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The Reconfiguration of Participatory Irrigation Management in Water Users Associations: Evidence from Uzbekistan & Kazakhstan

Andrea ZINZANI*

Introduction

In the last two decades water resources management in Central Asia has been strongly affected by the collapse of the Soviet Union and the subsequent shift from Soviet state control to new independent states, leading to different issues related to the socio-political, technical and environmental spheres. Since the nineties water resources management in the Aral Sea basin has shifted from a pure technical aspect, carried out by centralised state water bureaucracies, to a socio-political and economic concern, involving a wide range of actors and leading to several institutional and organisational reconfigurations. Specifically at the local level, the dismantling of state and collective farms and the rise of peasant farmers has led to serious social and technical shortcomings, due to the fact that the irrigation systems were designed for large-scale agriculture.

In order to address this transitional water management context, since the mid-nineties several international agencies and development organisations, such as the World Bank, the Asian Development Bank, USAID and others, have sought to promote in the region the concepts of irrigation management

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transfer (IMT) and participatory irrigation management (PIM), as well as the subsequent design of water users associations (WUAs). These concepts (IMT and PIM) and related initiative (WUA) aim to a decentralisation in water management (i.e. a transfer from state authorities to water users) in order to increase the consciousness of farmers towards water saving and canals maintenance, to promote a participatory approach in decision-making procedures and in general environmental, economic and social sustainability. In the last decade the IMT and PIM concepts, their rationale, and the implementation of WUAs, in particular in developing countries, have been strongly debated by both academia and water professionals. For several years the main thought has been that successful WUAs could be engineered, in terms of elaborating a successful example which could be implemented worldwide, often disregarding the socio-political context in which irrigation systems are embedded.

This article aims to discuss the initiative of water users associations inspired by the IMT and PIM, its implementation process and its logic at the local farm level in Uzbekistan and Kazakhstan, in a comparative approach. Reflecting on these issues, it is relevant to analyse and understand according to what logic and rationale the WUA initiative was implemented in Uzbekistan and Kazakhstan, and whether it has potentially led to significant changes (according to PIM rationale) in local level water management. For this analysis, we have selected two WUAs in the Uzbek province of Samarkand, physically included in the Zeravshan valley, and three WUAs in the Kazakh province of South-Kazakhstan, included in the Arys valley (see map in Annex n°11). These valleys have been selected because they are among the most important and largest waterscapes of the central-downstream section of the Aral Sea basin. Since the fifties, large-scale irrigated schemes have been designed in order to extend irrigated areas and develop cotton agriculture. After independence, both Uzbekistan and Kazakhstan have been involved in donors-based projects promoting the creation of WUAs. Our research methodology rests on a qualitative comparative approach. Semi-structured interviews, field-surveys and informal talks have been conducted with the staff and the members of targeted WUAs, state water organisations at the local level, and independent farmers.¹

¹ Field work has been conducted in 2011 and 2012, with the support of Auezova State University of Shymkent (Kazakhstan) and International Water Management Institute in Tashkent (Uzbekistan).

The Conceptual Framework of the Water Users Association Initiative

The concepts of irrigation management transfer (IMT) and participatory irrigation management (PIM) have been discussed within the international water community since the eighties, when several states, in particular Asian and African developing countries, started to reorganise their water sector in a context of political reconfiguration and economic reassessment. Indeed, they realised that large scale investments in public irrigation schemes carried out by central governments since the sixties had not achieved the expected increase in productivity, due to technical and organisational weaknesses (Hunt, 1989, pp. 82-83). Moreover since most of these hydraulic infrastructures have been built in a short time in the wave of the fifties hydraulic mission – in particular in centralised states such as the Soviet Union and the People's Republic of China – they started to deteriorate in the eighties due to a lack of funds for operation and maintenance (Wittfogel, 1957, pp. 30-35; Ghazouani *et al.*, 2012, pp. 8-9; Dukhovny & De Schutter, 2011, pp. 36-37).

Focusing on Sahelian countries, Faggi (1991) claims that a structural adjustment was necessary to improve the maintenance of irrigation infrastructures through the transfer of management and control procedures from state administrations to water users. In Asia, most of state irrigation schemes are physically, economically and financially underperformed, and the state bureaucratic management of these facilities seems to be an inappropriate solution (Mukherji *et al.*, 2009, pp. 22-23).

According to these statements, donors and development banks, inspired by the neo-liberal idea that water infrastructures should not be exclusively managed by the state, have started to promote through different projects and initiatives the concepts of IMT and PIM in order to support decentralisation, participatory approach and sustainability (Molle, 2008, pp. 138-139; Mukerji *et al.*, 2009, pp. 1-2; Ghazouani *et al.*, 2012, pp. 8-9; Zinzani, 2014, pp. 1-2). Irrigation management transfer (IMT) is the process that seeks the relocation of authority and responsibility from governmental agencies in charge of irrigation systems to the hands of non-governmental organisations such as WUAs or private entities (Garces-Restrepo *et al.*, 2007, pp. 13-14), who are usually considered as recipients of the transfer. There are various degrees of IMT ranging from 'total IMT,' when the ownership of the irrigation facilities is totally transferred to water users, to 'partial IMT,' in case

the ownership is retained by the government while management and control are transferred to the users (Mukherji *et al.*, 2009, pp. 3-4; Ghazouani *et al.*, 2012, p. 7). When management functions are transferred to a farmers' organisation, which should participate in decision-making for maintenance and water allocation (in accordance with the government requirements), the reform process is called participatory irrigation management (PIM) (Uphoff, 1986, pp. 5-6). The PIM is frequently used as a first step to achieve a total IMT, as occurred in most Asian states in their way to decentralisation (Mukherji *et al.*, 2009, p. 3).

