ownership of the projects identified in sub-article (1) and shall be responsible for operation and maintenance of these projects.*

This would support the point made above, that nonpermanent structures do not receive licenses.

Article 28 is on the suspension of water rights, and states the following. *Water right shall be suspended in the following cases:*

1. *If a water user fails to pay the fee of a water service provider*

2. *If a water user violates any provision of this law*

3. *If a water user misuses services*

As discussed above, the law does not define the term water right. Furthermore, it is not evident who is responsible for the suspension of a water right; for example, river basin councils are only responsible for permits (not licenses). Since, it refers to payment, it appears that Article 28 is related to users in irrigation systems only. Article 18, on WUAs, emphasizes the charter and regulation of the association, and therefore suspensions should be part of that charter and regulation and not part of the water law. As it stands, it appears either that Article 28 contradicts Article 20, which states that water rights should be changed to permits, or that Article 28 could be applicable before a permit is issued. However, it is not clear why and to whom irrigation communities should pay a fee and what kind of service they should receive for it.

Article 20 stated that "water user associations in the existing systems...are considered to be eligible for permits," but Articles 15 and 21 refer to individual water users and not to associations of water users. Hence, it is not obvious whether the recipient of a permit will be an individual water user, a WUA or irrigation association or even both.[104] Article 20 stated, "existing water rights...will be gradually changed into permits," while Article 21 indicates that an individual or association would require at least two permits, for water allocation as well as for drainage. In addition, a license will be needed in case of transfer of a water resources project.

Finally, Article 21 distinguishes between drainage and waste water, but these two terms are not defined in Article 3. Even though Article 21 makes reference to flow, and therefore suggests measuring of drainage and waste water, Article 22 makes reference only to waste water and gauging facilities.

The responsibility for drainage water and its infrastructure is not determined within the *Draft Water Law*. Article 11 lists managing irrigation schemes and protecting irrigation canals as functions of MAIL. However, the focus appears to be on water allocation, not drainage water or even drainage infrastructure. Therefore, it is not evident who would be responsible for drainage water, and who would measure drainage flow.

Article 25, on the utilisation of water for generation of hydroelectricity says, "Installation of microhydles [micro-hydropower plants] in the irrigation systems shall be subject to the collective agreement of MAIL, MRRD and irrigation associations." Neither WUAs nor MEW not basin councils are involved in the agreement. Furthermore, it appears that micro-hydropower plants do not need a license for construction or a permit for water utilisation. The article only states that "water usage for generating energy (macro and micro scales) shall be managed in accordance with this law in a manner not to affect drinking and domestic water, agriculture and the irrigation infrastructures, river banks, roads and other structures." Making it obligatory for micro-hydropower plants owners to have a permit and license would decrease the transaction costs for canal communities of reaching an agreement on construction and operation. Even though micro-

104 Walter Osenberg reviewing this report commented, "Normally it will be the canal or WUA. However, where these do not exist or small canals take off from the river, individual permits might also be issued."

hydropower plants are explicitly mentioned, rice or wheat mills, which could have the same effect as micro-hydropower plants, are not mentioned. Hence, it seems that no agreement is necessary to construct or operate rice or wheat mills.

Transboundary issues

This subsection is based on the Draft Water Law of November 2007, since the definitions in the Draft Water Law of June 2008 are omitted.

Article 3 includes the following definitions of terminology relevant for transboundary river basins.

- *River basin: catchments water into which water naturally flows in one outlet (point).*
- *Sub-river basin: a branch of river basin.*
- *Transboundary river: a river which flows on the common border of Afghanistan and another neighbouring country.*
- *River basin approach: the overall management of water resources and establishment of managing offices with regards to natural borders of river basins in the country.*

The definition of *transboundary river* appears to be a definition for a border river. According to this definition, only the Amu Darya and the Pjanj are transboundary rivers, and other rivers crossing international boundaries would be excluded. In any case, the definition given for the river basin approach justifies Afghanistan's national focus in developing its water resources.

5. Local Realities

5.1 What is known about the mirab system?

Lee, analysing social water management on the Balkh Ab River,[105] makes the statement that "most irrigation systems in Afghanistan" are supervised in a three-tier level of community-based water bailiffs. According to him, primary canals have a water bailiff, secondary canals are supervised by a mirab, and tertiary ditches are controlled by a chakbahi. Lee comes to the conclusion that, even though the mirab system "at least as far as the name is concerned, is a very ancient one ... today the power of the mirabs is but a shadow of what it once was even thirty years ago."[106] He bases his analysis on the culture of guns, resettlements of different ethnic groups within the basin, new developments such as mills and industries as well as the lack of enforcement of earlier water laws. Even though he generalises, based on findings on one river, Lee's study shows nicely the changes that have taken place in one basin, and thus the difficulties that current donor and government policies on river basin management may face.

Given the negative statement in that 2003 study, it appears encouraging that Lee is very positive about the role of the mirab in 2006 after having conducted further research. He states that:

> *although the breakdown of social cohesion over the last three decades, along with the exodus of many communities as internally displaced persons (IDPs) or refugees in camps in Pakistan and Iran and some government interventions, have placed the system under severe stress, the 'water masters' system has survived and has often been the sole means of managing in-canal and on-farm water distribution.*[107]

In his later studies,[108] which involved a variety of irrigation systems in different provinces, utilising diverse water sources, he finds differences in social water management and revises his earlier perception of uniformity in the mirab system:

> *Initial field visits indicate that the mirab does not exist as a nationwide phenomenon. Even where there are water masters, there are considerable regional variations in the structure (although the role is more or less standard throughout the country).*[109]

Lee appears to distance himself from the three-tier system. He starts to distinguish between *wakil*, *mirab*, and *chak bashi*, which he found on the Hazhdah Nahr canals on the lower Balkh and the Hari Rod. "In the Balkh and Kunduz river system, the canal master is referred to as a *mirab bashi*. In the Qala-i-Zal district of Kunduz, the *mirab bashi*'s assistants are termed *kok bashi*, on the lower Balkh River, as *mirabs*."[110] He notes that the "hierarchical structure of water masters can vary from sub-basin to sub-basin"[111] and that even the role of supervision according to primary, secondary, and tertiary canal differs. He links the existence of the mirab system to water scarcity or an intercommunal water dispute.[112]

Not only scarcity but also the size of the irrigation system influences whether a three-tier system is necessary. For Afghan Mazar in Kunduz, Lee states, "probably due to the fact that the communities at the head of the canal have fewer water problems,

105 J.L. Lee, 2003. Water Resource Management on the Balkh Ab River and Hazhdah Nahr Canal Network: From Crisis to Collapse, (Kabul: UNAMA/CAFE), p. 4.

106 Lee, "Water Resource Management on the Balkh Ab River," 4.

107 Lee, "Social Water Management," 1.

108 Lee, "Social Water Management"; Lee, "Performance of Community Water Management Systems."

109 Lee, "Social Water Management," 46.

110 Lee, "Social Water Management" 46.

111 Lee, "Social Water Management," 46.

112 Lee, "Social Water Management."

upstream *kok bashi* are not seen as a priority."[113] In addition, he states, "on shorter canals...the management structure is flat and consists of one or two *mirabs* with no overseer *(wakil* or *mirab bashi)*."[114] Lee's statement questions whether the western perception that local water management is based on hydraulic boundaries is always applicable for Afghanistan. Having two equal mirabs on one canal suggests that management is not always based on hydraulic boundaries.[115] Similarly, Lee explains, "On the peri-urban canals of Herat city, such as the Joy-i-Naw, Joy-i-Injil and Joy-i-Guzara, the canal is divided into a three-block (*blok*) system."[116]

Sometimes the function of the mirab is combined with other roles. "In a number of the communities," Lee says, referring to Ghazni Province and some communities in the rangelands of Herat Province, "a senior community elder or the arbab [the community elder, usually the head of the shora, the community of elders], combined his role as a shora member with the work of a mirab."[117] Lee links the existence of a formal mirab system with the cultural and ethnic background of the community in question.[118] This would suggest that there is only one ethnicity present at each canal; this, however, is highly unlikely.

5.2 Whom do mirabs represent?

By tradition, the position of the mirab was apparently handed down within the family. Lee says that this is often no longer the case, "Unfortunately, today a good proportion of the water bailiffs are relative newcomers to the position and consequently lack the institutional memory and experience."[119] Nevertheless, he also describes a case in which the subcatchment jirga appointed the nephew of the former mirab to the post because he was "the most suitable member of the family."[120] The nephew had previously assisted the former mirab. Anderson[121] states, "Anyone from the same extended family can take over the mirab role, provided that the community agrees. In this way, the mirab's knowledge is passed down through the generations." Similarly, Shobair,[122] who does not distinguish between wakil, mirab bashi and mirab, states that the candidate should "preferably...be from a mirab family or son of an old mirab." The existing literature does not mention whether the same system applies to lower-level water managers (mirab, chak bashi, or kok bashi). Having fully described the heritage of the position, Shobair says that the first prerequisite for a mirab is to be honest. Other authors show that mirabs who did not fulfil the function adequately were not re-elected or were fired. For example, Lee states that "in a number of instances in the primary research sites, corrupt, inefficient or lazy water masters were reported to have been replaced."[123]

It is not entirely clear how landowners from different communities along one large irrigation canal agree on one wakil or mirab bashi. As Lee[124] describes it, "As there are a large number of landowners on the canal, the individual communities have pre-election meetings in their communities and nominate two individuals to represent them at the general meeting." Quoting a former mirab, ter Steege[125] explains, "The mirab [bashi] had to be elected from downstream," because that would ensure "water delivery until the tail of the canal, which would than result in equal water distribution." However, ter Steege states that this system was in place thirty years ago, and at the time of his research, the mirab bashi was from upstream and the mirab from downstream. Similarly, Pain[126] states, "The method

113 Lee, "Social Water Management," 31.

114 Lee, "Social Water Management."

115 Since the mirab is not responsible for karez and surface irrigation systems at the same time, mirab systems are not based on hydrological boundaries.

116 Lee, "Social Water Management," 46.

117 Lee, "Social Water Management," 46.

118 Lee, "Social Water Management."

119 Lee, "Water Resource Management on the Balkh Ab River," 5.

120 Lee, "Social Water Management," 46-7.

121 Anderson, "Irrigation Systems," 13.

122 S.S. Shobair, "Mirab and Mirab System in Afghanistan," power point presentation. (Kabul: FAO/EIRP, 2005), slide 8.

123 Lee, "Social Water Management," 48.

124 Lee, "Performance of Community Water Management Systems," 36.

125 ter Steege, "Infrastructure and Water Distribution," 9.

