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Water Supply and Sanitation in Rural Areas of EECCA

Financing water supply and sanitation in EECCA

Conference of EECCA Ministers of Economy/Finance, Environment and Water and their partners from the OECD

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EXECUTIVE SUMMARY

One hundred million people, or 36 per cent of the population in EECCA live in rural areas, where the predicament of the water sector is even more alarming than in urban areas. Rural water systems have been deteriorating much faster than those in urban areas, largely due to the fact that no-one has taken over control of maintenance and operation of these systems since collective and state farms – which previously had this responsibility – were dismantled at the beginning of the 1990s. In Moldova, it is reported that more than 90 per cent of rural water supply systems are either in need of capital repairs or need to be reconstructed.

The level of access to what the UN defines as “improved” sources of water supply and sanitation in rural areas is 20 to 40 per cent lower than in urban areas. Figures for Moldova and Kyrgyzstan indicate that there has been a strong downward trend. In Kyrgyzstan, about 10 per cent of the rural population lost access to a sustainable water supply between 2000 and 2003.

Only about 10 to 15 per cent of the rural population have access to in-house water connections, while it has been shown that the health benefits of water become particularly noticeable once water becomes easily available at the household level *i.e.* inside the house.

An increasing share of the population has to fetch water from unsafe sources such as rivers, canals, individual wells, or vendors. In the Ukraine, which is one of the more industrialised countries in the region, more than 800 000 people in rural areas have been reported to rely on water from vendors for their supply, which is usually of poor quality and very expensive. In Tajikistan, a country which is recovering from a civil war, more than sixty per cent of the existing water supply system is either not working or not meeting sanitary requirements. As a result, a large number of outbreaks of water-related epidemics, such as hepatitis A, typhoid fever, dysentery, and cholera, has been reported, to a broad extent in rural areas.

The health infrastructure is increasingly inapt to deal with this situation. The number of both physicians and hospital beds in EECCA has been significantly decreasing over the last 15 years and it is logical to assume that rural areas have been disproportionately hit. At the same time health care has also been increasingly privatised, in turn cutting off aid for many poor people who cannot afford these services anymore.

EECCA governments appear to have generally been slow to react to this alarming situation. Most of them lack national strategy and priorities for the rural water supply and sanitation sector. One exception is Kyrgyzstan, which has developed a rural water sector policy and is now working on improving the situation with support from donors and international financing institutions (IFIs).

Work that has been carried out by the WHO and donors suggests that significant health benefits can be achieved through the usage of low-cost measures such as hygiene education, or the usage of household treatment technology.

A key challenge in improving water supply and sanitation in rural areas of EECCA is widespread poverty. In most of the poorest countries in the region, about 50 per cent of the population lives below the poverty line, and poverty is usually more pronounced in rural than in urban areas. As a consequence, the financial sustainability of water systems in rural areas is a key concern, and the risk that newly installed water infrastructure might quickly deteriorate due to insufficient local resources for maintenance and

operation is real. Projects aimed at improving rural water supply and sanitation have usually tried to address this by requiring cash and in-kind contributions from local communities and by ensuring ownership through the establishment of local management structures and water users' associations.

1. INTRODUCTION

The purpose of this paper is to provide additional visibility to the particularly serious problems that exist in the rural water supply and sanitation sector in EECCA. Participants at a preparatory meeting for the Yerevan Ministerial Conference, that was held in June 2005, requested that the EAP Task Force Secretariat prepare a paper on this topic, and committed themselves to providing the Secretariat with information and data in order to do so. The paper draws, to a large extent, on the data that was received, mainly from the United Nations Development Programme (UNDP), the World Health Organisation (WHO), and donors, as well as on two case studies that the EAP Task Force had prepared previously.

Data on the rural water sector in EECCA is still much scarcer than data for the urban sector. Also, there is little analysis available. This paper therefore limits itself to presenting data that helps to characterise the situation in the sector (including data on rural populations and poverty, as well as data on rural water systems), and to highlighting a few of the lessons that have been learned so far.

2. RURAL POPULATIONS AND POVERTY

The EECCA region is characterized by an important rural population: in 2002, 101 million people, or 36 per cent of the population, were living in rural areas¹, compared to 180 million in urban settlements (Table 1). The average annual population growth of the EECCA countries - 0.66 per cent for the period 1975 to 2002; and projected to be -0.06 per cent in the period 2002 to 2015 - does not indicate major change soon.

There are significant disparities between countries in the region, with, for instance, Tajikistan having more than 75 per cent of its population living in rural areas, while in Russia this is only 27 per cent. More generally, the countries of the Caucasus and Central Asia have a significantly larger share of their populations living in rural areas (35-75 per cent) than the more industrialised countries of Eastern Europe (27-32 per cent - with the exception of Moldova, which has 53 per cent).

¹ For detailed figures and literature references, see Annex 1.

Table 1 – EECCA Population (millions) urban/rural²

	Total		Urban		Rural		Share of rural population
	1975	2002	1975	2002	1975	2002	2002
Armenia	2.8	3.1	1.8	2.0	1.0	1.1	35.48%
Azerbaijan	5.7	8.3	2.9	4.2	2.8	4.1	49.40%
Belarus	9.4	9.9	4.7	7.0	4.7	2.9	29.29%
Georgia	4.9	5.2	2.4	2.7	2.5	2.5	48.08%
Kazakhstan	14.1	15.5	7.4	8.6	6.7	6.9	44.52%
Kyrgyzstan	3.3	5.1	1.3	1.7	2.0	3.4	66.67%
Moldova	3.8	4.3	1.4	2.0	2.4	2.3	53.49%
Russia	134.2	144.1	89.1	105.6	45.1	38.5	26.72%
Tajikistan	3.4	6.2	1.2	1.6	2.2	4.7	75.81%
Turkmenistan	2.5	4.8	1.2	2.2	1.3	2.6	54.17%
Ukraine	49	48.9	28.6	32.9	20.4	16.0	32.72%
Uzbekistan	14.0	25.7	5.5	9.5	8.5	16.2	63.04%
Total	247.1	281.1	147.4	179.9	99.7	101.2	36.01%

Statistics show that poverty is widespread in the EECCA region, with almost 37 per cent of the population having to live on less than two USD per day. Again there are important disparities between countries, with Russia at 7.5 per cent and Uzbekistan at 77.5 per cent (Table 2). Poverty is usually more pronounced in rural than in urban areas (with the exception of Armenia and Georgia). A UN assessment of Uzbekistan showed that the region of residency is the strongest indicator of vulnerability to poverty, with people in rural areas particularly exposed.³

² Human Development Report 2004 – Cultural liberty in today's diverse world, United Nations Development Programme.

³ UN (2003), Uzbekistan - Common Country Assessment, Tashkent.

Table 2 - Poverty levels in EECCA countries⁴

NATIONAL POVERTY LINE ⁵				INTERNATIONAL POVERTY LINE			
	Rural	Urban	National	Population below \$1 a day	Poverty gap at \$1 a day ⁶	Population below \$2 a day	Poverty gap at \$2 a day ⁷
Year	%	%	%	%	%	%	Survey year
Armenia	50.8	58.3	55.1	12.8	3.3	49	17.3
1998-1999							
Azerbaijan			68.1	3.7	<1	9.1	3.5
1995							
Belarus			41.9	<2	<0.5	<2	0.1
2000							
Georgia	9.9	12.1	11.1	2.7	0.9	15.7	4.6
1997							
Kazakhstan	39	30	34.6	<2	<.5	24.9	6.3
1996							
Kyrgyzstan	56.4	43.9	52	<2	<0.5	24.7	5.8
2000							
Moldova	26.7	19.3	23.3	22	5.8	63.7	25.1
1997							
Russia			30.9	<2	<0.5	7.5	1.3
1994							
Tajikistan				7.4	1.3	42.8	13
..							
Turkmenistan				12.1	2.6	44	15.4
..							
Ukraine			31.7	2.9	0.6	45.7	16.3
1995							
Uzbekistan	30.5	22.5	27.5	21.8	5.4	77.5	28.9
2000							
Average	35.6	31.0	37.6	10.7	2.8	36.8	11.5
Minimum	9.9	12.1	11.1	2.7	0.6	7.5	0.1
Maximum	56.4	58.3	68.1	22.0	5.8	77.5	28.9

⁴ World Development Indicators – the World Bank, 2005.⁵ The national poverty line is usually based on a minimum national food or consumption basket.⁶ The mean distance below the \$1 (1993 PPP US\$) a day poverty line, expressed as a percentage of the poverty line. The mean is taken over the entire population, counting the non-poor as having zero poverty gap. The measure reflects the depth of poverty as well as its incidence.⁷ *ibid*

3. THE SITUATION IN THE RURAL WATER SECTOR

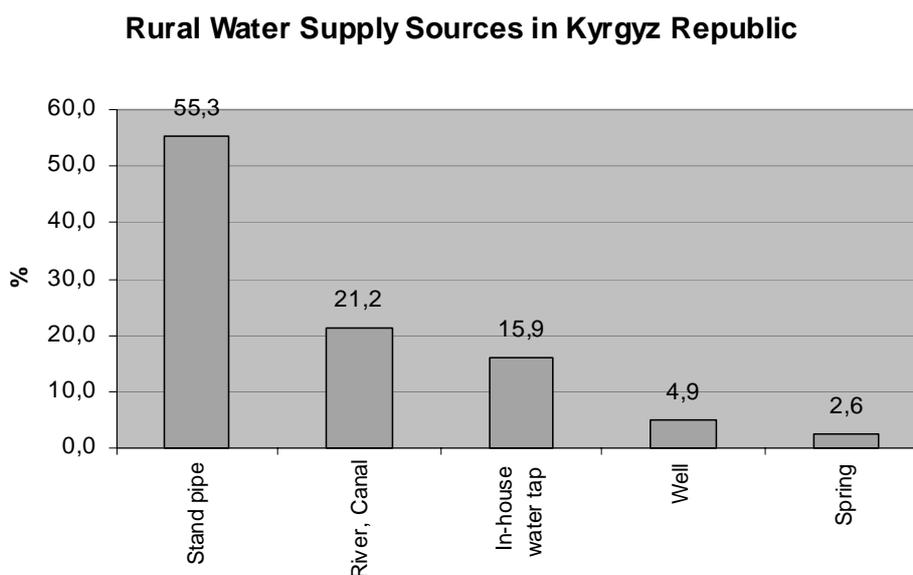
State of infrastructure

Against this background of poverty, it becomes clear that the challenges in establishing sustainable water services in rural areas are huge. This is exacerbated by low levels of coverage of such services largely due to the disastrous state of the rural water infrastructure. Water services are often no longer provided in rural areas and people have had to resort to private means of providing themselves with water. In rural areas, collective farms were traditionally responsible for building, operating and maintaining water systems, but were disbanded in the early 1990s.

Following the break-up of the former Soviet Union, and the subsequent dismantling of the collective/state farm system, this infrastructure became obsolete, since there were no arrangements made to transfer responsibility for operation and maintenance from collective farms to other institutions. As a consequence, much of the infrastructure is now out of operation and many rural inhabitants are forced to put in place private solutions where water quality is usually not being monitored. In Moldova it is reported that more than 90 per cent of rural water supply systems are either in need of capital repairs or need to be reconstructed, while more than 50 per cent of sanitation infrastructure has either been demolished or is in need of urgent capital repair.

The result of this situation is that access of rural populations to adequate water supply and sanitation has been continuously decreasing, and more and more people have to fetch water from unsafe sources such as rivers, canals, or unprotected wells.