In the world, the initiative mostly promoted by development agencies and donors to achieve IMT is the water users association (WUA). A WUA is a group of farmers, usually physically included in a single hydraulic unit, command area or irrigation district, working as a non-governmental organisation and managing irrigation systems partly or fully (Salman, 1997, pp. 2-3). In fact the WUA's staff can manage the whole irrigation system (total IMT), but in most cases it is responsible of the secondary or the tertiary level of the canals network (Garces-Restrepo *et al.*, 2007, p. 22). The associations are established and structured along three main domains of responsibilities: water management, financial management and operation and maintenance (Ghazouani *et al.*, 2012, p. 8). Despite the diversity of cases depending on the relation with state organisations and the achieved degree of IMT, WUAs are usually involved in water allocation in terms of schedule, maintenance of technical facilities, and collection of water fees necessary for the financial sustainability of WUAs. As for their organisational structure, WUAs are characterised by a horizontal participatory approach in decision-making, social equity and transparency, in line with the idea of democratisation and market-friendly irrigation systems management.

The creation and performance of WUAs are influenced by external factors, such as the socio-political and economic environment, as well as internal factors, as the bylaws, membership criteria and social dynamics (Wegerich, 2006, pp. 102-103). Reflecting on these issues, a debate between researchers, development practitioners and donors arose in the last decade about the evaluation of WUAs performance: different development banks consider that performance is related to the achievement of IMT/PIM rationale, but it is challenging to draw a line between success and fail, because of the complexity of WUAs' mechanisms as social interactions, sense of

responsibilities, technical capacities and accountability (Ghazouani *et al.*, 2012, p. 12). Contesting the view that WUAs' management can be engineered, some authors argue that their success depends on specific contexts and conditions which are challenging to replicate elsewhere, in particular in countries where the socio-political environment is not supportive for WUA initiatives (Mukherji *et al.*, 2007, p. 2). Furthering the debate and reflecting on the IMT/PIM concepts, this contribution explores WUAs' implementation process, its logic and the adaptation of this initiative to the Central Asian local socio-political context.

The WUA Initiative in Central Asia: Evidence from Uzbekistan and Kazakhstan

In Central Asia the IMT/PIM process was firstly promoted by development agencies and donors during the mid-nineties, as a response to the dismantling of state and collective farms (*sovkhoz* and *kolkhoz*). Scholars consider that the importance of supporting IMT/PIM at that time was related to the following issues, widespread in all Central Asian states: the rise of the independent farmers and the subsequent necessity of a fair and equal water allocation; the deterioration of irrigation facilities; and the national budget reduction, which did not allow operation and maintenance of irrigation systems (Abdullaev & Mollinga, 2010, pp. 89-90; Wegerich, 2006, pp. 21-23; DFID, 2003, pp. 7-8).

However the five Central Asian states differ in their promotion of IMT/PIM and creation of WUAs. In order to get a deeper perspective of water reforms, let's for instance underline some specific differences between Uzbekistan and Kazakhstan concerning agriculture and rural economy. In Uzbekistan the majority of large-scale agriculture, which is based on cotton and wheat production, is controlled by the state through an agreement between farmers and local authorities. In Kazakhstan agricultural economy is based on market-free principles, and farmers are allowed to orient their crop plans depending on land, water supply and market demand.

In Uzbekistan the creation of WUAs started at the end of the nineties, because of the poor maintenance of irrigation systems and following the 1998 land reform aiming at to the reorganisation of collective farms. If the first pilot project was supported by the Uzbek government itself, WUAs

were further influenced and inspired by the European Commission through its technical assistance programme TACIS and the Central Asian irrigation research institute SANIIRI (Wegerich, 2000, pp. 7-8). In 2000-2001, the first experimental WUAs were created by state authorities in the Uzbek province of Khorezm and quickly showed positive results. In the same years various international organisations (USAID, World Bank, Asian Development Bank) offered their assistance and pressed Uzbekistan to extend the WUA initiative at national level (Zavgorodnyaya, 2006, p. 84; Veldwisch & Mollinga, 2013, pp. 3-4). This promotion of WUAs by donors was meant to democratise local level water management, through privatisation and participatory approach, financial self-management and a more equitable water distribution (Molle, 2008, p. 134). According to the global water rationale, the establishment of WUAs should come from water users. However in Uzbekistan, their creation was ordered and formalised in 2002 by the decree n°8-5/1/2002 of the Council of Ministers in the framework of the national program of measures on improvements of irrigated lands (Yalcin & Mollinga, 2007b, pp. 11-12). WUAs were registered by the Ministry of Justice as non-profit associations of water users/consumers managing and maintaining tertiary level water facilities; hence they were expected to include large cotton and cereal farmers as well as small household plots owners. In the decree there was no statement about the territorial or physical aspects of WUAs (NBT REPORT, 2012, pp. 9-10). The extension of WUAs took several years and was completed in 2008, with discrepancies throughout Uzbekistan due to variations encountered during the dismantlement of collective farms (Zinzani, 2011, p. 465). In 2009 a new measure was issued by the government in order to strengthen the WUA initiative in conformity with the global water rationale: according to the law n°240, WUAs have to be based on hydrologic principles or other conditions that ensure sustainable water management, and the heads of the associations have to be water users and not local hydraulic bureaucrats (NBT REPORT, 2012, pp. 14-15; personal communication, 2012). Despite this clarification, various authors report that in the last years, the establishment of WUAs in Uzbekistan has been mostly conducted by bureaucrats and influenced by their control of water resources (Wegerich, 2006, pp. 115-116; Zavgorodnyaya, 2006, pp. 160-161; Veldwisch & Mollinga, 2013, pp. 4-5; Zinzani, 2015, pp. 180-181).

