Technology Fact Sheet for Adaptation

O. Water Users Associations [i]

Technology characteristics	
Introduction	A Water User Association (WUA) is an organization for water management made up of a group of small and large-scale water users, such as irrigators, who pool their financial, technical, material, and human resources for operation and maintenance of a local water system, such as a river or water basin. The WUA is usually run out of a non-profit structure and membership is typically based on contracts and/or agreements between the members and the WUA. WUAs play a key role in integrated approaches to water management that seek to establish a decentralized, participatory, multi-sectorial and multi-disciplinary governance structure.
Technology characteristics/highlights	A WUA is a unit of individuals that have formally and voluntarily associated for the purposes of cooperatively sharing, managing and conserving a common water resource. The core activity of a WUA is to operate the waterworks under its responsibility and to monitor the allocation of water among its members. Key functions of a WUA include: - Operate and maintain a water service or structure; - Management of a water distribution system, including setting tariffs and collecting fees; - Monitor water availability and use under climate uncertainty; - Provide technical assistance in areas related to water use/irrigation - Resolve conflicts related to water use;
Institutional and organizational requirements	WUA is generally run out through institutions that have experience with collective water management, such as irrigation boards. Where an appropriate national framework is in place (usually a Water Act or Irrigation Act), a WUA can become an independent legal entity upon approval of an application to a higher authority such as the Ministry of Energy and Water. The WUA is then able to establish a governing document or constitution, a membership and a bank account. The WUA should interact with other actors involved in water management. - It is likely that the activities of a WUA will be relevant to more than one government department, such as the Ministries for Energy and Water, Agriculture and the Council for Development and Reconstruction. The success of the WUA will therefore depend on support from a range of different government actors and will include financial, technical and operational assistance and collaboration.
Operation and maintenance	This can include the collective infrastructure maintenance, such as canal maintenance, pump operation and the monitoring and collection of water use charges.

Endorsement by experts	The technology is successfully applied in different countries. In Lebanon, implementation of WUAs should start to take place, but, first of all, a national policy (such as a Water Act or Irrigation Act) must be developed to support organizational and institutional requirements for WUAs.
Adequacy for current climate	Fits well, both for present and expected climate
Scale/Size of beneficiaries group	The technology could be well addressed to different beneficiaries including: farmers, local communities and municipalities profiting from a collective water source, NGOs that support the establishment of WUAs, the Ministry of Energy and Water, the Ministry of Agriculture, Water Establishments, the Litani River Authority, etc.
Disadvantages	The cooperative model of organization on which the WUA approach is based can have disadvantages if the area of operation does not match a hydraulic boundary and may actually stimulate conflict over resource use. Conflicts related to irrigation farming occur between upstream and downstream farmers when the upstream farmers are (perceived as) using too much water. A WUA could heighten conflict between users where its membership is based on an existing community boundary, rather than a representative selection of all water users within a particular system.
Capital costs	
Cost to implement adaptation technology	The cost of establishing and maintaining a WUA will depend on its size, management structure, area of operations and functions. WUAs usually levy a joining fee, and then an annual membership fee. During initial formation phase, additional financial support may be required to ensure the establishment of the WUA. Where the establishment of WUAs is supported by national policy (such as a Water Act or Irrigation Act) there may be a mechanism in place for provision of this funding support. Furthermore, this funding support may be on-going, especially in countries where WUAs are considered part of a government-led decentralization programme. Independently, WUAs can generate income by charging for water supply and distribution services and provision of agricultural outreach services.
Additional cost to implement adaptation technology, compared to “business as usual”	All the mentioned above can be considered as additional cost, if we consider the local water committees equivalent to “business as usual”.
Development impacts, direct and indirect benefits	
Direct benefits	Prioritize investment needs for water management adaptation strategies, such as irrigation, and monitor their effectiveness. Coping with water shortage Increase efficiency of water resources Improved agricultural productivity
Reduction of vulnerability to climate change, indirect	WUAs can play a critical role in changing from centralized control of natural resources to local management. This is particularly important for climate change adaptation efforts whereby local monitoring of water resources, improvements in infrastructure (such as canals and irrigation) and public participation in decision-making leads to more reliable and equitable distribution of supplies.

	Monitor the impact of climate change on water resources. Empower water users and decision-makers to manage and allocate water resources with consideration for climate change.
Economic benefits, indirect Employment Growth &Investment	 Can create many job opportunities since this technology is based on a participatory approach Can create investments for local communities
Social benefits, indirect Income	 The technology can lead to improved agricultural productivity, which in turn helps to raise incomes
Environmental benefits, indirect	The formation of a WUA can also generate positive impacts for the environment. For example, improvements to canal and irrigation schemes can reduce water logging and salinity problems. By providing technical assistance to local farmers, WUA members can also have a direct impact on improving soil, water and crop management practices. The technology is considered among the most sustainable alternatives to cope with water shortage. It would have a number of advantages that include good management between water supply and demand, better allocation of water resources, and providing sound solution to water scarcity and climate change. Moreover, improvements to canal and irrigation schemes can reduce water logging and salinity problems.
Local context	
Opportunities and Barriers	WUAs can offer an opportunity to contribute to the reconstruction of communities through conflict resolution. WUAs also provide a suitable organizational structure through which to support a range of participatory initiatives (such as water resource monitoring) that can help strengthening local capacity to make decisions about natural resource management and agricultural production options in the face of possible climate change scenarios. Among the major barriers are the absence of legislative framework, and the individualist mentality of the local communities and water users.
Status	Not present in the country.
Timeframe	Medium term, as creating the enabling environment requires time.
Acceptability to local stakeholders	The technology is more or less accepted by local communities, due to the inherited water committees and water shares in collective water source. Moreover, it is compromised by the conflicts that can rise between upstream and downstream beneficiaries.

[i] **This fact sheet has been extracted from TNA Report – Technology Needs Assessment Reports For Climate Change Adaptation – Lebanon. You can access the complete report from the TNA project website http://tech-action.org/**