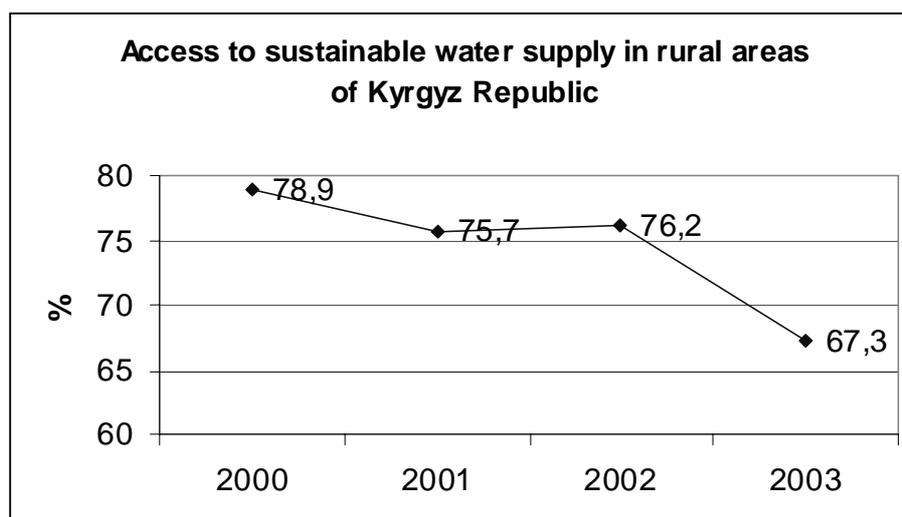
Figure 1: Rural water supply sources in the Kyrgyz Republic



Source: National Statistical Office of Kyrgyzstan, 2001.

In Kyrgyzstan, for instance, only 67 per cent of the rural population has access to a sustainable water supply (available throughout the year and of sufficient quality for drinking), and this has been continuously decreasing in recent years (Figure 2). Only 15 per cent of the population in rural areas has access to water through in-house water taps⁸, while stand pipes, or water collected from canals and rivers remain the main sources of drinking water supply (Figure 1). The most widely used sanitation technology is conventional pit latrines.

Figure 2: Sustainable access of rural population to clean drinking water in the Kyrgyz Republic, 2001



Source: National Statistical Office of Kyrgyzstan.

Data from the UN's Joint Monitoring Programme (JMP)⁹ indicates that the level of connection to "improved"¹⁰ water sources in rural areas of EECCA remains significantly below that of the urban population. It varies from 47 per cent in Tajikistan to 100 per cent in Belarus, which is approximately 20 to 40 per cent less than coverage in urban areas (Figure 3).¹¹

The share of people in rural areas that have access to in-house tap connections is very low in most EECCA countries. Even in the Ukraine, though one of the most industrialised countries in the region, more than 70 per cent of the rural population (settlements with a population of less than 20 000) are not connected to centralized water systems, and as much as 91 per cent lack access to corresponding sewerage services. As a consequence these populations have to use water from wells, reservoirs, and open springs, which often do not meet sanitary standards. More than 800 000 people use water from vendors, which is usually of poor quality. In recent years, problems with nitrates, oil, pesticide, and bacteriological

⁸ The UN's JMP reports a higher figure at 28 per cent.

⁹ The Joint Monitoring Programme is conducted by the WHO and UNICEF, the goals of which are to report on the status of water supply and sanitation in the framework of the millennium development goals, and to support countries in their efforts to monitor this sector, which will enable better planning and management.

¹⁰ The UN defines improved sources of water supply as being: household connection, public standpipe, borehole, protected dug well, protected spring, and rainwater collection. Improved sewerage technologies are defined as: public sewer, connection to septic system, pour-flush latrine, simple pit latrine, and ventilated improved latrines.

¹¹ It should be noted that JMP figures have been found to over-estimate access to clean drinking water, since no account is taken of the quality of the water delivered. It is therefore likely that for both urban and rural areas effective access to clean drinking water can be significantly lower.

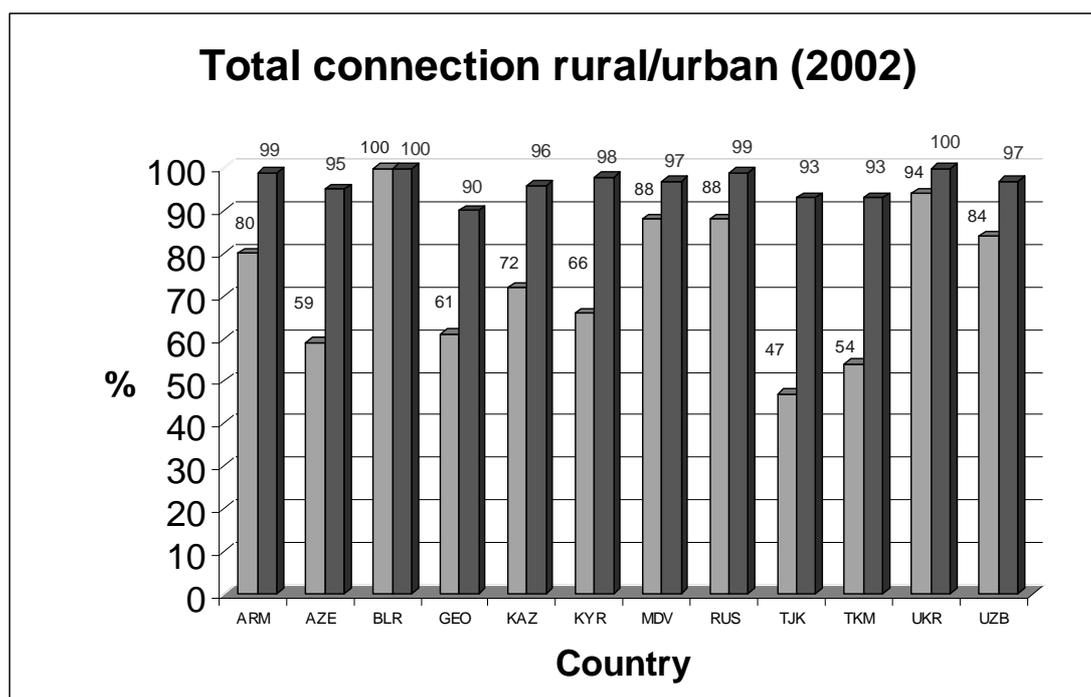
contamination of these water sources has become particularly acute. As most people use this water without any treatment, an increasing number of outbreaks of infectious diseases have been observed.¹²

Probably one of the most serious situations exists in Tajikistan, where only eleven per cent of the rural population has access to sewage facilities. According to a study made by the Ministry of Health in 2001 113 out of the 669 water supply systems in the country were not working and 358 did not meet the sanitary requirements. The majority of schools and medical institutions in the country lack access to proper sanitation and safe water. Only 1,718 schools have access to piped water out of 3,694 (including 3,148 rural). In the village of Gbao it has been reported that 28 per cent of the population does not have any toilet facilities.¹³

Less than 50% of the rural population of Tajikistan have access to safe drinking water. During the winter months, reduced power supplies restrict water supply to an average of 2 hours per day and many rural people have to pay more than \$3 for a cubic meter (m3) of poor quality water delivered by truck, which is 60 times higher than the price of water provided through piped networks.

Health benefits become particularly noticeable once water becomes easily available at the household level, inside the house. Low levels of house connections therefore indicate that there are potentially important health benefits that could be achieved by extending such connections in rural areas of EECCA.

Figure 3 - Total connection to improved water source rural/urban (2002¹⁴)



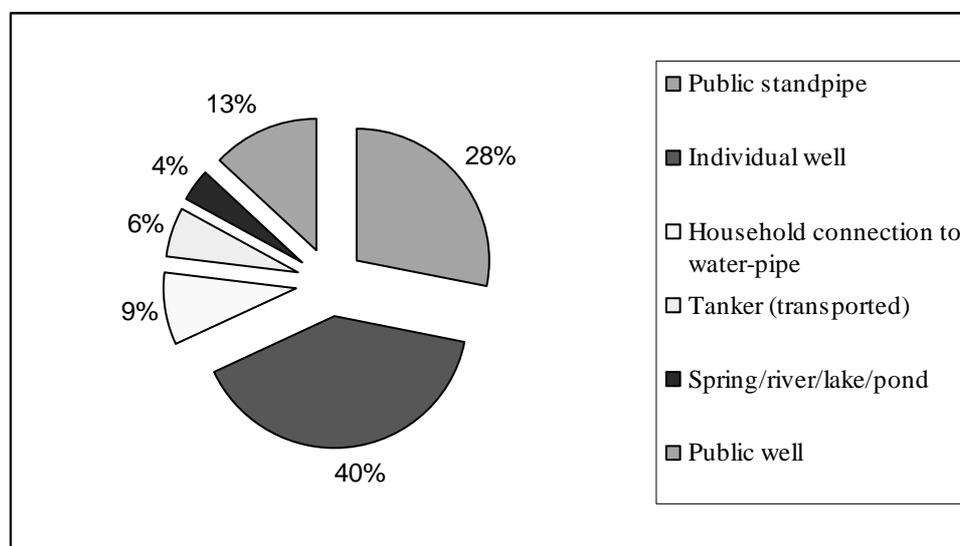
¹² Mama-86 (2004), Models of the technical solutions of drinking water problems in the urban and rural areas of Ukraine, Kyiv.

¹³ UN (2003), Progress towards the Millennium Development Goals – Tadjikistan 2003, Dushanbe.

¹⁴Source: WHO-UNICEF Joint Monitoring Programme Data available from URL: <http://www.wssinfo.org/en/welcome.html>.

Box 1 Water supply sources in rural Kazakhstan

In rural Kazakhstan, only about nine per cent of the population have available the facility of centralised pipelines and the remaining 91 per cent rely on other sources, although only 4% of the rural population consuming water from unprotected wells.



The draft State Programme for Poverty Reduction for 2003-2005 states that around one million residents (representing more than six per cent of the population) use untreated water from rivers for drinking and for household use. In Kyzyl Orda *oblast*, about 80-85 per cent of the rural population not served by piped water systems utilise water from highly polluted unprotected sources. It has also been observed that the lowest consumption of water in Kazakhstan is in the rural areas of West Kazakhstan, North Kazakhstan, and Zhambyl *oblast* with people consuming only 10-16 litres per person per day.

Source: UNDP (2002), based on Agency of Statistics, "Main Socio-Demographic Household Indicators" 2002.¹⁵

Water and health

The above figures indicate that water supply and sanitation services in rural areas are much less developed than in urban areas. Moreover, anecdotal information suggests that the quality of water available in rural communities is frequently insufficient.

In Moldova, between 50 to 60 per cent of the population rely on groundwater for domestic use. In the case of rural areas, it is more than 90 per cent. With respect to water quality, groundwater can be classified as being either from shallow sources (30 to 40metres) or from deep sources (more than 40 metres). Almost all of the rural, and part of the urban, population relies on water supplied from shallow wells. In the case of shallow sources in rural areas, 60 per cent of the water does not meet the requirements of drinking water standards. The main pollutants are agricultural chemicals.¹⁶

¹⁵ United Nations Development Programme (2002), Ensure Environmental Sustainability. Millennium Development Goals in Kazakhstan, December 2002, also available at http://www.undg.org/documents/449-Kazakhstan_MDGR.html.

¹⁶ OECD EAP Task Force-DEPA/DANCEE (2000), Moldova Background Analyses for the Environmental Financing Strategy.

