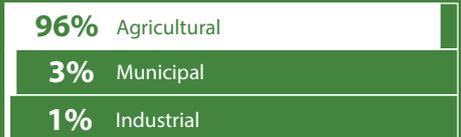


Kyrgyzstan

UN-Water Country Brief

| | | |
|---|---|---------------------|
| Total population (UN Population Division) | 5.45 million inhabitants | year 2012 |
| Total area | 199 949 km ² | |
| Population density | 27 inhabitants/km ² | 2012 |
| Human Development Index (UNDP) (between 0 and 1; 1 is highest) | 0.622 | |
| Country rank (total 186 countries; 1 is highest) | 125 | 2012 |
| Gender Inequality Index (0 is equality between women and men; 1 is least equality) | 0.357 | |
| Water, sanitation and hygiene-related deaths % of total deaths (WHO) | 4.2 % | 2004 |
| Long-term average annual precipitation (CRU CL 2.0) | 533 mm/year | |
| Long-term average actual renewable water resources (FAO AQUASTAT) | 23 620 million m ³ /year | |
| Actual annual renewable water resources per capita (FAO AQUASTAT) | 4 336 m ³ /inhabitant | 2012 |
| % of total actual renewable freshwater resources withdrawn (MDG Water Indicator) (FAO AQUASTAT) | 33.3 % | 2010 |
| Groundwater withdrawal as % of total freshwater withdrawal (FAO AQUASTAT) | 4 % | 2006 |
| Total area equipped for irrigation (FAO AQUASTAT) | 1 021 000 ha | 2005 |
| % of the cultivated area equipped for irrigation (FAO FAOSTAT and AQUASTAT) | 75 % | 2005 |
| % of irrigation potential equipped for irrigation (FAO AQUASTAT) | 45 % | |
| Ramsar sites (Ramsar) | 3 sites – total area 676 569 hectares | 2013 |

Water withdrawals by sector
(total 7 859 million m³ in 2010)



