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The Kyrgyz Republic:

INSIGHTS ON HOUSEHOLD ACCESS TO WATER SUPPLY AND SANITATION

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ACRONYMS AND ABBREVIATIONS

CDWUU	Community Drinking Water Users Union	NSC	National Statistic Committee of the Kyrgyz Republic
DHS	Demographic and Health Survey	PPP	Purchasing Power Parity
ECA	Europe and Central Asia region	UN	United Nations
GDP	Gross Domestic Product	US\$	United States' Dollar
JMP	WHO and UNICEF Joint Monitoring Program	WDI	World Development Indicators
KIHS	Kyrgyzstan's Integrated Household Survey	WDR	World Development Report
MDG	Millennium Development Goals	WSS	Water supply and sanitation

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SUMMARY

This note has been prepared as part of the work program on multi-dimensional poverty in the Kyrgyz Republic to raise awareness of poverty dimensions, which in turn should help accelerate the development of water supply and sanitation services, and necessary reforms in the Kyrgyz Republic. The note analyzes the quality and reliability of the Integrated Households Survey (KIHS) data to measure access to water supply and sanitation services.

The household survey was conducted by the National Statistics Committee (NSC) of the Kyrgyz Republic. It is representative at the national, rural/urban, and oblast levels. Using survey data we analyze the consumption of water supply and sanitation services at the household level with a focus on access, quality, and expenditures.

Evidence from the KIHS suggests that water supply and sanitation services are unequally distributed in urban and rural areas and for poor and non-poor. Households with higher incomes are better off. Low availability of water supply and poor water quality combined with poor sanitation lead to high morbidity of the population and lower productivity in rural areas, therefore, of poor people. The analysis shows that the KIHS is a rich source of information that can be actively used for monitoring progress in water supply and sanitation (WSS); however, the official statistics on WSS services need to be improved.

INTRODUCTION

1. **The importance of ensuring the population’s access to clean water and sanitation is seen by the inclusion of a specific target in the Millennium Development Goals (MDGs).** The seventh goal “ensuring environmental sustainability” adopts a target of halving, by 2015, “the proportion of the population without sustainable access to safe drinking water and basic sanitation”. Access to clean water and sanitation services are a basic necessity for ensuring healthy living conditions. Globally, about 750 million persons lack access to improved sources of drinking water, whereas 2.5 billion still lack access to improved sanitation facilities.¹

2. **Analyzing of the water supply and sanitation sector with focus on the poor is important for two reasons.** First, it is important for understanding poverty dimensions by showing how people are poor not just in monetary terms but in access to water and sanitation services. A recent study for the Kyrgyz Republic shows that water and sanitation currently are two of the key areas where nonmonetary deprivation is among the highest of key public service delivery areas. Second, understanding the differences in access to water supply and sanitation services of the poor is important to determine unique constraints and potential solutions. If the sector is going to target mainly the bottom 40 percent in service delivery, it needs to better understand their characteristics, the constraints to serve them, and opportunities to reach them.

3. **The MDG targets on access to safe drinking water and sanitation facilities seem to be on track in the Kyrgyz Republic; however, aggregated numbers hide regional disparities, differences in quality and access.** According to the WHO and UNICEF Joint Monitoring Program (JMP) 88 percent of population in 2012 had access to safe drinking water from improved sources, while remaining 12 percent use unimproved drinking water sources². An “improved” drinking-water source is defined by JMP as one that adequately protects the source from outside contamination, particularly fecal matter³. About 92 percent of population have access to improved sanitation facilities, defined as facility that hygienically separates human excreta from human contact⁴. These high numbers in access to basic services — drinking water and sanitation facilities — hide huge differences in access to WSS services between regions, income groups as well as differences in quality of WSS services and facilities.

4. **Water supply and sanitation services are highly fragmented in the Kyrgyz Republic making it difficult to adopt system-wide changes.** At the institutional level, water supply and sanitation services are provided and delivered by municipal utilities (“*vodokanals*”) in urban areas and by village administrations (*ayl okmotu*) and Community Drinking Water Users Union (CDWUUs) in rural areas⁵. The lack of adequate equipment, human capital, and funding for

¹ www.un.org

² WHO/UNICEF JMP, 2014

³ WHO/UNICEF JMP, 2014

⁴ WHO/UNICEF JMP, 2014

⁵ CD WUUs were initiated in 2002 in the framework of the World Bank project on Rural Water Supply and Sanitation (RWSP-1). They are the community based democratic institutions responsible for water supply management on the level of villages. The CDWUUs are registered as legal

maintenance and expansion of these services makes it difficult for municipal authorities to sustain and increase access to quality services.

5. **The importance of the WSS sector in understanding of poverty demands reliable data source to monitor progress.** The Kyrgyz Integrated Households Survey (KIHS) is the main source of information on poverty and welfare in the republic because it has comprehensive information on living conditions, including access to WSS services. The KIHS has been conducted since 2003, which allows comparing results and progress the country made between years. It is the only one continuous households survey, that is representative on national, rural and urban, and regional (oblast) level. The household data give the following basic information on WSS services from the demand side: differences (i) between urban and rural areas, (ii) among regions; (iii) poor and non-poor; (iv) in infrastructure from consumers' prospective. However, it has not been widely used for policymaking.

6. **This note analyzes developments in access to clean drinking water and basic sanitation for the Kyrgyz Republic from 2005 to 2012 and recommends how to improve the statistics to monitor progress.** The note looks at differences in access between urban and rural dwellers – and between nonpoor and poor. We analyze the annual Kyrgyz Integrated Household Survey (KIHS), which reflects national, urban and rural sectors, and oblast levels. We also analyze the consumption of water supply and sanitation services at the household level with a focus on access, quality, and expenditures. The note attempts to show existing disparities in access to safe drinking water and sanitation facilities using available household's data and to understand why the KIHS is not actively used for decision-making purposes on WSS infrastructure investment issues.

7. **The analyses suggests that the KIHS is informative and reliable source of information on Water Supply and Sanitation (WSS) services in the country.** However, the questionnaire on WSS services needs to be improved in order to be used actively in monitoring and decision-making purposes. Combining of household survey and administrative data will provide evidence base for monitoring and policy-making especially for construction of water supply and sanitation services infrastructure.

8. **Evidences from the KIHS suggest that water supply and sanitation services are unequally distributed for the people in urban and rural areas and for poor and nonpoor.** Households with higher incomes are better off. Low availability of water supply and poor water quality combined with poor sanitation conditions create a solid basis for high morbidity of the population and lower productivity in rural areas, therefore, of poor people.

9. **The rest of the note organized as follows. Section I and II analyze water supply and sanitation services, respectively.** The limitations of the KIHS to monitoring purposes are described in Section III, and some recommendations are given in the last section.

bodies and administer funds and are responsible for planning, financing and administration of water supply within the area of jurisdiction. Currently, according to the Department of Water Supply and Sanitation Development, 633 CDWUUs are functioning across the country.

1. WHAT THE KIHS SHOWS ABOUT WATER SUPPLY SERVICES DEVELOPMENTS

1.1 **Although the population’s access to safe drinking water⁶ improved significantly from 84 to 93 percent between 2005 and 2012 according to national official statistics, there are huge disparities among regions⁷.** Full coverage by a piped system exists only in Bishkek. Though as a whole Bishkek has a better developed water supply system, in some semi-formal residential districts infrastructure for clean drinking water does not exist at all or does not meet the standards (UNDP, 2013). Many people in semi-formal residential districts moved to Bishkek seeking jobs and have low incomes. In some regions — Chui, Issyk-Kul, Talas and Jalal-Abad oblasts — there is high coverage (more than 90 percent in 2012). But in others, there are low levels of access: in Batken (71 percent in 2012), Osh (89 percent) and Naryn (89 percent) oblasts⁸. Small towns and rural settlements in particular have inefficient and irregular services and poor water supply infrastructure (World Bank, 2013).