The state of the water supply, particularly in rural areas, in Ukraine is extremely unsatisfactory because of the chemical and bacterial pollution of the majority of local water sources. Up to 30 per cent of samples taken in 1996 fail to meet standards for the centralised system.¹⁷ Each ninth sample of potable water from rural water pipelines and each fourth sample from sources of decentralised water supply do not meet hygienic requirements and bacteriological standards.¹⁸

As a result of this situation, outbreaks of water-related epidemics are common in the EECCA region, and those that are reported probably only constitute the tip of the iceberg. Only recently, in Yerevan, where indications of water quality have been relatively positive, and 80 per cent of the population say that they never use purification devices, several hundred children had to be hospitalised due to a sewerage spill into the supply network. A similar accident occurred in the town of Sukhodolsk in the Ukraine, where more than 700 people had to be taken to hospitals, about 250 of them children. Almost all of them were diagnosed with viral hepatitis A. Similar episodes are reported from many locations in EECCA.

Health infrastructure

This situation is being exacerbated by a steadily deteriorating health infrastructure in most EECCA countries. For instance, over the period 1990–2004, the number of physicians per 1 000 people decreased from 2.6 to 2.2; and the number of hospital beds available per 1 000 people decreased from an average of 9.1 in 1990 to 4.3 in the 1995–2002 period. Three EECCA countries are assessed as to having only low sustainable access to affordable essential drugs, while in all others, access is medium.¹⁹

At the same time, an increasing share of health care falls outside of the public system and needs to be paid for directly by patients. In 2002, public health care accounted in average for 48.4 per cent of all health care, representing 2.4 per cent of GDP. Private health care constituted an important component of health care, funded, for 93.3 per cent, by out-of-pocket expenses.²⁰ Given the more pronounced poverty in rural areas, where many people lack cash to pay for such services, it can be assumed that the health care infrastructure is particularly deficient in rural areas.

It must therefore be assumed that the poor quality of water services in rural areas has a high negative impact on the health of populations residing there. This incidence is probably significantly higher than the national average.

¹⁷ COWI (2002), DANCEE Sector Programme for Water Supply and Sanitation, Ukraine, Final document, Danish Environmental Protection Agency and Ukrainian State Committee for Housing and Municipal Services, June 2002.

¹⁸ Grida (2003). Available at <http://www.grida.no/enrin/htmls/ukraina/soe98/pressure/water/water3.htm>.

¹⁹ WHO (2005), Non-piped, community and household systems as complementary activities for drinking water supply and sanitation in EECCA countries – Contribution to the background paper on rural water supply submitted to the Ministerial Conference on Financing of the Water Supply and Sanitation Sector in EECCA countries, (Yerevan, 18 November 2005).

²⁰ World Bank (2005), World Development Indicators.

4. LESSONS LEARNED AND CONCLUSION

Hence, the situation in the rural water supply and sanitation sector of EECCA is even more alarming than in urban areas, with adequate water services having become unavailable in many villages in the course of the last 10 years. A large part of the rural population is therefore exposed to significant health risks, both because of poor water services and a lack of health infrastructure. These problems are compounded by the widespread poverty that exists in rural areas. The countries most affected are the poorest countries in the region, which also happen to have a very large share of their population living in rural areas.

EECCA governments have been slow to react to this situation, some countries not even having allocated responsibility for rural water systems clearly within government. A first important step would therefore be for EECCA governments to recognise the significant problems that exist in rural water supply and sanitation and to develop a strategy on how to deal with it. The experience of Kyrgyzstan, where two large assistance projects have been implemented to improve rural water supply, suggests that once this is done, EECCA countries could greatly benefit from the support of donors and IFIs.

So far only a few assistance projects to support the improvement of water supply and sanitation services in rural areas of EECCA have been implemented. The two projects that concern the Kyrgyz Republic, mentioned above, are described in Annex 2. Annex 3 of this paper provides some insights into the situation in Moldova. WHO activities relating to rural water supply and sanitation - current and planned - are described in Annex 1. Some of the key lessons that emerge from this experience are summarised below:

Improving people's health

The WHO has found²¹ that public health gains derived from access to increased volumes of water typically occur for two main reasons, with one particular spin-off: :

- Firstly, this leads to overcoming health problems resulting from the inability to support basic personal hygiene needs, and the inability to meet basic human consumption needs;
- The second major health gain occurs when water is made available at the household level;
- A major added effect is the time gained at the household level, which can be devoted to child-care, productive activities, and food preparation.

Where possible, the installation of household connections should therefore be the preferred supply technology, provided that this is affordable by the population.

Besides the improvement of the quality and quantity of water supply and sanitation, significant health benefits can also be generated through measures of hygiene education. Maintaining the quality of water during collection from non-piped systems, as well as during manual transport and subsequent storage is the responsibility of the household. Good hygiene practices are required and should be supported through

²¹ Howard G. and Bartram, J. (2003), "Domestic water quantity, service levels and health", WHO, Geneva.

hygiene education. Hygiene education programmes should provide households and communities with skills to monitor and manage their water hygiene.

A project to improve water services in rural areas of Kyrgyzstan - which is being jointly implemented by the World Bank (WB), the UK's Department for International Development (DFID), and the Kyrgyz authorities - shows that very significant health benefits can be achieved through the provision of hygiene education in schools and households. More than 2 000 children were examined together with local doctors. Giardia infection was found in 25 per cent, 34 per cent, and 31 per cent of the children in Talas, Naryn, and Issyk-Kul, respectively. Following project implementation, the two parasite diseases **giardiasis** and **enterobiosis** dropped by 70-80 per cent and 50-75 per cent respectively (Table 3).²²

Table 3: Incidence of water related diseases before and after the provision of hygiene education in two villages in Kyrgyzstan

Villages	Giardia % infected	Enterobiosis % infected
<i>Aral</i>		
June examination 2003	48 %	74 %
Oct. examination 2003	9 %	18 %
Reduction	80%	75%
<i>Kosh Dobo</i>		
June examination 2003	29%	41%
Oct. examination 2003	8%	20%
Reduction	70%	50%

Source: DFID (2004), Information note.

Similarly, household treatment of water (i.e. filtering water in the household before consumption) has proven to be effective in delivery of public health gains. A classic randomised intervention study in Nukus, Uzbekistan²³ showed that household treatment of water can lead to a dramatic reduction of diarrhoeal disease. Monitoring of treatment processes is specific to the technology, therefore when household treatment is introduced, it is essential that information (and, where appropriate, training) be provided to users to ensure that they understand basic operational monitoring requirements.

The health sector has a specific role to play in addressing the challenges in the rural drinking water sector. The health sector can co-operate with public works and financing agencies by providing aid and know-how, such as co-operation during project design, hygiene education, and water quality regulation. Cost effectiveness analysis should measure the incremental health impacts attributable to health sector investments, using the actual call on health sector resources, as well as the time gained through the avoidance of water-related diseases as a measure of cost²⁴.

²² DFID (2004), Information note.

²³ Semenza J.C. et al, "Water distribution system and diarrhoeal disease transmission: a case study in Uzbekistan", Am. J. Trop. Med. Hyg. 59 (6), 1998, pp. 941-946.

²⁴ Varley R.C.G., Tarvid J., and Chao D.N.W., A reassessment of the cost-effectiveness of water and sanitation interventions in programmes for controlling childhood diarrhoea Bulletin of the World Health Organization, 1998, 76(6), pp. 617-631.

The health sector in general acts as a facilitator between all stakeholders, including surveillance agencies, public health professionals active at the national or lower administrative levels, and members of community-owned utilities.

The health sector also has a role to play in non-piped water supply to rural communities, particularly in the design of appropriate water safety plans for local water supply, the development of capacity building, and human capital development. It also supports community initiatives through auxiliary operations such as hygiene education, public awareness, and outreach programmes.

Ensuring long-term sustainability of water systems in rural areas

One of the key threats to rural water systems is that they may not be operated and maintained properly beyond the duration of the project. Community mobilisation, *i.e.* direct involvement of the population, and ownership is therefore crucial for the success and sustainability of such systems in rural communities. To achieve this, responsibility for managing water systems needs to be placed in the right position within the community. Several rural water projects in EECCA have been addressing this issue through the development of community drinking water user unions or cooperatives. These entities are crucial to ensuring project sustainability since they are responsible for operating water systems, including the collection of payment from users. Projects have been most successful where the chairmen of such entities have benefited from the backing of both the local population and the regional administration.

One challenge in establishing community water user unions/cooperatives is to overcome the lack of capacity to carry out management tasks that usually exists in such entities. The WHO finds that community initiatives are rarely sustainable on their own. The correct assessment of health hazards; the development, implementation, and verification of control measures; the overall operation and maintenance of the systems, often require a level of education and training that may not, or only partially be available at the rural community level. The sustainable development of such initiatives therefore requires significant support measures.²⁵

To foster community ownership of water projects, relying on local contributions to partially cover project costs has proven to be an effective tool. In a project in Kazakhstan, which was carried out jointly by the US Environmental Protection Agency and the Central Asia Regional Environment Centre, villagers were asked to contribute 10 per cent of the project cost and the regional administration had to provide 20 per cent.²⁶ In two projects led by the World Bank and the Asian Development Bank (ADB) in Kyrgyzstan, a five per cent cash contribution was expected from the population and another 15 per cent in the form of in-kind contributions, such as participation in the construction of facilities in the form of labour forces (see Annex 2).

Due to widespread poverty in rural areas, and many households living from subsistence, the collection of cash payments may however be problematic. For instance, in the framework of the World Bank and ADB projects in Kyrgyzstan, the collection of a five per cent cash contribution from local communities has proven to be problematic: only 40 per cent of this amount can usually be collected.²⁷ Some communities

²⁵ WHO (2005), Non-piped, community and household systems as complementary activities for drinking water supply and sanitation in EECCA countries – Contribution to the background paper on rural water supply submitted to the Ministerial Conference on Financing of the Water Supply and Sanitation Sector in EECCA countries, (Yerevan, 18 November 2005).

²⁶ CA REC (2005), Note: water supply of villages of the Ili Balkash Region.

²⁷ However, the involvement of the population in the sub-projects, as under the WB project, seems to contribute to a higher collection rate. The ADB project does not include any population mobilisation component, with the role of the Project Implementation Unit mainly limited to consultations regarding the creation of the CDWUUs, participation at the CDWUU constituent meetings, and the registration of the CDWUU with the relevant oblast authorities. The setting up of a CDWUU has remained a formality in many places. The population is not adequately informed about the project, its terms and

have therefore had to resort to other collection methods, such as disposal of communal property, or the assistance of sponsors. In other cases, grants or loans were obtained to finance the five per cent. Due to a slower collection pace than anticipated, the five per cent rule has not been strictly complied with. Cases were recorded under which the water supply system was already operating in spite of only 29 per cent of the five per cent contribution having been collected (see Annex 2).

Similarly, the contribution of 15 per cent of project costs in-kind under the ADB and WB projects has been problematic. This is due to the fact that this contribution is supposed to take the form of a labour contribution from the population, which, as unskilled labour is very cheap, implies a very large volume of work. There is also a negative impact on this in-kind contribution due to the poor mobilisation of the population, the lack of special equipment, and the bad timing of the work, as this sometimes overlaps with the period when the population is engaged in agricultural work.

conditions, and the role of the CDWUU, and is not actively involved in the creation of the CDWUUs or election of their management bodies.

ANNEX 1: WHO ACTIVITIES IN NON-PIPED, COMMUNITY, AND HOUSEHOLD SYSTEMS

1. Publications and guidance materials

The WHO has historically taken a keen interest in community water supply and sanitation, dating from the 1959 “spearhead” programme for community water supply.

