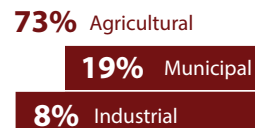


Total population (UN Population Division)	13.88 million inhabitants	year 2012
Total area	752 610 km ²	
Population density	18 inhabitants/km ²	2012
Human Development Index (UNDP) (between 0 and 1; 1 is highest)	0.446	
Country rank (total 186 countries; 1 is highest)	163	2012
Gender Inequality Index (0 is equality between women and men; 1 is least equality)	0.623	
Water, sanitation and hygiene-related deaths % of total deaths (WHO)	11.4 %	2004
Long-term average annual precipitation (CRU CL 2.0)	1 020 mm/year	
Long-term average actual renewable water resources (FAO AQUASTAT)	105 200 million m ³ /year	
Actual annual renewable water resources per capita (FAO AQUASTAT)	7 580 m ³ /inhabitant	2012
% of total actual renewable freshwater resources withdrawn (MDG Water Indicator) (FAO AQUASTAT)	1.5 %	2002
Groundwater withdrawal as % of total freshwater withdrawal (FAO AQUASTAT)	4 %	1992
Total area equipped for irrigation (FAOSTAT)	156 000 ha	2011
% of the cultivated area equipped for irrigation (FAO FAOSTAT and FAO AQUASTAT)	5 %	2011
% of irrigation potential equipped for irrigation (FAO AQUASTAT)	30 %	2011
Ramsar sites (Ramsar)	8 sites 4 030 500 hectares	2013

Water withdrawals by sector
(total 1 572 million m³ in 2002)



The Money Stream

The water sector reforms in 1991 prioritized action in water supply and sanitation, which resulted in improved institutional setup, as well as in planning and support from the government and various partners. There is now increasing attention to development of dams and irrigation as government advances efforts to enhance food security and adapt to the effects of climate change.

During 2006-2010, the government invested US\$ 8.95 million (in constant 2010 US\$) on average per year on water-related infrastructure and programmes. Over 80 percent of the government expenditure priority was channeled into water supply and sanitation (57.4 percent) and river development (24.7 percent).

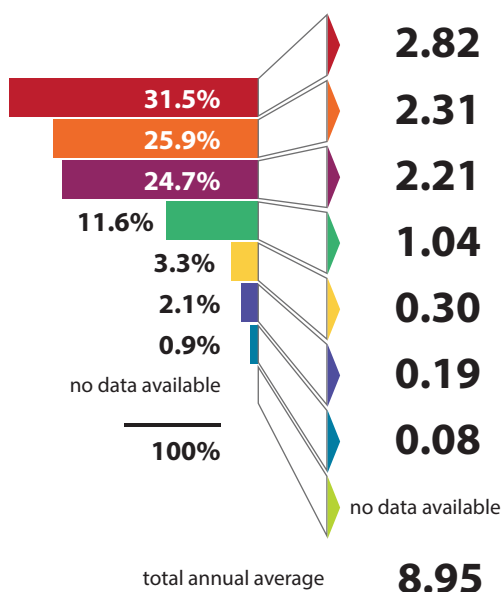
During the same period, official development assistance (ODA) gross disbursements amounted to US\$ 47.78 million on average per year, with priority on water supply and sanitation (68.7 percent).

Over the period 2006 to 2010, the Government of Zambia's water-related investments accounted for an estimated 0.6 percent of total government expenditures.

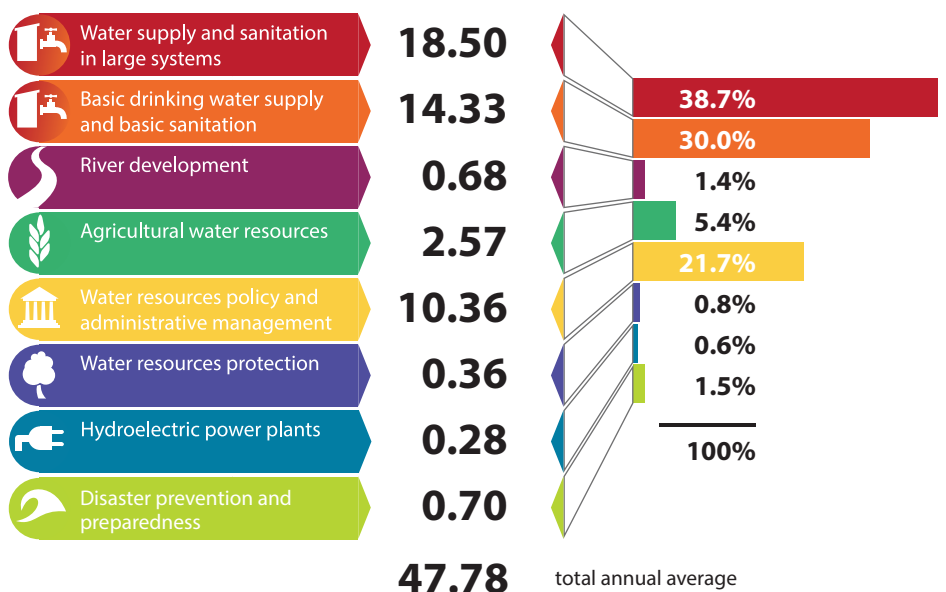
Estimated % of water-related government budget
to total government expenditure 2006 – 2010:

0.6%

Annual average government budget
during the period 2006 - 2010
(million constant 2010 US\$)



Annual average official development assistance gross
disbursements during the period 2006 - 2010
(million constant 2010 US\$)

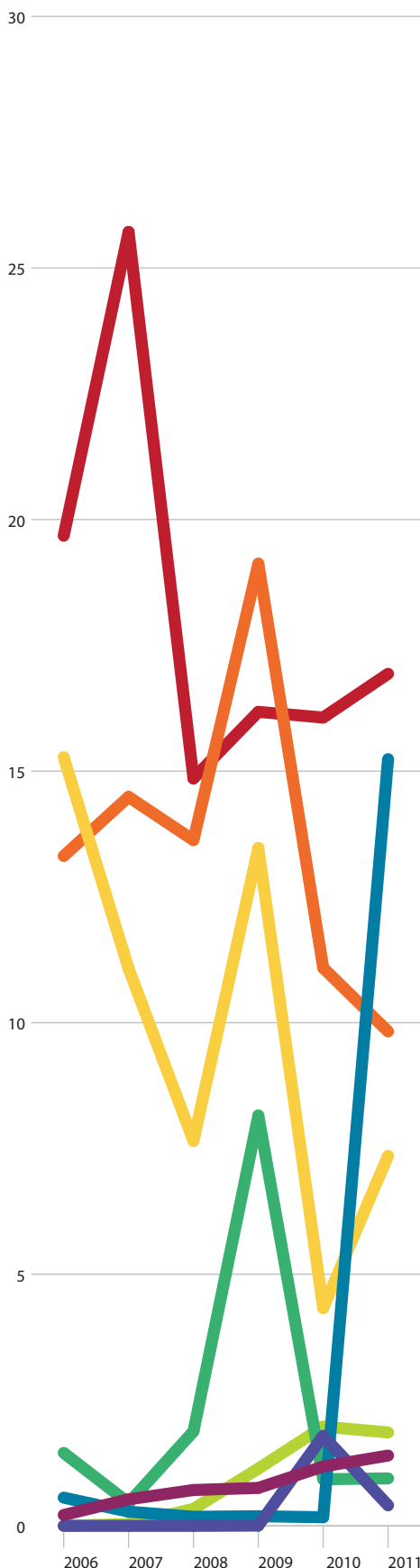


Status and Trends

Government budget during the period 2006 - 2010
(million constant 2010 US\$)



Official development assistance gross disbursements during the period 2006 - 2011
(million constant 2010 US\$)



Water-related government budget during the period 2006 to 2010:

- Overall, the water-related government budget has doubled during this period.
- During this period, government budget for agricultural water resources increased four-fold.
- After two years of decline, basic drinking water supply and basic sanitation budget is gaining strength with an increment of around 63 percent from 2009 to 2010.
- There are several years for which data is not available in most of the water-related investment categories.

Water-related official development assistance during the period 2006 to 2011:

- The bulk of disbursement has been channeled into water supply and sanitation of large systems.
- Disbursements for hydroelectric power plants have significantly increased from 2010 to 2011.

Government budget refers to the amount that the government reportedly budgeted for the 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 February 2013).



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). No data available on government expenditure in basic drinking water supply and basic sanitation.

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/Flood protection and control: 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. Floods from rivers or the sea; including sea water intrusion control and sea level rise related activities.

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

Hydroelectric power plants: Including power-generating river barrages. No data available on government expenditure in hydroelectric power plants.

