

U4 PRACTICE INSIGHT

2013:3

Gulnaz Isabekova

Kubanychbek Ormushev

Toktobek Omokeev

Aled Williams

Natalia Zakharchenko



Leaking projects:

Corruption and local water management in Kyrgyzstan

Poor water infrastructure in Kyrgyzstan from the Soviet era led international donors to support investments in agricultural irrigation and potable freshwater systems. The financial investments made, however, did not always underpin improvements in local water delivery and the Kyrgyz Vice President once noted that “the lion’s share of the credit was stolen”. This U4 Practice Insight contrasts two project approaches to local water management in Kyrgyzstan from an anti-corruption perspective. It examines the extent to which project goals were affected by issues of corruption and fraud, and identifies lessons for future donor engagement in the country’s local water sector.

Since the early 1990s water management in Central Asia has attracted attention from bilateral and multilateral donors due both to its importance for development of the region and challenges inherited from the break-up of the USSR. Water is particularly important to socio-economic development of the region given that more than 90% of its total area is devoted to agricultural production.¹ Home to almost 60 million people, and consisting of large areas of arid and semi-arid lands, all five Central Asian countries are to some degree dependent on major trans-boundary rivers.²

Though it possesses large freshwater resources, Kyrgyzstan faces challenges in supplying water to its own population.³ Two key problems are access to potable freshwater and effective irrigation of farms throughout the republic. Damage to water infrastructure left poorly maintained since the Soviet period (i.e. water pipelines, wells, reservoirs, and canals) led the World and Asian Development Banks to assist Kyrgyzstan in attracting large water sector investments. Agricultural irrigation projects came under the remit of Water User Associations (WUAs), while potable freshwater management was led by entities called Rural Public Associations of Potable Water Consumers (RPAPWC).

Financial investments appear not always to have improved the local water sector, however. The Kyrgyz Vice President once noted that “the lion’s share of the credit was stolen”⁴ while analysts have argued that both WUAs and RPAPWCs fell prey to corrupt practices.⁵ Alongside such statements and reports, data on the actual results of local water sector projects is relatively scarce, complicating a clear understanding of their overall performance. Grand and administrative forms of corruption are, however, widely perceived to be present in Kyrgyzstan: public perceptions of corruption contributed to the overthrow in 2010 of former President Bakiyev (Shukuralueva: 2012), while in December 2011, President Atamabayev claimed corruption had resulted in economic losses of USD 500 million the previous year (Nichol: 2012).

This U4 Practice Insight contrasts two project approaches to local water management support in Kyrgyzstan from an anti-corruption perspective. We assess agricultural irrigation projects involving WUAs and a large-scale potable freshwater project entitled “Taza Suu”, which did not involve WUAs. We focus on the

extent to which project goals appear to have been affected by issues of corruption and fraud, and suggest some concrete anti-corruption lessons for practitioners and policymakers within donor institutions.

Our analysis is based on three sources: (i) general literature on water sector governance in development settings; (ii) literature on the performance of local water sector projects in Kyrgyzstan; and (iii) in-depth interviews with two well-informed Kyrgyz water sector stakeholders.⁶ Section 1 explains the introduction of WUAs as the main management model for agricultural irrigation projects in the country, while Section 2 focuses on the implementation of Taza Suu, which took a different approach. Section 3 reflects on general concepts of corruption in natural resource management and particular characteristics of the water sector that make it vulnerable to corrupt practices. Section 4 assesses the performance of both agricultural irrigation and potable freshwater projects from an anti-corruption perspective. We conclude with implications and lessons for donor policy and practice.

1. WUAs and agricultural irrigation projects

Although agriculture in Central Asia is almost entirely dependent on effective irrigation and drainage systems, investments in water infrastructure in the early days of the region’s independence from the Soviet Union were negligible. This was particularly the case at the level of individual farms where low investment was leading to shrinking crop production. In order to channel increased investments at this level, Water User Associations (WUAs) were formed as responsible management units.