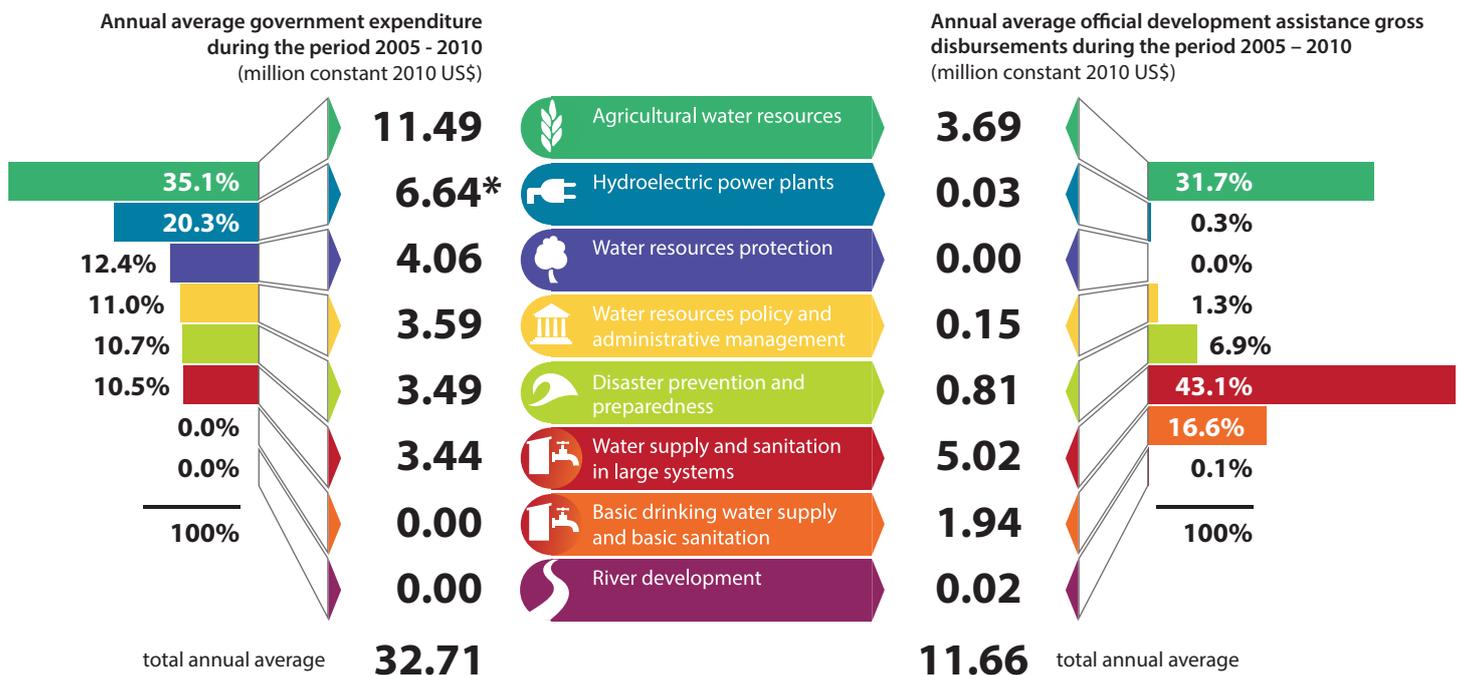
The Money Stream

From 2005 to 2010, the government has expended US\$ 32.71 million (in constant 2010 US\$) on average per year on water-related infrastructure and programmes. More than half of the government's expenditures were channeled into two sectors: agricultural water resources (35.1 percent) and hydroelectric power plants (20.3 percent).

During the same period, official development assistance (ODA) gross disbursements amounted to US\$ 11.66 million on average per year, channeling around three quarters of its disbursements into: water supply and sanitation of large systems (43.1 percent) and agricultural water resources (31.7 percent).

Over the period 2005 to 2010, the Government of Kyrgyzstan's water-related investments accounted for an estimated 0.1 percent of total government expenditures.

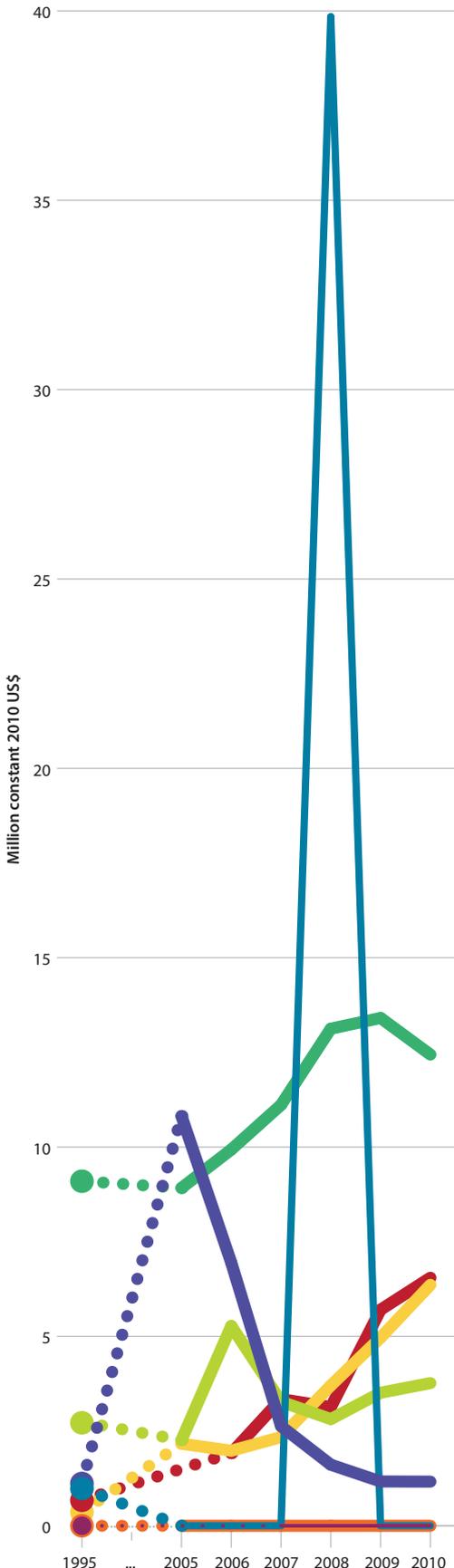
Estimated % of water-related investment to total government expenditure 2005-2010