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.



Water-related Disasters*

Impact for development

There is an important lack of data of the hydro-meteorological events having occurred in Zambia. From the data available, records between 1998 and 2011 indicate that: i) 13 hydro-meteorological events took place, ii) 180 people perished, and iii) 510,603 people were affected.

Year**	Number of Events	Deaths	Affected	Economic Damage (million current US\$)
2011	1	-	1 400	-
2010	1	0	115	-
2009	1	150	54 000	240
2008	1	4	15 000	-
2007	2	17	267 000	-
2006	1	-	110 000	-
2005	1	-	4 000	-
2004	-	2	20 000	-
2003	3	7	26 800	-
2000	1	-	12 000	-
1998	1	-	288	-

* '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)

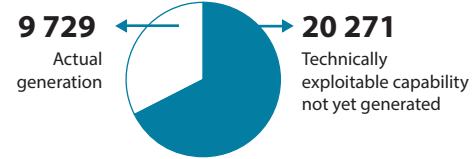


Energy for Water, Water for Energy

Impact for development

With an installed capacity of 1 632 MW, Zambia generated 9 729 GWh in 2008, which represents around 32 percent of the nation's hydropower technically exploitable capability. The hydropower sector is striving to improve water efficiency by rehabilitating power plants and installing more efficient turbines. Water use competition and conflicts are beginning to manifest in specific areas such as the Kafue Flats particularly between hydropower and agriculture.

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

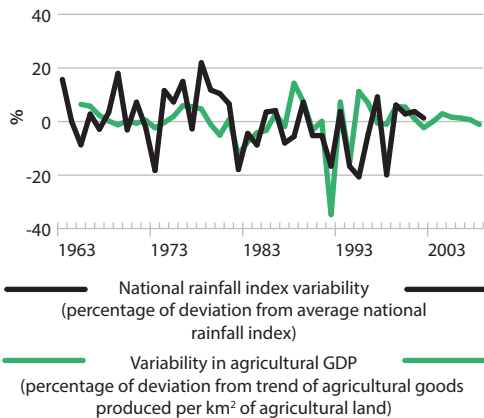


Irrigated Agriculture

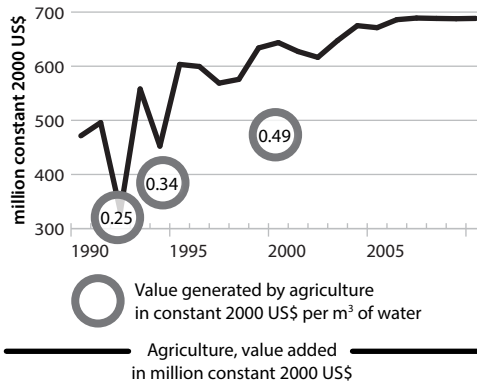
Impact for development

In Zambia, agriculture remains the leading sector in terms of food security, economic growth and poverty reduction. In 2012, women accounted for 46 percent of the economically active population in agriculture. The main irrigated crops are sugar cane, wheat and rice.

Rainfall variability and agricultural GDP (FAO AQUASTAT, World Bank)



The country is highly dependent on rainfed agriculture and suffers from reduced crop yields when droughts occur. Some of the main constraints to irrigated agriculture are inadequate irrigation infrastructure and water storage.



During 1992 to 1994, the value generated by agriculture per m³ of water increased by 18 percent annually, and during 1994 to 2000 this value increased by 6 percent annually.

The rapid assessment on the viability of expanding the irrigated area found over five-fold increases in the yields of maize in irrigated areas over rainfed lands. The economic viability depends mainly on the irrigation equipment, water availability and their cost, for which only limited data could be obtained, not allowing a robust analysis.

Improved water management under rainfed agriculture has been advocated to realize the best possible water supply for the crops. This has been achieved through advocacy programmes for adopting conservation farming using micro-basins. When it rains, they act as water harvesting basins that store water for much longer. This method has proved to yield 3 tonnes/hectares of maize compared to 1.5 tonnes/hectares using conventional methods. This performance has led to an accelerated adoption of this farming system.