1.2 **Households are supplied with access to water by different systems.** These include a connection to piped running water (in urban centers and villages with rehabilitated network, individual well with pump, springs and other natural bodies of water). The KIHS collects information on households’ access to water by source.⁹ The KIHS defines the *availability* of water supply for the household if the household reports that it has piped water supply. In this note, we define a “safe” drinking water /an “improved” drinking-water source is one that, when well constructed and properly used, adequately protects the source from outside contamination, particularly of fecal matter. For the Kyrgyz Republic those sources are identified as follows¹⁰:

- Piped water into dwelling, also called a household connection, is defined as a water service pipe connected with in-house plumbing to one or more taps (e.g. in the kitchen and bathroom).
- Piped water to yard/plot, also called a yard connection. This is a piped water connection to a tap placed in the yard or plot outside the house.
- Public tap or standpipe. This is a public water point from which people can collect water. A standpipe is also known as a public fountain or public tap. Public standpipes can have one or more taps and are typically made of brickwork, masonry or concrete.
- Protected spring. The spring is typically protected from runoff, bird droppings and animals by a “spring box”, which is constructed of brick, masonry, or concrete and is built around the

⁶ Safe drinking sources according to the national official statistics include: Running water pipeline at home (apartment); well; artesian well; private water tap; public (communal) water tap

⁷ http://stat.kg/index.php?option=com_content&task=view&id=45&Itemid=100.

⁸ See source above.

⁹ The question in the KIHS is “What is the main water source used by your household? 1. Running water pipeline at home (apartment); 2. Well; 3. Artesian well; 4. Private water tap; 5. Public (communal) water tap; 6. Storage reservoir, river, lake, pond, aryk; 7. Imported water (water-cart); 8. Spring.”

¹⁰ <http://www.wssinfo.org/definitions-methods/watsan-categories/>

spring so that water flows directly out of the box into a pipe or cistern, without being exposed to outside pollution.

— Protected boreholes. These are typically are connected to a piped network.

Unsafe sources of drinking water include shallow wells, tanker water, cisterns, unprotected wells, springs and boreholes.

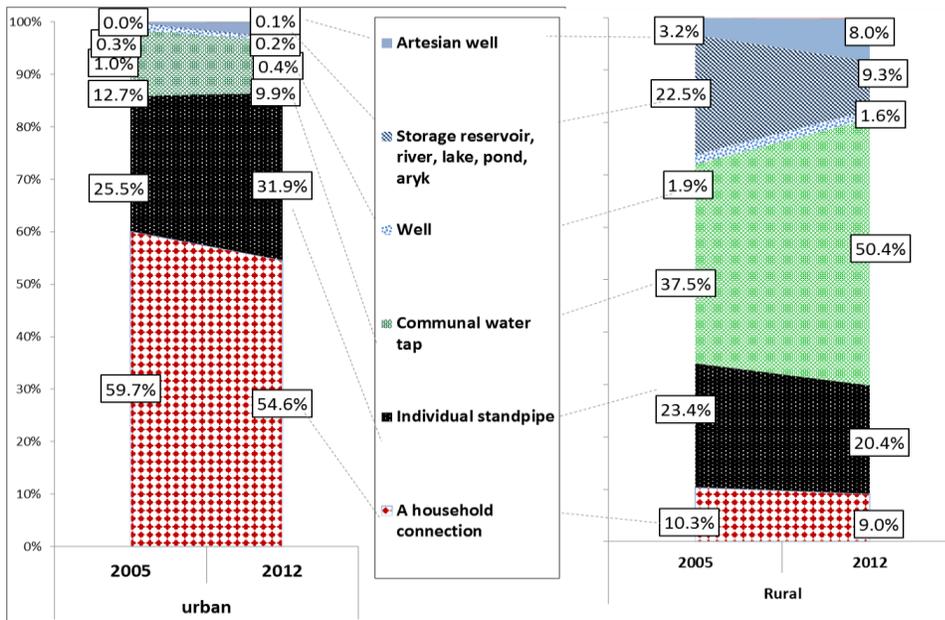
1.3 An increasing share of the population uses communal water taps as their main water source. Concurrently there is a decline of water pipelines to homes (apartments), especially in urban areas, which may be indicative of deterioration of the water supply infrastructure in urban areas. The use of communal water taps as a main source of water increased from 25 percent in 2005 to 32 percent in 2012 in urban areas, whereas share of running water pipeline at home(apartment) reduced to 55 percent in 2012 from 60 percent in 2005 (Figure 1.1) indicating worsening of the proper access to clean drinking water. This change in the structure of main water sources reported by households might be driven by deteriorating of water supply infrastructure in small towns and growing population in big cities – Bishkek and Osh.

1.4 Half of rural residents rely on communal water taps as their main source of water and less people use unsafe open drinking water sources than in earlier years. The use/or consumption of water directly from open reservoirs, rivers, lakes, ponds, or irrigation ditches (aryk)¹¹ in rural areas has been reduced from 23 percent in 2005 to 9 percent in 2012 probably due to the wide donors support in construction and reconstruction of water infrastructure in rural. At the same share of rural population having communal water taps has been increased by almost 13 percentage points over period of 2005-2012 (Figure 1.1).

1.5 .Large disparities exist between urban and rural residents in availability of piped water supply indicating differences in access to safe drinking water. In 2012 availability of pipe-borne water supply in urban households improved by 2 percentage points in comparison to 2005, and it has not changed significantly for rural residents. Since the poor households do not have enough income for construction and purchase of a water pipeline by themselves, availability of water utilities for the poor in average across a country is significantly lower (14 percent in 2012) than for the non-poor (35 percent in 2012). However, mainly the urban poor gained access to improved water sources between 2005 and 2012, probably, due to an increase of communal water taps (Figure 1.2.). At the same time it seems that in rural areas share of poor population having water utilities has been reduced from 5 percent to 3.5 percent indicating that access for this group of people has been worsened (Figure 1.2).

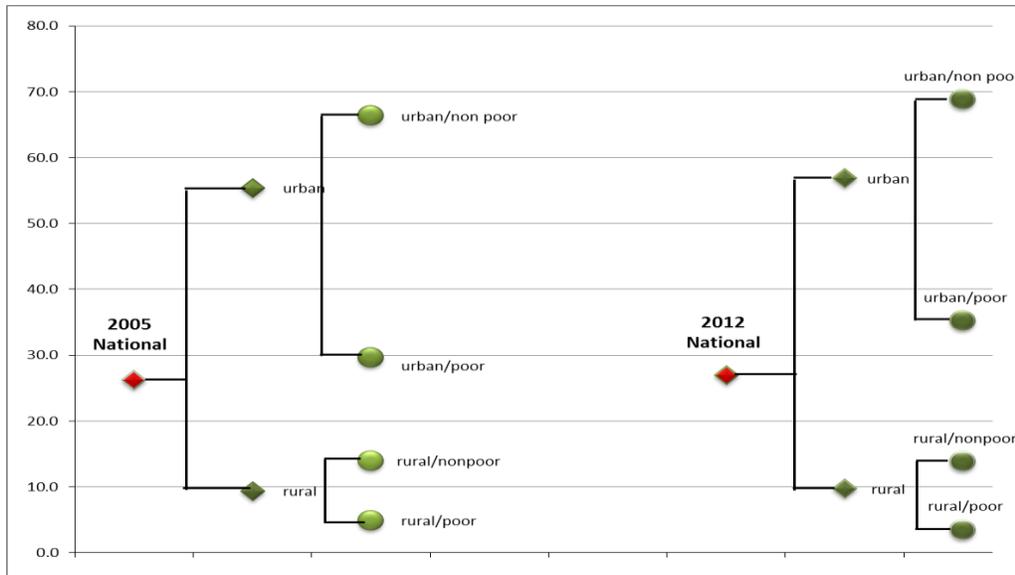
¹¹ “Aryk” is a Kyrgyz word for irrigation ditch.

Figure 1.1: Main Water Sources: Percentage of Population Having Water Supply



Source: KIHS 2005, 2012.

Figure 1.2: Availability of Pipe-borne Water Supply in Households, percentage of population

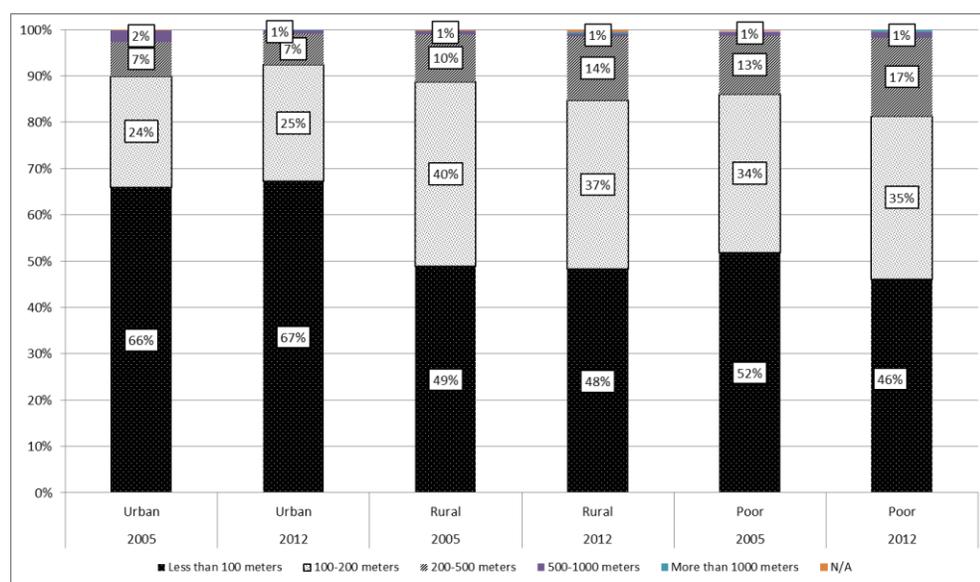


Source: KIHS 2005, 2012.