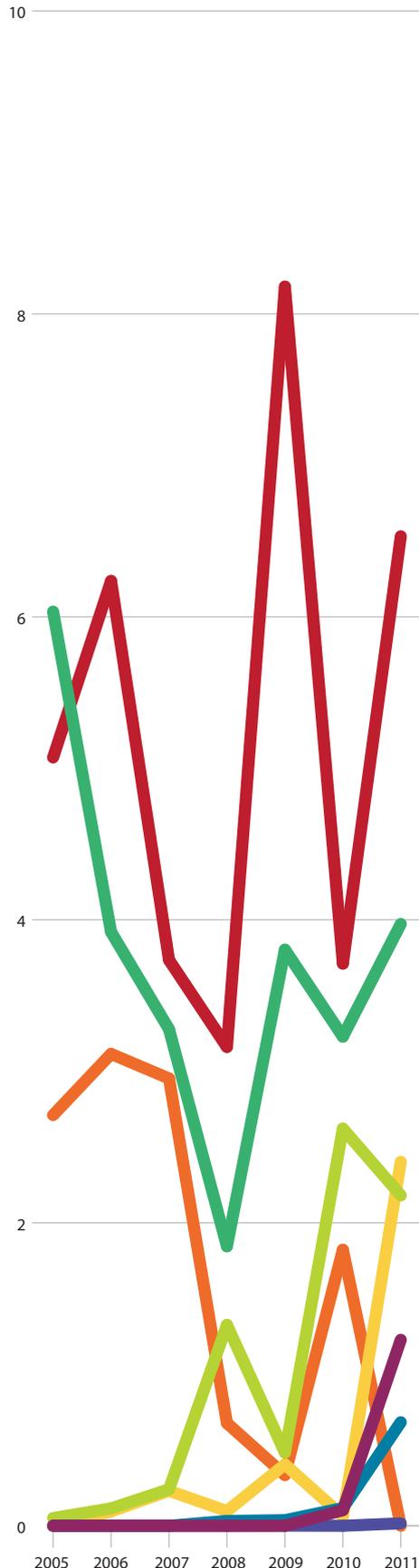
*This data does not include the government investments made over the course of the construction of Unit 1 of Kambarata 2, in the period 2006-2010.

Status and Trends

Government expenditure for the year 1995 and during the period 2005 - 2011
(million constant 2010 US\$)



Official development assistance gross disbursements during the period 2005 - 2011
(million constant 2010 US\$)



Government water-related expenditure for the year 1995 and during the period 2005 to 2010:

- Overall, the government's water-related investments have been increasing, with a significant peak in 2008 attributable to a large expenditure in hydroelectric power plants that year.
- From 2005 to 2010, agricultural water resources garnered significant priority, and were the highest recipient of expenditure in 2009-2010.
- Expenditure on water supply and sanitation of large systems and water resources protection and administrative management have been progressively increasing since 2005.
- Expenditure in water resources protection dropped by around 90 percent from 2005 to 2010.

Water-related official development assistance during the period 2005 to 2011:

- Overall, total annual water-related ODA disbursements were at their peak in 2010.
- Water supply and sanitation - large systems received priority in ODA disbursements almost every year during this period, while agricultural water resources were second in ODA priority.
- Basic drinking water supply and basic sanitation disbursements have been dropping since 2005.

Actual expenditure refers to the amount spent by the government during a given year. The OECD Creditor Reporting System categories were chosen for the collection of these water-related investments and the data was obtained by the WCB project through in-country research in cooperation with the government (during 2012), while ODA data stems from the OECD Creditor Reporting System (collected November 2012).



Water supply and sanitation in large systems: Water desalination plants; intakes, storage, treatment, pumping stations, conveyance and distribution systems; sewerage; domestic and industrial wastewater treatment plants.

Basic drinking water supply and basic sanitation: Water supply and sanitation through low-cost technologies such as hand-pumps, spring catchment, gravity-fed systems, rainwater collection, storage tanks, small distribution systems; latrines, small-bore sewers, on-site disposal (septic tanks).

Water resources policy and administrative management: Water sector policy, planning and programmes; water legislation and management; institution capacity building and advice; water supply assessments and studies; groundwater, water quality and watershed studies; hydrogeology. Excluding agricultural water resources.