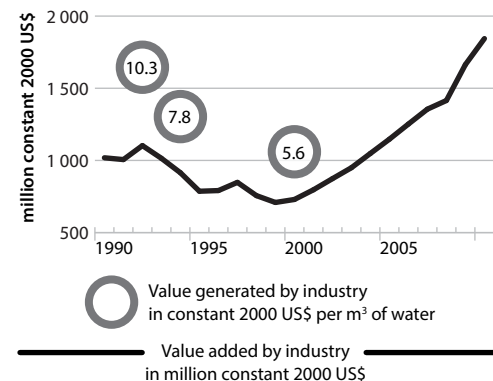


Water Intensity in Industry

Impact for development

During 1992 to 1994, the value generated by industry per m³ of water decreased by 13 percent annually, and during 1994 to 2000 this value decreased by 5 percent annually. The decreasing rate of value generated by industry per m³ is sign that industry has not been actively adopting water-efficient methods in industrial processes, since water withdrawal by industry tends to increase, which in large part is due to the expansion of mining and manufacturing activities. Water quality concerns also arise in areas where there are mining and industries.

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





Drinking Water Supply and Sanitation

Impact for development

Water, sanitation and hygiene factors were responsible for over 24 000 deaths in 2004, which accounted for 11.4 percent of all deaths in Zambia. In 1991, Zambia's water sector reforms prioritized the actions on improving domestic water supply and sanitation accessibility due to its impact on the population's health. The targets that were set to meet the MDG goals also influenced the investment. A 2012 UNICEF/WHO analysis of data from 25 countries in sub-Saharan Africa, representing 48 percent of the region's population, revealed that women and girls bear primary responsibility for water collection, at considerable cost in terms of their time. In these 25 countries, it is estimated that women spend a combined total of at least 16 million hours each day collecting drinking water; men spend 6 million hours; and children, 4 million hours.

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

10 April 1984

(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.)



Tracking Water Governance

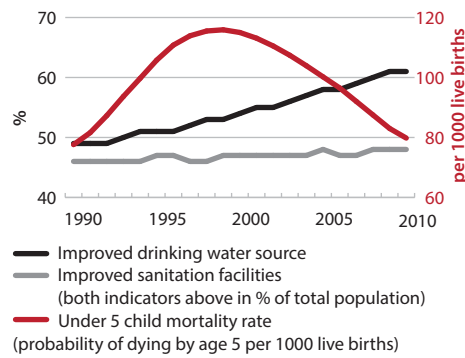
Impact for development

Water management in Zambia is under the water sector which comprises the two sub-sectors: Water Resources Management and Development (WRMD) and Water Supply and Sanitation (WSS). It is recognized that all others sectors such as environment, agriculture, mining, industry, housing and energy have a role thus sectoral coordination is being enhanced through the Water Sector Advisory Group (WSAG). Major challenges being faced are inadequate human and institutional capacity, inadequate financing, low infrastructure development and access to water. The expertise for irrigation water management at the field level is poor, especially among smallholder farmers. The reasons for this situation are due to, among others, an absence of water management regulations and the lack of capacity to enforce existing water rights regulations and fees.

The water sector has been undergoing several reforms, which are guided by the National Water Policy 2010 (revision of the 1994 Policy). The policy reinforces integrated water resource management as the guiding principle and the Integrated Water Resources Management/Water Efficiency Plan (IWRM/WE) accordingly. The Ministry of Energy and Water Development (MEWD) oversees water resources development and management in Zambia. The Ministry of Environment and Natural Resources (MENR) is implementing the National Environmental Action Plan.

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)



Even though the population using an improved drinking water source has more than doubled, the percentage is still very low (46 percent) and a significant gap remains also in urban areas (with 87 percent of the population having access). The same situation occurs with sanitation, where the percentage of the population with improved sanitation facilities in both urban and rural areas is around 57 and 46 percent, respectively. After increases until 1999, child mortality continues to decrease.



Environment and Ecosystem Health

Impact for development

Zambia's Environmental Management Act (EMA) oversees water quality and pollution control, approval of Environmental Impact Assessments (EIAs) and provides issuance of licenses to discharge a pollutant into the environment. In addition, the country's ecosystems are protected by various national and international legislations. Insufficient financing and institutional capacity are, however, resulting in inadequate enforcement of legislation. Water resources are threatened by pollution in specific areas mainly from sewerage, dumping of solid waste, siltation, mining, agricultural and industrial activities. The Kafue River and the groundwater in Lusaka, Kabwe and Ndola are the most threatened.