Note: “Availability of water supply” is defined as an existence of a household connection to the pipe-borne water supply system. If it is reported by a household that it has connection, it is assumed that water supply is available for a household.

1.6 Distance from household's home to the nearest water source is much larger for rural and poor households than for urban and non-poor, which implies relatively lower access to water and greater time spent by households on transporting water for their basic needs. About 14 percent of rural population and 17 percent of poor households have to travel 200-500 meters to the nearest water source in 2012 (Figure 1.3). This is supported by the fact that about 68 percent of rural residents and about 61 percent of the poor have to use water sources that are not on their premise. The time spent on water gathering could be spent more productively in the labor market or for other households needs. The proportion of urban residents having the nearest water sources less than 100 meters have been slightly increasing over time from 66 percent in 2005 to 67 percent in 2012.¹²

Figure 1.3: Distance to the Nearest Water Source



Source: KIHS 2005, 2012.

1.7 Regression analyses confirms that residence urban/rural and region impact availability of piped water in households along with attitude and consumption. Households in high attitude areas have less access to water supply, which might be explained by challenges to construct water supply infrastructure in high mountain areas. Households with higher consumption per capita tend to have higher probability to access the water supply, confirming disparities in access to different income groups. (Annex 2).

1.8 The population in rural areas and the poor not only suffer from low access to piped water but also from more often interruptions, suggesting disparities in services quality. More than 80 percent of rural population had water interruptions in 2012 (from which 7 percent were interrupted once a month). This might indicate about poor reliability of water utility maintenance. The ratio

¹² According to the Demographic and Health Survey (2012)

of interruptions is twice lower (even though high) in cities – about 40 percent of population were interrupted at least once a year. The poor population had significantly higher frequency of interruptions in comparison with the non-poor. The share of the poor having unsatisfactory water supply services has been increasing over the years: in 2012 the poor having interruptions several times a year increased by 5 percentage points in comparison to 2005.

Figure 1.4: Interruption from Water by Poverty and Residence Status in 2005 and 2012

in percent among those with water supply

Interruption from water	2005					2012				
	National	Urban	Rural	Poor	Non poor	National	Urban	Rural	Poor	Non poor
% among having piped water supply										
Never	42.5	46.9	27.2	33.6	44.5	50.8	60.2	19.3	42.9	52.8
Several times a year	44.3	42.7	50.1	37.9	45.8	38.5	31.6	61.8	42.9	37.4
Once a month	7.0	4.7	15.1	9.6	6.4	5.5	5.0	7.1	9.2	4.5
Once a week	1.3	0.8	3.0	1.4	1.3	1.6	1.7	1.2	1.1	1.7
Several times a week	3.3	3.6	2.4	13.3	1.1	2.3	1.1	6.3	3.0	2.1
Every day	1.5	1.3	2.2	4.2	0.9	1.3	0.4	4.4	0.8	1.4

Source: KIHS 2005, 2012

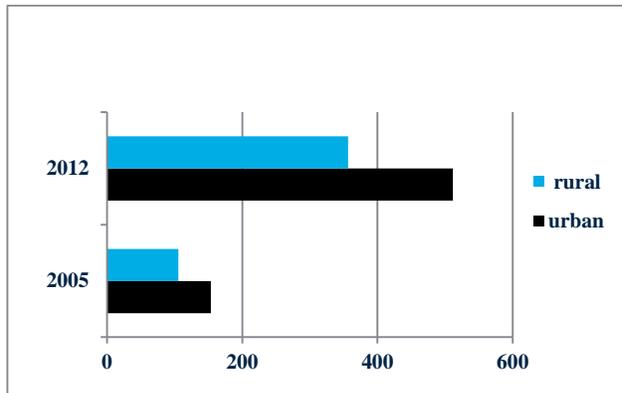
1.9 Rural households are more likely to have to travel to their water source off of their premise. The KIHS does not collect information on the time spent by members in water transport (though it could be estimated broadly from the distance information). However, the recent Demographic and Health Survey (2012) collects information on time **spent** in obtaining drinking water (roundtrip). Based upon the DHS sample, about 68 percent of households have water on their premise (92 and 54 percent in urban and rural areas respectively). In rural areas, though 46 percent do not have water on their premise, only 5 percent of rural households spend 30 minutes or more to obtain drinking water.

1.10 Despite the fact that expenditures of households on cold water¹³ in 2012 were slightly higher than in 2005, water facilities are significantly under-financed. In 2012 a household paid annually in average 1050 soms in urban areas and 730 soms in rural. In real terms expenditures in 2012 on cold water were 3 times higher than in 2005 (Figure 1.4). However, collection of cold water payments continuously has not been covering 100 percent in regions with significant under-collection in Talas, Osh, Jalal Abad and Issyk-Kul oblasts (Figure 1.5). Vodokanals are not able to provide high quality services due to lack of resources and deteriorating of water supply infrastructure. Expenditures on water services from the state budget are also low, amounted 0.1 percent of total state budget expenditures (135 mln. KGS) in 2012. The revenue/cost ratio for

¹³ There are two types of water supplied in the Kyrgyz Republic: cold and hot water. Hot water is centrally supplied in big cities such as Bishkek and Osh. Payments for cold and hot water supply services are collected separately. Cold water payments are collected by Vodokanals, while hot water payments as a part of bill for heating.

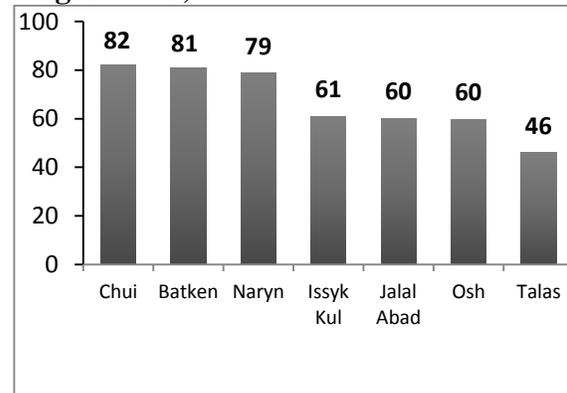
water delivery varies from 0.32 to 1, which indicates insufficient revenues to cover costs of providing water services (Regallet, 2011). Financing from budget sources and revenues from water services covers operational costs only, and it is insufficient to maintain needed investment in infrastructure. Available BOOST data for 2010 shows that only 0.004 percent of total state budget expenditures spent on water supply. Lack of resources leads to worsening of service provision and further aggravates quantity and quality problems.