Disaster prevention and preparedness: Disaster risk reduction activities such as developing knowledge, natural risks cartography, legal norms for construction; early warning systems; emergency contingency stocks and contingency planning including preparations for forced displacement.

Agricultural water resources: Irrigation, reservoirs, hydraulic structures, groundwater exploitation for agricultural use.

Hydroelectric power plants:* Including power-generating river barrages.

Water resources protection: Inland surface waters (rivers, lakes, etc.); conservation and rehabilitation of groundwater; prevention of water contamination from agrochemicals, industrial effluents.

River development: Integrated river basin projects; river flow control; dams and reservoirs. Excluding dams primarily for irrigation and hydropower and activities related to river transport.

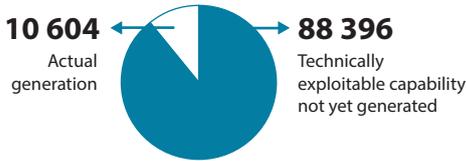
*This data does not include the government investments made over the course of the construction of Unit 1 of Kamburata 2, in the period 2006-2010.

Energy for Water, Water for Energy

Impact for development

With limited gas, oil and coal resources, and significant hydroelectricity capabilities, Kyrgyzstan is exporting power to neighbouring countries. However, at the regional level, competition between irrigation and hydropower exists. The downstream countries are interested in maintaining storage in the Toktogul reservoir (see map) for release of water in summer for irrigation, whereas release of water in winter from the reservoir for energy generation is beneficial to Kyrgyzstan. With an installed capacity of 2 910 MW, Kyrgyzstan generated 10 604 GWh in 2008, which represents around 10.7 percent of the nation's hydropower technically exploitable capability.

Hydropower capacity and generation, 2008, in GWh/year (World Energy Council)

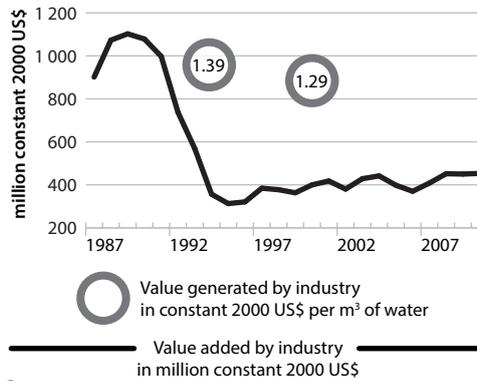


Water Intensity in Industry

Impact for development

Industrial activity has declined substantially after the break-up of the Soviet Union. During 1994 to 2000, the value generated by industry per m³ of water decreased by 1 percent annually. The most important industrial sectors are currently mining (gold and coal) and the energy sector. Other industry sectors of importance are construction, food processing and textile.

Value generated by industry per m³ of water (FAO AQUASTAT, World Bank)



Environment and Ecosystem Health

Impact for development

The quality of groundwater resources is threatened by various human activities such as municipal and industrial wastewater discharge, fertilizers and chemicals used in agriculture, the release of chemicals from products and industrial processes, mining and construction activities, and waste disposal. Principal environment and ecosystem health issues in Kyrgyzstan include lack of policies to protect surface water and groundwater and insufficient financial resources for water quality and quantity monitoring.

The Environmental Performance Index below ranks Kyrgyzstan amongst the worst performing countries.

According to the Second National Communication to the UN Framework Convention on Climate Change, from observations dating back to 1960, it has been estimated that by 2000, glacial mass had decreased by 20 percent and that the retreat is forecasted to continue.

| | Score | Rank |
|---------------------------------------|-------|------|
| Environmental Performance Index 2012* | 46.3 | 101 |
| Water (Effects on human health) | 50.1 | 71 |
| Water resources (Ecosystem effects) | 7.3 | 121 |

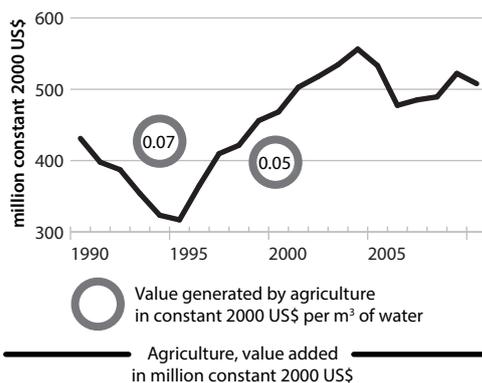
*A score of 100 indicates optimal performance. The 2012 Environmental Performance Index (EPI) ranks 132 countries on 22 performance indicators.