126 A. Pain, "Understanding Village Institutions: Case Studies on Water Management from Fayrab and Saripul" (Kabul: Afghan Research and Evaluation Unit, 2004, http://www.areu.org.af/index.php?option=com_docman&task=doc_view&gid=339), 14.

of selecting the mirab [from tail-end villages] indicates an element of equity has been built into the system." Even though Shobair says the mirab should be from the tail-end, he also states that the mirab has to be "acceptable by all water users in upstream, midstream and downstream."[127]

The system of inheriting the mirab position appears to have changed. Lee distinguishes between two different mirabs, one who is chosen by the community and one who is appointed directly by "commanders and landlords."[128] Shobair does not make this distinction; according to him, an elite group only selects the mirab: "the landlords, key farmers, elders, and warlords."[129] In a later publication, Lee states that mirabs:

> *"are appointed solely by landowners or their nominees on the canal in question"* and later *"the position of water master, whether it be wakil, mirab, chak bashi or kok bashi, is determined by the 'vote' of a vested interest group, namely landowners with irrigated land and water rights to the canal in question."*[130]

Lee offers an explanation for why the mirabs are selected by an elite of landowners and not by all inhabitants along the canal, "Their role is not to provide food or work for the landless, the dispossessed, the internally displaced or other 'vulnerables.' They are there to serve the needs of the landowning elite."[131] As an exception to this general rule, Lee describes the Shinwari clans in the Paikha river valley, where "all adult males appear to have a voice in the election of the mirab,"[132] and another case where sharecroppers have a say as well.[133]

Lee does not distinguish among different members of the elite, so it is unclear how voting power in a village is distributed within the elite: whether each landowner has the same voting right or whether voting rights are determined by the amount of land owned or the individual water right of the landowner. He does affirm that there is a difference in voting power, "At least a proportion of the water masters in the primary research sites hold their post by virtue of their political position or wealth, and they are able to maintain their position despite the complaints of the small farmers and sharecroppers."[134] Given the culture of guns also highlighted by Lee,[135] it is questionable whether mirabs can address all complaints.

Lee did not do an in-depth study, but rather focused on different systems in a relatively short time, and so it is remarkable that he can present such deep insights. It is also obvious, however, that more research is needed to fully understand the system.

Lee does not directly connect the issue of representation to that of payment for the mirab's services.[136] Nevertheless, the wages of the mirab are directly related to the land under irrigation. This underlines the function of the mirab for the landowning community. Larger landowners pay more to the mirab than small landholders or sharecroppers. The data presented above show that, although the size of the landholding may not be related to voting power to elect the mirab, it does appear to be related to payment for the mirab's services. An explanation for this may lie in the level of payment. Lee[137] states, "The payments water masters receive for their work are slight in comparison to both the on-farm yields and the work undertaken...In effect, the post of mirab in most communities is a semi-voluntary position." Lee then takes a different track and questions, maybe due to the strategy to create WUAs—an initiative that might influence the level of payments to the mirabs—whether the low level of remuneration affects the sustainability of the mirab system or increases the

127 Shobair, "Mirab and Mirab System," slide 8.

128 Lee, "Water Resource Management on the Balkh Ab River," 5 and 17.

129 Shobair, "Mirab and Mirab System."

130 Lee, "Social Water Management," 3 and 47.

131 Lee, "Social Water Management," 47.

132 Lee, "Social Water Management," 47.

133 Lee, "Performance of Community Water Management Systems," 30, footnote 37.

134 Lee, "Social Water Management," 47.

135 Lee, "Water Resource Management on the Balkh Ab River."

136 Lee, "Social Water Management," 46-8.

137 Lee, "Social Water Management," 48.

likelihood of bribes.[138] Nevertheless, he also points out that the position of mirab enhances the social status of the person who fills it.

5.3 The role of the mirab

The role of the mirab appears to differ in different communities. Anderson states, for two research sites (Otarkhel and Khawaji) in Nangarhar Province, that the mirab is only used "for the summer crop when water shortages occur and disputes are more likely."[139] It thus seems that the position of the mirab is seasonal and related to the level of water scarcity. Discussing Maruf China in Nangarhar Province, Lee states, "the mirab is only engaged during spring when there is sufficient water in the wash to provide irrigation for the community."[140]Anderson puts it differently, stating for the same community that "they have a mirab, but he is only used in spring as there is virtually no water in summer."[141] Similarly, if there is sufficient water, there may not be a need to elect a mirab. Lee refers to the appointment of the mirab in Herat (Khalifa Rahmat-i-Ulya canal), "The canal communities tend to only elect a mirab for the canal where there is a problem with water shortages in the canal...In 2005 the snow and rains were good so the communities saw no need to appoint a mirab."[142]

When water scarcity is not a significant problem, it may also be that a different person takes up the role of mirab. Lee states, for Turmai in Ghazni Province, that "the communities do not employ formal mirabs; instead water distribution in canals is supervised by the head of each community's traditional shora. The reason for not employing a mirab is said to be due to the fact that these communities do not suffer from water shortages, unlike those at the tail of the river system (who do have mirabs)."[143] Similarly, Anderson observes of Ghazni Province that "although each canal was reported to have a mirab, it was found that only in those lower villages below Qala-i-Naw, where water is a constraint, were mirabs appointed. In the upper villages, including in the primary research sites, water issues and operation and maintenance are decided by a forum of elders within each village."[144]

Furthermore, it may be that the mirab is not employed for water distribution, but only for controlling the intake. Lee states that, in Shamsha Pur distinct in Nangarhar Province, there are mirabs at each of the primary canals drawing water from the Surkh Rod River. However, their primary function is not water allocation, but "to operate and maintain the control gates which release water into the primary canals. In addition, the mirab is required to alert the canal communities in case of any breach of the canal dykes and banks."[145] This is similar for the Atishan canal in Herat, where "water management is undertaken by the shora and not by a mirab, though issues related to the intake of the wide canal are referred to the wakil."[146]

In situations where the mirab is responsible for water distribution along the main canal, Lee argues that one of the mirab's functions is "to reconcile disputes between canal irrigators over water sharing issues."[147] However, this may not necessarily always be the case. Pain states that:

> *"when pressed on this issue [conflicts concerning water distribution within a village], there might be some admission that if there was a problem the shora would step in and advise the person [who took additional water] that this was not acceptable behaviour and it should be stopped and, if necessary, order irrigation time to be repaid if it had been wrongly taken."*[148]

Lee mentions both institutions: "Individual landowners do not hesitate to complain to their community shora or the water master if they

138 Lee, "Social Water Management."

139 Anderson, "Irrigation systems," 13.

140 Lee, "Social Water Management," 15.

141 Anderson, "Irrigation Systems," 13.

142 Lee, "Social Water Management," 44.

143 Lee, "Social Water Management," 22. See also section 6.3, "Water sharing between canals."

144 Anderson, "Irrigation Systems," 17.

145 Lee, "Social Water Management," 17.

146 Lee, "Social Water Management," 39.

147 Lee, "Social Water Management," 3.

148 Pain, "Understanding Village Iinstitutions," 12.

believe a neighbour is taking more water than he is entitled to."[149] He explains that the arbab, as the highest authority in the community, may make the final decision on the conflict, but that disputing individuals may also look for higher-level support outside the community at the district or province level.

It appears that the mirab is responsible for water allocation and the organisation of maintenance work, and that water sharing disputes between farmers are solved by the mirab and the shora. It seems that of the two, the shora has more authority to solve serious conflicts and facilitate compensation negotiations.

5.4 Sharing maintenance work

Lee studied maintenance issues in the so-called hashar labour system, which appears to vary in different canal systems. For Nangarhar, he sees a direct link between maintenance and water rights:

> *Each village served by the canals nominates a single elder who is knowledgeable about water rights to represent them to the mirab, to ensure that labour is apportioned fairly and that each community is not cheated out of any allocation as a result of changes in the canal bed, banks and intakes.*[150]

On the other hand, for Herat he describes a system in which the input of labour is based on the amount of irrigated land (calculated in jerib), giving the following example:

> *In-canal cleaning is also proportional to the amount of land owned and irrigated: a landowner who has 10 jerib of land will be assigned a longer length of the canal to clean than an individual who only owns 1 jerib, on the basis that the individual with 10 jerib will be required to provide more labourers than the individual with 1 jerib.*[151]

In this sense, Lee gives the image of equity in terms of maintenance work, an assessment shared by Anderson, "Labour is provided by the irrigators depending on landholding, according to a local system that converts to one person per day for 30 jerib, one person every two days for 20 jerib and one person every three days for 10 jerib."[152] Lee gives the impression of unity and collective work within the system: "Cleaning is done in a gang from the head to the tail of the system."[153] However, Anderson points out that there are problems relating to the hashar labour system. Since canals supply more than one village, he says, "communities tend to give more attention to their own canal, thereby neglecting agreed maintenance commitments for the shared canal," adding that there is "poor cooperation among villages."[154]

Whereas Lee and Anderson reason that the maintenance contribution is related to landholding or water rights, ter Steege sees technology as a factor influencing labour contributions. He observes for the Asqalan canal in Kunduz that "when we walked through their fields, we saw water being pumped with diesel pumps in some canals. The people of Baluch do not contribute in labour or kind to the canal; their lands are simply too high for gravity irrigation."[155] This would imply that, depending on the technology used, size of landholding and even canal water use is not necessarily linked with maintenance work. However, ter Steege does not say whether the Baluch community contributes to maintenance work at the intake level.

Another issue that has not been addressed in the literature is whether nonconsumptive users, such as mill owners or users of micro-hydropower plants, have to contribute to maintenance work. If the obligation to contribute to maintenance work only applies to agricultural landholders and other consumptive water users, this would seem to be unlikely. However, if a water rights system applies, then nonconsumptive users may have to contribute.

149 Lee, "Performance of Community Water Management Systems," 15.

150 Lee, "Social Water Management," 15.

151 Lee, "Social Water Management," 44.

152 Anderson, "Irrigation Systems," 26.

153 Lee, "Social Water Management," 44.

154 Anderson, "Irrigation Systems," 22 and 27.

155 ter Steege, "Infrastructure and Water Distribution," 9.

5.5 Water conflicts within and between villages

Anderson reports equitable water sharing and, during scarcity, even proportional equity based on basic needs and social protection: "At times of shortage water is reduced, but the share time is kept the same. Water may be reduced for only those plots that have a large water share so that the poorer sections of the community can at least achieve a minimum amount of irrigation."[156]

Pain, looking at water distribution within villages and between villages in two districts in different provinces in northern Afghanistan (Sayyad District in Sar-i-Pul Province and Dawalatabad District in Faryab Province), argues that within villages there is equity of water distribution.[157] He shows that within three villages in the Dawalatabad District, equity is even enforced between sub-canals.[158] Nevertheless, he states that this does not take into account water losses within the canal, and that therefore equity of timing between sub-canals does not imply equity of sub-canal water amount.