The outcome of this work is a number of manuals and guidelines that are of relevance to the needs of the EECCA countries. Amongst these are:

- a) Sawyer R, Simpson-Hébert M., and Wood S., *PHAST step-by-step guide: a participatory approach for the control of diarrhoeal disease*, Geneva, World Health Organization, 2002, ref. WHO/EOS/98.3;
- b) Simpson-Hebert M., Sawyer R., and Clarke L., *Participatory hygiene and sanitation transformation: a new approach to working with communities*, World Health Organization, 1996, ref. WHO/EOS/96.11;
- c) Food, water, and family health: a manual for community educators, Geneva, World Health Organization, 1994, ref. WHO/HEP/94.2;
- d) Howard G., *et al*, *Healthy villages: a guide for communities and community health*, Geneva, Geneva World Health Organization, 2002, ISBN 92 4 154 553 4;
- e) Sobsey M., *Managing water in the home: accelerated health gains from improved water supply*, Geneva, World Health Organization, 2002, ref. WHO/SDE/WSH/02.07;
- f) *Sanitation and hygiene promotion: programming guide*, Water Supply and Sanitation Collaborative Council and World Health Organization, 2005, ref. ISBN 92 4 159 303 2;
- g) *Guidelines for drinking water quality*, 3rd ed., Vol. 1, Recommendations, Geneva World Health Organization, 2004;
- h) *Guideline on surveillance and control of community supplies*, 2nd ed., Vol. 3, 1997.

2. Current activities

The WHO is actively considering further possibilities to support the development of small-scale water supply systems. During a recent meeting (Reykjavik, Iceland, 24–26 January 2005), a number of key principles for community water supply were highlighted, including:

1. High-level political support is needed from the planning phase onwards. In particular, national authorities should ensure the provision of water safety plans (WSP) as part of a larger water safety framework that reflects all water supply and community characteristics;

2. Successful community water supply requires the active involvement of all stakeholders: owners of community water supplies, national or regional surveillance agencies, public health professionals, clients/customers;
3. Resources need to be allocated in accordance with a locally relevant risk-based prioritisation plan.
4. Safety and quality, including aesthetic aspects, should not be overlooked to increase rate of coverage;
5. Capacity building and human capital development should be an integral part of community water supply projects to ensure their sustainability;
6. Responsibilities placed with the community must be backed with the requisite levels of financial and technical support, and education and training.

3. Future plans

The WHO will continue to build on the outcome of the Reykjavik consultation at the second meeting on small community water supply management (Alice Springs, Australia, 18–22 July 2002). The meeting will address the following topics:

Development of tools, particularly the development of generic outline/framework for small supply development, including establishment of generic water safety plans;

- a) Start pilot projects: identify countries willing and able to start carrying out pilot projects, subject to available tools and funding;
- b) Development of an international network on small community water supply and management;
- c) Information and communication;
- d) Management to support technology;
- e) Creation of an evidence base in relation to small supplies, including the production of a dedicated WHO/UNICEF JMP report for small community supplies highlighting links with the MDGs;
- f) Guidelines updated and expanded, particularly WHO GDWQ Vol. 3 - Surveillance and control of community supplies.

ANNEX 2: EAP TASK FORCE CASE STUDY OF RURAL WATER AND SANITATION SECTOR IN THE KYRGYZ REPUBLIC

1. Introduction

With 65 per cent of the 5.37²⁸ million Kyrgyz population living in rural areas, the Kyrgyz Republic appeared as particularly relevant for a rural water supply and sanitation²⁹ (RWSS) case study. The purpose of this study is - based on the experience accumulated so far in the Kyrgyz Republic - to provide the reader with a thorough understanding of the situation in the rural water sector of the Kyrgyz Republic and the various projects conducted by international financial institutions or donors.

This paper specifically focuses on the institutional framework applicable to the RWSS sector, the characteristics of the Kyrgyz rural water supply and sanitation sector, and a review of past and ongoing RWSS-related projects and/or programmes developed by international financial institutions and donors. The study also draws on a few field visits to existing rural entities and organizations.

2. Overall sector condition³⁰

The deterioration of public utilities, especially in rural areas, has resulted in declining living standards and an aggravation of the social situation. The majority of systems are more than thirty years old and in desperate need of replacement and repair. Lack of maintenance has exacerbated the problems of initially inadequate designs, poor materials, and poor construction. While 72 per cent of village inhabitants were supplied with water before the collapse of the Soviet Union and only 700 000 inhabitants (737 villages out of 1 750) lacked adequate access to water services, the situation drastically deteriorated as collective and state farms were dissolved. Many waterworks became impossible to operate due to lack of funds for operation and maintenance. As a result, tap water consumption in rural areas significantly dropped³¹ and rural populations turned to irrigation canals, rivers, and surface sources exposed to pollution as alternative sources of water supply⁷. According to the National Statistical Committee, in 2001, as much as 20 per cent of the rural population consumed water from rivers and irrigation canals, and only 50 per cent used a standpipe as a water supply source.

²⁸ Source: National Statistical Committee, as at 1 January 2005.

²⁹ Agriculture, including irrigation, does not fall within the scope of the case study.

³⁰ This section, inter alia, draws on the National Poverty Reduction Strategy (2003-2005).

³¹ According to the National Statistical Committee, tap water consumption in rural areas decreased by more than 23 per cent from 115.8 million m³ in 1998 to 88.5 million m³ in 2002 (see table below).

The decrease in tap water consumption over the past few years illustrates worsening water supply conditions in rural areas:

Tap water consumption in rural areas (population and utilities) (In millions of m ³)					
	1998	1999	2000	2001	2002
COUNTRY TOTAL	115.8	113.8	118.1	115.1	88.5
<i>Batken oblast</i>	-	-	4.2	4.4	0.6
<i>Zhalal-Abad oblast</i>	24.5	27.5	31	30.5	16.3
<i>Issyk-Kul oblast</i>	15.8	14.8	14.5	14.5	14.9
<i>Naryn oblast</i>	7.4	8.6	6.2	6.5	6.4
<i>Osh oblast</i>	20.8	19.9	17.5	15.6	10.3
<i>Talas oblast</i>	7.4	4.5	4.2	5.2	4
<i>Chu oblast</i>	39.9	37.7	40.5	38.4	36

Source: Social development of Kyrgyzstan, 1998-2002, Statistical publication, Bishkek, 2003.

Per capita water consumption in rural areas dropped from 101 litres in 1998 to 75 litres in 2004:

Per capita tap water consumption (In litres)					
	1998	1999	2000	2001	2002
COUNTRY TOTAL	101	98	101	98	75
<i>Batken oblast</i>	-	-	37	41	5
<i>Zhalal-Abad oblast</i>	101	113	124	119	63
<i>Issyk-Kul oblast</i>	152	140	135	134	137
<i>Naryn oblast</i>	99	144	82	84	82
<i>Osh oblast</i>	47	44	51	45	29
<i>Talas oblast</i>	122	73	69	83	63
<i>Chu oblast</i>	182	171	184	176	166

Source: Social development of Kyrgyzstan, 1998-2002, Statistical publication, Bishkek, 2003.

Many populated areas of the Republic lack water supply networks, while the supply of potable water to the population provides only 15-20 percent of the needed volume. Based on the 2000-2003 household survey, access to safe drinking water declined from 78.9 per cent in 2000 to 67.3 per cent of the overall population in 2003. According to the Department of Rural Water Supply, 1 110 villages corresponding to a population of 2.4 million people had access to water supply systems at the end of 2004, *i.e.* only 62 per cent of villagers.

In the above-mentioned household survey, access to adequate sanitation is reported as very low and in continuous decline. Access to centralised sanitation remains very limited and in decline in most *oblasts*:

Access to centralised sanitation by oblast				
(In per cent)				
	2000	2001	2002	2003
Kyrgyz Republic	13.4	12.4	10.3	5.2
Batken <i>oblast</i>	0.0	0.0	0.0	0.0
Zhalal-Abad <i>oblast</i>	0.0	0.0	0.0	2.2
Issyk-Kul <i>oblast</i>	27.7	25.7	22.4	4.3
Naryn <i>oblast</i>	0.0	0.0	0.0	0.0
Osh <i>oblast</i>	0.4	1.3	1.7	0.3
Talas <i>oblast</i>	0.0	0.0	0.0	7.1
Chu <i>oblast</i>	56.8	52.0	42.2	21.2

Source: CDF/NPRS/MDGs – Statistical development indicators for the Kyrgyz Republic and its regions, Statistical publication, Bishkek, 2004.

Throughout the country, wastewater treatment plants, which are either out of use or in extremely poor operating conditions, are a cause for particular concern. Out of a total of 120 wastewater treatment plants (departmental and municipal), 84 (60 per cent) are not in operation. The wastewater flow through treatment plants has been continuously decreasing over the last few years. Wastewater collection systems became virtually non-operational due to discontinuous water supply but also because of their use despite insufficient water flow, which contributed to the clogging of systems and pipes. Also, many septic tanks were shut down or dismantled. While in 1998 the total wastewater flow going through treatment plants was 9.1 million m³ in rural areas, it fell to 3.2 million m³ in 2002. Treatment plants in the Chu and Zhalal-Abad *oblasts* more than halved their flow of wastewater. In the Osh *oblast*, they stopped operating, and there is no treatment in the Batken or Naryn *oblasts*:

Wastewater flow through treatment plants					
(In millions cubicmetres)					
	1998	1999	2000	2001	2002
COUNTRY TOTAL	9.1	3.6	3.4	3	3.2
Batken <i>oblast</i>	-	-	0	0	-
Zhalal-Abad <i>oblast</i>	0.9	0.7	0.6	0.7	0.4
Issyk-Kul <i>oblast</i>	0	0	0	0	0
Naryn <i>oblast</i>	-	-	-	-	-
Osh <i>oblast</i>	0.1	0.1	-	-	-
Talas <i>oblast</i>	0	0.2	0.1	0.2	0.2
Chu <i>oblast</i>	8.1	2.6	2.7	2.1	2.6

Source: Social development of Kyrgyzstan, 1998-2002, Statistical publication, Bishkek, 2003.

Today, wastewater either infiltrates the soil through leaking sanitation pipes or is discharged untreated into rivers.

In rural areas, each household uses a simple individual pit latrine. As a pit gets filled, the latrine is moved to another place. Latrines are usually in poor sanitary condition.

3. Water and health

The critical state of the rural water supply and sanitation sector has been one of the causes of the high incidence of infectious and parasitical diseases in the population. In 2003 for instance, there were 5.4 cases of abdominal typhoid and paratyphoid per 100 000 people, compared to 3.2 cases recorded in 1995. Although cases of viral hepatitis A have declined over the past few years (126.6 per 100 000 people in 2003 compared to 408.1 cases in 1995), the incidence of the disease remains very high³². Various water-related disease outbreaks were experienced over the past few years, such as typhoid fever, dysentery, and cholera³³. Intestinal infections account for 40 per cent of the total incidence of infectious diseases. Infectious and parasitical diseases caused 11.3 per cent of deaths among children under 15 and 6.9 per cent of deaths among people above 15. The epidemiological and sanitary situation appears particularly bad in the southern regions of the Republic.

4. Overview of the rural water and sanitation sector institutional framework

While a number of central institutions deal with water and sanitation, such as – *inter alia* - the Ministry of Health and the Ministry of Ecology and Emergencies, the only entity specifically focussed on RWSS is the Department of Rural Water Supply (DRWS), created in 2000 within the Ministry of Agriculture, Water Sector, and Processing Industry. It is a political and advisory body with units in all the *oblasts* of the Republic, funded from the national budget or from special-purpose grants or funds. Its main purposes are the following:

- Develop a strategy for the rural water sector;
- Revise legislation related to drinking water;
- Co-ordinate international donor assistance and foreign investment, including project preparation and implementation;
- Draft legal and regulatory documents.