In Kazakhstan WUAs developed at the end of the nineties in order to meet the same organisational and financial issues. In 1997 the Kazakh Committee of Water Resources provided water users with guidelines on how to establish a WUA (Burger, 1998, pp. 7-8). But in the following year, they got a larger support through development projects funded by international donors (WB, USAID, ADB) and promoting IMT/PIM approaches (Wegerich, 2008, pp. 48-49). Credits and loans were provided to farmers to create WUAs at the level of former collective farms. But in order to properly work, the new WUAs needed an appropriate legal framework to formalise their institutional status, governance and responsibilities. In addition to the new Water Code of 2003 supporting integrated water resources management, the law n°404/11 formalised the existing WUAs as rural consumers cooperatives of water users (*sel'skie potrebitel'skie kooperativy vodopol'zovatelej*) (Ghazouani *et al.*, 2012, pp. 18-19; Zinzani, 2014, p. 4). According to this new institutional framework, WUAs have to register as non-governmental organisations with clear mention of their director, members and responsibilities. Although donors emphasised the importance of hydraulic principles, the Kazakh WUAs are primarily based on administrative boundaries (former collective farms) and sometimes only on hydraulic principles. Their sizes range from approximately 1,000 to 4,000 ha. As underlined in the law, WUAs are responsible for operation and maintenance, as well as financial management (water fees have been introduced in 1997) of water facilities at secondary and tertiary levels. Secondary canals are leased through a contract with district water departments (*Kommunal'nyj vodkhoz*). Discrepancies can be observed at local level. Indeed, WUAs do not exist everywhere, because their creation depends on the initiative of water users themselves. In many areas the management and distribution of water are still under the control of district water departments (Zinzani, 2015, pp. 9-10). For instance, in Makhtalar district of South-Kazakhstan province, where donor-based projects were implemented and loans released, WUAs cover the whole irrigated area, while in Otrar district, water users had to face the resistance of district water departments. Some WUAs in Kazakhstan do not operate transparently and have problems of accountability and management. IMT/PIM was badly planned and the withdrawal of the state was too rapid (Zimina, 2003, pp. 100-101; Wegerich, 2008, p. 50). Despite these shortcomings, the institutional reconfiguration is still in process. According to the members of province level state enterprise (*Kazvodkhoz*), district level authorities will be dismantled

very soon, because of financial shortages and technical failures. Instead, new WUAs might be created by water users, or the operation and maintenance of secondary canals might be redistributed from district water authorities to *Kazvodkhoz* (personal communication, 2012).

Implementing Participatory Irrigation Management. The Case of Samarkand Province (Uzbekistan)

Geographical Background of the Middle Zeravshan Valley and its Waterscape

Samarkand province lies in the Central-Eastern part of Uzbekistan and belongs physically to the middle Zeravshan valley. Zeravshan river originates in Northern Tajikistan and flows on 740 km through Samarkand and Bukhara provinces, but does not reach the Amu Darya river, because of water diversion for irrigated agriculture in its middle and lower parts (Benâminovič & Terzinskij, 1975, pp. 144-146). The middle Zeravshan valley is one of the most important waterscapes of Central Asia and its territorial development, through the construction of canals and reservoirs, dates back to the ancient times. It stretches 60 km N-S and 200 km E-W and it is surrounded in the Eastern and Northern part respectively by Zeravshan and Turkestan mountain ranges, and in the Western and Southern part by steppes (Bensidoun, 1979, pp. 18-19). The complex middle Zeravshan valley's canals system starts from the dam 'First of May' on the border between Tajikistan and Uzbekistan and stretches on both sides of the valley. Major canals, such as Dargom, Bulungur and Pajaryk, date back to the Sogdian civilisation and the Timurid emirate, but the modern irrigation system was developed since the fifties. During this period the Soviet Union has started to carry out the hydraulic mission with the aim of extending the area of the waterscape and developing intensive cotton farming. Irrigation infrastructure projects came to an end in the late eighties, and nowadays nine main (*magistral'nyj*) canals operate. Until the 2000s, water and canals management at province level was under the control of Samarkand province water department (*Oblastvodkhoz*). Following the 2001 Programme of measures on improvement of irrigated lands, this department was reorganised in 2003 into the Zeravshan Basin Irrigation System Authority (BISA), based on hydraulic principles. Inside the Authority eight sub-basin agencies were

created named Irrigation System Agencies (ISAs) with the aim of bridging the relations between state authorities and water users associations (Yalcin & Mollinga, 2007b, pp. 13-14).

State and Local Political Logics in Conflict with PIM: Urgut and Nurabad WUAs

Urgut and Nurabad WUAs have been selected for their organisational and territorial characteristics in respect to the river and the canals system (see map in Annex n°12). Urgut WUA is located in the upstream side of the canals system (South-Eastern part of Samarkand province) in the foothill area of Čakylaân mountains. The WUA territory is crossed by canals of the Southern irrigation network: Ângidargom, Ângiaryk and Mašini/Beton. Following the afore mentioned 2002 decree on WUAs, the Urgut district water department (*Rajonvodkhoz*) was reorganised in 2003 in the Urgut WUA and registered at the district department of Justice as a non-profit organisation. Urgut WUA was created on the basis of the administrative boundaries of the district, hence no changes in boundaries have occurred since Soviet times. The WUA irrigated land covers 30,400 ha, including 24,200 ha of farmers' land (the rest consisting of small household plots).