The first WUAs were created in 1995 in former state-owned collective farms based on the decisions of founder-members, who were either actual or juridical persons. In 1996, on the request of the government, the Asian Development Bank (ADB) began work to improve on-farm irrigation. It launched a modest capacity building project which included workshops that promoted the importance of WUAs in managing local water resources.⁷ The project was accompanied by an increase in the number of WUAs in the country. Between 1996 and 1998, around 50 were established, commanding a total area of nearly 92,000 hectares. By 1999, there were 77 WUAs

About the authors:

Gulnaz Isabekova is Quality Manager at the Kyrgyz-German private sector firm “Naryn”, which specializes in utility services.

Kubanychbek Ormushev is a Procurement Specialist at UNDP Kyrgyzstan.

Toktobek Omokeev is a Communications Officer at Freedom House Kyrgyzstan.

Aled Williams is a Senior Advisor for the U4 Anti-Corruption Resource Centre at the Chr. Michelsen Institute.

Natalia Zakharchenko is a Visiting Researcher at the Norwegian Institute of International Affairs (NUPI).

Photo by cobalt123 at flickr.com

formally established and registered in the country.

WUAs were (and still are) essentially a self-managing group of farmers, collaborating to operate and maintain their irrigation and drainage network. The objective in doing so was to ensure a fair and equitable distribution of water for increasing agricultural productivity. Donor-supported capacity building efforts sought to help farmers develop skills and capacity to effectively manage and use their local water resources.

1.2 Why form WUAs over other water management bodies?

The 1994 Water Act was amended in 1995 to enable farmers to form WUAs. In 1997, the Regulation on Rural Water User Associations essentially meant that water infrastructure on farms became the property of WUAs. A further law on Associations of Water Users was adopted in 2002 which afforded citizens the opportunity to establish non-profit organizations financed by themselves, charities or public funds.⁸ Today, more than 70% of the total irrigated area in Kyrgyzstan is under WUA management. But why choose WUAs over other possible forms of water management?

The Organization for Security and Co-operation in Europe (OSCE), in an evaluation of WUAs in the southern regions of Kyrgyzstan (2010), has noted that WUAs were not always formed because of water scarcity or distribution problems among farmers, but at least in part because it was possible to access external financing. Some existing water projects were renamed in the hope that becoming a WUA would increase the likelihood of obtaining improvement funds (OSCE: 2010). At the same time, serious and genuine water shortage problems existed (for example in the villages of Aq Tash and Ali Anariv). The limited evidence available suggests objectives for forming WUAs in Kyrgyzstan were diverse.

1.3 Donor support for WUAs

Since the ADB's initial capacity building project, several international donors have become involved in supporting WUAs in Kyrgyzstan. A World Bank project focused on on-farm irrigation began in 2000 with the objective of increasing agricultural production on irrigated land through establishment of sustainable WUAs. After 2002, other donors began providing technical and other assistance to WUAs on a localized scale, including the United Nations Development Programme (UNDP), the U.S. Agency for International Development (USAID), Mercy Corps, and German Technical Cooperation (GIZ). One pilot project was financed by the Japan International Cooperation Agency (JICA) which involved a cost per hectare of USD 12.5. Further analysis of ten farms showed that, to substantially improve on-farm irrigation, approximately USD 100 per hectare would be required. Eventually, joint work on the

part of the World Bank and the Kyrgyz Department of Water Resources resulted in an "On-Farm Irrigation" project to be implemented between 2001 and 2008 at an estimated budget of USD 29 million covering 186,000 hectares, i.e. an average of about USD 150 per hectare.

1.4 Implementation

As part of the national "On-Farm Irrigation" project, WUAs took substantial control of the management and maintenance of on-farm irrigation infrastructure in Kyrgyzstan. More than 450 WUAs were now operating their own on-farm irrigation networks, and further rehabilitation of water infrastructure was carried out in six provinces (Osh, Jalalabad, Batken, Naryn, Issyk-Kul, and Talas).