The effective supply of safe drinking water lies under the responsibility of local governments:

- *Oblast*-level local public administration headed by governors; and
- Regional-level local public administration headed by “*akims*”³⁴

The role of the DRWS ranges from the supply of safe drinking water to the local population; the development and approval of water supply systems programmes; data collection and assessment of the availability and status of water resources; the setting up of sanitary protective zones and the management of water sources; the planning, financing, and provision of logistical support for drinking water supply; water quality improvement and control; decision-making in case of emergencies; through to the approval and setting of drinking water tariffs.

³² Health care in the Kyrgyz Republic statistical publication, National Statistics Committee, Bishkek, 2004.

³³ In 2000, cholera outbreaks struck in the south of the country, and 2 900 people contracted hepatitis A in the Talas oblast. Eight per cent of the total mortality rate in children was caused by diarrhoea in 1997.

³⁴ “Akims” are the heads of a regional public authority or administration.

The lowest level public authorities in rural areas are the “*Ayil Keneshes*”, self-governing authorities made up of representatives of one or several villages, that ensure co-ordination with public authorities, non-governmental organisations (NGOs), and the private sector.

As far as drinking water supply is concerned, they are responsible – through their executive and management body, the “*Ayil Okmotus*”³⁵ - for the development and approval of drinking water supply development programmes, management, maintenance, and repairs of the RWSS systems, as well as control over the sanitary conditions. Current budgetary constraints make it impossible for *Ayil Keneshes* to actually invest in the development of drinking water supply systems.

Community drinking water users unions (CDWUUs) represent the other local level group of entities involved in the provision of water supply to the rural population for drinking and domestic purposes and are a direct consequence of the Asian Development Bank (ADB) and World Bank (WB) rural infrastructure projects developed in the Kyrgyz Republic³⁶. These are non-profit legal public organisations headed by a management board composed of at least seven members, of which a water supply system co-ordinator and a sanitation co-ordinator. CDWUUs own the water supply systems that are operated by their members. They are meant to be financially autonomous and therefore costs related to the management, and the operation and maintenance of the water supply systems are to be exclusively recouped through payments collected from the population. They are in charge of supplying safe drinking water supply, collecting data, and assessing the availability and status of water resources, meeting the water demand, ensuring the reliability of the systems, setting up sanitary protective zones, and decision-making in co-ordination with the relevant public authorities in case of emergencies.

5. Legal and regulatory framework

The Law on Drinking Water, drafted after the Russian model, was adopted in 1999 and significantly amended in 2000 to take into account the developments in the rural water sector and create adequate conditions for the implementation of the ADB and WB rural infrastructure projects. Changes mainly concerned the responsibility of local self-governance authorities and local public administration in the supply of drinking water to the rural population, as well as the protection of water sources against pollution. Under the amended law, CDWUUs are, *inter alia*, entitled to own local and autonomous decentralised systems and set tariffs for drinking water services.

Another important change took place in 2002 when the State Property Committee approved the transfer of ownership of rural water supply systems³⁷ from local self-governance authorities to CDWUUs.

In December 2004, the Water Code of the Kyrgyz Republic was approved by the Legislative Assembly. Its purpose is to regulate water relations in the field of use, protection, and development of water resources for guaranteed, adequate and safe supply of water to the population, protection of the environment, and promotion of the rational development of the water fund of the Kyrgyz Republic. Under this code, the National Water Council was created among other entities to prepare the National Water Strategy to be reviewed at intervals of not less than five years.

³⁵ According to the National Statistical Committee, there are 471 *Ayil Okmotus* in the Kyrgyz Republic.

³⁶ See below.

³⁷ Except those of regional centres.

6. Governmental strategy in the field of RWSS

The key elements of the government's RWSS strategy have been over the past few years: (i) comprehensive institutional sector reform and capacity building to lay the groundwork for sustainable sector development; (ii) decentralised planning and management services based on community driven development, and giving local governments the responsibility and means to assist communities in improving their services; (iii) introduction of cost recovery policies as the only means to finance the rehabilitation and maintenance of water and waste water systems; (iv) careful selection of cost effective investments based on affordability and consumer preference; and (v) promotion of private sector participation, including operation and maintenance of facilities.

The implementation of this strategy was a prerequisite for the ADB and the WB to go ahead with their respective rural infrastructure projects in the Kyrgyz Republic.

7. National Poverty Reduction Strategy

In the Kyrgyz National Poverty Reduction Strategy (NPRS) 2003-2005³⁸, which represents the first phase in the implementation of the "Comprehensive development framework" of the Kyrgyz Republic (to be implemented by 2010), access to quality water supply and sanitation is defined as one of the priority actions in the fight against poverty. At the same time, the paper points out significant problems arising from the lack of development of the regulatory and legal framework regarding water use and the ineffective functioning of associations of water users. Furthermore, the absence of clearly-defined national strategy on water use is also stressed.

8. Current trends in the rural water supply and sanitation sector

Over the past five years, the rural water supply and sanitation sector experienced institutional changes resulting from the implementation of IFI projects, such as the devolution of management, and the operation and maintenance of the water supply systems to the local communities represented by the CDWUUs. Communities set the tariffs, determine the budget, and introduce changes in the water supply systems (extension, household connections). Users pay for the water supply and sanitation services that they receive. In the short term, it is expected that the government will continue fund raising efforts for the rehabilitation of the water supply systems not covered under the ADB and WB projects and further decentralise the rural water supply and sanitation sector.

There is a danger, however, that water supply systems constructed/reconstructed under the ADB and WB projects would start to deteriorate again soon after donors and IFIs have departed. There are already examples of water supply systems which, a year after they have been rehabilitated, are in very poor operating condition with standpipes broken, well doors missing, pumps being out of order, etc. This is evidence of the fact that investing CDWUUs with their mandate is a challenge and that many have not yet fully realised their responsibility towards the population for quality drinking water supply.

Tariff collection rates tend to remain an issue, as the overwhelming majority of rural residents has no permanent income and cannot pay tariffs on a regular (monthly) basis. Furthermore, the remnants of welfare mentality and the desire to receive services for free are still strong.

³⁸ "Comprehensive development framework" of the Kyrgyz Republic (to be implemented by 2010), "Expanding the country's capacities", National poverty reduction strategy, 2003-2005.

Continuously rising electricity prices and irregular electricity supply in rural areas create additional difficulties. The situation is aggravated by the fact that more than 50 per cent of tariffs collected by CDWUUs is allocated to electricity payments.

Today, the rehabilitation of existing rural waterworks is mostly funded out of foreign loans (USD 36 million from the ADB, and USD 15 million from the WB) on concessive terms. The government is currently trying to find solutions for the rehabilitation of systems in those rural areas that remain uncovered by IFIs.

9. The ADB and the WB rural infrastructure projects

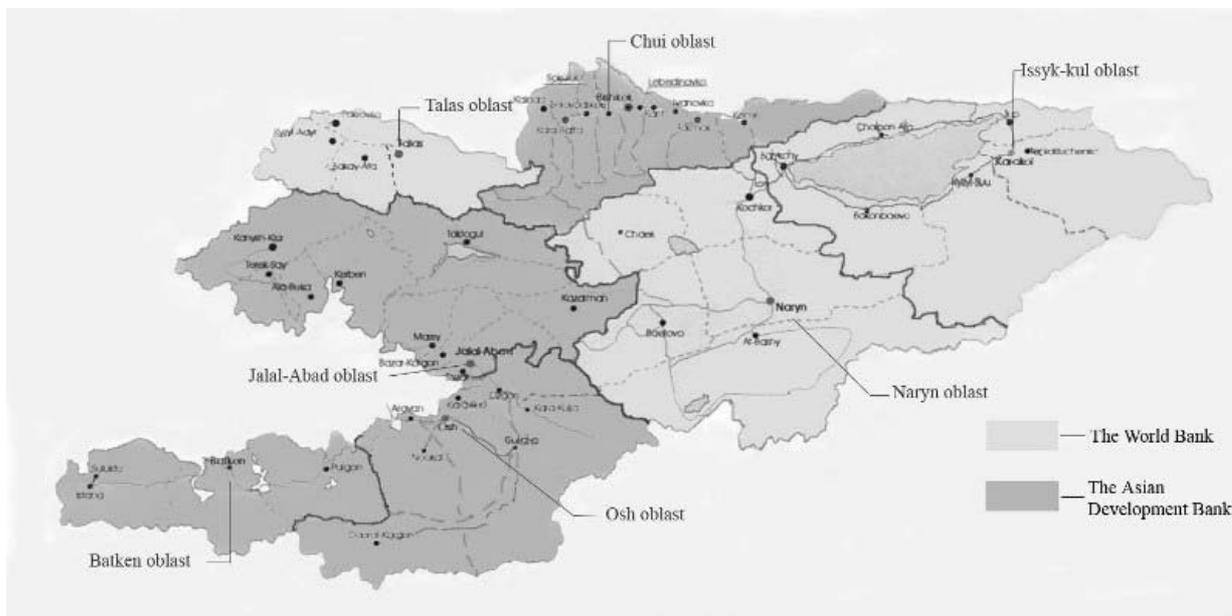
As mentioned above, the implementation of the ADB's "Provision of infrastructure services at the locality level" project and the WB's "Rural water supply and sanitation" project has accelerated the devolution process in the rural water sector and influenced the entire rural water and sanitation sector in Kyrgyzstan. This is the case not only because of the size of the projects, but because for the first time an opportunity has arisen whereby rural water supply issues can be addressed in an integrated manner, together with sanitation and hygiene issues, and the rural population can be involved in the implementation of the projects. Both IFIs set as a prerequisite: large-scale involvement of the population in the implementation of the projects, and the devolution of the management of the water supply facilities to the communities, seeking to ensure the sustainability of rehabilitated (or newly-built) water supply systems; implementation of a self-financing policy in the management, operation, and maintenance of the water supply systems; and the timely repayment of borrowed funds. Under these projects, cost recovery became the basis for financially sustainable development.

The concept of a community-level legal body representing the interests of the entire village community was developed, *i.e.* the CDWUU, a public association comprising all village residents. The property rights to rural water systems were transferred from the local self-governance authorities to these associations free of charge (except those in regional centres).

Both projects imply the rehabilitation of the entire water supply system, *i.e.* head facilities, water mains, distribution networks, and standpipes.

The territory of the Kyrgyz Republic was divided between the two IFIs projects:

ADB and WB project areas



A single project management unit (PMU) common to the two projects was set up within the Department of Rural Water Supply with a view to harmonizing and developing a uniform approach to the implementation of the projects.