The situation between villages along the main canal may be equitable as well. According to Pain, there are old water-sharing agreements between villages along main canals. Inter-village agreements were enforced by higher-level mirabs, who were elected from the tail-end villages. Therefore, Pain reasons that the sharing and observation of the rules had a built-in system of equity between villages "since downstream representatives would have a vested interest in ensuring fair water distribution."[159]

On the other hand, Lee points out that water distribution along a main canal is inequitable. He states that "despite the drought, upstream communities were mostly unaffected, and still had sufficient water to continue their practice of two crops a year...At the bottom end of the water chain, however, little or no water was delivered through the system."[160] He highlights the inequality of water distribution between villages along main canals in different provinces, and reports on a canal in Nangarhar:

> *Ten communities in total use the water of the Qara Bagh canal: six at the head and four at the tail. [Only] the tail end communities operate a variable summer and winter rotation in canal, known as the greater, or large, rotation (nowbat-i-kalan) and the lesser, or small, rotation (nowbat-i-khurd).*[161]

For different canals in Ghazni, he states that there are differences in water allocation between head-end and tail-end villages, "Sometimes communities at the tail of canals may appeal to upstreamers for additional water on the basis of sawab, an act of meritorious charity."[162] Similarly, he reports on Kunduz, "There are 78 mardi kar along the length of the Char Gul canal, making an approximately command area of 2,340 jerib (468 ha). However, there is some suggestion that the mardi kar-to-area ratio varies along the canal length."[163] For the Aq Tepa canal in Kunduz, he is more specific, "In the middle section of the Aq Tepa canal, one mardi kar is equivalent to 16 jerib and 4 hours of water; at the head of the canal one mardi kar is equivalent to 32 jerib and 8 hours of water."[164] Finally, he shows inequality between head- and tail-enders in Herat:

> *water is allocated according to the juftgaw... The total juftgaw-age of the Atishan canal is 120. A juftgaw on the Atishan canal appears to be a standard area of 120 jerib, though during interviews with Gawashk community one respondent stated that a juftgaw at the head of the canal was a smaller area.*[165]

Similarly, Anderson highlights differences between head-end and tail-end water allocation along one

156 Anderson, "Irrigation Systems," 11.

157 Pain, "Understanding Village Institutions."

158 Pain, "Understanding Village Institutions," compare tables 2, 3 and 4.

159 Pain, "Understanding Village Institutions," 14.

160 Lee, "Water Resource Management on the Balkh Ab River," 13.

161 Lee, "Social Water Management," 17.

162 Lee, "Social Water Management," 23.

163 Lee, "Social Water Management," 31.

164 Lee, "Social Water Management," 33.

165 Lee, "Social Water Management," 35.

canal:

> *For the upper half of the Jaghatu valley, water does not seem to be a constraint and this is reflected in the cropping patterns and fewer tree crops. Further down the valley, below Qala-i-Naw, surface water shortages do occur and this is reflected in the greater proportion of tree crops that are probably using the relatively high groundwater levels.*[166]

Based on the literature review, there appears to be a large difference between equity perceptions on sharing water. Whereas within communities an egalitarian principle (based on land rights) seems to apply, there appears to be a proportional principle between communities based on their position along the canal.

5.6 Outside influences

In an early publication, Lee argues that the mirab system was not independent of outside administrative units:[167]

> *Mirab bashis were empowered by government to mobilise communities to supervise the repair and cleaning of all sections of their canals and take offs (sarband) from the Balkh Ab without having to obtain specific government permits...Government, prior to 1978, actively supported complaints by the mirab bashis against communities or individuals who illegally extracted more than their allocation of water. In many instances the provincial governors and law officers would imprison or fine such persons and communities.*

Even more so, it appears that water rights were connected to taxation, "Taxation on land and water is determined according to the juftgaw-age of an individual landowner, however, there has been no collection of this water-land tax since the mid 1970s."[168] This point highlights the fact that inequities between head-end and tail-end were taken into account and maybe equalled out through government intervention.

Pain reports that, during the rule of the Taliban, the local system again received support from higher administrative levels. He gives the example of Sayyad District in Sar-i-Pul Province:

> *It was the view of the shora head that during the time of the Taliban the water distribution system worked well and there were strict sanctions on those who broke the rules. He cited the example of one offender who had been caught and paraded by the Taliban in Sayyad Village Three.*[169]

Whether the linkages and support structures between mirabs and district governors are functional today is questionable and may depend on the district's authority. Lee states for the Balkh river:

> *Government appears unwilling, or incapable, of supporting the mirab bashis, or enforcing the law of water rights. Nor is it willing to risk confrontation with powerful warlords, commanders and landlords, many of whom support one or other of the current government factions either militarily or financially.*[170]

Nevertheless, it appears that mirabs or shoras consult or voice their complaints to government departments. Pain and Anderson give examples of this consultation. Lee gives an example of how the influence changed over time and even involved the national level.[171]

166 Anderson, "Irrigation Systems," 16.

167 Lee, "Water Resource Management on the Balkh Ab River," 5.

168 Lee, "Social Water Management," 35.

169 Pain, "Understanding Village Institutions," 17.

170 Lee, "Social Water Management," 16.

171 Lee, "Social Water Management," 37.

The Kunduz Basin. Photo: Kai Wegerich

6. Analysis of Fieldwork Data

In the reviewed literature there are suggestions that the mirab system has aspects of inequity in respect of water sharing along the main canal, but that there is equity in terms of *hashar* work.[172] Nevertheless, it was strongly stated that the main mirab is supposed to come from the tail-end, because this guarantees equity between head- and tail-end users.[173]

During fieldwork from September to October 2007, in most of the 16 canals visited, the impression was given that the head-enders do not need a mirab, do not pay for him or pay less than the then rate (five out of 16), receive more water (14 out of 16), and contribute less during hashar work (14 out of 16). The impression was given that the mirab is only responsible for the midstream and downstream parts of the main canal.

Based on this, one might interpret the proverb "Even though you may be the son of the mirab, it's better to be one intake higher up" to mean that since the mirab is from the tail-end, and the system is inequitable and therefore the mirab is not able to bring enough water to the tail-end, it is better to live in an upstream canal that will have more water. In this sense, the proverb highlights two problems: inequity along a canal between head-end and tail-end and inequity along a river between upstream and downstream.

Highlights of the fieldwork and issues of inequity found within the system are described below.

6.1 The mirab system in practice

In Kabul Province in the Shaxardata canal system, which incorporates seven canals, the mirab bashi explained that two mirabs work at each canal. They work from mid-end to tail-end and are not concerned about the head-end. Head-end farmers pay less to the mirabs and sometimes do not want to contribute to their salary at all, because they work more for tail-end than head-end farmers.[174] Similarly, in the Gow Mali canal in Takhar Province, it was stated that the head-end villages do not need the mirab and that only the mid- and tail-end villages select the mirab bashi. Residents along the two canals visited in Laghman Province (Nahr-i-Shaid and Pancha Joi) confirmed that mid- and tail-end villages select the mirab, who is then only responsible for that area. Head-enders do not contribute payments for the *mirab*.[175] The situation appeared to be even worse in the Nahr-i-Khafa canal in Kapisa Province. Here it was stated that, even though the head-end villages come when the *mirab* is selected, they do not pay for the *mirab*, and the same applies even for mid-end villages.[176] However, in the case of the smaller canals (the 5 km Ghorian canal in Herat Province and the 6 km Arab Ha canal in Kunduz Province), it appeared that the *mirab* represented head-end and tail-end interests equally, and at least in the case of Arab Ha canal, head-end farmers contributed to his salary (Ghorian canal communities did not pay the *mirab* for his services).

The technology in use and the length of the canal may influence whether the *mirab* is mainly responsible for the tail-end areas and not for head-enders. In some of the canal systems visited, water allocation to the secondary canals is based on constructed or more natural water dividers, and therefore water is distributed proportionately. These kinds of systems were visited in Herat Province (Joy Now, Atishan and Enjil canals) and in Nangarhar Province (Tatang and Kamal canals). In these canals no statements were made about the *mirab* not representing head-enders or about head-end villagers not paying the mirab.

172 Lee, "Social Water Management"; Anderson, "Irrigation Systems."

173 Pain, "Understanding Village Institutions"; ter Steege, "Infrastructure and Water Distribution."

174 Informal interview, 10 September 2007.

175 Informal interviews, 30 September 2007 and 1 October 2007.

176 Informal interview, 12 September 2007.

6.2 Water distribution

As indicated in the literature review, water distribution between head-end and tail-end villages is inequitable. The fieldwork further confirmed this. Whether proportional or nonproportional, often it is easiest to understand the differences in water supply to head-end and tail-end users by asking what the main crops are in the respective areas. Some examples are presented in Table 3.

Table 3. Examples of diversity of crops along main canals

Province	Canal	Head-end	Mid-end	Tail-end
Baghlan	Shakavodin	Rice	Cotton, less rice	Cotton
Herat	Enjil	Rice	Everything except rice	Wheat, melons, Orchards, gardens
Laghman	Nahr-i-Shaid	Rice	Maize, cotton, Orchards	Beans, cotton
Kapisa	Nahr-i-Khafa	Rice, Corn	Rice, corn	Orchards, grapes

Nevertheless, it might be useful to distinguish between systems with structures for proportional distribution and systems without them.

The proportional system

As mentioned above, proportional systems were found in Herat and Nangarhar provinces. (This does not mean that these systems are proportional at all levels or that nonproportional systems are not also present in these provinces, as will be discussed below.) Although the system appears to be highly equitable because of proportional water dividers, these structures divide the water at a certain level in the canal. Hence, at this point there appears to be proportional equity (see Photo 1). Nevertheless, it is questionable whether the water division is permanent and therefore does not take into consideration changes in needs (either expansion or contraction) in the irrigated area.

As Photo 2 shows, there is some flexibility in the system, at least in terms of closing the division point. It seemed reasonable to assume that sufficient water was supplied to meet users' needs, since the right off-take was closed; but this was not verified with the community, and it could be that somebody closed it to divert more water into the other canals.

Whereas in Herat Province water dividers were constructed, in Nangarhar Province the division structures varied. Some were firmly fixed concrete structures, whereas others appeared to be more flexible and maybe therefore under constant negotiation.

On the Tatang canal (see Photo 3), the main representative of the canal admitted that the division of the water flow was more-or-less arbitrary since it was only estimated how much land lay on

Photo 1. Enjil Canal, Herat Province

Photo 2. Enjil Canal, Herat Province

either side of the division and flow measurements were not taken. This may have been the case in Herat Province as well. As the structures were fixed at one point in time, they do not necessarily represent proportional equity but may represent a power balance between sharing parties.

Photo 3. Tatang Canal, Nangarhar Province

Proportional or egalitarian distribution only makes sense if there is enough water. Although there are proportional division structures at certain points on the Atishan canal in Herat Province, the canal itself is unlined and the water amount during the summer months is not enough to supply the entire agricultural area along its 60 km length. Because of high losses, neither proportional nor equal sharing along the canal would make sense. Consequently, during the summer only head-end villages receive water. Even within head-end villages, proportional or egalitarian sharing might not lead to equitable outcomes for all villagers.

The division structure in the Atishan canal shown in Photo 04 leads to a total of 60 juft of agricultural land. In any given year, there is only water available for 20 juft. While one side of the structure supplies water to 20 juft, the other side supplies water to 40 juft. Not having enough water to share it equitably every year, the villagers decided to supply only 20 juft each year. Accordingly, two canals are blocked every year. Even though this arrangement sounds equitable, a wealthier farmer might have land at different locations and could therefore have a harvest every year, whereas a poorer farmer might have land only in one location and would have to depend on other income for two years out of three.

Maybe more telling are the mirabs' statements about the different proportionate systems in Herat and Nangarhar provinces. At the Enjil canal in Herat Province, the wakil stated that tail-end areas do not receive enough water. He explained that head-enders grow mainly rice, mid-enders everything except rice, and tail-enders mainly wheat, melons, and orchards (see Table 3). Direct observation at the canal makes this even more obvious. Driving from the tail-end to the head-end, one observes the area becoming more and more green and the choice of crops changing. Close to the intake, rice and cotton are planted, whereas these two crops are not planted at the tail-end.

Even if the water distribution in the main canal is proportional, this does not necessarily imply that it is similar for branch (secondary or tertiary) canals. For example, on the Enjil canal, it was stated that on branch canals water turns are rotated. A similar statement was made for branch canals on the Joy Now canal. In the Tatang canal in Nangarhar Province, it was stated that every 20 jeribs receive a water turn of six hours, but although six hours provides enough water for head-end farmers, it is not enough for tail-end farmers. On the Kama canal

Photo 4. Atishan Canal, Herat Province

in Nangarhar it was expressed differently. There, water availability depends on location along the main canal: the farther upstream, the smaller the water loss. In addition, since there was no rotation along the main canal, the shorter the branch canal, the quicker the cycle of rotation within the branch canal and therefore the more water was available.