Interestingly instead of being created by water users according to the PIM principles and rationale, as stipulated in the law n°240 of 2009, the WUA was established by decision of the district government and the province water bureaucracies. Two anomalies can already be noted: the WUA is not based on hydraulic boundaries, and it was not created by independent farmers. In addition, the management unit appears ten times bigger than what is specified in the decree of 2002. As the Urgut WUA director put it, the association was created according to the principle 'one district – one WUA,' and without respect to the guidelines included in the national measure. Reflecting on this distortion of the decree, it appears clearly that this initiative was supported by province level water bureaucrats in 2002 and accepted by their national counterparts (Wegerich, 2014, pp. 6-8; personal communication, 2011). Also, the director was appointed by members of the basin authority and not elected by farmers, limiting a participatory approach in the WUA decision-making process. Although a water users council was created, as argued by the director, it includes only the governing board (consisting of 3-5 members); most of water users have never

been involved in the council, while others have not even been informed of its activities (personal communication, 2011). The organisational structure of the Urgut WUA is in contradiction with the PIM rationale, which supports a participatory approach, a horizontal management and a roll-back of the influence of state authorities.

Concerning financial management, an irrigation service fee has been unofficially introduced since 2008, but most farmers do not contribute to it because they are involved in state agricultural production (cotton and 50% of wheat) or in goods that are crucial for the Uzbek rural economy (tobacco and grapes). Carrying on a Soviet practice, they receive free water in order to fulfil the state annual harvest plan.²

It should also be noted that water users have not raised any issue related to annual water allocation; they acknowledge that water resources are abundant on their territory and delivered in time and fairly to all users. This is mostly due to the physical location of Urgut WUA, close to main canals and mountain streams, and to the technical and organisational experience of Urgut WUA hydraulic bureaucracy, including the effective work of water controllers (*mirob*).

Created in 2003, the WUA of Nurabad is located in a peripheral zone of Zeravshan waterscape mostly characterised by steppes. According to the logic of 'one district – one WUA,' supported by province hydraulic bureaucracies, Nurabad WUA is based on the administrative boundaries of the former district water department. Due to its physical characteristics, the irrigated land amounts to 6,088 ha, less than 10% of the district, and lies along the Eski-Anghor canal in the East and the Narpaj canal in the North (Zinzani, 2011, pp. 11-12). Similarly to Urgut, the head of Nurabad WUA was appointed by the provincial state department, in 2003, and has remained at his position since then. According to him, there was no need to divide the territory of the former district water department because of the limited irrigated area (personal communication, 2012).

But unlike Urgut, irrigated water is unequally allocated because of the considerable water collection in the upstream section of Eski-Anghor. This

² Veldwisch & Mollinga (2013) have observed in the Khorezm province the same shortcomings in participatory approach and irrigation service fee, as well as Zagorodnyaya (2006) and Wegerich (2000).

leads to water scarcity in the WUA lower territory. According to water users, this unequal water distribution is due to a bad management and therefore they often have to organise water turns by themselves (personal communication, 2011-2012). And several water users refuse to pay water fees, challenging the WUA financial management. The participatory approach, a milestone of the PIM, is not effective since water users meet the WUA staff twice a year at the beginning and at the end of the vegetation season, but they have no possibility to influence decision-making procedures. The contacts with ISA and BISA, the state water organisations, are a prerogative of the governing board, which was in turn appointed by the basin level state organisation.

Based on this analysis of the two WUAs, we can draw some conclusions. Concerning the management unit, the WUAs context in Samarkand province represents a unique case in comparison with other regions of Uzbekistan where WUAs were organised on the territories of former collective farms. The organisational principle 'one district – one WUA' was promoted and sponsored by the former province level state water department and accepted at the national level. At the time of reforms, a strong political connection existed between the head of Samarkand province water department and the Ministry of agriculture and water resources (Wegerich, 2014, pp. 5-6). In addition the participation of water users in the decision-making processes is almost absent and, in general, there is a lack of transparency in internal regulations and financial management. WUAs heads and governing boards were appointed by district level hydraulic bureaucracies. Therefore we can advance that in our case studies the implementation of PIM has just been done on paper but the transfer of irrigation responsibilities has never occurred and rationale, management and practices have not changed.

An Ambiguous and Weak Move Towards the PIM: the Case of South-Kazakhstan Province (Kazakhstan)

Geographical Background of the Arys Valley and its Waterscape

The Arys valley, which lies in the Southern part of Kazakhstan, is one of the largest irrigated area of the country and it is administratively included in South-Kazakhstan province. The river originates in the Talas-Alatau range (Tûlkibas district), which is part of the Western Tian Shan mountains, and

flows into the Syr Darya river. With 378 km in length and an average run-off of 46 m³/s, it is one of the longest Kazakh tributary of Syr Darya. The irrigated area covers 170,000 ha mostly in the central-downstream side of the valley. The upstream part is not irrigated because of physical obstacles (hills and mountains), and irrigated agriculture is conducted only on branches of the Arys river. Unlike the Zeravshan valley in Uzbekistan, where irrigation existed in the ancient times, hydraulic infrastructures in the Arys valley have been developed since the fifties and the Soviet hydraulic mission, to grow wheat and fodder (see map in Annex n°13). The Arys canal was built on the right bank of the Arys mid-stream in the sixties. It is 20 km long and connects the river with Bogun reservoir, which stores the winter flow (370 million m³). Downstream of the reservoir, the Arys-Turkestan canal irrigates 55,000 ha of steppes, through 55 secondary canals. In the lower part of the valley, close to Syr Darya, another important irrigation system was built in the Otrar district in Soviet times: a network of three canals (Kokmardan, Šaulder and Altymbekov) originating in the Šaulder dam irrigates 35,000 ha.

Concerning the management of these water infrastructures, a 1996 decree has distributed responsibilities between the Aral Syr Darya river basin agency (including Kyzylorda and South-Kazakhstan provinces) and the republican state enterprise *Kazvodkhoz*. The basin agency is in charge of monitoring water use, consumption and quality, and *Kazvodkhoz* controls the main canals and reservoirs of the province, and is responsible for water allocation to district water departments and to WUAs.