(YCELP/CIESIN/Columbia University, WEF, JRC/European Commission)

Irrigated Agriculture

Impact for development

Agriculture has been an important sector of the economy in Kyrgyzstan, accounting for about 20 percent of gross domestic product in 2011, and 96 percent of total water withdrawals were attributed to agriculture in 2010. In 2012, women accounted for 29 percent of the economically active population in agriculture. Cereals, mainly wheat, and fodder and pasture, represent the major irrigated crops. Yields for irrigated land are generally low by world standards, but still, they account for about two to five times higher yields than yields on non-irrigated areas.



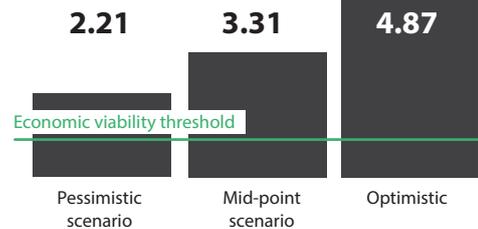
During 1994 to 2000, the value generated by agriculture per m³ of water decreased by 5 percent annually.

The economic viability of irrigation schemes is highly influenced by an ability to achieve agronomic productivity gains in addition to gains directly related to a move from dry land cropping to irrigated cropping.

The figure on the right analyses the economic viability of modernizing and expanding irrigation, including moving from low value crops to higher-value crops, such as for example vegetables, and indicates that further investment in irrigation is likely to be economically viable, even where relatively high costs are assumed.

It is important to highlight that this analysis should be considered indicative only, as it is based on an assumption that water is available and does not include any provision for restoring degraded soils on existing

Economic viability of establishing new irrigation schemes for wheat



farmland nor costs associated with negative externalities such as increased pollution loads into waterway associated with expanded irrigation. Inclusion of these costs will result in declines in the viability of expanding irrigation.



Water - related Disasters*

Impact for development

There is a lack of data of hydro-meteorological events in Kyrgyzstan and of their social and economic consequences. The only records available show that between 1992 and 2012, at least:

- i) 11 hydro-meteorological events took place,
- ii) almost 2.8 million people were affected and iii) US\$ 74.6 million economic damages occurred.

| Year** | Number of Events | Deaths | Affected | Economic Damage (million current US\$) |
|--------|------------------|--------|-----------|--|
| 1992 | 3 | 4 | 22 336 | 31 |
| 1994 | - | 160 | 585 000 | 36 |
| 1998 | 2 | 94 | 22 760 | 2.4 |
| 2002 | 1 | - | 4 000 | 2 |
| 2003 | 2 | 34 | 600 | - |
| 2004 | 2 | 37 | 58 500 | - |
| 2005 | 1 | 3 | 40 000 | 3 |
| 2006 | - | 4 | 9 075 | - |
| 2007 | - | 9 | 845 | 0.2 |
| 2009 | - | 16 | 2 000 000 | - |
| 2010 | - | 34 | 8 350 | - |
| 2012 | 0 | 0 | 23 000 | 0 |

* 'Water-related disasters' within the scope of this WCB study do not include droughts.

** Only years for which data is available are listed.

- means no data available

(Dartmouth Flood Observatory)

Kyrgyzstan is a disaster-prone country due to its geographical location in an active seismic zone and its mountainous landscape. Earthquakes, landslides, mudflows, avalanches, among others, cause serious damages to both human life and country economy. Each year, Kyrgyzstan is impacted by numerous landslides, some 60 glacial lake outburst floods, and several floods (although, most of them are small in size and magnitude.)