2. The "Taza Suu" potable freshwater project

2.1 Reasons for launching "Taza Suu"

The main motivation for the Taza Suu project was that 70% of the Kyrgyz population did not have adequate access to clean drinking water: 1272 villages did not have regular access to clean water, while in 397 villages residents used water from open sources. International donors, the Kyrgyz authorities and national NGOs all agreed on the importance of improving freshwater management, and the project was conceived as a means to enhance access to drinking water through the rehabilitation of supply and sanitation systems. Financed through a combination of donor support and a contribution from the Kyrgyz authorities, the project sought to provide the inhabitants of 730 villages with clean drinking water.⁹

2.2 Donor support

Taza Suu involved financing from three international donors: the ADB supported work in the Chui, Jalalabad, Batken and Osh provinces, while the World Bank and DFID supported work in Issyk-Kul, Naryn, and Talas. The ADB's rehabilitation of water and sanitation systems alone was expected to reach around 300,000 individuals. Overall, USD 70 million was to be allocated for the provision of clean water in villages throughout the country. Part of this funding was to be provided in the form of soft loans with repayment to be deferred for 40 years.

2.3 Project principles and monitoring

The ADB and World Bank/DFID projects shared a common set of principles. The management, operation and maintenance of water supply systems was to be conducted by local communities themselves, with water tariffs set by the same communities. The level of water services needed was also to be determined by the local community, who would pay a percentage of the overall cost of the services.

In order to monitor this project and others at the national level, the Kyrgyz government established in the year 2000 the Department of Rural Water Supply (DRWS) in the Ministry of Agriculture. Regional offices staffed by water specialists were also opened in each area of the country. The DRWS was responsible for developing and implementing mechanisms and procedures for rural water supply, enhancing the activity of the regional offices and rural drinking water associations, and for coordinating on rural water supply with a group of international experts.¹⁰ It also oversaw project tendering via small committees in different parts of the country.

By the end of 2007, via ADB and World Bank/DFID support, drinking water supply systems had been built or rehabilitated in 367 villages with a total population of 614,000 individuals. In addition, water and sewage networks extending to a length of 240,000 kilometres had been constructed. These were considerable achievements. At the same time, project outputs were below those that were planned and there were delays of up to two years in the implementation of some activities. Increases in construction costs led to a reduction in the number of sub-projects to be conducted and villages to be targeted: rather than implementing 240 sub-projects in 730 villages, 118 sub-projects were implemented in 301 villages.

3. Water, natural resource management and corruption: Some concepts

Before assessing the extent to which corruption and fraud appear to have affected the irrigation and potable freshwater projects discussed above, it is useful to reflect on the links between corruption and natural resource management in general and on some of the governance peculiarities inherent to the water sector.

The extent to which human intervention in natural resource systems is viewed to be worthwhile depends both on the actual and perceived effectiveness of these interventions. As Murphee (1991) points out: "...people seek to manage the environment when the benefits of management are perceived to exceed its costs". The benefits and costs of natural resource management interventions can, however, accrue differently across societal actors, and there are incentives for some actors to attempt to gain more than their fair share of benefits from natural resource management decisions. It is such observations that underpin the necessity for effective regulation, control, and monitoring of natural resource use within a given jurisdiction.

The relationship between natural resources and corruption has been argued to be twofold: the presence of natural resources may provoke corrupt behaviour; while the institutional arrangements in place for managing a

particular resource can itself be corrupted (Kolstad and Søreide: 2009). But although the potential benefits from skewing natural resource management may provide the motivation for corrupt activity, the existence of these benefits alone will not be enough for corruption to occur. Kolstad and Søreide (2009) suggest two preconditions must also exist: (i) individuals involved in corruption must have some authority or influence within a bureaucratic system, and (ii) the institutional environment in which this individual operates must be weak enough to allow their corrupt behaviour.