It is questionable whether rotation is really practiced. Walking along one branch of the Joy Now canal, which runs through a district city in Herat Province, one could see that households on tertiary canals diverted the flow of the secondary canal into their off-takes (see Photo 5). Since there were constructions all the way along the canal, there appeared to be no rotation and head-end tertiary canals diverted water to their off-takes without really considering downstream tertiary canals.

Similarly on the Kama canal in Nangarhar Province (see Photo 6), the mirab gave the impression that there are fixed turns between different off-takes. However, visiting different off-takes, one got the impression that there were constant negotiations that led to flexible solutions, but no strict enforcement of any rotations.

Notwithstanding, the closer one approached to the tail-end of the canal, the more strict the system seemed to become, and even drainage water was shared and rotated (see Photo 7). Nevertheless, even the small drainage branch canals were not completely closed but allowed some water to run through, the presumption being that this was necessary for livestock.

As far as proportionate off-takes along the main canal are concerned, some communities blocked the main canal just behind their off-takes to raise the water level in the canal so that more water was diverted to them. On the Enjil canal, this was mainly practiced at the head-end; closer to the tail-end, it was no longer observed. Along the Enjil canal at three places, canal blockages were observed. As Photo 8 shows, these blockages were labour and time-intensive and may have also been expensive, since sandbags were used. (Another

Photo 6. Kama Canal, Nangarhar Province

Photo 5. Joy Now Canal, Herat Province

Photo 7. Kama Canal, Nangarhar Province

Photo 8. Enjil Canal, Herat Province

Photo 9. Gow Mali Canal, Takhar Province

factor may also be at work: since at the head-end an international organisation had just made the off-takes permanent structures, it is possible that these off-takes had been fixed in such a way that former allocations changed.[177]) Similar blockages were observed along the Gow Mali canal in Takhar Province (see Photo 9).

The nonproportional system

Nonproportional systems were visited in Kunduz, Kapisa, Takhar, Baghalan and Laghman provinces (this does not imply that these systems are nonproportional at all levels or that proportional systems are not present in these provinces). In nonproportional systems, the water share is not fixed through infrastructure (water dividers), but water users open and close their off-takes at certain times. During the visits, it became obvious that off-takes differ even within a single canal; this leads to different levels of water control and needs different labour input for operating the off-take. Thus, it is not possible to generalise about water control in the system; a locally constructed system may consist of different technologies. Hence, the system is diverse and must be seen as technologically dynamic. This puts into question the emphasis on equity of timing in previous studies. If an off-take is granted a certain time slot for opening, the labour required to open and close it may differ from that required for other off-takes. Water may run through straight away or slowly. In addition, the sizes of the off-takes differ, another reason that rotation according to equal timing does not necessarily lead to an equal amount of water being delivered.

Photos 10, 11 and 12 show examples of nonproportionate systems on the Asqalan canal and the Aliabad canal.

Even though *mirabs* stated in discussions that there are certain rules of timing and that each individual farmer has the same time amount allocated to him or her, it appears that the situation along the main canal is quite different. The questions focused on the water-scarce period in order to better highlight the differences between head-end, mid-end, and tail-end. As a *mirab bashi* on the Aliabad canal in Kunduz Province expressed it, "During spring, there is no water problem; everybody can take water when they need it" (and thus there are no sharing problems between head-, mid-, and tail-enders).

The situation is very different during the summer, when the water resources are scarcer. On the Shabaz-ne-Branch canal in Kapisa Province, it was

177 The wakil of the Enjil canal had been in his position for two years. It was stated that the new governor, who had taken up his position three years previously, selected the wakil; it was not the choice of the shora. Discussions with the engineers who facilitated the research in Herat Province explained that the governor favoured a small village further downstream that was not yet connected to the canal. It was stated that it was in the governor's interest for the village to receive water through the Enjil canal. The wakil had already dug up more soil from the canal and had blocked some off-takes midstream in Herat city, so that more water could be available for downstream, the plan being to extend the canal to the village.

Photo 10. Asqalan Canal, Kunduz Province

Photo 11. Asqalan Canal, Kunduz Province

Photo 12. Aliabad Canal, Kunduz Province

stated that, during the period of scarcity, head-enders could take water during the day and tail-enders during the night.[178] Even though the principle of equity in timing appears to apply, the mirab admitted that the system is still inequitable, since the canal was quite long and the same amount of time did not produce the same amount of water for head-end and tail-end users. For the Nahr-i-Khafa canal in Kapisa Province, it was stated that head-enders receive water during the day and mid-enders at night and tail-enders do not receive any water. The mirab explained that, even before the war, there were more villages and agricultural land downstream. However, because of a narrowing of the canal and the construction of micro-hydropower plants in head- and mid-end villages, the water supply to the tail-end decreased to such an extent that the agricultural land was abandoned and the villagers moved away. In this sense, what were before mid-enders are now considered to be tail-enders.

The situation in the Aliabad canal in Kunduz Province was also different. Here it was stated that there was a rotation cycle of seven days, during which head- and mid-enders received water for two days each and three days were allocated to tail-enders. The mirab bashi explained that head- and mid-enders considered this fair, taking into consideration the length of the canal and resulting water losses. However, the mirab bashi and the group of elders participating in the discussion did not consider that this arrangement was fair. They stated that there was more agricultural land at the tail-end, a fact that was apparently not considered by the head- and mid-enders. Consequently, not all tail-end areas receive water during the period of water scarcity. In the pictures above of the Asqalan canal in Kunduz Province (Photos 10 and 11), it is questionable whether head-end permanent off-takes are closed and whether closure of nonpermanent structures actually stops, or only reduces, water supply to head-end branch canals.

In Kabul Province, in the Shaxardata canal system, the mirab bashi gave an example to explain the difference in terms of water sharing and the amount of losses within the canal system, "If you have 1 m3 at the head-end it would be reduced to 0.2 m3 at the tail-end."[179] Therefore, even if an equal time were allocated between head- and tail-end, the very length of the canal and the resulting losses make an equal-time share agreement inequitable in terms of water actually delivered to the field. This supports the reasoning of Lee and Anderson[180] that the same time allocation of water supply can lead to different amounts of water and therefore of irrigated land at the head- and tail-end.

In addition to the inequity along the long canals, on the two shorter canals (Arab Ha in Kunduz and Ghorian in Herat) the system of sharing was also nonproportional considering the distribution infrastructure, but proportional because it was based on a rotational principle. In the Ghorian canal, there was a rotation of 20 minutes water supply for every jerib. It appears that because the canal was relatively short the losses within the system were not that extensive. Nevertheless, the mirab was not concerned about the equity issue or whether 20 minutes would be enough for tail-end farmers saying, "It is the farmer's problem if the amount of water is not enough." The reason for the unconcern appeared to be the availability of an alternative: groundwater. The mirab explained that within the system there were approximately 150 tube wells. The proximity to Herat city made the use of groundwater for vegetable production profitable. It seemed that groundwater was a reliable alternative to an uncertain or scare surface water supply. Farmers were more in control and could get water for their crops when they needed it most.

Whereas some of the off-takes along the main canal are fixed, and therefore it might be easy to account for how much water is taken, this appears more

178 The mirab identified the usual three different groups of canal users but said that during the period of scarcity, the mid-enders joined either the head-end or tail-end group depending on which was closer.

179 Whether the example exaggerates the real losses is not that important; it is more important for this study whether or not the mirabs or mirab bashis have the perception that system is fair, and they do not. It is also important for the interventionist to see how mirabs or mirab bashis want to change this situation. The answer is simple: by new technology that does not challenge the current water allocation system.

180 Lee, "Social Water Management"; Anderson, "Irrigation Systems."

Photo 13. Laqai Canal, Kunduz Province

Photo 14. Laqai Canal, Kunduz Province

difficult along the secondary or tertiary canals. Here, water is either diverted directly to the field by blocking the canals completely or even further divided by proportional diversions. Depending on the size of the canals, taking the water turn is more difficult and different material is used.

The blockage shown in Photo 13 was illicit. The mirab solved the argument between the farmers. The imposed agreement was a compromise that allowed the farmer who took the illicit turn to continue and only partly gave water to the next farmer (see Photo 14). It was an ad hoc decision by the mirab and left both farmers unsatisfied. Thomas[181] reasoned that he did not find cases of real time schedules and structured rotation. According to him, early in the morning the mirabs decide who needs water most urgently, but there is no strict order or planning.

In some cases, behind off-takes, water was divided on the tertiary level between farmers (see Photo 15), but at this level it appeared to be up to the farmers to decide how they shared the water, based either on a fixed rotation or on a needs approach.

In the literature, it is stated that the mirab is responsible for dispute resolution. This was partly confirmed during the interviews. However, as discussed above, it seems that the system is quite flexible. This also puts into question whether the mirab really deals with disputes. On the Tatang canal in Nangarhar Province, it was stated that the "mirab has only the function of a judge, but does not have that much responsibility." In the Nahr-i-Shaid canal in Laghman Province, the mirab stated, "If a small amount is taken, nobody bothers." If it is a larger amount, the police are called in, and a fine has to be paid to the police just for coming. However, there is no compensation for the farmer who does not receive the water. On the Kama canal in Nangarhar as well as on the Nahr-i-Khafa canal in Kapisa Province it was stated that a fine has to be paid. Whereas on the Kama canal it was stated that the fine could be either money or food paid to the malik, on the Nahr-i-Khafa canal it was stated that the fine could be between 500 and 5,000 Afghanis, which has to be paid to the mirab bashi, who divides it between his assistants. When asked whether the farmer who did not receive water is compensated, the mirab bashi replied:

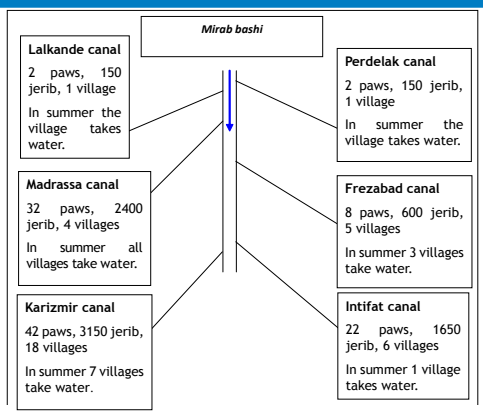
> *If the tail-end farmer complains to me about why I spend his money and that it was his right, the tail-end farmer will be beaten by the head-end farmer who took the water. If a farmer asks for compensation, the mirab will not work honestly for him the next day.*[182]

181 Vincent Thomas, Participatory Management of Irrigation System (PMIS) project, Informal interview, 18 September 2007.

182 Informal interview, 12 September 2007.

Photo 15. Nahr-i-Shaid Canal, Laghman Province

Figure 3. Shaxardata canal scheme, Kabul Province



Note: flow/volume to area under which water rights or turns are allocated on main canals

6.3 Water sharing between canals

With the exception of the Shaxardata canal scheme in Kabul Province (six canals under one mirab bashi, see Figure 3) and the Nahr-i-Afghan canal scheme in Kapisa Province (three canals under one mirab bashi), all the other canals visited consisted of one main canal with different branch canals. Whereas in the Nahr-e Afghan canal scheme the focus of the research was on one canal only, in Kabul Province the focus was on the sharing agreement between the different canals.

