Traditional Irrigation Water Management in Afghanistan

Asim Ayoub and Shigeko Haruyama
(Graduate school of Bioresources, Mie University)

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Introduction:
In Afghanistan 80% (ANDS) of the people live in rural areas and their business is agriculture. Development and stability of the agriculture sector is also very important and since Afghanistan is located in a arid/semi-arid zone, therefore water and water management approaches are essential for the people and government. Fortunately despite domination of arid zone climate in Afghanistan the country has a fair water resource in the region which most of the water (approx 80%). Favre and Kamal, 2004 come from snowmelt in summer times. Generally in Afghanistan there are two kinds of irrigation water management as the existing law on the use of water describes, (USAID,2006). The traditional or informal irrigation system which is called Mirab locally and the government (formal) irrigation system.

Traditional irrigation system (Mirab):
Traditional irrigation systems in most cases have existed for generations and have undergone many social and physical changes. Which nearly 29,000 (Favre and Kamal, 2004) informal irrigation systems are estimated to be in Afghanistan. Traditional water management systems are characterized by the following key features, (Anderson 2008; Shah 2009): A-The local community-based irrigation structures which the construction and maintenance is done by the local community financial and social capital. B-The management and distribution is done by local water masters (locally called Mirab) who are elected or selected by the community as per their experience and trust at water management in local level and who oversees maintenance, enforcement of local norms, and conflict resolution too. C-The water allocation regime is primarily based on landownership and share of contribution to the infrastructure maintenance.

According to AREU (2005), 90% of agriculture land is irrigated by traditional way and it consist primarily of surface water systems, including diversion structures, small dams and water harvesting. The surface systems irrigate areas range from a few hectares to thousands. Small-scale traditional river systems are often located in distant valleys along a stream or river and vary in size (up to 100 ha). Large-scale traditional diversion structures can cover an area of up to 200,000 ha. (Bhattacharya 2004). And secondly in this method more than 15% of irrigated land gets water from traditional underground water systems with three different methods such as karezes (3) or Qanats, springs and shallow wells, (Qureshi, 2002).

How to manage local water in Mirab system:
Historically in Afghanistan irrigation was done by farmers and land owners and there wasn’t necessity of someone to take the responsibility of irrigation water management, but as per the population growth and need for more cultivable land village’s headmen and farmers had role of water allocation, even the Mirab name was not known but the traditional management approaches have always been the same, however later the senior elder of a village community, named (Arhab or Wakiil) with agriculture department representative by holding Shuras (community council) select or elect the Mirabs, the village elders have more role on the appointing process. In case one or more than ten Mirabs depending to the canal and social structure of regions are going to manage the water also the community religious officials (Mullah) have also role in prevention of water wastage by mentioning religious thoughts (Thomas & Ahmad, 2006 and USAID, 2006). Water allocation is done in different levels by Mirabs of downstream and upstream and or tertiary canals and if the matter is out of Mirabs capability in peak water demand, community elders and agriculture department take part too. On smaller canals and plot streams the water allocates and rotates according to the area by the night-day system in fractions of 24 hours and also the water rotated through the system from small canals according to the total of night-days on the canal. Water rights however, differ from region to region, in north the flow-to-area-taxation which is called Paikal and in west it’s known as Juffgaw, to each primary, secondary and tertiary canal is allocated on the basis of land ownership, which is accepted to all irrigators and community leaders, the area irrigated by one juffgaw or paikal is variable but the taxation on each of these units is usually standard throughout the canal system. These systems have hundreds of years old; in west (Herat) it is believed that the Juffgaw system was established during the Sultan Husain Baiqara (1469–1506 AD) of Timurid ruler. In north (Balkh basin) the Paikal system is known since it was the Persian Achaemenids (6th–3rd century BC) who first established large-scale irrigation systems in the region (Lee, 2006).

Conclusion:
Afghanistan’s Water Users groups (such as Mirabs) have been damaged and/or replaced with local groups dominated by the power structure in many parts of the country which also results in inequality in distribution of water to all targeted land. However Mirabs have always been known good at conflict solution of community over access to water but the recent researches shows that almost half of the communal conflicts (25% + 19%) is belong to access to water and land respectively, (Dennys, 2009). Transmission of water from diversion weirs/intakes to farm fields is one of the important matters because large water losses and soil losses are experienced, for the long canal systems losses, flow duration, interval and rates, result in poor water distribution, also the zigzag shaped canals and streams results lots of water wastage. Although the government and international donors did some case studies and found that this system is not capable of good management for a better irrigation and agriculture future and proposed new organisational structure for WUA, but it’s in need of real and practical steps because recently Afghanistan is facing drought and shortage of crop more than before.


(1) ANDS: Afghanistan National Development Strategy. (2) AREU: Afghanistan Research and Evaluation Unit