Drinking Water Supply and Sanitation

Impact for development

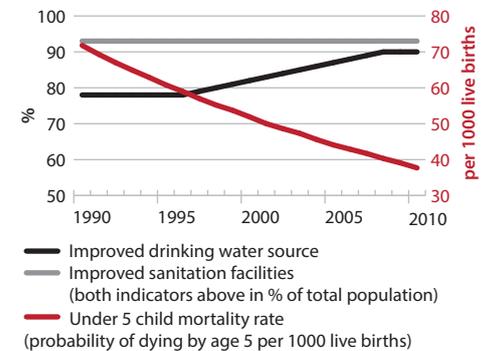
Water, sanitation and hygiene factors were responsible for 4 000 deaths in 2004, which accounted for 4.2 percent of all deaths in Kyrgyzstan. In general, improved water and sanitation infrastructure and services provide multiple benefits to the local population for health (decrease in mortality) and labour productivity (lower workplace absenteeism). They can also underpin confidence and expand markets for industries such as tourism. Globally, it is estimated that 88 percent of diarrheal diseases are caused by water, sanitation and hygiene factors.

Accession of the International Covenant on Economic, Social and Cultural Rights (ICESCR): 7 October 1994

(The right to water is implicit within the right to an adequate standard of living and inextricably related to the right to the highest attainable standard of health outlined in the ICESCR.)

Access to drinking water and sanitation & under-5 child mortality

(UN Inter-agency Group for Child Mortality Estimation (IGME) and WHO/UNICEF Joint Monitoring Programme)



The gap between rural and urban areas in terms of use of improved water sources has narrowed; however, 15 percent of the rural population remains without.

Reported use of improved sanitation facilities in both urban and rural areas has remained stable since 1990 (between 93-94 percent).



Tracking Water Governance

Impact for development

As a landlocked nation, Kyrgyzstan shares borders and water run-off obligations with several countries, which requires national, regional and local level coordination of water resources management activities, together with domestic and international stakeholders. Kyrgyzstan's weakness of institutional arrangements and capacities is compounded by frequent reshufflings of sector organization. In general, nations that prioritize water policies successfully improve their social and economic development.

In 2002, a draft national strategy for the use and protection of water resources was developed, but due to disagreements over the institutional framework, the draft was never put forward for adoption. Thus, there is still no national water strategy. The sector continues to be fragmented with water issues embedded in a number of other national strategies and plans, sometimes with competing objectives, and as a result there is no holistic and coherent strategy for water resources management. In 2005, Kyrgyzstan accepted a Water Code, based on integrated water resources management.

Is the right to sanitation/drinking-water explicitly recognized in policy or law?

| sanitation | | drinking water | |
|---|-------------|---|---|
| urban | rural | urban | rural |
| Progressing with some elements in place | no response | Already fully recognized in law or policy | Already fully recognized in law or policy |

Can people claim their human right to sanitation or drinking-water in a domestic court?

| sanitation | | drinking water | |
|---------------------|---------------------|---------------------|---------------------|
| urban | rural | urban | rural |
| Yes and widely used | Yes and widely used | Yes but little used | Yes and widely used |

UN-Water GLAAS (WHO, 2012)

Rapid Assessment

Overall

Pressures on water

Kyrgyzstan's water-related challenges include: i) making progress in developing and adopting a national water strategy, ii) flood control, iii) provision of safe drinking water, iv) contributing to improving food security, v) water quality and quantity monitoring, and vi) improving irrigation and drainage systems. In addition, the water availability in Kyrgyzstan represents another challenge due to a number of factors, including: i) competition for water between municipal, industrial/mining and agricultural uses, ii) variations in the amount of snow fall in the alpine regions, iii) negotiations with downstream countries on the sharing of the transboundary water resources. The extent of poverty in rural areas, where a large percentage of the population depend on agricultural production and irrigated areas, is much higher than in urban areas in Kyrgyzstan.

Investments

Only about 0.1 percent of the total government expenditures is spent on water-related matters. These government investments have been allocated mainly to agricultural water resources, hydroelectric power plants and water resources protection.