As Figure 6 indicates, even though the management of the six canals was under one mirab bashi, there were large differences in terms of water allocation between the different canals during the water-scarce months of summer: The further downstream, the smaller the proportion of villages that were supplied with water. Hence, while on the upstream canals (Lalkande, Perdelak, and Madrassa) all villages were supplied, in downstream canals only the head-end villages received water. The mirab bashi explained: "The main problem is that there is just not enough water. Therefore, downstream villages cannot get water. This is based on an old agreement; people downstream cannot get water. This situation is similar within villages."

In Kunduz, Nangarhar, Kapisa and Herat Provinces different intakes were visited. Whereas the intakes for Kapisa are fixed, in Herat the Hari Rot dries up, and the water only reaches the surface again at certain places; this water is then diverted into irrigation canals.[183] The situation is quite different in the systems visited in Kunduz and Nangarhar provinces. At least in the irrigation schemes visited, farmers blocked large parts of the river to divert water into their intake. See Photo 16.

Photo 16. Tarbas Kusar Canal, Kunduz Province

183 The engineers who accompanied the researcher explained that this practice causes large problems. Canal communities rent bulldozers to extend the canal and to divert more water. A consequence of this practice is that during the spring season the Hari Rot brings more water close to the riverbanks and therefore causes flooding of nearby agricultural land. In certain places the Hari Rod even splits into two rivers that run parallel to each other.

Photos 17 and 18 show constructions reaching far into the river. It appears logical that these would cause conflicts between upstream and downstream main canals. However, only at the Tatang canal was it stated that such conflicts existed.[184] "Downstream villagers come to our intake to destroy the intake structure; our mirab is only at the intake to protect and to look after it." Sayed Hussaun Hashami, a social mobilisation specialist with the Kunduz River Basin Program,[185] said that mirabs and shoras from Kunduz Province went to the Province Irrigation Department and to the Province Governor and together they went to an upstream province to ask whether some water could be released for the downstream canals. In the Nahr-e Afghan canal scheme of Kapisa Province, conflicts with a different province were mentioned, but these were due to the construction and operation of a new reservoir.[186]

Photo 17. Asqalan Canal, Kunduz Province

Photo 18. Tatang Canal, Nangarhar Province

Distinguishing between different canals may be problematic, because canals are also linked. Abundance of flow in one canal may be diverted either back into the river or into different main canals, as seen in Herat, Laghman and Kunduz provinces. Alternatively, as was the case of the Nahr-i-Shaid canal in Laghman, head-enders and mid-enders used only one source (the river) throughout the year. Tail-enders used the water from this source only in summer; in spring they used water from a wash.

Because of the interconnectedness of canals (see Photo 19), it may not be possible to speak about one canal system. Thomas[187] stated that one could not necessarily speak about a fixed water right, but only about the right to receive water from a certain canal. Furthermore, how much water the right entails is not fixed. As he pointed out, a tail-end farmer may know that the water he or she receives has been diverted from a different canal, but would not be able to ask for more water from the mirab bashi of that other canal system, only from his or her own canal's mirab bashi.

6.4 Cooperation on maintenance

Previous studies have suggested that there is

Photo 19. Enjil Canal, Herat Province

proportional equity in contribution on maintenance work (hashar): the bigger the landholding, the greater the obligation to contribute. Although this could be the case within individual villages along a canal, it appears that the labour contribution is inequitable from one village to the next. In most of the canals, a clear difference was made in terms of hashar contribution between head, mid and tail-end villages.

On a main canal, maintenance and cleaning are organised either from intake to tail-end or from tail-end to intake. In either case, communities contribute maintenance work in the area relevant to them. If the maintenance work starts at the tail-end, the tail-end village starts and is joined on the way by other village communities, but mid-enders or head-enders do not clean the tail-end of the canal. If the work starts at the intake, then all communities might join (although sometimes the head-enders do no maintenance work at all) and clean as far as their own area. When workers from a village reach their village boundary, they leave the work group. In this respect, the tail-enders endures the most of the work.

As an exception to this practice, it was reported for the Shahabudin canal in Baghlan Province that head-, mid-, and tail-enders clean only their respective areas, although all worked on the intake together. The shorter canals visited (Arab Ha in Kunduz Province and Ghorian in Herat Province) also seemed to be exceptions where all communities work together canal.

The head-enders appear to have a special position when it comes to hashar. In the Shaxardata canal system it was stated that head-enders do not contribute to maintenance work but supply the working groups with food during their work at the intake and in the head-end areas. In the Shabaz-ne-Branch canal in Kapisa Province, it was explained that head-end villages do not do hashar work but that a small percentage of them contribute wood during work on the intake. This contribution exempts them from contributing to the salary of the mirab and participating otherwise in the work. More generally, one person interviewed said, "upstream does not contribute to hashar work, and mid-end villages do not always attend the hashar work."[188] Similarly, on the Tatang canal in Nangarhar and the Pacha Joi canal in Laghman, it was stated that the head-enders only contributed raw materials and wood for the intake.

On the Kama canal in Nangarhar, it was said that head-end villages participate in the hashar work, but "the number of people participating is half the number participating from the tail-ender." A similar statement was made about the Gow Mali canal in Takhar Province. Here it was explained that tail-enders had to contribute one person for every five jerib and mid-enders one person for every ten jerib; head-enders were not even mentioned. On the Shaxardata canal scheme in Kunduz it was said that tail-enders contribute more maintenance because they depend more than other users on the functioning of the canal.

On the other hand, on the Aliabad canal in Kunduz the tail-end contribution was one person for 40 jeribs and the mid-end contribution was one person for 20 jeribs. The mirab bashi stated that this system is based on old agreements and that it is accepted by all. Thomas[189] reasoned that even though these old agreements exist, participation in maintenance work in the main canal is mostly ensured by tail-enders when they need water most urgently, which does not really match with old agreements.

6.5 Nonconsumptive uses: Micro-hydropower plants

Canal management faces a new challenge: the integration of a rising number of nonconsumptive water users such as flour mills and micro-hydropower plants. In the past, the nonconsumptive users were regulated in their construction and operation.[190] However, with decreasing support for the farming communities from higher administrative levels and the failure of local agreements, these nonconsumptive users are a serious challenge for canal management. Today, an increasing number of

188 Informal interview, 10 September 2007.

189 Thomas, PMIS, Informal interview, 18 September 2007.

190 See also Water Law 1981.

poorly designed and badly located structures are threatening irrigation water availability for tail-enders (see Photo 20 and Photo 21). This unregulated usage drains water from the main canal out of the system in its head and middle reaches.

On different canals, the mirabs complained about the micro-hydropower plants and said that they do not have the power to stop or to regulate their use. On the Nahr-i-Khafa canal in Kapisa, it was stated that different off-takes divert water from the main canal to micro-hydropower plants, which return it to a different canal, the Khoram canal. The mirab bashi said that three or four years ago a tail-end farmer broke the wheel of a micro-hydropower plant. In the ensuing conflict, a farmer was killed. Now the tail-end community is waiting for the support of the government to regulate the construction and operation of mills and micro-hydropower plants.

The role of the mirabs and their assistants appears not to be straightforward. On the Aliabad canal in Kunduz Province, two kok bashis started arguing when visiting an off-take to a flour mill. The kok bashi from the tail-end accused the kok bashi from the mid-end of making deals with the mill owner that allowed too much water to be diverted.

Photo 20. Pacha Joi Canal, Laghman Province

Photo 21. Gow Mali Canal, Takhar Province

7. Policy and Law Meet Local Reality

This section discusses the interface between policy and the situation on the ground.

7.1 The basin councils

Since the Kunduz River Basin Program (KRBP) is the only basin programme so far, interviews were conducted with the project leader in Kunduz and the GTZ team leader in Kabul. In Kabul, it was stated that GTZ developed the idea for the programme and worked hard to get it accepted by the Ministry of Energy and Water. Similar to the Water Sector Strategy, it was explained, the basin councils will include different stakeholders from all sectors. According to the programme strategy, all stakeholders within the basin will be equally represented since water resources are the concern of all. This was confirmed in the project area in Kunduz. Existing allocations between the different stakeholders were not taken into consideration, since 90 percent of all the water is used in agriculture. It was stated that different identified stakeholder groups had been invited to participate.

To provide a better understanding of the programme meetings, KRBP provided copies of the meeting reports (see the sample reports in Annexes 2 and 3).[191] From the reports it appears that the local mirabs are hardly represented, and when they are, it is mainly from a particular set of canals (which are covered by the KRBP social water management projects). There could be several reasons for the absence of other mirabs: attending the meetings might carry a high transaction cost, so that only the elite participate; local communities may stay away because they do not see the relevance of the working groups; or their representatives may just not have been invited. Another possibility is that communities might fear that their participation would help confirm the organisation's authority and therefore put them at risk of losing water rights; however, it is doubtful that the communities are aware of the Draft Water Law. Overall, it appears that the stakeholders are selected in a top-down process and represent a western perception of who should be included. Similarly, it appears that the meetings are very much driven by the international experts who attend them and not by the local communities that are invited.

When the GTZ team leader was asked how, for example in case of drought, agreement was to be reached at the basin or sub-basin level on transferring or relinquishing rights, no specific answer was given, only that decisions would be reached through dialogue. An alternative term for dialogue is negotiation. Reducing the allocation of a scarce resource to one stakeholder for the benefit of another is likely to produce conflict, and the more scarcity, the more conflict. When the same question was asked in Kunduz, the answer was "we are not yet that far." The meeting reports show that the main users (canal communities) are under-represented or not represented at all, since different canal communities participated in different meetings.[192] As long as the currently represented stakeholders are not harmed significantly by the decisions taken, decision-making may be easy; but problems may arise when these decisions have to be enforced.

According to KRBP, there have been some local initiatives across province borders, but not through

191 The Taloqan Sub-Basin Working Group meeting reports were particularly recommended.

192 In review comments on this report, Osenberg explained, "In each sub-basin working group there are 2-4 WUA representatives of the 15 official members (along with 2-6 upper catchment representatives). They do not always come and therefore NGOs working in the Social Water Management component of KRBP are being requested to provide more support to the attendance. In the beginning this was a task the Water Management Departments to be carried out. Nowadays SWM NGOs and WMD do so and representation increases." Canal representatives represent only their own canals, not the agricultural sector as a whole. Furthermore, the fact that the canal communities do not participate, or have to be encouraged to participate, might be a sign that the issues discussed at these meetings are not relevant for the individual canal units.

the basin working group. Mirabs and shoras from a downstream province went to an upstream province to ask for extra water. They first approached the governor of the downstream province, who accompanied them to the upstream province governor. Additional water releases were agreed on, but they only lasted for a few days. Whether the arrangement was equitable between all water users in the two provinces is questionable. According to Thomas:[193]

> *In the current locally contested status of inequity of water distribution at canal level (between head and tail-end), talking about releasing water from the upstream schemes of the basin towards the downstream schemes would imply that one deprives downstream water users of an upstream basin scheme for the benefit of an upstream water user in a downstream basin scheme. Thus one does not solve anything and exacerbate the tensions.*

Mahmoudzadeh Varzi conducted a research study with KRBP from 1 March to 22 May 2008. Her findings confirm these initial observations, but go into more detail.[194]

7.2 The Draft Water Law: Challenges to implementation

Within the Draft Water Law, it is not evident who will hold a permit, the WUA or the individual farmer. As the fieldwork data show, the canal community cannot determine how much is diverted from the river into the canal, nor can the individual farmer determine how much water reaches his or her field. The technology is just not in place to measure water use.[195] Without it, a permit system cannot be introduced or would have no meaning. In addition, since the canal systems may be interconnected or water may be diverted back into the river (for example, after use by micro-hydropower plants) and then can be used by other communities, it would be important to measure not only how much water is diverted into the canal system, but also how much water leaves the system again.