A Weak Implementation and a Local Adaptation of Participatory Irrigation Management: Tûlkibas, Karaspan and Mahambet WUAs.

For this research, three WUAs were selected in South-Kazakhstan province: Tûlkibas WUA, located in the homonymous district, Karaspan WUA, located in Ordabasy district, and Mahambet WUA, located in Otrar district. In Soviet times water allocation and secondary canals control and maintenance was managed by district water departments (*Rajonvodkhoz*). Until 2005 these departments were funded by the state budget and after, by district authorities. The promotion of the IMT/PIM has initiated at the end of the nineties and the first WUAs were established with international donors support. In 2003 they were officialised by a law issued by the Council of Ministers. During the last years, most WUAs have faced financial shortages,

due to the limited funds available at district level. Those still in operation are now experiencing a complex water management, divided between district authorities and water users associations.

Located in the upstream side of the Arys valley in the Eastern part of the province, Tûlkibas WUA was organised in 2011 only (see map in Annex n°14). Interestingly neither have water users asked for the creation of the WUA, nor have district authorities and the water department supported the PIM rationale. In 2011 the WUA was established by members of the district water department as a result of its bankruptcy in 2010, due to financial, technical and organisational weaknesses. Therefore the department shifted into the Tûlkibas WUA, registered as a non-profit association and leasing the network of secondary canals from the district government. Based on the administrative boundaries of the district, the WUA covers 17,000 ha of irrigated land, located by the river and reachable through a small network of secondary canals and streams. Concerning the organisational structure and responsibilities, its head and staff are the same as in the former water department (no elections were organised). Despite an increase of irrigation fees, there was no improvement in canals operation and maintenance. As for governance, the WUA board has not promoted any participatory process and water users have not expressed strong interest in influencing the governance (personal communication, 2012). As stressed by the director, part of the staff could not be paid in 2012. The lack of funds did not sustain the maintenance of water facilities and the WUA stopped operating in autumn 2012. The district court has been asked to find a solution. One option would be to create a new WUA, with a distinct governing board. This should be at the initiative of water users and would require organisational, technical and financial capacities. Otherwise there is a risk of control back to the district organisation. As stressed by a member of *Kazvodkhoz*, the mechanisms and aims of the IMT/PIM have not been sufficiently supported and developed both by water users and the district water department.

Following the 2003 law, Karaspan WUA was established by a hydro-technician of the former Karaspan state farm in 2005, along with two other WUAs in the district of Ordabasy and with no support from international donors. The three WUAs cover only 8,000 ha of irrigated area, that is 25% of the total district irrigated land (32,000 ha). The 75% remaining land is still under the control of Ordabasy district water department (see

map in Annex n°15). Nowadays, the department is experiencing financial shortages and there are ongoing discussions between the district government and *Kazvodkhoz*, concerning its future operations. Karaspan WUA covers 4,265 ha of land coming from two former state farms. Water is provided through eighteen secondary canals connected with the Karaspan main canal, itself originating in Arys river. These facilities are property of the district government and the WUA has a five-year leasing contract of the canals. The WUA governing board (head, accountant, two hydro-technicians) considers that the district water department lacked organisational and technical skills in managing water allocation. Currently water is provided according to clear schedules and irrigation fees are collected. The WUA is able to improve the maintenance of the canals and to install new measuring devices (personal communication, 2011). Nevertheless, no election has been organised to change board members in the last decade. Although the WUA ensures suitable water allocation, financial management and facilities maintenance, a participatory approach is still lacking to create a WUA council. The staff meets water users only twice a year to discuss water schedules and agricultural issues. A top-down approach still characterises the WUA but most farmers declare that the current structure fulfil their tasks in a fair way and that there is no reason to ask for a change (personal communication, 2012).

Mahambet WUA has been established in 2007 in the downstream Otrar district. What makes this WUA a unique case, is that it is the only water users association which is currently operating throughout the district. Out of 20,500 ha of irrigated lands, 16,000 ha are still under the control of Otrar district water department after the failure of two WUAs created in 2008 and dismantled two years later. Rather than promoting the creation of new associations, the district water department took back the control of its former water facilities and irrigated lands, as did water departments of Ordabasy and Tûlkibas districts. In this unstable context, Mahambet WUA was created out of the Aktûbe state farm (4,500 ha). Although it was officially registered in 2007 as a WUA, the association was operating informally since the end of the nineties. This was made possible by the fact that irrigation water is flowing from Bogun reservoir, under the *Kazvodkhoz* control. Users were therefore in relation with this state organisation rather than with the district water department.

As in Karaspan, the board of Mahambet WUA included the staff, who was in charge of irrigation in the former state farm, and this governance structure was never questioned or changed. The participatory approach in decision-making has not been supported. Mahambet WUA farmers consider that they are able to discuss informally and solve potential issues because of their small number. Water allocation and maintenance of secondary canals are run in a much better way than the district water department (personal communication, 2012). In 2012 Otrar district water department entered in conflict with Mahambet WUA members about the term of the leasing contract and therefore the potential dismantling of the WUA. As confirmed by members of *Kazvodkhoz*, the district water department was facing a financial crisis, and therefore in a difficult position to control water allocation in new lands. The district court is now in charge of solving the dispute.