Departing from these general ideas on the links between corruption and natural resources, it has been argued that particular features of water resource management make this sector vulnerable to corrupt practices. Water resource management can be defined as all those "...actions required to manage and control freshwaters to meet human and environmental needs" (Stålgren: 2006). These actions often involve large scale infrastructure construction, a high level of public sector involvement, and projects that are technically complex to manage. Though it is contested whether the public sector is indeed more prone to corruption than the private sector, coupled with other features of poor governance in a particular country setting, the above characteristics have been noted to enhance corruption risks in water sector management.¹¹ The World Bank has estimated that 20 to 40% of water management finance is lost to corrupt practices each year (Chêne: 2009).

Such observations have led to recognition that analysis of the governance and political economy of water and sanitation in a given country context can improve donor policy and programming work.¹² Where political economy analysis is conducted it has been argued that **context-specific responses** become feasible, potentially leading to **more efficient and effective water sector programmes (Kooy and Harris: 2012)**. It is debatable whether an acute appreciation of political economy factors was in place before Kyrgyzstan embarked on its local water management reforms.¹³ The types of challenges this apparent lack of political economy analysis may have compounded can briefly be demonstrated by focusing on the legal framework for water management. While the 2002 law on Associations of Water Users was constructed around valid principles of the "right to water," insufficient consultation with members of the local population and with civil society groups meant it faced considerable implementation challenges. Ibraimova (2009) notes the existing legal environment for water management in the country presented a complex and overlapping picture: formal laws and administrative edicts from the Soviet era existed alongside local norms and customary law (*adat*). The existing power and patronage functions of Councils of Elders (*aksakals*) in water resource management led to clashes and discrepancies with the formal, legal system.¹⁴

4. Assessing local water project performance from an anti-corruption perspective

4.1 The Taza Suu project

We can divide the Taza Suu project into two distinct phases. The first ADB water supply project has been criticized by Kyrgyz NGOs for technical and financial inconsistencies and negative social consequences.¹⁵ The second, shorter, period financed by the World Bank and DFID aimed to rectify some of the issues from the first phase.

In terms of technical inconsistencies, the first phase of the project saw the use of expensive yet inappropriate or poor quality construction materials. According to a World Bank project document key cost components were USD 2300 per sanitation block and USD 200 for latrines per village.¹⁶ However, the Kyrgyz NGO coalition, Taza Tabigat, noted asbestos pipes were used in the construction process despite being prohibited.¹⁷ The use of poor construction materials was also noted to be linked to environmental health problems; one case involved the discovery of worms in water pipes in the village of Uch-Emchek.

The Kyrgyz Institute for Public Policy notes tender procedures for Taza Suu were poorly implemented and monitored, and that implementation challenges came to light only following interventions from national NGOs.¹⁸ The quality of tenders implemented by the regional committees overseen by the DRWS appears to have varied. For instance, the firm that won the construction tender in the Jalalabad and Osh regions was noted to have been established only days before the tender was announced and did not therefore possess the necessary experience or equipment to fulfil its contract obligations.¹⁹ Fewer concerns were raised locally regarding tenders in other parts of the country.

In terms of formal corruption and fraud investigations related to the first project phase, the Public Prosecutor's Office instigated 31 criminal cases, with five companies still under investigation at the time of writing.²⁰ The ADB also conducted an independent investigation process, finding that fraud had occurred in the provision of supposedly new water pipes.²¹ As a result of these investigations, the ADB decided to close the first phase of the project pending a fuller government inquiry and prosecution of those responsible. In December 2012, Prime Minister Satybalдиеv noted individuals liable for misuse of these financial resources would be held to account, although no prosecutions had been finalized at the time of writing.²²

4.2 Projects involving WUAs

It has been argued that WUA-based projects in Kyrgyzstan have contributed to local accountability gains, improved

water fee collection, and led to infrastructural rehabilitation (Kazbekov et al: 2009). An evaluation of WUA performance in Osh province concluded their establishment assisted in addressing water distribution and allocation problems among a large number of farmers. Indeed, allegations of fraud and corruption have not been articulated by domestic Kyrgyz stakeholders in relation to WUA projects to the same extent as for Taza Suu. This may partly be explained by the relative lack of tender opportunities related to WUA projects, where a greater donor focus was placed on "soft" activities such as training and capacity building. Most tenders implemented for WUA-based projects were also subject to direct donor oversight.