The terms and conditions of both projects are as follows:

	ADB’s “Provision of infrastructure services at the locality level” project	WB’s “Rural water supply and sanitation” project
Funding	ADB	International Development Association (IDA)
Total project value	USD 45 million	USD 24.5 million
Financial terms and conditions	Repayment period: 32 years; Interest rate: 1% p.a. during the 8-year grace period; 1.5 % p.a. thereafter	Standard IDA credit: Repayment period: 40 years; Service charge: 0.75%; Commitment fee: 0.5%
Loan amount	USD 36 million	USD 15 million (+ DFID grant of GBP 3.48 million)
Co-financing by the Government of Kyrgyz Republic	USD 9 million	USD 3.25 million, mostly in the form of exemptions from taxes, charges, & duties
Utilisation period	Until 31 December 2006	Until 31 October 2007
Inception	End 2000	March 2002
Coverage	Batken <i>oblast</i> , Zhalal-Abad <i>oblast</i> , Osh <i>oblast</i> , Chu <i>oblast</i>	Issyk-Kul <i>oblast</i> , Naryn <i>oblast</i> , Talas <i>oblast</i>
Number of villages	730	230
Number of population	1.2 million people	325 000 people

	ADB's "Provision of infrastructure services at the locality level" project	WB's "Rural water supply and sanitation" project
Implementing agency	Dar Muhendislik Company (Turkey) in association with Hifab International AB	Carl Bro International (Denmark) jointly with INTRAC (UK)
Sub-lending scheme	Creation of CDWUUs 5% cash contribution of the sub-project value before the construction work begins 15% in-kind contribution of the sub-project value during the construction work	
Sub-loan repayment scheme	5 % loan repayment in local currency (soms) over 7 years, incl. 4-year grace period, interest-free; Foreign exchange risk taken by the Kyrgyz government	
Design costs	Part of total construction costs	Covered by DFID grant
Project objective	Improve the living conditions and health of the population in identified rural and urban localities, in particular, of poor population by ensuring the provision of basic infrastructure services	Improve access to drinking water supplied by the systems owned, operated, and maintained by the communities on a sustainable basis Improve hygiene and sanitary conditions and water use practices at various levels in rural areas.
Project components	<ol style="list-style-type: none"> 1. Rural water supply 2. Rural sanitation 3. Drainage and flood control 4. Rural roads 5. Urban water supply 6. Institutional development programme 7. Consulting project management services 8. Hygiene and sanitary education programme 	<ol style="list-style-type: none"> 1. WSS reconstruction and construction 2. Advocacy of rural hygiene and improvement of sanitary conditions 3. Project implementation and capacity building in villages 4. Project management and control 5. Additional operational costs
Pipes used	Asbestos-cement pipes	Polyethylene pipes ³⁹

The CDWUU's contribution is 25 per cent of the total sub-project's costs⁴⁰, of which:

- A five per cent initial cash deposit, serving as a guarantee of the CDWUU's participation in the project⁴¹;
- A 15 per cent in-kind contribution (labour) at the construction stage;
- A five per cent loan repayment over seven years, including a four-year grace period.

Seventy-five per cent of the total sub-project costs are provided as a grant from the Government of the Kyrgyz Republic.

³⁹ Such pipes allow for the use of chlorine products to disinfect water rather than ultraviolet water treatment .

⁴⁰ It should be noted that these contributions are higher in the case of the ADB project, as technical assistance is included in the water supply system costs.

⁴¹ The average per capita five per cent cash contribution ranges from Som 320 to Som 460. In some cases, it can be as high as Som 520 (1 USD was on average worth 47 soms in 2002).

Progress status

- ADB’s “Provision of infrastructure services at the locality level” project
 - The setting up the 420 CDWUUs was completed in the first half of 2002;
 - So far approximately 95 per cent of the total number of design contracts have been completed, and about 43 per cent of the sub-projects are under construction;
 - The project enabled the construction of waterworks in 147 villages, the repair of 180 km of water supply lines and the construction of 542 km of new ones, as well as the repair of 1 169 standpipes and the installation of 1 934 new ones. A total of 225 735 people benefit from the project. Construction is underway in 125 villages. As at 1 April 2005, 50 per cent of the project funds had been disbursed⁴²;
 - With the resources at hand, it is extremely difficult to train the CDWUUs , and many currently go without. Consequently, due to this lack of practical training, CDWUU staff has difficulties, *inter alia*, in operating the systems, maintaining accounts, and developing water tariffs. In addition, the implementation of the hygiene and sanitary education programme has been delayed due to the tardiness in setting up trainingcentres.
- World Bank “Rural water supply and sanitation” project
 - Including the 2005 sub-projects, the number of the sub-projects amounts to 162, covering 198 villages and 327 442 people;
 - The length of the networks covered by construction and repair operations is more than 49.5 km; 171 standpipes were repaired;
 - Work is underway on 784.7 waterworks and 2 780 standpipes;
 - Cumulated loan disbursements of USD 13.3 million are expected after approval of the 2005 programme⁴³.

10. DFID’s “Rural hygiene and sanitation” project

This USD 6.25 million DFID-funded project can be defined as the “water quality assessment” component of the WB project. Its purpose is to reduce morbidity in children by altering unhygienic behaviour and improving sanitary conditions in villages. Its components are as follows:

- Setting up initiative groups; population training in participatory hygiene and sanitation transformation (“PHAST”⁴⁴);
- Laboratory testing of children aged one to 12 for helminth eggs;

⁴² According to the Department of Rural Water Supply.

⁴³ Medium-term report of the rural water supply and sanitation project, PMC, Bishkek, December 2004.

⁴⁴ Methodology of participatory hygiene and sanitation transformation originally developed by the WHO, in which local communities learn to identify their own health, hygiene, and sanitation problems (problem mapping), based on which the communities set their tasks and formulate their action plan.

- Construction of lavatories;
- Water quality control, jointly with the CDWUUs;
- Setting up of initiative groups in all the villages where water supply systems are being rehabilitated under the World Bank project.

Progress status:

- PHAST training completed in almost all 2003 and 2004 WB sub-projects;
- 122 villages in Issyk-Kul, Naryn, and Talas *oblasts* covered;
- 1 500 rural initiative groups (RIGs) set up, comprising volunteers, to advocate hygiene;
- Approximately 35 000 adults and children trained;
- Co-operation with the Swiss Red Cross in the Talas and Naryn *Ooblasts* to ensure the incorporation of the RIGs into rural health committees;
- As of August 2004, the construction of 111 school lavatories had been launched (of which 32 had already been completed);
- 125 project proposals were received and 39 grants approved, based on the applications received from villages. Activities funded by the grants consist of the training of neighbouring villages, the installation of wash-stands and drinking fountains, medical examination and treatment by paediatricians, and theatre performances to advocate the best hygiene skills.

11. Issues/lessons learnt from the ADB and WB projects

- The five per cent cash contribution expected from the population under the ADB and WB projects is a problem: only 40 per cent of this amount can usually be collected.⁴⁵ *Ayil Okmotu* chairmen have therefore had to resort to other collection methods, such as disposal of communal property, marathons, and sponsor assistance. Sometimes grants or loans were obtained or money was borrowed to finance this five per cent. In 2003, eight per cent of *Ayil Okmotu* chairmen were replaced because they failed to collect the requested amount. Due to a slower collection pace than anticipated, the five per cent rule has not been strictly complied with. Cases were recorded under which the water supply system was already operating in spite of only 29 per cent of the five per cent contribution having been collected;
- The five per cent cash contribution is moreover subject to full taxation, including VAT, unlike the 95 per cent share of the sub-projects. This increases sub-project costs and therefore financing costs;

⁴⁵ However, the involvement of the population in the sub-projects, as under the WB project, seems to contribute to a higher collection rate. The ADB project does not include any population mobilisation component, with the PIU role mainly limited to consultations regarding the creation of the CDWUUs, the participation to the CDWUU constituent meetings, and the registration of the CDWUU with the relevant oblast authorities. The setting up of a CDWUU has remained a formality in many places. The population is not adequately informed about the project, its terms and conditions, and the role of the CDWUU, and is not actively involved in the creation of the CDWUUs or election of their management bodies.

- The 15 per cent in-kind contribution requested under the ADB and WB projects is another source of concern, as it is supposed to take the form of a labour contribution from the population, which, as unskilled labour is very cheap, implies a very large volume of work. Some CDWUUs have been very reluctant to provide labour. In addition, there is no contractual or official leverage to induce CDWUUs to fulfil their obligations. CDWUUs are sometimes made responsible for performing complicated operations, which require certain skills, without having the required construction experience. Failure to carry out work by the population often leads to the suspension of construction operations and delays. As of 1 December 2004, 53.3 per cent of the 15 per cent in-kind contribution was completed at the facilities under construction²⁰. There is also a negative impact on this in-kind contribution due to the poor mobilisation of the population, the lack of special equipment, and the bad timing of the work, as this sometimes overlaps with the period when the population is engaged in agricultural work. However, it should be noted that the experience is sometimes positive, with communities co-operating closely with contractors and finding arrangements with them (provision of oil and lubricants to contractors against them doing the work, barter arrangements, etc.);
- While the cost of the water supply systems was originally not to exceed USD 20 per capita, by the time the ADB project started the economic situation in Kyrgyzstan had evolved in such a way that the current per capita cost now can be as high as USD 80⁴⁶. Out of the 730 villages that were covered by the initial rehabilitation programme, 265 will eventually benefit from the ADB project. For this reason, among others, the rural sanitation and urban water supply components of the ADB project have not been implemented. It should be noted that the ADB expressed the intention to commit new funds in order to complete the initial rehabilitation programme;
- CDWUUs still do not fully understand the need to use efficient water disinfection techniques and their responsibility towards the population as far as the quality of water supplied is concerned;
- Too much depends on CDWUU chairmen who are not remunerated. There is the constant threat that, should they become weary, the work might stop or be unsatisfactory. Moreover, they often have no real power or leverage to influence events. Their performance has been more successful where they were supported by *Ayil Okmotus*;
- National construction (SNiP) standards developed in the 1970s are obsolete. They are very complex and lead to an increase in the construction costs and value of facilities.
- CDWUUs are public non-profit organisations engaged in water production and supply to the population, *i.e.* engaged in a commercial activity. As a public entity, the CDWUU must not generate profit, but as a water enterprise, the CDWUU should seek to generate income from its production activities. It is likely that once the IFIs projects are completed, tax authorities will seek to tax profit generated by the CDWUUs;
- CDWUUs were created, *ex nihilo*, as water enterprises without any equipment, machinery, or basic tools for maintenance, repairs, or subsequent extension of the water supply networks, the procurement of which cannot be financed from tariffs. Therefore, it is not clear whether CDWUUs will be able to operate and maintain the water supply systems.

⁴⁶ The price of construction materials and equipment went up several-fold due to the increase in inflation.

ANNEX 3: EAP TASK FORCE “CASE STUDY OF RURAL WATER SUPPLY AND SANITATION IN MOLDOVA”

1. Strategic planning, construction, and ownership in 1960-1991

The water supply and sanitation (WSS) infrastructure in rural settlements⁴⁷ in Moldova was developed primarily from 1960 to 1991, when Moldova was a part of the Soviet Union. Despite the central planning system there was no national development plan for the rural WSS infrastructure. Instead, many rural settlements developed individual “master plans”, including an infrastructure development plan. But those plans were not fully implemented as they were highly demanding in terms of infrastructure development, and of building roads and municipal housing, and generally lacked financial support from central government.

Most WSS infrastructure was built and owned by former state and collective farms, usually applying construction and sanitary standards, rules, and norms effective in the Soviet Union. The water consumption norm of 35-80 litres per person per day was determined for rural households without connection to the centralised sewerage system and 160-250 litres for households with access to such a system. The construction, environmental, and sanitary norms and standards in the Soviet Union were very stringent, even more restrictive than those in developed industrialised countries and were often impossible to comply with.

Moreover, state and collective farms were not able to design and build WSS and other engineering infrastructure independently, as all was pre-decided as anticipated in the master plans. Construction projects in WSS were therefore approved only if centralised water supply and sewerage were initially incorporated into the project design for municipal housing and/or social infrastructure (schools, hospitals, etc.) to be built in a rural settlement. The demand for water supply and sanitation services was usually substantially overstated when designing the master plan in order to cover future needs assessed on the basis of very optimistic forecasts for economic development and population growth. As a result, *e.g.* the sanitation infrastructure in more than 35 per cent of rural settlements was built with highly excessive capacity. Sometimes capacity utilisation rates were so low that the systems were just not operational (*e.g.* a wastewater treatment plant can not provide effective treatment if the inflow is some 5-10% of its capacity).

In the central planning system, quotas for pipes and other equipment were usually not allocated for the small constructions undertaken by the farms, as the system was focused on major constructions financed from central and regional budgets. The farms had to get the pipes, materials, and equipment somehow, often through barter schemes, and the quality of the pipes, materials, and equipments was usually quite low.

For the above reasons the WSS infrastructure in rural settlements was usually poorly designed and built, and was very inefficient.