Thus, if the permit is held by the WUA, simply measuring how much reaches the WUA could give a wrong impression of the actual usage within the system. This point is becoming even more important because of the rise of micro-hydropower plants, which do not consume water as such. Even though the Draft Water Law of June 2008 mentions micro-hydropower plants, and the current water usage of a canal is supposed to be reflected in the permit, it seems that an additional distinction is needed between consumptive and nonconsumptive uses. On the other hand, in situations in which each individual farmer receives a permit, it seems that neither is the technology in place to measure water use nor is the control in place to deliver the amount stated in the permit.

The Draft Water Law states that irrigation norms should be determined and that permits can be modified. If only WUAs receive permits, a modification could imply a reduction of water for the individual canal. Since water within the canal is not shared equitably between head-, mid-, and tail-enders, a reduction might only affect tail-enders. Furthermore, it is not evident whether setting irrigation norms and modifying permits would take into account nonconsumptive use by micro-hydropower plants and rice mills.

7.3 The creation of WUAs

The literature review and fieldwork have highlighted the extreme inequity of the current system. The western concept of WUAs is based on democracy and equity between users. This concept appears to be in direct contradiction to the system currently practiced. As a consequence, the transaction costs of implementing WUAs (as they are meant to be according to blueprints) might be high, since it

193 Thomas, PMIS, informal interview, 18 September 2007.

194 M. Mahmoudzadeh Varzi and K. Wegerich, "Much Ado about Nothing: Sub-Basin Working Groups in Kunduz Basin, Afghanistan," in Central Asian Waters: Social, Economic, Environmental and Governance Puzzle, ed. M.M. Rahaman and O. Varis (Water and Development Publications TKK-WD-02, Helsinki University of Technology, Espoo, Finland, 2008), 47-61.

195 In review comments on this report, Osenberg stated that new intake infrastructure should have discharge measurement facilities. However, this was not observed during visits to different inlets outside the KRBP area.

would imply that the current system of existing rights, which often privileges head-end users, should be renegotiated.

That there are differences in water distribution between head and tail-end villages has apparently already been considered in the way agricultural land is and was taxed.[196] According to Abdul Rahim, an FAO irrigation engineer, head-end users pay more tax than tail-end users, with agricultural land divided into three categories: high-grade upstream land with an ample water supply, medium-grade midstream land with less water, and low-grade downstream land or land that is often rocky and located near the mountains.[197] This difference, according to Rahim, is also reflected in the current prices for agricultural land, "When a person wants to buy agricultural land the water right of the land might be stated in the document. This is traditional law not written law, each land has to be sold or bought with the indication of the water right."[198] These observations were confirmed in different discussions with the engineers who accompanied this researcher in the field and even in the Ministry for Energy and Water. Since taxes are different for head-, middle-, and tail-enders, the WUA rules of equitable sharing may create a different form of inequity. Therefore, the tax regulation would have to be changed (although it is questionable whether the current tax rules are implemented). In addition, given the fact that the price of land at the head-end reflects its favourable position, a change in rules could cause a sharp price decrease. Therefore, it would seem appropriate for these landholders to be compensated if new rules for equitable sharing were enforced.

Given frequent statements by mirabs that there is not enough water, and the water loss caused by poor canal conditions, it is questionable whether equitable sharing makes sense in every situation. In some cases, such as the Atishan canal, equitable sharing of water could sharply reduce crop production.

196 See Lee, "Water Resource Management on the Balkh Ab River."

197 Email message to author, 25 September 2007.

198 Email message to author, 25 September 2007.

Even though the February 2008 Draft WSS refers to international blueprints for WUAs, the June 2008 Draft Water Law leaves it open whether the new irrigation associations would adapt these blueprints or continue current practices. Furthermore, at least according to the Draft Water Law, the associations' focus on irrigation would exclude other uses, such as micro-hydropower plants, mills, livestock watering, and household drinking water. To be effective, and because reference is made to IWRM, WUAs should integrate these different uses.

7.4 International projects

One focus of the Draft WSS is the construction or rehabilitation of irrigation systems. International and national irrigation infrastructure projects had been implemented on many of the canal systems visited during the research for this paper. The intakes for both the Nahr-i-Afghan canal scheme in Kapisa and the Tatang canal in Nangarhar (see Photo 22) were permanent structures.

Photo 22. Tatang Canal, Nangarhar Province

As mentioned in the discussion of maintenance in Section 6.4, head-enders often only contribute at the intake by supplying wood for construction. If an international or national organisation makes the intake a permanent structure, it may further increase the inequity, since head-enders will no longer have to contribute wood. One could argue, however, that mid- and tail-end communities will

have to work less as well. At this point, it is not clear whether a fixed construction has an equal impact on all users' maintenance contributions or whether it has more advantages for one group. In addition, one would have to question what the impact of a fixed intake might be on downstream communities. In the Nahr-i-Afghan canal scheme, the mirabs complained that a small upstream dam resulted in floods not being equitably shared and more negative impacts from the spring floods being felt in their canal scheme. They complained that the dam was operated in such a way that the summer scarcity was not equitably shared either, but that the water was diverted into a different district.

In addition to construction at the intakes, projects were implemented within the canal system. For example, on the Tatang canal, proportional water dividers were constructed (see Photos 23 and 24). This was difficult to understand, especially because, as the head of the shora explained, the amount of land behind any division point was not precisely determined and water was not measured. Therefore, it appeared that any such divisions were negotiated. Whether the negotiation led to an equitable sharing or was more a reflection of the current power distribution is unclear; the construction could have resulted in inequity. On the Kama canal in Nangarhar Province, a different problem was highlighted. Here the shora stated that farmers were afraid that, when they revealed the real extent of their landholdings, they might have to pay more taxes. Therefore, the amount of land mentioned to the national or international organisation may not reflect reality. The construction, however, took into account what farmers said about their landholdings and may therefore result in them getting less water than they would otherwise be entitled to.

Photo 24. Tatang Canal, Nangarhar Province

National or international projects are not always constructed in the best way and can therefore have negative effects on communities. For example, in the Atishan canal in Herat Province, the gates were installed too high above ground (see Photo 25) and the crest was not completely horizontal and had an inclination. To make things worse, the seasonal

Photo 23. Tatang Canal, Nangarhar Province

Photo 25. Atishan Canal, Herat Province

wash was not considered. The combination led to high siltation levels, even blockages in the canal, and would have let to inequitable water distribution. When the project ran out of money, a different organisation took over and suggested the construction of a siphon.

On the Kama canal in Nangarhar Province, the construction of an intake (Photo 26) led to a situation in which no water could be diverted during the summer into the canal system. The communities came together and constructed an intake themselves (Photo 27) 500 meters further downstream. As a consequence of the new construction, two upstream villages were excluded from the system and could only receive water from the first intake during the spring. Since only two communities were affected, it was not seen as a problem by the other communities; therefore, there was no attempt to rectify the situation for them.

Photo 26. Kama Canal, Nangarhar Province

Photo 27. Kama Canal, Nangarhar Province

In addition, Thomas pointed out that, with the rise of international and national projects, canal communities are waiting for assistance with maintenance work.[199] The advantage is that the labour contribution is paid for. This was also the case on the Nahr-i-Shaid canal in Laghman Province, where it was stated that the canal had not been properly cleaned for 20 years. An international project paid for maintenance and, for three months, 550 local labourers were employed. There may be a danger that outside funding of maintenance work will lead to a deterioration of the canals as communities may be waiting for funding rather than participating in annual unpaid cleanings.

7.5 The experience of PMIS in the Kunduz Basin

In November 2005, the Participatory Management of Irrigation Systems (PMIS) project was launched in both Said and Zargar canals in Takhar Province. As the social water management component of the KRBP, the programme was initiated by the government of Afghanistan and funded by the European Community. One of the PMIS project's key mandates was to facilitate the revival and improvement of collective water management practices, possibly through the formation of canal-level WUAs and the building of linkages between water users and new external agencies such as sub-basin agencies and councils.

The PMIS project had two phases. The first lasted ten months (December 2005 to September 2006). Its purpose was to get an understanding of the evolution of water access problems at canal level over the past decades and of local roles and responsibilities and collective water management

199 Thomas, PMIS, informal interview, 18 September 2007.

practices. The research entailed individual interviews with farmers, mirabs and staff members of local government agencies, in particular the Water Management Department and Agricultural Department. In addition, group discussions with farmers, including elders of the different villages, were held. To support the interviews, canal maps were created and integrated in a GIS system, under the guidance of the mirabs, in December 2005. During the irrigation season (June to September 2006), flow measurements were taken at different points along the main canal in order to better understand water distribution between head, middle and tail ends. Even though the data collected during this first phase showed that the two canal systems are hydraulically interlinked, in the second phase the two canals were treated as separate entities. The reason for this was that, according to the local practice, users of Zargar have no recognised right to the water draining out of the Said canal system.

The fact that PMIS staff began by conducting extensive research allowed a good understanding of the history of the two canals, the local water management practices, the contested water sharing situation, the hydraulic property of local infrastructure. It became clear that there is not one mirab bashi unifying the canal communities in either of these canals, but a plurality of mirabs, representing different ethnicities, upstream and downstream communities, and diverse individual large landowners. These different mirabs have equal status.[200]

Because of the knowledge gained prior to implementation, rather than following a blueprint for WUA establishment with predefined rules and rights, an approach was chosen which focused only on issues that were considered important by the different communities along the canals. Through extensive stakeholder participation, benefiting from the prior research findings, consent on various issues was reached: for example, to elect only one mirab, but also to elect a committee that controls and supports the mirab, and to determine rules for the construction and operation of mills and micro-hydropower plants.

The long research phase also led to the understanding that current water sharing arrangements are contested, that fixed water rights per jerib or per maintenance contribution do not exist, but that the current arrangement is crop-specific and influenced by location within the canal system, the existing irrigation infrastructure, the former influence of the Agricultural Department and some local water-sharing arrangements. Setting turns between sub-canals and within sub-canals is only needed in tail-end areas with higher levels of scarcity and is decided on an ad-hoc rather than planned basis.

The trust and understanding gained through the long research period also facilitated that rehabilitation of irrigation infrastructure, which was proposed by KRBP engineers in cooperation with one of the mirabs, in this case with a mirab representing only head-end Pashtun communities was reconsidered. Participatory design led to a solution that was nonoptimal in terms of irrigation efficiency, but was considered by the communities to be appropriate because it was flexible enough to deal with the contested water-sharing agreements along the canal. Overall, the extensive participatory design for the infrastructure rehabilitation, together with ad-hoc research to complement the discussions, led to further trust building and strengthened the role of PMIS.

Overall, the experience of PMIS suggests that research is always necessary before rehabilitating a canal or forming a WUA. Water management arrangements differed in each canal in the PMIS project. Even though some lessons can be transferred to other canals, overall it is important to understand local complexities. Failure to achieve this understanding could lead in the best case to WUAs that are no more than paper tigers and in the worst case to an increase of water-related conflicts.

200 This finding puts into doubt the findings of earlier AREU research, since one mirab was always identified by the local partners as the main mirab of the canal. Nevertheless, the conducted research showed that these identified mirabs were not always responsible for the whole canal.