Assessments

- 
Irrigated agriculture ●●○○○○
 Irrigation is of key importance to the agricultural sector of Kyrgyzstan. There is currently significant interest in modernizing irrigation areas that have low levels of productivity.
- 
Drinking water supply and sanitation ●●●○○○
 Use of improved sanitation facilities has remained stable for both urban and rural areas. Rural areas have also experienced significant improvements in use of improved drinking water sources, but there still is a 15 percent gap between rural and urban drinking water rates.
- 
Water intensity in industry ●○○○○○
 The value generated by industry per m³ of water decreased
- 
Water-related disasters ●○○○○○
 Kyrgyzstan is a disaster-prone country and investments in water-related disasters are insufficient.
- 
Water for energy, energy for water ●●●○○○
 Hydropower is a main sector in Kyrgyzstan. Climate trends might pose water availability risks in the future. Regional cooperation is important to ensure water availability for all uses, including ecosystems.
- 
Environment and ecosystem health ●○○○○○
 Overall, water quality in the country is generally good and groundwater pollution is not widespread and is limited to some agricultural sites, which are not necessarily irrigation sites. On the other hand, effluent from underground gold mines, poor performance of wastewater treatment plants, increasing urbanization without planning schemes, among others, are representing challenges for the environment.
- 
Tracking governance ●○○○○○
 Water resources management is fragmented and the country has no national water strategy.

Data Quality

- ★★☆☆☆☆
Data is limited.
- ★★★★☆☆
Limited data on drinking water quality is available.
- ★★☆☆☆☆
Data is not readily available.
- ★☆☆☆☆
Data is not readily available.
- ★★☆☆☆☆
Data on energy requirements for water-related activities (i.e.: purification, treatment, irrigation, etc.) is not readily available. Better data is important to manage water resources on a regional level to the benefit of all users.
- ★☆☆☆☆
At present, the monitoring capacity is insufficient to give reliable data both on water quantity and quality.
- ★☆☆☆☆
Lack of reliable data is hampering water resources management.

Legend:

The rapid assessment of the situation above, based on available data, was established in conjunction with in-country experts and officials. It provides an overview of trends according to the following:

- trends are of significant concern
- trends are of concern
- trends are stable or, progressing on certain issues but not on others
- trends show some measure of improvement in all relevant indicators assessed
- trends show significant improvement and there is no concern
- insufficient data

Accurate assessments of progress require relevant, accurate and timely data. The above data quality assessment ranges from:

- ★☆☆☆☆ very poor → ★★★★★ very good

Data Concerns

Data on the status and pressures of water bodies is an essential decision-making tool for the rational management of water resources. At present, the monitoring capacity in Kyrgyzstan is clearly insufficient to give reliable data both on water quantity and quality. The lack of reliable data is causing problems with regard to a proper management of water resources, e.g. prioritization of actions and investments, and may complicate the introduction of integrated water management principles. Assessment of the anthropogenic pressures on water is lacking, as is data on the quality of water resources.

Investments in coordinated data collection, collation, analysis and dissemination is vital to demonstrate the benefits of water-related investments to governments, donors and ultimately private capital investors.

It is to be noted that it is virtually impossible to find national-level gender-disaggregated data for almost all themes contained in the UN-Water Country Briefs.

Disclaimers

- The most recent and updated information can be found in the original databases cited throughout.
- The rapid assessment methodology presented here is an advocacy tool designed to generate debate

and attention to the issues, and is developed in conjunction with national government focal points.

- Data presented herein stems either from existing databases or was collected from national reports, experts and institutions, and in some cases raw data underwent various manipulations to categorize the information for this presentation.
- Due to data limitations, the investment-related estimates may not include water-related investments that are counted under other categories of investments, and some investment categories (ie: disaster prevention and preparedness) may include some investments that are not directly water-related. Moreover, water being a crosscutting issue, investments in other parts of the government (not calculated here) may also benefit water management.
- The words investments / invested / funded for ODA refer to gross disbursements of ODA according to the OECD definitions. The words investments / invested / funded for government refer to government expenditure for 1995, 2005-2011. In addition, investment data and analysis do not include any other forms of investment (such as, private sector investments).
- The benefit-cost analysis on expansion of irrigation is based on very limited data and any decisions should be based on detailed cost-benefit analysis that incorporates all relevant local data.

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Additional information on the project, data and methodologies can be accessed at:

<http://www.unwater.org/WaterCountryBriefs.html>



KYRGYZSTAN

Legend

- International Boundary
- Administrative Boundary
- Capital, Regional Capital, Town
- River
- Lake
- Dam
- Zone of Irrigation Development

0 25 50 100 150 km
Albers Equal Area Projection, WGS 1984

FAO - AQUASTAT, 2012

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