⁴⁷ There are some 1533 rural settlements in Moldova

2. Operating rural WSS systems in 1960-1991

Specialised entities professionally operated the WSS systems in only a few rural settlements. Usually, the owner of the infrastructure (a state or a collective farm) was solely responsible for the operations and maintenance (O&M) of the infrastructure. O&M was often rather poor as the farms lacked appropriate skills.

In most rural areas, the prices set for WSS services by the state and collective farms were either very low (\$0.02-0.04/m³), or even free, as the population represented their present or former employees and their families. This attitude resulted in a widespread wrong perception among the rural population that the WSS services should be free of charge.

In addition, it created no incentives for rational water use: rural households often use drinking water to also water their gardens and for agricultural production on their small land spots. Generally, there was no water metering - neither with end-users, nor even at water pumping stations - and usual practise was to use electricity meters readings from the pumping stations to assess the amount of water pumped into the system. This practice easily caused errors of 30 per cent or more.

3. Coverage and present state of WSS infrastructure

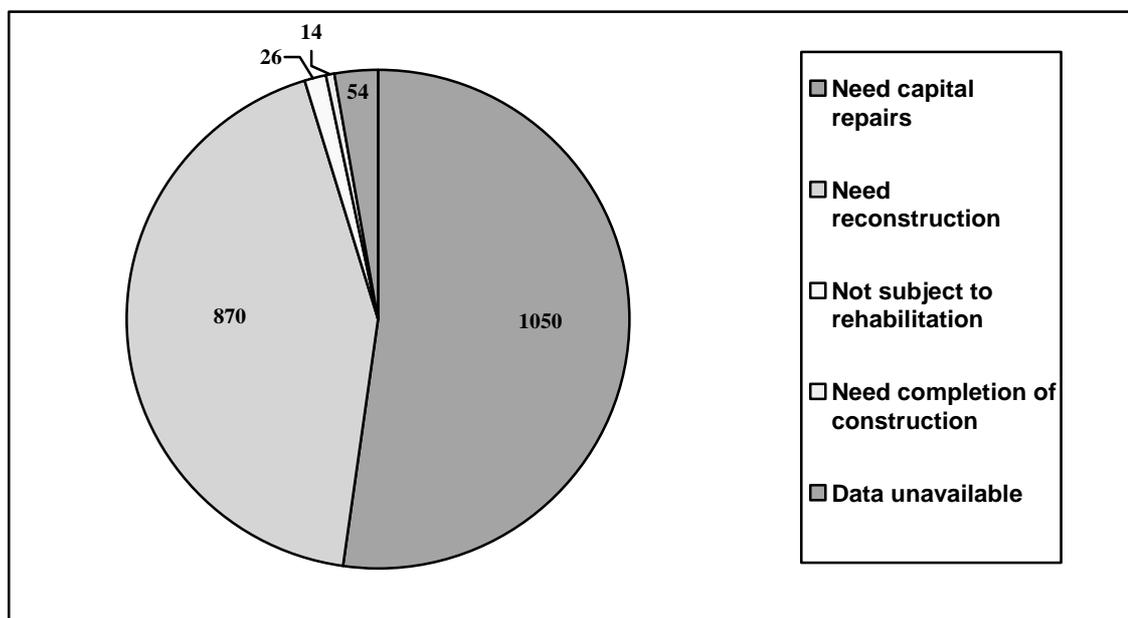
Like in other EECCA countries, following the break-up of the former Soviet Union and the subsequent dismantling of almost all state and collective farms, this infrastructure became almost obsolete, since usually there was no arrangement made to transfer responsibility for operation and maintenance from state and collective farms to appropriate institutions, while local self-governing communities most interested in WSS services lacked resources to operate and maintain the systems. Also, nobody paid electricity bills. For these reasons, after 1995, many centralised WSS systems in rural areas in Moldova were shut down and then abandoned.

The present rural water supply and sanitation infrastructure in Moldova is underdeveloped and deteriorated. Available statistical data usually reflects only territorial coverage rather than the actual number of people with access to a centralised water supply. Despite a documented high number of existing centralised water supply systems (statistics report 1 032 systems), coverage of rural population by centralised water supply did not exceed 30 per cent even in the Soviet time. Taking into account that some 93 per cent of the systems built in the past now require substantial rehabilitation/capital repair or reconstruction (see Figure 1), at present now only a small portion of the rural population is provided with relatively stable water supply through the centralised systems. Official reports say about 17 per cent, but in fact this portion is likely to be even lower.

The rest of the population takes water mostly from shallow wells, 65 per cent of which are highly polluted. Contaminated shallow ground water contributes to a substantial number of cases of hepatitis A and other water-born diseases in Moldova.

Coverage of the rural population by centralised wastewater collection systems (by sewerage) is even lower: in Soviet times, when 33 per cent of rural settlements had such systems, it did not exceed seven to eight per cent of the rural population. Currently around 55 per cent of existing sewerage infrastructure requires substantial rehabilitation or reconstruction, so the coverage is likely to be even lower than seven to eight per cent.

Figure 1. Technical status of rural water supply systems in Moldova



Source: "The comprehensive water supply and sanitation scheme for Moldova, until the year 2015", internal report, Apele Moldovei, 2003.

4. Institutional set up, national, and local strategies in rural WSS – from 1992 onward

4.1 Changes in the legal and regulatory framework

Decentralisation of responsibility for providing WSS services to the population in Moldova was initiated in 1995 and completed in 1998. However, significant changes in the legal and regulatory framework in the WSS sector were initiated only in 1999 with the introduction of the **law on potable water**. This regulation defined principles for installation and operation of the centralised water supply systems; and determined the responsibilities of the state, municipalities, operators, and customers. It also put forth requirements and conditions for co-operation among stakeholders. Unfortunately it was only a declarative act with a number of contradicting provisions and definitions. It did not suggest effective implementation mechanisms.

In 2002 a new **law on communal services** enabled diversified forms of property acquisition and operation schemes in the sector, including concessions and private operators. **Local regulation on providing WSS services** was developed in some municipalities, but still, there are large gaps in the regulatory framework, and water supply and sanitation norms and standards still remain stringent, thus inhibiting compliance.

4.2 Planning, programmes implementation, and co-ordination

Current planning activity in the rural WSS sector in Moldova often produces disconnected and only declarative programmes (including provisions on rural WSS in the PRSP and in the "Moldovan village" programme), though with a strong political accent. The amount of financial resources required for programme implementation is often calculated based on rather weak assumptions for demand (water consumption norms) and other parameters; and expenditure needs are rarely thoroughly assessed and

analysed. Programmes are still not always technically and financially feasible, and are rarely supported by justifying calculations.

“**The comprehensive water supply and sanitation scheme for Moldova, until the year 2015**” was a positive exception from this trend. This scheme was created on the basis of a thorough and in-depth study of the WSS sector in Moldova, and of the ongoing and implemented international and local WSS projects. The document also helped develop a comprehensive sector-wide **information database**. The OECD/EAP Task Force assisted in setting realistic, financially feasible development targets in the urban water supply and sanitation sector by applying **financial strategy** (FS) methodology. Despite the obvious practical and methodological value of the document, the approaches and recommendations it suggested have not been implemented. This happened, *inter alia*, due to lack of co-ordination between government agencies responsible for the WSS sector.

4.3 Tariff policy and user charge revenues

The first sign of improvements in the tariff-setting policies came in December 2000 when the government approved a “**Methodology of water supply and sanitation tariffs calculation and implementation**”. The methodology introduced a new tariff-setting approach based on the full cost recovery principle. The methodology was replicated from the tariff-setting practices existing in the energy sector, which was already privatised. According to the methodology, utilities and infrastructure operators are responsible for tariff calculations on the basis of previous year total operations and maintenance costs. Local governments approve the tariffs on the **no objection** basis from the Department for Construction and Territorial Development.

The “**Regulation of public water supply and sanitation services in the municipality of Chisinau**” was issued in December 2002. The document contributed to establishing sound tariff-setting rules, it also established a framework for tariff calculation and for sound financial settlements between service providers and consumers. The document has been adapted and adopted in many municipalities in Moldova.

The current water tariffs in Moldova still depend on cross-subsidisation and therefore water tariffs are different for industrial users and households. In rural areas tariffs remain rather low (on average some USD 0.4 per cubic meter of supplied water, possibly equal to the price of a bottle of local beer). Collection efficiency is being improved, not least due to the improved **willingness to pay** (WTP) demonstrated by those hundreds of thousands of former labour emigrants living in rural areas who appreciated the benefits of a regular water supply, quality water, and good sanitation they enjoyed when working abroad (labour emigration from Moldova amounts to one quarter of the population).

4.4 Financing from the public budget

Since 1993, allocations from the central budget to the WSS sector have been limited to co-financing amounting to USD 2.7 million, representing a loan provided by Turkey. Allocations for other projects were negligible. Current financing practices are still based on attempts to distribute scarce budget resources among a maximum number of applicants. There is no prioritisation/ranking of the projects based on priorities set by the competent jurisdictions, and using sound and transparent criteria.

The Ecological Fund is the only available source of public funding to co-finance WSS projects: up to MDL 100 000 (USD 8 200)⁴⁸ per project. Some limited financial resources are also available from the State Reserve Fund, though allocations from it are not systematic.

⁴⁸ MDL – Moldovan lei, USD - USA dollar – national currencies.

4.5 Operating and maintenance, management and technical capacity

The situation as regards the supply of raw materials and equipment required for maintenance and operation of WSS infrastructure in rural areas has been significantly improved since 1991. Unlike during the Soviet era, there are no quotas and everything is available if it can be paid for. A wide network of international distributors of equipment and maintenance materials for the water supply and sanitation systems makes it rather easy to purchase any required item, provided there are sufficient financial resources available. Tenders have become a common attribute of all procurement transactions.

Lack of qualified managers and technical staff, however, remains one of the major obstacles to improvements in the sector: very low salaries and wages, and inadequate working conditions present major obstacles to satisfying the demand for human resources in the sector. There are very few incentives for young people to concentrate their studies on water supply and sanitation.

Although the Technical University of Moldova makes considerable efforts to provide good training for the specialists, it can not meet the demand as there is not much opportunity to provide students with on-the-job training involving advanced water supply and sanitation technologies and managerial practices. Transfer of international managerial and technical expertise is highly needed. Without international support it will not be possible for Moldova to build sufficient capacity in the foreseeable future.

5. Projects in rural WSS supported by donors and IFIs

Since 2000, international financial institutions (**IFIs**) and donors have become more active in the WSS sector in Moldova, additionally bringing expertise and know-how, and facilitating development of the sector. As a national programme for rural WSS development in Moldova is lacking (unlike in the Kyrgyz Republic), as well as co-ordination of different actors by the Government of Moldova (**GoM**), IFIs, donors, local communities, and other stakeholders (including direct involvement of population and local private investors) undertake **decentralised initiatives** aimed at improving the situation in the rural WSS, as presented below.

The **Danish Ministry of Environment** helped to build or rehabilitated water supply systems in three rural and in three urban settlements, providing **comprehensive solutions** to water supply problems in the involved settlements.

Local contribution consisted of civil works implemented by specialised local organisations selected through tenders, while the donor provided pipes, pumps, valves, and other equipment of high quality. Training for local operators was organised and now the systems are operated by local staff (one person per 1 000 people served).

The project was supported by the **information and public awareness campaign**. The population contributed to the project in cash and in-kind. All household connections are metered and people pay for water fully and on time. The collection rate stands at 98 per cent.