The reported successes experienced by particular WUA projects in terms of increasing interactions between governed and governing parties, gathering information about on-the-ground irrigation needs, and altering widely-held beliefs that water is an inexhaustible and free resource, have been attributed by some observers to the quality of leadership within certain WUAs. Kazbekov et al (2009) argue some WUA managers (for example in Japalak and Jani-Arik) involved water users in the associations' operation through a combination of good communication and the sharing of planning and water management tasks.

At the same time, McGee (2011), in a comprehensive study of WUA performance in Kyrgyzstan, notes extreme variations in their effectiveness across the country. Some WUAs appear simply to have failed to address the collective action challenges they were set-up to manage, such as how to share the costs of irrigation services and how to ensure their proper maintenance. Although water users in WUAs are given equal voting rights in the General Assemblies formed to take important decisions, there is evidence that those users who do not also own land are liable to pay for water services without having a say in WUA decisions (Sehring: 2005). The wide variation in WUA performance is essentially attributed by McGee to the prior existence (or lack) of good community relations at project sites. Social and economic inequalities appear to underpin water distribution decisions, and in certain cases WUAs have served to reinforce the advantages of local elites and privileged groups.

Another issue complicating a too-rosy view of WUA performance has been their reliance on outdated calculation techniques. Key performance indicators for any water supply project are the amount of water estimated to be required, that which is *actually* required, and that which is eventually delivered (Molden et al: 1998). Excess supply can create waste and misuse, while insufficient supply may lead, for example, to a decrease in agricultural production. Efficient water management is to be found in an appropriate balance between estimates of demand, actual requirements, and the resources delivered. Considerable discrepancies have been found in the water estimated to be required by certain WUAs and that which was actually delivered (Kazbekov et al:

2009). This has primarily been explained by referring to the use of outdated Soviet-era methods which neglect climatic and technological changes.

5. Lessons learned

The above cases illustrate somewhat different outcomes in two donor-supported local water management approaches in the same country governance context. Tendering procedures in the Taza Suu project were the locus of irregularities, fraud, and possibly corruption, while the more mixed performance of WUA-based projects appears to have been related to nuances in existing communal relations, the quality of WUA leadership, and capacities for undertaking technical assessments. Project performance could certainly have been improved in both types of intervention, although, as a model, the incorporation of water users in the operation of water management bodies (as with WUAs) seems to have reinforced local accountability where communal relations were already good. This echoes Stålgren (2006) who notes that strengthening links between water users and providers is, among other factors, an important element in reducing risks of corruption in the water sector. The extent to which this particular feature of WUAs helped mitigate corruption risks in an overall environment of weak governance should be the focus of further analysis. In contrast, internal accountability mechanisms for Taza Suu were insufficient, with irregularities coming to light only following intervention from national NGOs.

Although the lessons that can be gleaned from such local water projects in Kyrgyzstan are many, concretely in terms of future anti-corruption measures donors might consider, there are four main points:

- First, given the combination of an overall weak governance environment, including limited civil society space and capacity, and the corruption risks potentially involved in water-related support, greater attention should have been given to the production of detailed political economy analysis to guide local water sector programming and support. Although conducting such analyses cannot guarantee corruption-free
- programming, it is at least likely to lead to more context-specific approaches which may in turn reduce the most obvious risks of corruption and fraud.
- Second, procedures for the sourcing and selection of vendors in the Taza Suu project were unable to prevent inexperienced “one day companies” winning tenders. Bidding procedures and the requirements for entering the tender process (i.e. work experience, past performance record, financial and technical capacity) should have been clearer, open to the public, and widely distributed via a range of channels (i.e. the internet, popular national TV channels, newspapers). The bodies responsible for selecting companies in these relatively complex tenders should, in addition, have been composed of multiple stakeholders with varying backgrounds (i.e. NGO representatives, water users, water regulatory authorities, and donor representatives). Stringent monitoring and evaluation procedures involving multiple stakeholders should also have been established to assess each stage of implementation, with subsequent financial allocations dependent on performance.
- Third, shortcomings in the technical assessments used to establish baselines for some WUA projects, including poor adaptation of standard assessment techniques to the particular climatic and geographic features at project sites, appear to have complicated project delivery. Errors in established technical specifications led to physical problems such as low water pressure in pipes and malfunctioning water towers. Such issues are not necessarily related to corruption. However, higher quality technical assessments would likely have contributed to better overall project outcomes and allowed closer control of project spending.
- Fourth, further analysis of the governance characteristics underpinning the most effective WUA projects should be supported. Such analysis should aim to enhance knowledge of the relationships between WUA leadership and communications work, and the existing communal relations at WUA project sites.