Figure 1.5. Household expenditures on cold water, soms (real, 2005 base year)



Source: KIHS

Figure 1.6. Collection of tariffs on cold water by regions, in percentage (as of August 2013)



Source: Department of Water Supply and Sanitation Development, State Construction Agency of the Kyrgyz Republic

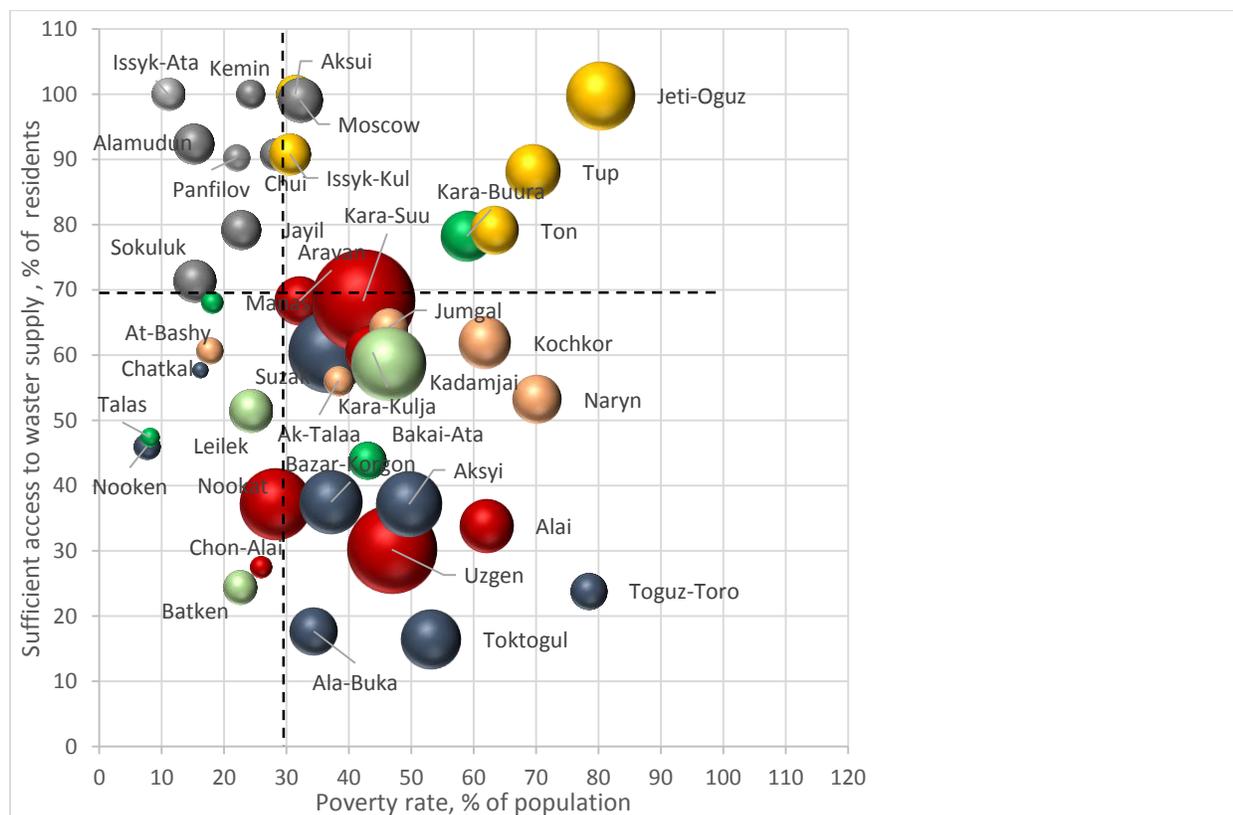
1.11 Metering coverage is very limited in urban and rural areas alike according to the KIHS. Only 1.6 percent of population had cold water meters in their households in 2012. Meters are more often installed in urban areas (2.8 percent of urban population) than in rural (1 percent of rural population). Generally meters are not shared with other households. Sporadic usage of meters leads to strong incentives to under-report volumes population uses, which further lead to insufficient payments for water supply and low revenues of “vodokanals”.

1.12 The centralized hot water supply system covers mainly the population living in apartments in Bishkek and Osh. In the Kyrgyz Republic, as part of the Soviet legacy, selected areas (mostly urban) had hot water piped into the homes of the population. However, the hot water infrastructure has deteriorated over the years and not kept up with population growth or new construction. Over the past seven years, an estimated 11 percent of the population receives piped hot water. In rural areas only 1 percent of rural population had hot water in comparison to 28 percent of urban population in 2012. Nevertheless, hot water is an important necessity for personal hygiene of population, especially in winter. The low availability of hot water (and the high expense associated with personal hot water heaters) may help to explain why the use of public bath/shower rooms is common (by about half of the urban and rural population).

1.13 Mapping of poverty and administrative data on water access suggests that water supply infrastructure at a rayon level heterogeneous. Mapping of poverty data from a poverty map and

administrative data from the Department of Water Supply and Sanitation Development of the State Construction Agency of the Kyrgyz Republic on sufficient access by rayons shows that Toguz-Toro, Ak-Syi, Toktogul and Ala Buka rayons in Jalal-Abad oblast have relatively higher poverty rates and low access to water supply (Figure I.6), while rayons in Chui oblast have high water access and relatively lower poverty rates. In Issyk-Kul oblast – Jeti-Oguz, Tup and Ton rayons – access to water supply is propoor.

Figure 1.7. Poverty and water access mapping by rayon in the Kyrgyz Republic



Note: Poverty rates were taken from the Poverty map- 2012 (Annex II). The size of the bubbles shows number of the poor in the rayon. Cities are excluded. Rayons of one oblast have the same color: dark green – Batken oblast, dark blue – Jalal-Abad oblast, yellow – Issyk-Kul oblast, pink – Naryn oblast, red – Osh oblast, light green – Talas oblast, grey – Chui oblast

Sources: database of the Department of Water Supply and Sanitation Development, State Construction Agency of the Kyrgyz Republic; the KIHS

1.14 Urban and rural households experience large differences in availability of showers.

Availability of personal bath or shower facilities for rural areas is minimal (3 percent in 2012) in comparison to the urban population (37 percent). More than 95 percent of the rural population have outdoor bathrooms and do not have one indoors. Low availability of baths and showers for households implies that 64 percent of rural population and about 50 percent of urban population have to use public bath and shower rooms. The situation is even more severe for poor households: only about 8 percent of poor population has bath or shower in 2012, implying that 74 percent of poor population use public bath and shower rooms.

2. WHAT THE KIHS SHOWS ABOUT SANITATION SERVICES DEVELOPMENTS

2.1 **Sanitation is a good indicator of the state of living conditions in a community and more generally in a country.** Sanitation services refer to the disposal of human waste (excreta). The lack of proper sanitation impacts child survival, education levels, and malnutrition—with implications for childhood cognitive development and future economic productivity. It has significant impact on adults human potential as well, because **directly** affects their health. According to the World Bank, “The economic losses are mainly driven by premature deaths, the cost of health care treatment, lost time and productivity seeking treatment, and finding access to sanitation facilities. Pollution resulting from improper disposal and treatment of wastewater and domestic fecal sludge also affects both water resources and ecosystems.”¹⁴

2.2 “Improved sanitation” ensures hygienic separation of human excreta from human contact, proper sludge¹⁵ disposal, and a clean and healthful living environment both at home and in the neighborhood of users.¹⁶ Facilities that ensure hygienic separation of human excreta from human contact include: (i) flush or pour-flush toilet/latrine to a piped sewer system, a septic tank or a pit latrine, (ii) ventilated improved pit latrine, (iii) pit latrine with slab, and (iv) composting toilet.¹⁷

2.3 Sewage and water treatment systems were constructed mostly in the 1960-80s, and this infrastructure has undergone significant decapitalization. Currently only 6-17 percent of total housing stock in the republic has sewage and water treatment system (Korotenko, Kirilenko, & Prigoda, 2013). Even in big cities water disposal system serves only half of the population, for instance in Kara-Balta city – 25 percent, in Jalal-Abad city – 30 percent and in Naryn – 13 percent (UNDP, BIOM, 2014). Many villages and small towns do not have sewage systems and functioning wastewater treatment systems at all, and 83 percent¹⁸ of population has to use toilets with a cesspool, the upkeep of which is expensive. The poor quality and low access to sanitation services might be explained by the fact that sanitation and construction of sewage systems has not been seen as a priority by the Government (WHO, 2012). Currently the situation seems to be changed.

2.4 **Availability of approved sanitation facilities is low and vary significantly across regions, urban and rural.** Even in the capital is the access to the approved sanitation facilities does not exceed 85 percent of population. Generally sanitation facilities are available marginally for households in all regions (Figure 2.1). About 4 percent of population has a toilets with central sewage system or septic in Batken oblast, 6 percent - in Naryn oblast, 8 percent – in Osh and Talas oblasts, indicating strong difference of sewage infrastructure between the capital and other regions.

¹⁴ www.worldbank.org/en/topic/sanitation/overview

¹⁵ This refers to waste from household sinks, showers, and baths, but not toilets.