The analysis of these three WUAs shows that the current status of PIM in South-Kazakhstan province is highly heterogeneous and reveals a general weakness and an ambiguous approach. The WUAs appear weak and influenced by local technical, financial and socio-political issues and PIM has not been enough supported by water users themselves. Tûlkibas WUA represents a particular case, due to the local context, where on one side the former staff of the district department was not able to reorganise itself as a WUA, and on the other the initiative has not been financially supported by their members. Despite these shortcomings, Tûlkibas water users were actually not affected by a lack of water resources or unequal water allocation because of the geographic location of their land, irrigated by Arys river and its streams. In Karaspan and Aktûbe WUAs, farmers have stressed a general improvement in water allocation after the institutional reconfiguration and they claimed that WUA hydro-technicians and water distributors pay more attention to water facilities maintenance and manage more properly water distribution. Karaspan and Aktûbe WUAs show similarities and common dynamics. The capacity of the staff of former state farms have granted an organisational stability, a fair performance and the reliance of the water users, without questioning the top-down governance. In fact, a move towards a participatory and bottom-up approach has not occurred, and existent socio-political structures were preserved. Hence it seems clear that in the last ten years the participatory irrigation management rationale did not have a strong impact in leading a change in Kazakh local level water management.

Reflecting on Participatory Irrigation Management in Uzbekistan and Kazakhstan

Although the reform process towards participatory irrigation management has been initiated in Central Asia, and specifically in Uzbekistan and Kazakhstan, since the end of the nineties, the evidence from the two case-studies shows that the process is influenced by a broad range of socio-political and technical issues and by contrasting, resistant and ambiguous methods and mechanisms.

Concerning the institutional framework, the WUA initiative was formalised through a law in Kazakhstan, but only through a decree in Uzbekistan. To achieve the transfer of responsibilities and related rationale, two actors are needed: on one side, the state and its departments, which have to institutionally and politically support the move, and on the other side, water users, who have to support the initiative and gain the capacities to self-organise as an independent association.

In the Uzbek Samarkand province, the PIM concept has not been concretely supported by state actors and WUAs were not designed by water users. The associations were institutionally and organisationally created by district level state hydraulic bureaucracies, so that they keep guiding and controlling local level water management. As stated also by other scholars (Wegerich, 2006, pp. 123-124; Zavgorodnyaya, 2006, p. 185; Veldwisch & Mollinga, 2013, p. 12), the WUA appears to be a new post-Soviet initiative of state control of local level water resources; it is only a change in name of the district water departments. In fact, it is relevant to state that the conceptual idea of water responsibilities transfer, and its rationale oriented to a neo-liberal approach, is in contradiction with Uzbek cotton and wheat production, which remains a state-controlled economy and where water resources are too strategic to be transferred outside the sphere of the state. Water users have therefore no chance to influence decision-making and are not involved by WUAs governing boards in a participatory approach. Concerning financial management, WUAs operate with governmental funds, since collection of irrigation fees remains weak. The institutional reconfiguration – from district water departments to WUAs – has not improved water allocation. We can reasonably question whether participatory irrigation management is a suitable model of local level water management in Uzbekistan.

Table 12
Main findings of the article according to a comparative approach

	Uzbekistan	Kazakhstan
At national Level		
Official support to PIM/IMT through the formalisation of WUAs	no	Yes (2003) – today in crisis
At local level		
Creation of WUAs	Established and managed by district level state hydraulic bureaucracies	Established by users (influence of local socio-political powers) or by district water technicians
WUAs financial management	WUAs are funded by state/district budget	WUAs are financially independent
Participatory approach in WUAs decision-making	Water users are not involved and do not influence WUAs decisions	Water users have a weak role in WUAs decision-making Part of them have no interest in being involved

South-Kazakhstan province shows some differences with the Uzbek case. Firstly WUAs were officially formalised in 2003. Secondly, with the exception of Tûlkibas, all WUAs have been independently established by water users, in accordance with the IMT/PIM rationale, and without a strong influence of state hydraulic bureaucracies, though their organisational and technical capacities have helped shaping the process. WUAs which are currently operating were funded and are still guided by members of former state farms, who remain influent in local political and economic spheres. Although the state has generally supported these initiatives, some water users have not shared the same approach, in particular in their financial management, preferring to have canals operated and maintained by the district water department. In fact, to have a complete overview of participatory irrigation management in the province, it is relevant to consider the recent failure of some WUAs. Ten years after the issue of the law, most of the irrigated lands in the three target districts of South-Kazakhstan province are under the responsibility of district water departments.³

³ A field-research conducted in Kazakhstan (Taraz province) during summer 2015 has revealed that the WUA initiative is no longer supported by state water departments. And most water users are no longer interested in establishing WUAs because of bureaucratic, technical and financial issues, but also because of the bad impression left by the bankruptcy of several WUAs. State water institutions (*Kazvodkhoz*) are now supporting the dismantlement of district water departments in order to take back physical and financial control of secondary

In conclusion, PIM/IMT implementation remains weak and affected by ambiguous and contrasting dynamics. If Muckerji *et al.* (2012) claimed that this concept cannot be engineered and reproduced worldwide, this article shows that PIM and WUAS have been strongly shaped by local socio-political contexts instead of vice-versa, and their aims, logic and rationale have been totally readapted. According to international donors, the PIM is successful when the IMT is achieved. In our two case-studies, PIM, as supported by the international community, has failed because its main milestone and principles have not been able to influence and change current local level water contexts. Therefore water management transfer which has occurred in Samarkand and South-Kazakhstan provinces in the last decade differentiates significantly from participatory irrigation management.