8. Conclusion

The draft Water Sector Strategies have shown that Afghanistan takes a mixed approach to water management. A modern management approach, IWRM, including management according to basin boundaries, is promoted, as well as the expansion and rehabilitation of the irrigated area. However, the drafts of the WSS promote basin-level management only within Afghanistan's boundaries, and it is evident that expansion and rehabilitation of the irrigated area may have negative consequences for neighbouring riparian states as well as for equity between and within local communities. In the past, Afghanistan did not have the opportunity to expand the area under irrigation, so expansion was not considered during transboundary water allocations, for example in the Amu Darya Basin. The focus on expansion is also understandable, given the high number of returning refugees.

Within the July 2007 Draft WSS there appears to be a lack of confidence regarding the establishment of RBAs and RBCs, their applicability for Afghanistan, and the replication of lessons learned from pilot RBAs and RBCs. This concern reappears in the February 2008 Draft WSS, which also underplays the problem of enforcement and focuses on governance, but not enforcement, for the rural areas. In the June 2008 Draft Water Law, establishing RBAs and RBCs is not optional, and power is supposed to be transferred from the Ministry of Energy and Water (MEW) to RBCs. Nevertheless, the exemption for right-of-ways completely erodes the basin-level and integrated water management approach. Surely, the concerns about enforceability expressed in the WSS and the treatment of right-of-ways in the Draft Water Law reflect the reality on the ground, but then the question should be: why focus now, especially in the law, on basin management?

In spite of the concerns regarding applicability for Afghanistan, the different drafts of the WSS emphasise RBAs and RBCs, and even the July 2007 Draft WSS stated that, a logical consequence is the reorganisation of MEW and the privatisation of its viable organisational components. The February 2008 Draft WSS less explicitly states as a long-term objective "financial autonomy of RBAs and other public utility organisations." Compared to the November 2007 version, the June 2008 Draft Water Law makes no direct reference to financial autonomy for RBAs and RBCs. However, one could interpret Article 7 to say that they are service providers and thus able to charge for their services.

Even though the drafts of the WSS highlight the potential for participation by end-users and give the impression that RBCs will be created using a bottom-up approach (Figure 2), the June 2008 Draft Water Law gives the main power to MEW for "establishing bodies for river basins study teams and evaluating their activities." Despite the impression given of bottom-up and stakeholder participation, MEW might keep the main decision-making power and influence. MEW is even responsible for determining who will be represented on the river basin and sub-basin councils. Therefore, the approach is top-down.

Even though there is an indication of who will be represented in the councils, there is no statement within the Draft Water Law or the drafts of the WSS as to how these councils should reach an agreement or how the votes in the councils should be allocated between the different sectors. Hence, it appears likely that representation is not linked to actual water utilisation within Afghanistan or within a basin. This lack of representation would make it questionable whether decisions about water redistribution or water rights adjustments between beneficiary groups would be acceptable to those groups. KRBP documents show that canal communities have sometimes not been represented, have been under-represented, and in the worst cases have not even been present in the current sub-basin working groups, which will develop into sub-basin councils.

An additional problem is the identification of the legitimate representatives of water beneficiaries. On the one hand, the draft WSS states that the mirab system is not functional, and, on the other hand, WUAs have not been set up everywhere. WUAs did not exist in any of the places visited for this research, only mirab systems existed there. However, the canal units currently participating in the sub-basin working groups are mainly those few that benefit from the social water management component of KRBP. Hence, it is questionable whether and how other canal units could be encouraged to participate. It is doubtful that the current issues discussed, even issues such as water sharing during water scarcity, are always relevant, since not all canal units within the sub-basin are present at these meetings.

One way forward would be to use these meetings more as a platform in which the canal units can raise their concerns and share their experiences of the benefits and pitfalls of the social water management projects. However, this would transform the character of the meetings. On the one hand, they would become more an evaluation of the programme and the focus might shift from sub-basin level to canal level. Nevertheless, it might change the character of the meetings from top-down to more bottom-up, and therefore might make them more relevant for the current participants and other canal units who would like to learn from their experiences. In the long term, the meetings might take on the character originally anticipated for them.

Neither the current mirab system nor the WUAs as defined in the Draft Water Law completely represent all stakeholder groups. In addition, the mirab system is sometimes temporary, emerging during water scarcity. As the PMIS experience showed, there is also sometimes more than one mirab operating on a canal. Hence, it is questionable whether one mirab participating in these meetings can represent all the different interests within the canal. In addition, even though the WSS also mentions the currently established community development councils (CDCs), it has been argued[201] that these councils have been set up mainly for attracting and administering donor funding and external projects, but are not necessarily equipped to resolve inter- or intra-community disputes. Hence, if it comes to renegotiation of existing rights, CDCs may not be appropriate representatives of the community.

There may be some dangers inherent in donor-driven community projects. They are an acknowledgement that the state is not able to implement projects itself, and as such could further weaken the position of the state. Donor projects also have their own problems. They are bound by time and budget constraints, are mainly accountable to the donor community, and have to have fixed milestones and outputs. Given the unstable environment in Afghanistan, it is highly doubtful whether these projects can stick to their rigorous plans, and therefore it may not be possible to implement them fully. Taking the example of PMIS, only longer research led to the understanding that existing water infrastructure is contested. Hence, simple rehabilitation of the existing infrastructure could have increased the tension on the canal unit. Another lesson from the PMIS project is that canal associations should not be established with WUA blueprints but rather should focus on rules that are locally identified as important, locally acceptable and agreed upon by the whole community. The process that led to this possibly more sustainable result took a long time. It is questionable whether such a process can compete with the approach of rapid WUA creation and predefined evaluation criteria.

The communities in the canal systems visited for this research demanded the support of the government to deal with pressing issues such as micro-hydropower plants or head-enders who had changed to more water-intensive crops such as rice. Thus, it appears that there is a need for urgent action. This puts into question whether one should wait for new organisations (such as river basin councils) to be established and functioning or whether existing entities such as the irrigation departments or the governors should first be empowered, so that they could strengthen the mirabs and facilitate the enforcement of local rules.

One positive trend has been the change as the WSS

201 Hamish Nixon, AREU researcher, personal communication, 26 September 2007.

has evolved from treating water as an economic good (in the July 2007 draft) to treating it as a public good and a resource for poverty alleviation (in the February 2008 draft). The focus on water use permits and irrigation norms has, however, remained. Even though this is necessary for governmental control and planning, and could be considered very modern, it is questionable whether it is appropriate for current conditions in Afghanistan. Even the technology to measure water flow into the canal (not to mention outflow or internal distribution) is currently not available. Hence, a modern permit system would not be possible to implement. Consequently, including permits (which might be feasible in the distant future under a strong state) in the law now, when they may not be enforceable, may even weaken water governance. In this respect, the current Draft Water Law reads like a water strategy rather than a law. It would be necessary first to focus on determining how much water is used in the irrigation systems before there could be any law on permits. Observations on use could lead in the long term to a permit system. Even with better knowledge of water flows, a permit system will only be viable if there is sufficient enforcement capacity.

Even though it is not evident from the June 2008 Draft Water Law, the different drafts of the WSS seem to accept international blueprints for creating WUAs. The appropriateness of this is doubtful. Even though the current local management system functions only partially and is inequitable along the main canal, it appears to be accepted. It was previously integrated with the tax system and is reflected in the price of land. Given that the mirab system is already weakened, one has to critically question whether a completely new system, with new rules about water allocation and maintenance, can be implemented or whether the current system has to be strengthened and evened out, as previously through the local government. This would not require an externally imposed blueprint but would allow local communities to decide what kinds of rules are appropriate and enforceable. This approach was taken by PMIS. That these rules will vary between the different canal units is very likely, given the differences in water availability, infrastructure, and culture. This process will take longer and will demand rethinking on the part of the irrigation departments, to focus not only on infrastructure rehabilitation but also on the facilitation of dialogue to redefine institutions and to make organisations and positions (such as that of mirab) workable.

In the drafts of the WSS, it was pointed out that there has not been a detailed study of the current local water management system. The literature review and the fieldwork for this study have highlighted the fact that there are still many gaps in knowledge. In fact, the fieldwork highlighted new questions that were not previously reflected on in the literature. Hence, research should be a prerequisite to moving forward with the water sector strategy, an aspect that has so far been either completely ignored or so marginalised that it is easy to miss it. Research is necessary not only to better understand the "praiseworthy customs and traditions" acknowledged in the WSS, but also to enable a water strategy, a water law or the implementation of development projects to address more thoroughly the current needs of the rural communities. The February 2008 Draft WSS states as a strategic vision: "To manage the Nation's water resources so as to reduce poverty, increase sustainable economic and social development, and improve the quality of life for all Afghans and to ensure an adequate supply of water for future generations."[202] A prerequisite to management, however, is knowledge of what has to be managed (the resource) and how it is currently managed. These two aspects are not sufficiently known. It is only by knowing and understanding them that it will be possible to develop, since development implies that one knows the starting point and can define a goal and therefore set realistic milestones.

202 Draft WSS, February 2008, 17.

Annex 1: Major Infrastructural Projects

Table 4. Identified Major Infrastructure Projects

Name of Projects	River Basin	Purposes	Implementation, years			Cost estimate in Million USD		Benefit	
			Start	End	Total	First 5 years	Total	Irrigation ha	Power MW
Lower Kokcha irrigation and power project,	Amu	Ir, P, En, Re	1385	1397	12	200	1300	166,000	130
Alishing storage dam project	Kabul	Ir, Re, FC, En	1387	1393	6	70	100		
Almar storage dam project	North	Ir, WS, En, FC	1386	1391	5	42	42	3,000	
Andkhou water supply project	Amu	WS, En	1386	1389	3	10.5	12.5		
Bakhsh abad storage dam, diversion and main canals project	Hilmand	Ir, FC, P, En, WS, GWR, In, Re	1386	1396	10	150	450	60,000	20
Cheshmashafa storage dam project	North	Ir, P, Re, En, FC	1387	1394	7	70	150	200,000	
Dahala dam 2nd phase study, design	Hilmand	Ir, FC, Re,	1388	1403	15				
Dahala dam rehabilitation and improvement	Hilmand	Ir, FC, Re, WS	1387	1395	8	100	183		
Gambiri irrigation and power project	Kabul	Ir, P, En, Re	1386	1392	6	200	250	8,000	10
Gulbahar storage dam project	Kabul	WS, Ir, FC, P, In, Re, En	1387	1397	10	250	1200	60,000 also providing drinking water to the New City at Dehsabz	120
Hilmand valey development project including Nahr-e Saraj	Hilmand	Ir, En	1387	1395	8	100	200	48,000	
Kafgan storage dam project	Harirod - Morghab	Ir, FC, P	1387	1395	8	50	150		
Kajaki (gate installation) irrigation and power project	Hilmand	P, Ir	1387	1390	3	250	250	75,00	110
Kalagoosh storage dam project	Kabul	Ir, Re	1387	1393	6	120	150		
Kama irrigation and power project	Kabul	Ir, P,	1387	1394	7	200	400	12,000	45
Kamal khan flood protection diversion project	Hilmand	FC, Ir, En, Re	1387	1391	4	400	400	119,000	9
Kilagai storage dam project	Amu	Ir. P, Re, En, In, FP	1386	1393	7	100	350	90,000	50
Machalghoo Storage Dam	Hilmand	Ir, P, En, FC	1387	1393	6				
Pashdan storage dam project	Harirod-Morghab	Ir, FC, In, Re, En, GWR	1386	1391	5	82	82	5,000	
Pump schemes project	Amu, Panj	Ir	1387	1392	5	30	30	10,000	
Salma Storage dam project implementation	Harirod-Morghab	Ir, FC, Re, In	1384	1389	5	80	80	73,000	42
Shah wa aroos storage dam project	Kabul	WS, Ir, P, Re, En, In, FC, GWR	1386	1390	4	44	44	3,000	1.5
Shahtoot storage dam and water supply Project	Kabul	WS, Ir, P, Re, En, In, FC	1387	1394	7	100	100	12,000 Also, provides drinking water to the first phase of the New City at Dehsabz	
Storage dam on bamyan River	Amu	Ir, FC, P	1387	1394	7	50	150		
90 small and medium size storage dams	all		1386	1401	15	200	1000	100,000	
Upper Amu darya diversion project	Amu	Ir, P, WS, En	1387	1400	13	100	2700	500,000	1000
Worsaj storage dam, irrigation and power project	Amu	Ir, P, En, Re, FC	1387	1397	10	80	250	30,000	50