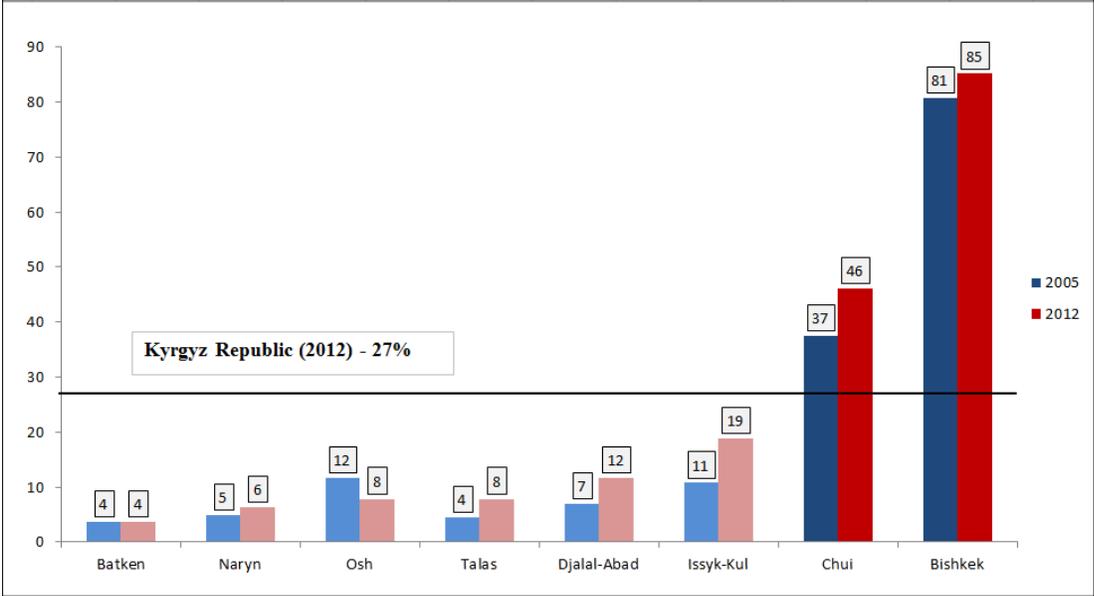
¹⁶ WHO

¹⁷ www.un.org/waterforlifedecade/sanitation.shtml

¹⁸ KIHS, 2012.

Only Chui oblast has access to approved sanitation facilities higher than an average indicator across the country at the level of 45 percent.

Figure 2.1. Availability of Sewage System by Regions (in percent of population)

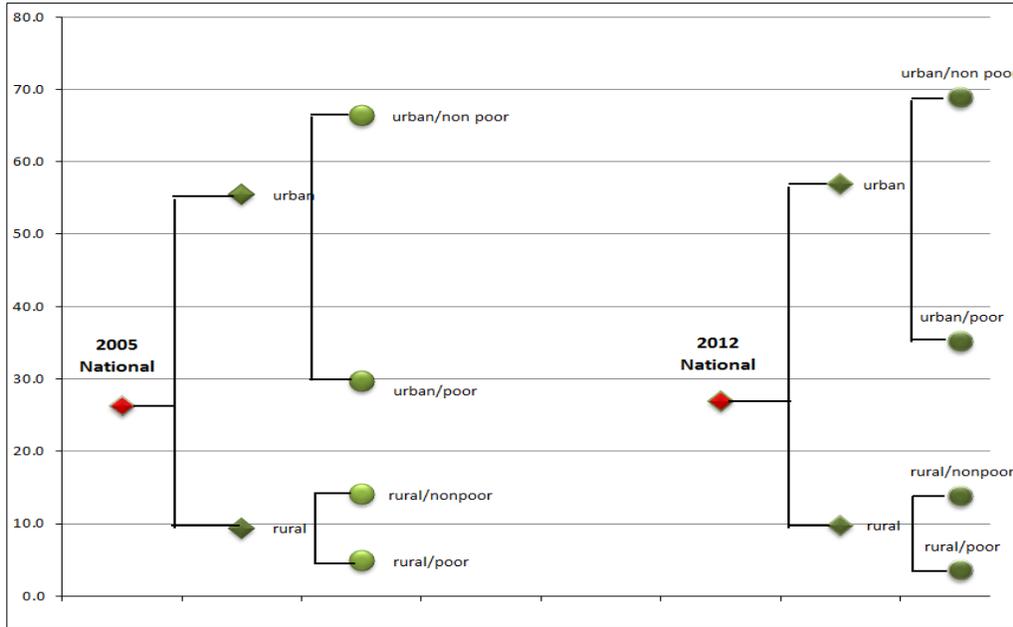


Source: KIHS 2005, 2012.

2.5 Improvement in access to public sanitation services, which include sewerage and septics, has been improved slightly by 3 percentage points between 2005 and 2012 mainly due to an increase of services to the urban population, in particular, to the poor. The share of urban poor households having access to the sewage system has been increased from 27 to 35 percent of urban population (Figure 2.2). While the poor urban residents gained access to basic sanitation services, the proportion of rural poor having sewerage is only 3.5 percent and has not been changed over time.

2.6 **The quality of sanitation services for urban residents has been worsening recent years.** Only 37 percent of population have a connection to the central sewerage system in urban areas (Figure 2.3) and the ratio has been decreasing over time (41 percent in 2005). This might be explained by breakdowns of the central sewerage infrastructure due to the wear and tear of the system and increasing pressure on the central sewerage system from growing population, especially in Bishkek and Osh.

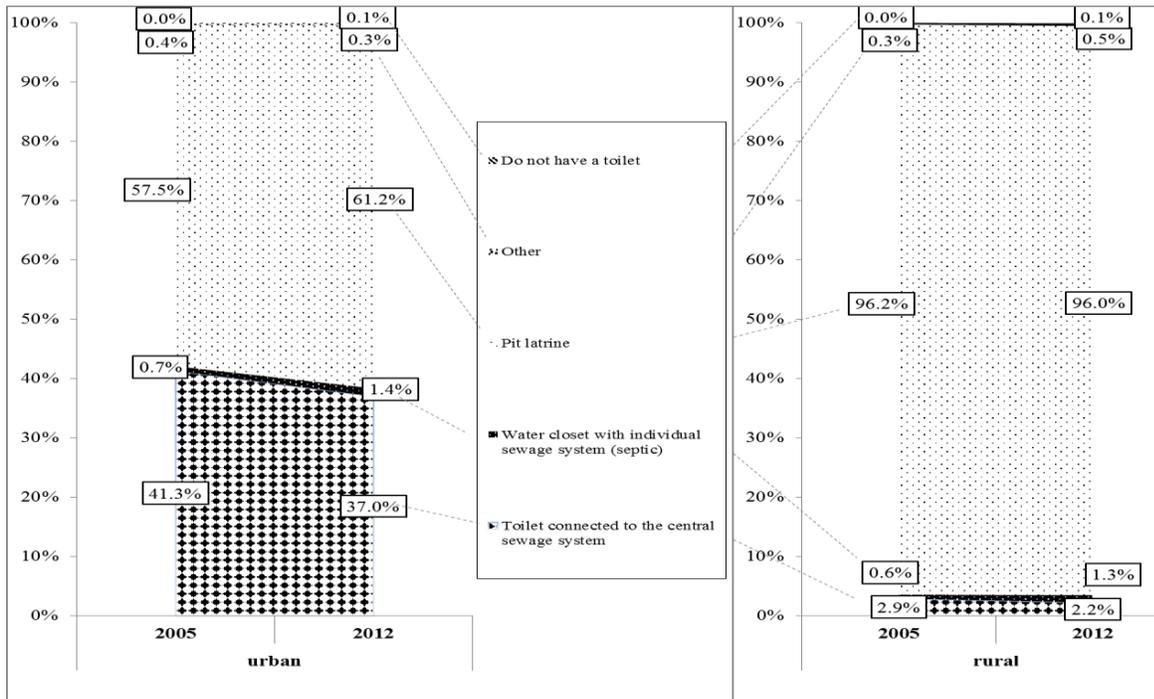
Figure 0.1. Availability of Sewage System, percentage of population



Source: KIHS 2005, 2012.

Note: “Availability of a sewage system” is defined as an existence of a household connection to the sewer collector. In case a household reported that it has connection, it is assumed a sewage system is available.