References

- ABDULLAEV Iskandar & MOLLINGA Peter, 2010, "The Socio-Technical Aspects of Water Management: Emerging Trends at Grass Roots Level in Uzbekistan," *Water* 2, pp. 85-100.
- BENÂMINOVIĆ R. & TERZINSKIJ P., 1975, *Irigaciâ Uzbekistana* [Irrigation of Uzbekistan], Tashkent: Fan.
- BENSIDOUN Sylvain, 1979, *Samarcande et la Vallée du Zeravchan*, Paris : Anthropos.
- BURGER Richard, 1998, *Water Users Associations in Kazakhstan: an Institutional Analysis*, NIS project, Environment Discussion Paper n°45.
- DFID – DEPARTMENT FOR INTERNATIONAL DEVELOPMENT, 2003, *Privatisation/Transfer of Irrigation Management in Central Asia*. Final Report [<http://r4d.dfid.gov.uk/Project/2983/>].
- DUKHOVNY Victor & DE SCHUTTER Joob, 2011, *Water in Central Asia: Past, Present and Future*, London: CRC Press.
- FAGGI Pierpaolo, 1991, *La Desertificazione: Geografia di una Crisi Ambientale* [Desertification: geography of an environmental crisis], Milano: Etas.
- GARCES-RESTREPO Carlos *et al.*, 2007, *Irrigation Management Transfer: Worldwide Efforts and Results*, FAO Water Report n°32.
- GHAZOUANI Wafa *et al.*, 2012, *Water Users Association in the NEN Region. IFAD Interventions and Overall Dynamics*, IWMI, IFAD.

canals. Instead of creating WUAs, water users will sign individual water agreements directly with *Kazvodkhoz*.

- HUNT Robert C., 1989, "Appropriate Social Organization? Water Users Associations in Bureaucratic Canal Irrigation System," *Human Organization* 48(1), pp. 79-90.
- NBT REPORT, 2012, *Review of WCA Development in Uzbekistan*, report prepared for the International Water Management Institute, Tashkent.
- MOLLE Francois, 2008, "Nirvana Concepts, Narrative and Policy Models: Insight from the Water Sector," *Water Alternatives* 1, pp. 131-146.
- MUKHERJI Aditi *et al.*, 2009, *Irrigation Reform in Asia. A Review of 108 Cases of Irrigation Management Transfer* [<http://www.iwmi.cgiar.org/research/projects/project-map/>].
- SALMAN M.A., 1997, *The Legal Framework for Water Users' Associations. A Comparative Study*, World Bank Technical Paper n°360.
- UPHOFF Norman, 1986, *Getting the Process Right: Improving Irrigation Water Management with Farmers Organization and Participation*, Working paper prepared at Cornell University for the Water Management Synthesis Project II, USAID.
- VELDWISCH Gert Jan A. & MOLLINGA Peter, 2013, "Lost in transition? The introduction of Water Users Associations in Uzbekistan," *Water International*, pp. 1-15.
- WEGERICH Kai, 2000, *Water Users Associations in Uzbekistan and Kyrgyzstan: Study on Conditions for Sustainable Development*, Occasional Paper n°32, London: SOAS, IWMI, pp. 1-23.
- , 2006, "Handing over the Sunset" *External Factors Influencing the Establishment of Water Users Associations in Uzbekistan: Evidences from Khorezm Province*, PhD thesis, Berlin: Humboldt University.
- , 2008, "Blueprints for Water Users Associations' Accountability versus Local Reality: Evidence from South Kazakhstan," *Water International* 33(1), pp. 43-54.
- , 2014, "Shifting to Hydrological/Hydrographic Boundaries. A Comparative Assessment of National Policy Implementation in the Zerafshan and Fergana valleys," *International Journal of Water Resources Development* 31(1), pp. 88-105.
- WITTFOGEL Karl, 1957, *Oriental Despotism. A Comparative Study of Total Power*, New Haven: Yale University Press.
- YALCIN Rasul & MOLLINGA Peter, 2007a, *Water Users Associations in Uzbekistan. The Introduction of a New Institutional Arrangement in Local Water Management. Amu-Darja Case Study, Uzbekistan*, University of Bonn: NeWater project.
- , 2007b, *Institutional Transformations in Uzbekistan's Agricultural and Water Resources Administration: The Creation of a New Bureaucracy*, ZEF Working Paper Series 22, University of Bonn.

- ZAVGORODNYAYA Darya, 2006, *WUAs in Uzbekistan. Theory and Practice*, PhD thesis, University of Bonn: ZEF.
- ZIMINA Lada, 2003, Developing Water Management in South-Kazakhstan, in Sarah O'Hara (ed.), *Drop by Drop: Water Management in the Southern Caucasus and Central Asia*, LGI Fellowship Series, Open Society Institute, pp. 91-105.
- ZINZANI Andrea, 2011, "Tra Irriguo e Seccagno: le Trasformazioni Recenti nella Media Valle dello Zeravshan, Uzbekistan," *Rivista Geografica Italiana* 118, pp. 461-488.
- , 2014, "Irrigation Management Transfer and WUAs' Dynamics. Evidence from the South-Kazakhstan Province," *Environmental Earth Sciences*, pp. 1-13.
- , 2015, *The Logics of Water Policies in Central Asia: the IWRM Implementation in Uzbekistan and Kazakhstan*, Zurich-Munster-Berlin: LIT VERLAG, Series Geographie.

Abstract

Since the collapse of the Soviet Union water management in Central Asia has been affected by different institutional changes which led to socio-political, technical and environmental issues, in particular at the local level. In order to address this context, since the nineties several international agencies have sought to promote participatory irrigation management (PIM) and water users associations (WUAs) in the region. This article aims to discuss these initiatives, their implementation and logic in two areas, Samarkand province (Uzbekistan) and South-Kazakhstan province (Kazakhstan), according to a qualitative comparative approach.

Keywords: participatory irrigation management, water users association, water management, Uzbekistan, Kazakhstan

Résumé

La reconfiguration de la gestion participative de l'irrigation dans les associations d'usagers de l'eau d'Ouzbékistan et du Kazakhstan

Depuis l'effondrement de l'Union soviétique, la gestion de l'eau en Asie centrale a été affectée par différents changements institutionnels liés au nouveau contexte socio-politique, technique et environnemental, en particulier au niveau local. Depuis les années quatre-vingt-dix, plusieurs organismes internationaux ont cherché à promouvoir dans la région, le modèle de gestion participative de l'irrigation (PIM) et les associations d'usagers de l'eau. Cet article présente ces initiatives, leur mise en œuvre et leurs logiques selon une approche qualitative comparative entre deux régions, la province de Samarcande (Ouzbékistan) et la province du Sud-Kazakhstan (Kazakhstan).