Source: Final WSS February 2008: 36-38; (19th March 2008 is the first day of the year 1387 according to the Afghan calander)

Annex 2: Minutes of 15th Taloqan Sub Basin Working Group Meeting

Date: 23/7/07

Time: 10:30 – 1:20

Venue: KRBP meeting room, Water Management Department, Kunduz

Present

#	Name	Position	Concerned Office	Phone No	Email	Membership
1	Eng. M. Salim Akbar	Director	Water Management Dept Takhar			Chairman
2	Mohd Eshaq Tawhidi	Development Officer	Environment Protection Agency Kunduz			Representative
3	Jelle Beekma	Team Leader	KRBP	0799234448	kunduzriver@ yahoo.co.nz	Secretary
4	Eng. Saeed Ahmad		Rural Development Dept Takhar	0700 709 446		Representative
5	Abdul Subor		Water Supply Takhar	077 981 5776		Representative
6	Mohd Rahim	Admin and Finance Officer	Women Affairs Dept Takhar			Representative
7	Hameedullah	Credit Officer	Electricity Dept Takhar			Representative
8	Alahj Ramazani	Extension Officer	Agriculture Dept Kunduz	0799 254 213		Member
9	Haji Najibullah	Head of	Water user Nahri Saeed			Member
10	Haji Bik	Head of	Water user Nahri Zargar			Member
12	Engineer Safiullah Noorzad	Team Leader Co-operator	KRBP			Member
13	Vincent Thomas		PMIS		Vincent.thomas@ akdn-afg.org	Observer
14	Engineer Abdullah	Engineer, Coordinator Social	PMIS	070708131	abdullahosmani@ akdn-afg.org	Observer
15	Naveed Ahmad	Administrator	Mediotec Kunduz		Naveed.ahmad@ gmail.com	Observer
16	Amin	Office Manager	KRBP	0799502037	aminanwaree@ gmail.com	Translator

Absent

#	Name	Position	Concerned Office	Phone No	Email	Membership
1	Eng. Lutfudden	Hydrology & Water Management officer	Water Management Dept Kunduz			Member
2	Eng M. Tahir Ayoub	Director	Rural Development Dept Takhar			Co-chairman
3	Razma ra Hawash	Directress	Women Affairs Dept Takhar			Member
4		Mirab bashi	Naqi Khanabad			Member
5		Mirab	Shahrawan Takhar			Member

Agenda:

1. Opening
1. Holy Quran recitation
1. Review of minutes of last meeting
1. Discussion of number of seat for sub basin council and representation
1. AOB
1. Closure

Topic	Description	Action
1. Opening by Eng. M. Salim Akbar	This meeting was opened by Eng. M. Salim Akbar Director of Water Management Dept Takhar at 10:30 and gave a review of the last meeting. Engineer Lutfudden/representative of Water Management Department Kunduz was not present in the meeting.	Kunduz Water Management Department should officially introduce a representative, in case if Eng. Lutfudden cannot attend any of the meetings.
2. Holy Quran recitation	Some verses from holy Quran were recited by one of the water users.	
3. Review of minutes of last meeting	Both English and Dari minutes were accepted.	Engineers M. Salim Akbar and Safiullah Noorzad to work on preparing a new list of permanent members from water users canals and line departments.
4. Discussion of number of seat for sub basin council and representation	*Description over page*	Engineers Mohd Salim Akbar and Safiullah Noorzad to form a technical committee on areas affected by water shortage and discuss the problems of the water users.
5. AOB	No discussion	

This meeting was closed by Engineer Salim the chairman at 1:20pm and next meeting scheduled for 30 July 07 at 9:00am in Taloqan.

Lunch was served in KRBP Kunduz.

Description of discussion of number of seat for sub basin council and representation:

JBeekma Team Leader KRBP talked about water user categories and said that there are 13 sectors of water users in the Taloqan sub basin level chosen.

JBeekma presented a map showing different areas with water availability and shortage in the whole Taloqan sub basin. He also presented the same map for sub basin Baghlan. The water availability estimation is done based on amount of rain and snow melt as the water flows upstream to downstream. He added, the calculation was done with the cooperation of the line departments' representatives, faculty teachers of agriculture and water users.

He also said that the areas coloured yellow in the map shows that there is water shortage problem and the areas with purple colour says that there is server water shortage problem and those affected areas are Taloqan, Bangi and Eshkamesh districts. He added that the problem with the water shortage is not because there was no water management but it is because of less melted snow and rain.

He also added, that is why as a technical working group we are gathered to do better water management on water consumption and distribution so that the risk in the areas with water shortage is minimized.

Eng Safiullah explained the need to finance the river basin and sub basin councils. He also showed the cost estimate based on the payments made for the Taloqan sub basin meeting by KRBP. On basis of the results of the water balance and the total water consumption, he showed what the costs would be for running the sub basin council if we relate it to the water consumption. This means we would have a service fee related to the amount of water consumed.

For a council of 25 members the fees would be around 0,01 Afs/household/year for domestic water or 2 afs per village of 200 households. The fees would be approximately 2 Afs/ha, which would mean a fee of 3700 Afs for a canal like Nar e Sayed and of 42,000 Afs for Shahrawan. A council of 12 persons would result in fees approximately half of this. On basis of these maps and the costs of the council, the group is requested to choose the number of seats. The group is also asked to decide how we will fill the seats. There are three options:

a. By water user category

b. By representing a catchment or sub basin

c. By a combination of the two

Due to the absence of other line departments and not enough time, the choice could not be made in this meeting.

Eng Safiullah re-emphasised the importance of the council as a decision maker on water use and allocation issues. The river basin agency, assisted by line departments will advice the council and function as its secretariat. Due to the important tasks and the decision-making power of the river basin, the number of seats and the mechanism for representation should be considered very carefully. More seats mean better representation and democracy, but more difficult decision making and somewhat higher costs.

Members chose to have 25 members for the sub basin council and decisions on representation of the seats postponed to next week meeting: 30 July 07, venue Water Management Department in Taloqan. Members were asked to think on representation of the seats.

Annex 3: Minutes of 13th Taloqan Sub Basin Working Group Meeting

Date: 23rd May 07

Time: 10:30 - 1:40

Venue: KRBP meeting room of Kunduz

Participants:

Present

#	Name	Position	Concerned Office	Contact	Membership
1	Eng. M. Salim Akbar	Director	Water Management Takhar	0799 242 506	Chairman
2	Jelle Beekma	Team Leader	KRBP	0799 234 448	Secretary
3	Haji Esmatullah		Environment Protection Agency	0700713181	Representative
4	Engineer Nasratullah		Rural Development Takhar	0700706651	Representative
5	Hameedullah Dilabar	Extensions Officer	Agriculture Takhar	0799873525	Member
6	Abdul Satar	Director	Water Supply Takhar	0799697675	Member
7	Sadrudden	Director	Environment Protection Agency Takhar	0700719478	Member
8	Eng. Lutfudden	Hydrology and Water Management Officer	Water Management Kunduz	0799 394 942	Member
9	Zai Boy	Mirab	Shahrawan Takhar		Member
10	Najibullah	Rep Upper Catchment	Upper Catchment Farkhar	0700598700	Member
11	Abdul Zahir	Rep	Upper Catchment PEEP		Member
12	Haji Abdul Ghafour	Community Leader	Chal Takhar		Member
13	Abdul Rahim	Community Leader	Khanabad		Member
14	Hoshang	Prog Assistant	PEEP		Observer
15	Noor Mohd	Head of Water Management	District Qala I Zal	0799245039	Member
16	Nisar Ahmad	Member	Environment Protection Agency Takhar		Observer
17	Haji Esmatullah	Relations Officer	Environment Protection Agency Badakhshan		Observer
18	Alhaj Ramazani	Extension Officer	Agriculture Department Kunduz		Member
19	Engineer Safiullah Noorzad	Team Leader Co-operator	KRBP	0773136332	Member

Absent:

1. Eng. Mohd Tahir Ayoub Director Rural Development Takhar — Co-chairman
2. Mohd Eshaq Director Environment Protection Agency Kunduz — Co- chairman
3. Mrs. Razmara Hawash Directress Women Affairs Takhar — Member
4. Taj Mohd Mirab Nahri Naqi Khanabad — Member
5. Mirab Nahri Zargar Takhar — Member

Agenda:

1. Opening
2. Minutes of last meeting
3. Planning of Water allocation for 1386
4. Discuses about chair for sub basin Council and River basin Agency
5. Any other business

Topic	Detail	Action
Top1. Opening	• Eng. M. Salim Akbar WM Director Takhar opened this meeting at 10:40am and gave a short review of the last meeting. • Discussion opened about category of water users and selection of representatives from them.	**All members to attend the future meetings regularly.**
Top2. Minutes of last meeting	• A short review of the minutes, both English and Dari versions were accepted. • Discussion on water allocation planning was done in last meeting, but a review also made in this meeting. • JBeekma TL KRBP said, in last meeting was decided about 12 categories in Taloqan sub basin and we shall discuss about water consumption by each of these categories. • A detailed PPP on water inflow, outflow and estimates on water consumption was explained by JBeekma TL KRBP. PPP attached JBeekma said we had hydro model and satellite images we know the snow and rainfall and tells us how much water we have in our sub basin and we should do our estimates based on them. • JBeekma said we should start our planning for each year in month of March, because in that month we know how much water is available in our basin and from that; we can bring better water management in our basin.	**GIS to help in better estimation of water as first estimates by the members in some parts needed to be corrected.**
Top 4: Discuses about No. of seats for sub basin Council and River basin Agency.	• JBeekma said that in next meeting we shall be ready to discuss about no of seat for sub basin council and river basin agency.	**Members shall think about no of seats for sub basin council and river basin agency for discussion in next meeting**
Top 5 : Any other business	• Noting was Specific.	

Closure: - Meeting was closed by Mr. Jelle Beekma TL of KRBP at 1:40 and next meeting will be on 23rd June 2007.

Appendix 4. International Staff Interviewed

Hamish Nixon, governance researcher, Afghanistan Research and Evaluation Unit, 26 September 2007

Hans Husselman, team leader, Gesellschaft für Technische Zusammenarbeit, 10 September 2007

Jelle Beekma, team leader, Kunduz River Basin Program, 16 September 2007

Kris Prasada Rao, Natural Resource Management coordinator, Danish Committee for Aid to Afghan Refugees, 26 September 2007

Sayed Sharif Shobair, national project coordinator, Food and Agriculture Organization - Emergency Irrigation Rehabilitation Programme, 10 and 11 September 2007

Vincent Thomas, Participatory Management of Irrigation System project team, Taloqan, 18 September 2007

Walter Osenberg, project manager, Welt Hunger Hilfe, 15 September 2007

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