Figure 0.2. Type of bathroom mostly used by households, percentage of population

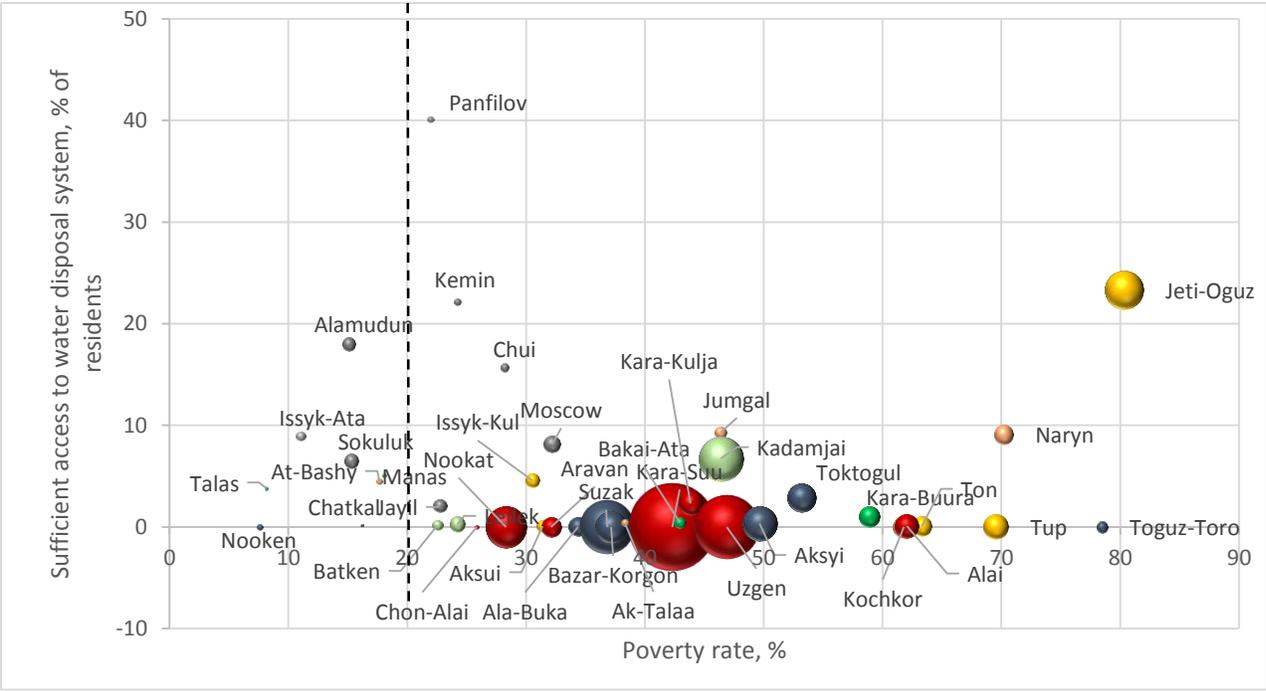


Source: KIHS 2005, 2012.

2.7 **Access to sanitation facilities such as central sewage system is extremely low in rural areas.** Only 2 and 1.3 percent of rural population use water closet connected to the central sewage system and to septic tanks, respectively. Those households have been living near the cities and having connections to the centralized sewage system of cities. Majority (96 percent) of rural residents use toilets with a cesspool (pit latrine) (Figure 2.3). A recent study (Bakashova, Jorritsma, Choitonbaeva, & Wendland, 2013) shows that “the toilets are difficult to use at night and during winter because of the absence of light and cold temperatures”, which leads to associated health problems such as urinary tract infections, especially for women.

2.8 Administrative data from the Department of Water Supply and Sanitation Development on access to water disposal system confirms low access in many rayons. An overall average access does not exceed 5 percent of total residents, while only one rayon – Panfilov in Chui oblast has 40 percent sufficient access. Tup, Toguz-Toro, Ton, Alai, Kochkor have poverty rates higher than 60 percent and very low access to water disposal system (Figure 2.4).

Figure 0.3. Mapping Poverty Rates and Access to Water Disposal System by Rayons in the Kyrgyz Republic

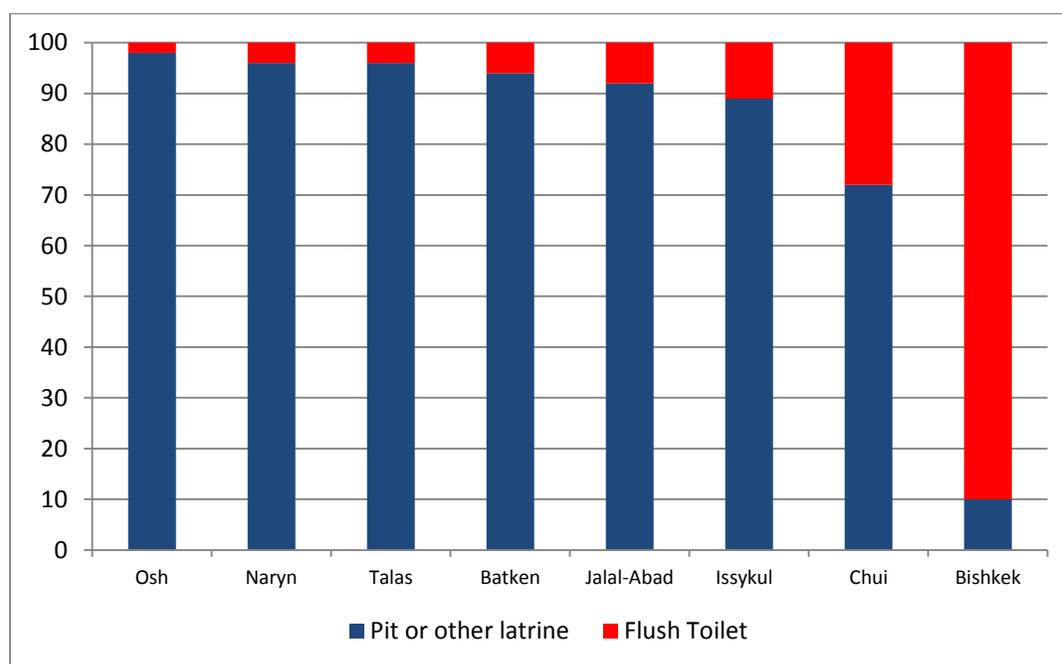


Note: Poverty rates were taken from the Poverty map- 2012 (Annex II). The size of the bubbles shows number of the poor in the rayon. Cities are excluded. Rayons of one oblast have the same color: dark green – Batken oblast, dark blue – Jalal-Abad oblast, yellow – Issyk-Kul oblast, pink – Naryn oblast, red – Osh oblast, light green – Talas oblast, grey – Chui oblast

Sources: database of the Department of Water Supply and Sanitation Development, State Construction Agency of the Kyrgyz Republic; the KIHS

2.9 **Low availability of sanitation facilities has been causing unsanitary conditions at schools.** According to the survey conducted under the UNICEF project (UNICEF, November-December, 2013) in 76 percent of schools in Naryn, Issyk-Kul, Talas oblasts do not have centralized sewage system. Flush toilets available mainly in Bishkek (Figure 2.5) and lacking in rural areas. Shortage of sewage systems in rural areas leads to lack of toilets inside rural schools and reflects badly on children’s health. Majority of rural schools have only toilets with septic located nearby schools, which do not satisfy hygienic and sanitary requirements (UNICEF, 2011). In many cases existing toilets at schools are old and dirty, constructed from planks, cinder block or bricks, never treated with disinfectants (UNICEF, 2011). Maintenance of sanitation facilities are constantly under-financed in local scanty budgets leading to inadequate sanitary conditions.

Figure 0.4. Sanitation Facilities in Schools of the Kyrgyz Republic, in percent



Source: Presentation of E.Turusbekov, Coordinator of the Water, Sanitation and Hygiene Program, UNICEF

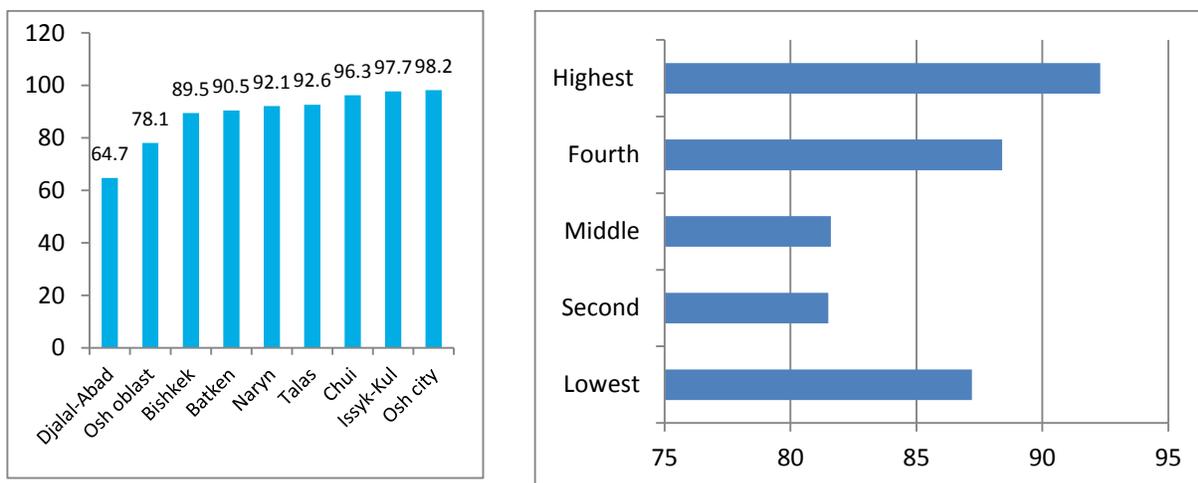
2.10 Insufficient availability and quality of water and sanitation services have significant impact on health of population and worsen quality of life. Oblasts with the worst conditions of access and provision of clean drinking water have higher levels of mortality of children under one year-old from parasitic and infectious diseases (UNKyrgyzstan, 2013). According to the data of the NSC this indicator per 10000 born children was the highest– 11.6 and 16.5 – for Batken and Osh oblasts in 2012, respectively, in comparison to the average national level of 9.4 children per 10000 born children (NSC, 2013).