Mots clés : gestion participative de l'irrigation, associations d'usagers de l'eau, gestion de l'eau, Ouzbékistan, Kazakhstan

Аннотация

Соотношение совместного управления ирригациями в ассоциациях потребителей воды в Узбекистане и в Казахстане

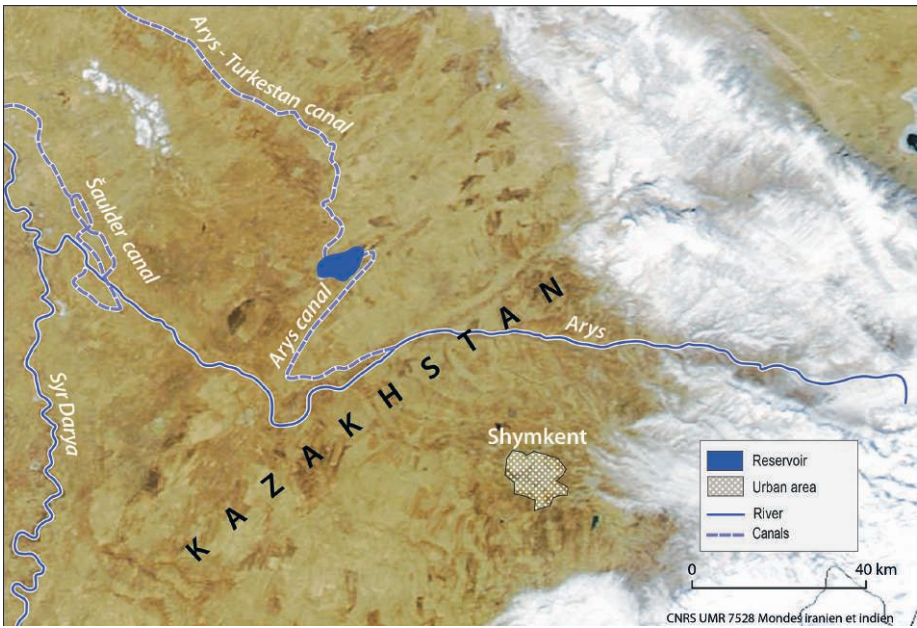
После распада Советского Союза управление водными ресурсами стало предметом изучения различными институциональными изменениями, связанные с новыми социо-политическими, техническими и экологическими контекстами, в частности на местном уровне. С начала 90-х годов, различные международные организации стремились содействовать в регионе развитию модели совместного управления ирригациями (PIM) и ассоциациям потребителей воды. Эта статья представляет эти инициативы, их реализацию и их логику в сравнительно-качественном подходе между двумя областями – Самаркандской (Узбекистан) и Южно-Казахстанской (Казахстан).

Ключевые слова: совместное управление ирригацией, ассоциации потребителей воды, управление водными ресурсами, Узбекистан, Казахстан.

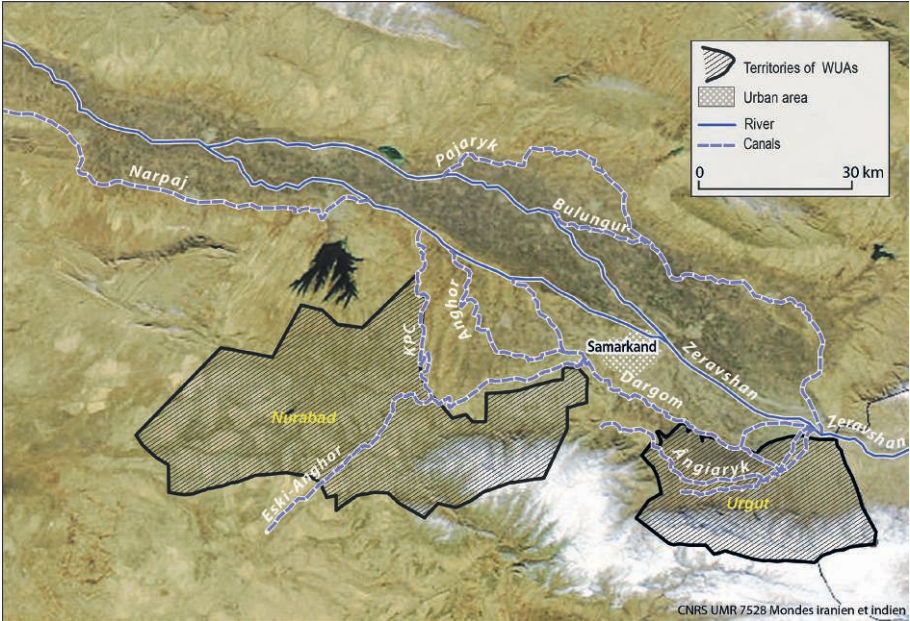
Annexe 11
Map showing the two case-studies areas



Annexe 12
Gis Elaboration of a satellite image (NASA-Modis, 2003) representing the Middle Zeravshan valley, its canals system and the territories of the two selected WUAs



Annexe 13
GIS Elaboration of a satellite image (NASA-Modis, 2003)
representing the Arys valley and its canals system



Annexe 14
GIS Elaboration of a satellite image (Google Earth TM)
representing the territory of Tûlkibas WUA



Annexe 15

Gis Elaboration of a satellite image(Google Earth TM) representing the Arys valley canals system and the territories of Karaspan and Mahambet WUAs



Annexe 16

Le bassin versant de la rivière Ili