Turkey has provided a loan to rehabilitate the WSS infrastructure in the southern part of Moldova. Two towns (52 000 people) and two big rural settlements (20 000 people) benefited from the first instalment (USD 17.7 million plus USD 2.7 million of local contribution provided by the GoM). The second instalment (USD 22 million) was also anticipated to resolve the problem of quality water supply in two more towns and in some 20 rural settlements in the **Gagauz autonomy** (with 140 000 Turkish-speaking people living there). Unfortunately, due to problems with repayment of the first instalment, the Turkish government decided to delay the second one, and to limit its support to a USD three million grant to complete the projects funded from the first instalment and prepare projects for the second instalment – assuming that there will be the second instalment some years after.

The **Social Investment Fund (the World Bank [WB] project)** has also financed some projects in the WSS. However, the resources were distributed rather thinly: support provided by the fund (as a sub-loan) amounted to only USD 50 000 per project, which is **not enough for a comprehensive project** that could fully resolve the water supply problem in a settlement. Therefore, only small projects like the rehabilitation of a water tower or of a part of a water pipe network were financed from the fund. Thus the success of such projects in terms of their impact on public health and on improving living conditions of the population was assessed as low.

The **World Bank project on WSS** – presently four urban settlements are involved, but in the future 10-12 rural settlements will also be included in the project.

The **Arab Economic Development Fund (AEDF, Kuwait)** provided substantial support (a grant) for WSS project preparation. A project-ranking methodology, based on expected impact on human health (health risk criterion), willingness to participate, economic benefits, technical and financial feasibility, and other criteria was developed in the framework of this project. On the basis of this project identification and ranking methodology, six projects were selected (three in towns and three in rural settlements, with the total population amounting to 60 000 people). To implement the projects the Government of Moldova has signed a loan agreement with the fund.

Japan provided a grant (via **JICA – the Japan International Co-operation Agency**) for a study on WSS systems in the northern part of Moldova. Some projects included in the WB project on WSS were identified and prepared in the framework of the study.

The **“Local government reform project”, financed by US AID**, contributed to capacity building in municipalities, *inter alia*, supporting NGOs working on municipal development issues and providing training for NGOs and local officers on how to set priorities and design development plans for municipalities, including rehabilitation and development of WSS infrastructure. Such programmes were prepared in several villages *e.g.* in **Roshietich** village.

The **WATSAN programme, financed by Switzerland**, supported the creation of water supply systems in seven rural settlements with some 8 600 people benefiting; a water distribution system through stand pipes was established in seven other rural settlements with 7 600 people. The programme was implemented in co-ordination with the above-mentioned US AID project.

6. Success stories, including local initiatives

Based on field trips to nine rural settlements, the case study includes several **“success stories”** related to rural WSS. Some of the stories are presented below:

In **Kirkaesht village** (3 000 people): a 24-hour water supply was recovered with Danish assistance. The system is operated by three people attached to the local public authority (*primaria*, local self-governance body). The price for water is equal to USD 0.34 per cubicmetre. Water sold is metered and connected households pay fully and on time. In 2003 the water utility paid MDL 10 000 of taxes to the local budget. The tax revenues were used to further develop a gas supply system in the village.

In **Stavchen village** (10 000 people with a growing population), near Chisinau: the municipality has invited a private company to operate the WSS system. The contractor was selected through tender; criteria for selection were lowest prices for improved communal services (WSS, gas, and heat supply). Price for water is below USD 0.4 per cubicmetre. The contractor demonstrated substantial improvements in the performance indicators during the first year and has signed a 49-year concession-like contract with the municipality.

Karbolia (a small village in the **Gagauz** autonomy): water was delivered to the village in tanks, at a price of USD 2.5 per cubic metre. The people voted for attracting a sub-loan (provided by the **AEDF, Kuwait**) to build a local centralised water supply system and get piped water. The unit cost (including interest on the loan) is rather high and amounts to USD 280 per connected person, but people found the annual payment of USD 25 per person affordable taking into account that average household cash income in the village amounts to USD 1 500 per annum.⁴⁹

Lebedenko village: a group of local citizens leased a spring located in the village and owned by the local community and invested their own money (earned when working abroad) in building a pipeline from the spring to their homes. Local authority agreed to lease out the spring under condition that a school and a kindergarten located along the pipeline would also be supplied with water. The tariff was set at five MDL per cubic metre. Six months later, some other households expressed their interest in buying water from the system. The owners created a small enterprise to operate and further develop the water supply system in the village and engaged in contractual relations with the local public authority (*primaria*). In 2004, after preparing a feasibility study and designing documents, the system was extended, and many other households and enterprises were connected. Water sold is metered, and the local public authority approved a new tariff, which was increased to MDL 10, to cover investment costs. There are plans to further extend the system to supply water to neighbouring villages.

Suslen village: after the collapse of the centralised water supply system, built in the past, many households started drilling their own boreholes. Due to uncontrolled drilling the level of the water table decreased and water disappeared in many dug wells. Water crises in the village happened intermittently until one private farm suggested that they operate the whole of the village's water supply system. To begin with, a new deep borehole was constructed by the farm, while the others (built without official permissions) were shut down. The farm invested some USD 12 000 in the construction, while the Moldovan Ecological Fund granted another USD 8 000. Design documentation was prepared in line with the effective rules and construction standards. However, shortly after the construction was launched, it became apparent that investment costs related to building a water tower were higher than expected, and the farm started searching for a loan to complete the construction.

A good feasibility study could have prevented such a problem of underestimating investment cost, but rural communities and farmers usually lack relevant expertise and need support from the government in project preparation. A serious obstacle for projects implementation is that local banks are not eager to provide loans for WSS projects, while there is no public fund that could grant "soft" loans.

Kopchak village (12 000 people; **Gagauz** autonomy): a local collective farm operated part of the water supply system until 2004, but lacked resources to rehabilitate it. A group of citizens suggested creating a "**water users association**", which would be responsible for rehabilitating and operating the water supply system in the village. The association was created, it undertook an audit of the system, and prepared a rehabilitation project. Households, the collective farm, and the local public administration contributed to rehabilitating the system, which uses good quality spring water. Technical and legal support was highly needed by the association when it started working, but there is no institution in Moldova that provides such support.

7. Lessons learnt from the case study

- Lack of national strategy and lack of coordination between the government agencies responsible for the WSS sector, as well as between local stakeholders, international donors, and IFIs, and

⁴⁹ According to national accounts statistics in 2001 in Moldova final consumption of households amounted to MDL 4,505 (USD 350) per capita per annum.

between different projects in Moldova, are serious obstacles for the comprehensive development of the rural WSS sector, as well as for the cost-effective use of available scarce resources. Another obstacle is rigid, unrealistic standards for WSS systems.

- There are two pre-requisites for the success of projects in the rural WSS initiated by the government, donors, or IFIs:
 - A. **Participatory approach:** community mobilisation and ownership, strong commitment of the community, and direct involvement of the population in project implementation;
 - B. **Affordable level of services/the technological choice should fit available resources:** this includes the managerial capacity and technical skills of the people living in the community, as well as the household incomes - level, structure (cash, non-cash), and seasonal fluctuations - ensuring that people are able to pay for the service level they have selected.
- On the one hand, the outcome (in terms of the impact on public health and on improving living conditions of the population) of the support and co-financing provided to WSS projects by the public budget, donors, and IFIs is much more significant and resources are used more cost-effectively when allocation to a settlement is made on the basis of the **estimated cost of a comprehensive solution**, anticipating full rehabilitation and planned extension of the water supply system that would ensure 24-hour quality water supply. On the other hand the outcome is rather inadequate, suggesting only limited or partial improvements if, the investment programme for a specific settlement **was designed to fit the prescribed allocation of funds**.
- Moldova, like other EEECCA countries, lacks managerial and technical capacity in the WSS sector, particularly in rural areas. Without international support it would not be possible for Moldova to build sufficient capacity in the foreseeable future. The same is true for other EECCA countries. Transfer of international managerial and technical expertise, as well as cross-fertilisation by disseminating success stories and best practices from Moldova and other EECCA countries are highly necessary to addressing the problem.
- Though local initiatives undertaken by local communities, and private investors and operators can only partly compensate for the lack of national strategy and priorities in the WSS sector, **these initiatives can be successful, even in rural areas**. Pre-requisites for success are: a legal framework favourable to private sector participation (concessions, private operators, etc.), strong commitment from the initiators/sponsors, and sufficient willingness to pay (WTP) from the population.
- Labour emigration created favourable conditions for local initiatives in Moldova: former labour emigrants who have come back home have demonstrated a much higher commitment and WTP for WSS, since when working abroad they appreciated the benefits of a regular water supply, quality of water, and good sanitation. In addition, some of them had accumulated capital sufficient to start small businesses in agriculture and in rural WSS, or to sponsor rural WSS projects.
- However, local initiatives require technical, legal, and financial support from the government. Technical support, *inter alia*, could include: access to a data base on water sources and WSS technologies applicable in rural areas, and help in selecting feasible and affordable solutions; training on how to properly build and operate rural WSS systems, on metering and sound tariff policy, on sound legal and financial arrangements ensuring sustainability of operations, etc. The establishment of an institution providing such support to local initiatives, together with co-

financing from the public budget and/or soft loans from ecological and other ear-marked funds, to help cover high up-front investment costs, would promote development of the rural WSS sector.

ANNEX 4: TABLE – HEALTH INFRASTRUCTURE OF EECCA COUNTRIES

Table A1 - 6 Health infrastructure of EECCA countries⁵⁰

	<i>Total</i>		<i>Public</i>		<i>Out of pocket</i>		<i>External resources</i>		<i>Health expenditure per capita</i>		<i>Physicians per 1 000 people</i>		<i>Hospital beds per 1 000 people</i>	
	% of GDP	% of GDP	% total	% of private	% of total	2002	2000	1990	2004	1990	2004	1990	1995-2002	
Armenia	5.5	1.3	24.1	82.3	19.6	42	3.9	3.5	3.9	3.5	9.1	4.3		
Azerbaijan	3.7	0.8	22.1	100	4.0	27	3.9	3.5	3.9	3.5	10.1	8.5		
Belarus	6.4	4.7	73.9	79.7	0.1	93.0	4.9	4.5	3.6	4.5	13.2	12.6		
Georgia	3.8	1.0	27.1	98.7	12.6	25.0	4.0	3.9	4.9	3.9	9.8	4.3		
Kazakhstan	3.5	1.9	53.2	100	0.6	56.0	4.0	3.3	4.0	3.3	13.7	7.0		
Kyrgyzstan	4.3	2.2	51.2	100	14.0	14.0	3.4	2.7	3.4	2.7	12.0	5.5		
Moldova	7.0	4.1	58.2	100	2.8	27.0	4.1	2.7	3.6	2.7	13.1	5.9		
Russia	6.2	3.5	55.8	63.6	0.2	150.0	4.2	4.2	4.1	4.2	13.1	10.8		
Tajikistan	3.3	0.9	27.7	100	14.9	6.0	2.6	2.2	2.6	2.2	10.7	6.4		
Turkmenistan	4.3	3.0	70.7	100	0.7	79.0	3.6	3.2	3.6	3.2	11.5	7.1		
Ukraine	4.7	3.3	71.1	95.5	3.6	40.0	4.3	3.0	4.3	3.0	13.0	8.7		
Uzbekistan	5.5	2.5	45.5	100	5.0	21.0	3.4	2.9	3.4	2.9	12.5	5.3		
Average	4.9	2.4	48.4	93.3	6.5	48.3	3.8	3.3	3.8	3.3	11.8	7.2		
Minimum	3.3	0.8	22.1	63.6	0.1	6	2.6	2.2	2.6	2.2	9.1	4.3		
Maximum	7.0	4.7	73.9	100	19.6	150	4.9	4.5	4.9	4.5	13.7	12.6		

⁵⁰ World development indicators, the World Bank, 2005.