Notes

1. The region consists of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.
2. The Amu Darya, the Syr Darya, the Hari River and the Murghab River.
3. According to the United Nations available water resources are substantial: about 50 km³/year of surface river flow, 13 km³ of potential groundwater resources, 1745 km³ of lake water and 650 km³ in glacier form.
4. Statement by Vice President Otorbayev, see: <http://www.24.kg/community/135533-dzhoomart-otorbaev-po-proektu-laquotaza-suuraquo.html>
5. Statement by Elvira Ilibezova, Special Consultant for the ADB and Director of the Centre for Monitoring and Forecasting Public Opinion, see: <http://www.24.kg/community/135539-yelvira-ilibezova-poterya-finansov-v-laquotaza.html>
6. Anara Dautalieva, Chairperson of *Taza Tabigat* and Kojoev Erkinbek Imaralievich of the State Committee on Water Resources of the Kyrgyz Republic. *Taza Tabigat* is a coalition of Kyrgyz NGOs formed in early 2007 to monitor “Taza Suu” following allegations of fraud and corruption in the project.
7. In the four provinces (oblasts) of Chui, Osh, Issyk-Kul and Talas
8. Government of the Kyrgyz Republic (2011).
9. Kyrgyz Minister of Finance announces “Taza Suu” project, see: <http://www.ekois.net/wp/?p=3293>
10. Kyrgyz media report on “Taza Suu”, see: http://www.presskg.com/ai/08/1120_9.htm
11. Features of country governance considered to exacerbate corruption risks in the water sector include monopolistic state service delivery, limited links between service users and providers, low capacities in the public sector, weak civil society, and poorly defined concepts of consumer rights. See: Stålgren (2006).
12. See, for instance, the Overseas Development Institute’s now completed project “Analysing the governance and political economy of water and sanitation service delivery” at: <http://www.odi.org.uk/projects/2300-analysing-governance-political-economy-water-sanitation-service-delivery>
13. No relevant political economy study could be identified by the authors in the course of research for this publication.
14. Councils of Elders emerged in rural areas following independence and were institutionalised by presidential decree in 1995. They are intended to focus on enforcing legal and moral norms based on historic traditions and customs that do not contradict other legislation. See: Giovarelli and Akmatova (2002).
15. Kyrgyz civil society critiques “Taza Suu”, see: http://www.forum-adb.org/BACKUP/Articles/200804-Bankwatch_7.htm
16. World Bank Project Information Document, see: http://css.static.reliefweb.int/sites/reliefweb.int/files/resources/C42DB9CEA2202BCAC125755A003D2431-full_report.pdf
17. Environment News Service reports on the NGO coalition Taza Tabigat’s concerns, see: <http://www.ens-newswire.com/ens/jun2008/2008-06-11-01.asp>
18. The Institute for Public Policy focuses on the inadequate procedural controls for “Taza Suu”, see: <http://www.ipp.kg/en/news/2424/>
19. Murzaev (2010).
20. The Institute for Public Policy comments on accountability issues in “Taza Suu”, see: <http://www.ipp.kg/en/print/2424/>
21. Kyrgyz media report ADB stopped “Taza Suu” funding because of irregularities and fraud, see: http://agromarket.kg/index.php?option=com_content&view=article&id=87:2012-10-08-03-26-06&catid=10:2012-07-24-08-58-37&Itemid=106
22. Prime Minister Satybaldiev announces donors have stopped funding “Taza Suu” due to inappropriate use of funds by Kyrgyz officials, see: <http://www.for.kg/news-208151-ru.html> and <http://www.ens-newswire.com/ens/jun2008/2008-06-11-01.asp>