2.11 Yet, despite this under-investment in sanitation infrastructure, the Kyrgyz Republic’s population follows ideal hygiene habits in terms of hand washing —which is a key action in limiting the spread of diseases diarrhea, anemia, stunting, and wasting. According to the DHS, 98 percent of surveyed households had a place for washing hands and 87 percent had water and soap

available (Figure 2.6). There was significant variation across oblasts and only small variation across wealth groups¹⁹.

Figure 0.5. Households with Soap and Water for Handwashing, by Oblast and Wealth Quintile, in percent

*Among household where place for hand washing was observed, percent with soap and water**
By Oblast **By Wealth Quintile**



*Soup includes soap or detergent in bar, liquid, powder, or paste form

Source: DHS, 2012

2.12 Poor water supply and sanitation infrastructure supports continuously high level of intestinal infections incidence in the republic. Among the acute intestinal infections the most widespread infections are bacillary dysentery, paratyphoid fever, typhoid fever, and viral hepatitis A, which are related to unsanitary conditions and water quality. Average intestinal infections incidence in the country has been increased from 332.4 (in 2001) to 490.2 (in 2010), reaching the highest registered level in Batken oblast - 4161 (980,0), and Jalal Abad oblast - 5400 (552,8) (UNDP, BIOM, 2014).

2.13 Low revenues or even chronicle budget deficits of local budgets, weak human and equipment capacity significantly limit the sustainability of the water supply and sanitation systems in the long-term prospective. Low coverage by water supply and sanitation services and poor water supply and sanitation infrastructure trigger reduction of services quality. In long-term prospective lack of attention from government policy might lead to most lamentable consequences for human capital of the country.

¹⁹ These data are from the DHS report which uses “wealth” groups to disaggregate the population.

3. LIMITATIONS OF THE KIHS TO MONITOR WSS IN THE KYRGYZ REPUBLIC

3.1 **The sample survey nature of the KIHS creates limitations for its use in monitoring of the WSS sector.** Following important for policy-making issues are difficult to monitor using KIHS: (i) WSS infrastructure, (ii) quality of WSS services; (iii) access to WSS in small administrative level such as town and ayil okmotu; (iv) intrahousehold effects.

3.2 **The KIHS cannot provide information on WSS infrastructure** (e.g., length of pipelines, quality of pipeline, and etc.), correspondence of water to technical and health quality standards, coverage by particular water supply company (how many houses are covered), qualitative estimations of water consumption. This is because households usually do not know technical issues, connections details, etc.

3.3 The KIHS is difficult to use for quality of services because it does not measure quality in terms of quantity, accessibility, safety, reliability or continuity of services. For example, it is difficult to understand the main reason for interruption: was it because a households did not pay for water services, or due to poor services quality of water supplier. Improving the KIHS for monitoring purposes will require questions on such dimensions of accessibility of as time to source, and whether the facility is shared.

3.4 **The KIHS is limited in estimating WSS for small administrative areas such as ayil okmotu and towns.** However, data at subregional/provincial levels are needed to inform decision making on where to target inventions. A population census and KIHS combined with administrative data could be used to visualize poverty and access to WSS down to small administrative areas.

3.5 **The KIHS is limited in understanding intrahousehold effects of accessing WSS services.** It is difficult to analyze differences in important dimensions of WSS access and use including, for example, gender equity, age, and disability. National household surveys provide data on a) whether a household is headed by a male or female, b) the number of male and female household members, and c) the number of people with disabilities in a household, none of this enables analysis of intrahousehold inequalities. However, analysis by the gender of the head of household is fraught with methodological issues including that female households may be receiving remittances from migrant male members or that culturally the eldest living member (who may be female) may be considered the head of household.

3.6 The KIHS is an informative and reliable source of information on WSS services; however, it gives information on WSS services only from households' perspective. The household data give information *on differences in access* to WSS services between urban and rural areas, among regions; poor and non-poor. It is representative at national, oblast, rural and urban levels. The KIHS can be used as a good source of information for policy-making and for evidence based investment decisions. This will help to understand service-delivery constraints and potential solutions to improve services for the poor and bottom 40 percent.

4. HOW TO MAKE THE KIHS AN EFFECTIVE TOOL FOR MONITORING

4.1 Following recommendations to improve use of the KIHS in monitoring purposes can be given:

- ✓ Combining household survey data with additional layers of administrative data
- ✓ Visualization of WSS access data down to the lowest administrative levels
- ✓ Strengthening questions on WSS in the KIHS toward incorporation WSS sector needs for monitoring and evaluation
- ✓ Strengthening capacity in government agencies to work with microdata

4.2 Complementing household survey data with additional layers of administrative data will potentially improve monitoring of access and quality of WSS to the poor and the bottom 40 percent. In this case the KIHS will be used as a source of information on welfare and characteristics of the bottom 40 percent, and a new database of the Department of Water Supply and Sanitation Development, State Construction Agency of the Kyrgyz Republic will provide information regarding different dimensions of WSS quality. Administrative data often subject of to over- or underreporting, because water suppliers have only information about those who connected to their networks. This is in particularly relevant to sanitation services, because the poor and many nonpoor households use on-site and will not be captured by administrative data.

4.3 **Combining NSC's and administrative datasets on WSS should be used as a basis for multidimensional policy responses.** Because the KIHS has extensive health module, it can be more actively used for monitoring in health, nutrition, and social safety net programs. This potentially may improve service delivery by highlighting linkages with health outcomes. Targeting public investment for WSS to poor communities creates positive externalities for household health, and is an investment in human capital.

4.4 Visualization of WSS access data down to the lowest administrative levels, using combined administrative and the KIHS data, will be useful for policy making to enable pro-poor targeting. This will help understanding how services are geographically distributed throughout a country with a focus on the poor and bottom 40 percent. The poverty maps prepared by the World Bank in collaboration with the National Statistical Committee can be used as the first step for this purpose (Annex II).

4.5 The combining the datasets should be done by the statistical agency, while analyses and policy decision should be made by the implementing WSS reform government agency. This will require use of the same coding in both agencies to ensure possible integration of datasets as well as more close cooperation between agencies. It can help highlight linkages between other sectors as well to foster cross-sectoral collaboration to enhance poverty-reduction efforts. Creation of poverty -WSS profiles based on two datasets will specify where services are failing the poor as well as successful cases.

4.6 Questions related to water supply and sanitation should be strengthened toward incorporation WSS sector needs for monitoring and evaluation in consultations with water supply and sanitation specialists. Following components might be added to the questionnaire: (i) information on reasons of interruptions of water services (problems with maintaining of the water supply system, debt on water services and etc.); (ii) willingness to pay higher portion of incomes for better quality; (iii) quality of water supply (satisfactory, not-satisfactory); (iv) questions on such dimensions of accessibility of water WSS as time to source and etc.

4.7 **Strengthening capacity in government agencies to work with microdata in particular with the KIHS.** Currently government agencies generally work with cross tables prepared by the National Statistic Committee. Targeting the bottom 40 percent in the water supply sector reform require skills to analyze household data and connect given rich information with other related sectors such as health, social protection and investment policies.