References

- Chêne, M. 2009. *Good Practice in Addressing Corruption in Water Resource Management Projects*. U4 Expert Answer. U4 Anti-Corruption Resource Centre, Chr. Michelsen Institute. Bergen.
- Government of the Kyrgyz Republic. 2011. *Proekt Zakona KR O vnesenii izmeneniii dopolneniiv Zakon KR ob obyednineniyah vodopolzovatelei*. Available at: <http://www.gov.kg/?p=4089>
- Ibraimova, A. 2009. "Building Collective Action in Public Interests". In *Legal and Institutional Framework for Empowerment of Rural Communities in the Kyrgyz Republic*. Lit Verlag. Berlin.
- Kazbekov, J., I. Abdullaev, H. Manthrithilake, A. Qureshi, K. Jumaboev. 2009. "Evaluating Planning and Delivery Performance of WUAs in Osh Province, Kyrgyzstan". *Agricultural Water Management*. Vol. 96 (8).
- Kolstad, I. and T. Sørreide. 2009. "Corruption in Natural Resource Management: Implications for Policy Makers". *Resources Policy*. Vol. 34(4).
- Kooy, M. and D. Harris. 2012. *Political economy analysis for water, sanitation and hygiene (WASH) service delivery*, ODI Project Briefing 77. Overseas Development Institute. London.
- McGee, H.L. 2011. *Water, International Development and Collective Action: An Impact Assessment of an Irrigation Management Project in Kyrgyzstan*. University of Michigan.
- Molden, D. Sakthivadivel, R. Perry C., De Fraiture, C. 1998. *Indicators for Comparing Performance of Irrigated Agriculture Systems*. Research Report 20. International Irrigation Management Institute. Colombo.
- Murphree, M. W.1991. *Communities as Resource Management Institutions*. Gatekeeper Series. No. sa36. Sustainable Agriculture and Rural Livelihoods Programme, International Institute for Environment and Development. London.
- Murzaev, S.K. 2010. *Training module #5. Increasing good governance in water supply and sanitation system*. 1-34. "Pro-Poor Integrity" program. The Academy of Management under the President of the Kyrgyz Republic and Tiri. Bishkek.
- Nichol, J. 2012. *Kyrgyzstan: Recent Developments and U.S. Interests*. Congressional Research Service Report for Congress. Congressional Research Service. Washington D.C.
- OSCE, 2010. *Otchet po provedeniyu po provedeniyu ochenki deyatel'nosti Asociacii vodopol'zovatelei Yujnyh oblastei Kyrgyzskoi Respubliki*. Central Asian Consulting Company.
- Sehring J. 2005. *WUAs in Kyrgyzstan: A Case Study on Institutional Reform in Local Irrigation Management*. Discussion Paper. No 24. Zentrum für Internationale Entwicklungs- und Umweltforschung der Justus-Liebig-Universität. Gießen.
- Shukuralieva, N. 2012. "The family in power: A new past for an old country". *Journal of Central Asia and Caucasian Studies*. Issue 13.
- Stålgren, P. 2006. *Corruption in the Water Sector: Causes, Consequences and Potential Reform*. Swedish Water House Policy Brief Nr. 4. Stockholm International Water Institute. Stockholm.

The **U4 Practice Insight** series presents first-hand information, analysis and policy recommendations from practitioners working in the field.

This and other U4 publications are available at www.U4.no/publications.



U4 Anti-Corruption Resource Centre
Chr. Michelsen Institute (CMI)
P.O.Box 6033
5892 Bergen, Norway
u4@u4.no

CMI CHR.
MICHELSEN
INSTITUTE