ANNEX I: REGRESSION RESULTS

Iteration 0: log likelihood = -4375.1977
 Iteration 1: log likelihood = -3102.6252
 Iteration 2: log likelihood = -3092.4084
 Iteration 3: log likelihood = -3092.4013
 Iteration 4: log likelihood = -3092.4013

Probit regression		Number of obs	=	6680
		LR chi2(4)	=	2565.59
		Prob > chi2	=	0.0000
Log likelihood = -3092.4013		Pseudo R2	=	0.2932

ws_avail	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
oblast	.167804	.0070195	23.91	0.000	.1540461	.1815619
b002	-1.309693	.0436997	-29.97	0.000	-1.395343	-1.224044
priz	.1999511	.0300758	6.65	0.000	.1410036	.2588985
pcc	.0000138	1.06e-06	13.03	0.000	.0000118	.0000159
_cons	-6997.924	292.7244	-23.91	0.000	-7571.653	-6424.195

ANNEX II: Kyrgyz Poverty Map, 2012

Table A2.1: Poverty Map: Distribution of Poor by Rayon

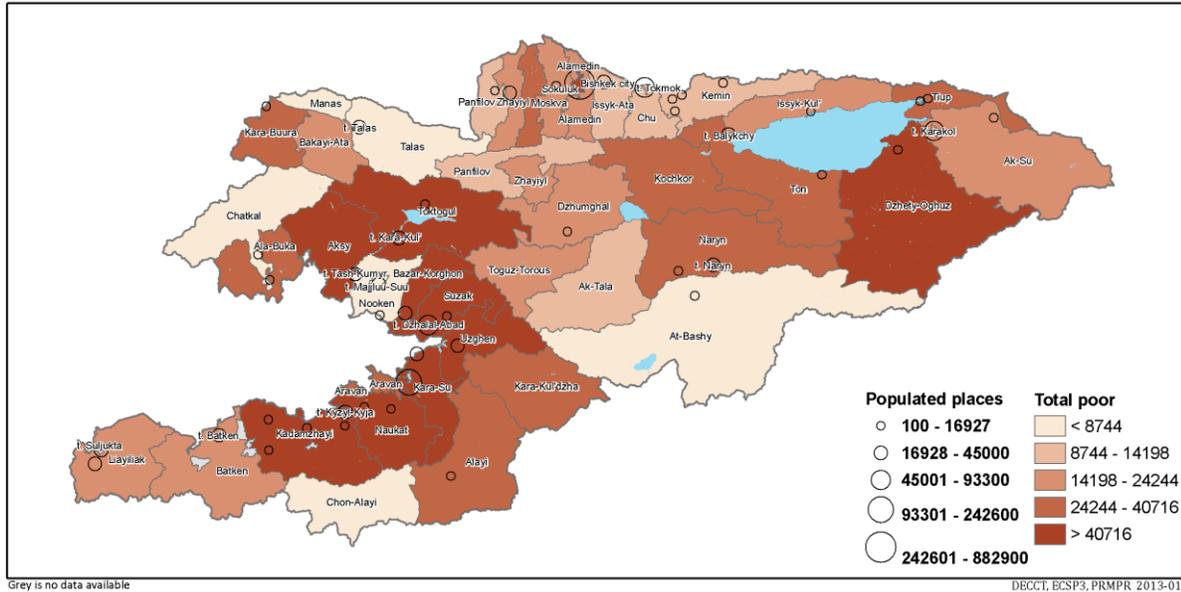


Table A2.2: Poverty Map: Incidence of Poverty by Rayon

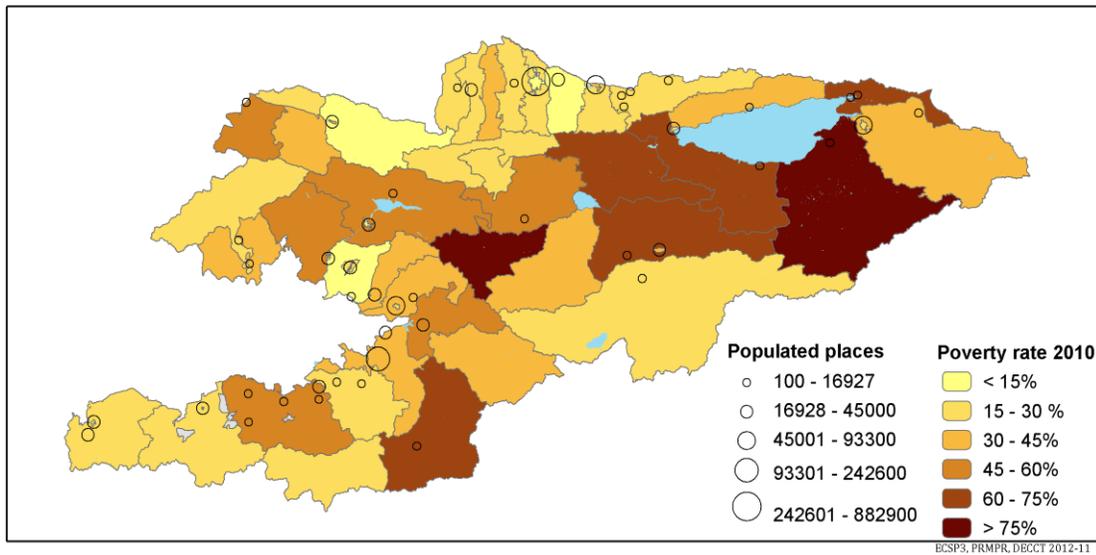


Table A2.1: Poverty Rates and Standard Error per Rayon				
Rayon	Rayon name	Population	Poverty rate	Standard error of poverty
41704210	Ak-Talaa	29650	0.383	0.0372
41704220	At-Bashy	49029	0.1764	0.025
41704230	Jungal	40015	0.4636	0.0327
41704235	Kochkor	57519	0.6178	0.0265
41704245	Naryn	42785	0.7016	0.0243
41704400	Naryn town	33051	0.3495	0.063
41705214	Batken	68308	0.2254	0.0287
41705236	Leilek	99865	0.2422	0.0405
41705258	Kadamjai	152713	0.4638	0.0227
41705410	Batken town	18795	0.0945	0.0356
41705420	Sulukta	18333	0.1772	0.0449
41705430	Kyzyl-Kia	43089	0.2778	0.0802
41706207	Alai	59687	0.6206	0.0472
41706211	Aravan	97757	0.3209	0.0255
41706226	Kara-Suu	327038	0.423	0.0262
41706242	Nookat	233756	0.2831	0.0232
41706246	Kara-Kulja	85844	0.4382	0.0297
41706255	Uzgen	219523	0.469	0.0315
41706259	Chon-Alai	22241	0.2585	0.0273
41707215	Kara-Buura	57248	0.5887	0.0366
41707220	Bakai-Ata	41990	0.4295	0.031
41707225	Manas	32344	0.1806	0.0303
41707232	Talas	55297	0.0814	0.028
41707400	Talas town	30830	0.3545	0.0831
41702205	Aksui	60705	0.3141	0.0051
41702210	Jeti-Oguz	76727	0.8031	0.0084
41702215	Issyk-Kul	73003	0.3053	0.0048
41702220	Ton	47437	0.6332	0.014
41702225	Tup	55903	0.6951	0.01
41702410	Karakol	59828	0.1837	0.0071
41702420	Balykchi	41858	0.2876	0.0059
41703204	Ala-Buka	86547	0.3438	0.0061
41703207	Bazar-Korgon	138485	0.3715	0.006
41703211	Aksyi	112016	0.4964	0.006
41703215	Nooken	115364	0.0758	0.0058
41703220	Suzak	231232	0.3683	0.0056
41703223	Toguz-Toro	21853	0.7845	0.0082
41703225	Toktogul	85209	0.5321	0.0066
41703230	Chatkal	20888	0.162	0.0095
41703410	Jalal-Abad	84168	0.1509	0.0061

41703420	Tash-Kumyr	33651	0.0876	0.0147
41703430	Maili-Suu	19863	0.1585	0.0075
41703440	Kara-Kul	22164	0.0561	0.0053
41708203	Alamudun	140275	0.1508	0.0086
41708206	Issyk-Ata	128786	0.1102	0.0098
41708209	Jayil	89813	0.2275	0.0142
41708213	Kemin	41942	0.242	0.0126
41708217	Moscow	80799	0.3219	0.0111
41708219	Panfilov	41029	0.2196	0.0125
41708222	Sokuluk	151280	0.1529	0.0094
41708223	Chui	43959	0.2817	0.0101
41708400	Tokmok	51935	0.3463	0.0307
41711201	Leninsky	189128	0.1126	0.0067
41711202	Oktyabrsky	214786	0.117	0.0066
41711203	Pervomaysky	146427	0.1108	0.0067
41711204	Sverdlovsky	193976	0.1776	0.0075

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