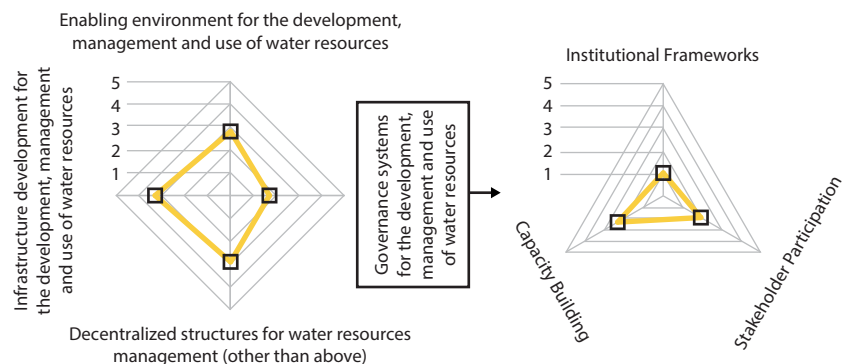
	Score	Rank
Environmental Performance Index 2012*	55.6	57
Water (Effects on human health)	14.8	119
Water resources (Ecosystem effects)	41.7	36

*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)

The major challenges are: i) effective monitoring; ii) control of water quality and effluent discharge; iii) inadequate institutional capacity especially for monitoring emerging issues such as uranium mining; iv) wastewater treatment plants' degrading infrastructure due to insufficient investments, and v) waste collection and management with insufficient designated disposal sites.

UN-Water survey on integrated approaches in the development, management and use of water resources governance, 2012 (UN-Water)



1 Under development
2 Developed but implementation not yet started
3 Implementation started

4 Implementation advanced
5 Fully implemented

Rapid Assessment

Overall


Pressures on water


Although Zambia may have sufficient water during the rainy season, the high meteorological variability coupled with inadequate infrastructure storage, delivery and management, are resulting in water scarcity in certain instances. The main water issues affecting the country are, among others: i) lack of decentralized and sustainable structures that are accessible and consider the participation of stakeholders/communities; ii) poor resource management, regulation and enforcement of legislation mechanisms; iii) lack of an integrated approach to water resource management; iv) lack of regulations to protect groundwater; v) inadequate investment in water infrastructure and vi) recurring droughts and floods.


Investments

During the period 2006 to 2010 the government investment for water-related matters represented less than one percent of total government expenditures. These funds have been allocated principally to water supply and sanitation and river development. Some two-thirds of the ODA disbursements have been allocated to water supply and sanitation during this period.


Assessments


 **Irrigated agriculture** ●●○○○○
The country is highly dependent on rainfed agriculture and suffers from reduced crop yields when droughts occur. Thirty percent of the irrigation potential is equipped for irrigation.


 **Drinking water supply and sanitation** ●○○○○○
In 2010, 39 percent of the population did not use an improved drinking water source and 48 percent did not have improved sanitation facilities. Water, sanitation and hygiene factors are responsible for 11.4 percent of all deaths in Zambia.

 **Water intensity in industry** ●○○○○○
The value generated by industry per m³ of water has continuously decreased since 1992.

 **Water-related disasters** ○○○○○○
Insufficient data for analysis

 **Water for energy, energy for water** ●●●○○○
Water efficiency efforts in progress. Water use competition and conflicts arising in Kafue Flats particularly.

 **Environment and ecosystem health** ●●○○○○
The Water Act and Environmental Management Act regulate water use and discharge respectively, although insufficient financing and institutional capacity are resulting in inadequate enforcement of legislation. Water resources are threatened by pollution in specific areas.

 **Tracking governance** ●●○○○○
Zambia faces major challenges due to, among others, inadequate institutional capacity, limited financing and low infrastructure development. Zambia has a National Water Policy since 2010.

Data Quality

★☆☆☆☆
There are different figures of the irrigation potential quoted by various authors, which indicates the need for a systematic assessment to determine the correctness of the data.

★★★★☆
Limited data on drinking water quality is available.

★★★★☆
Data is not readily available.

★☆☆☆☆
Insufficient data

★★★★☆
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 to the benefit of all users.

★☆☆☆☆
Data is not readily available.

★★★★★
Zambia has participated in the UN-Water questionnaire on Integrated Approaches in the Development, Management and Use of Water Resources. There is no data available on the equity and human rights on sanitation and drinking water within UN-Water GLAAS Report 2012.

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 is a vital input to water management and investment in water related infrastructure and projects. Data and available research for Zambia is very sparse.

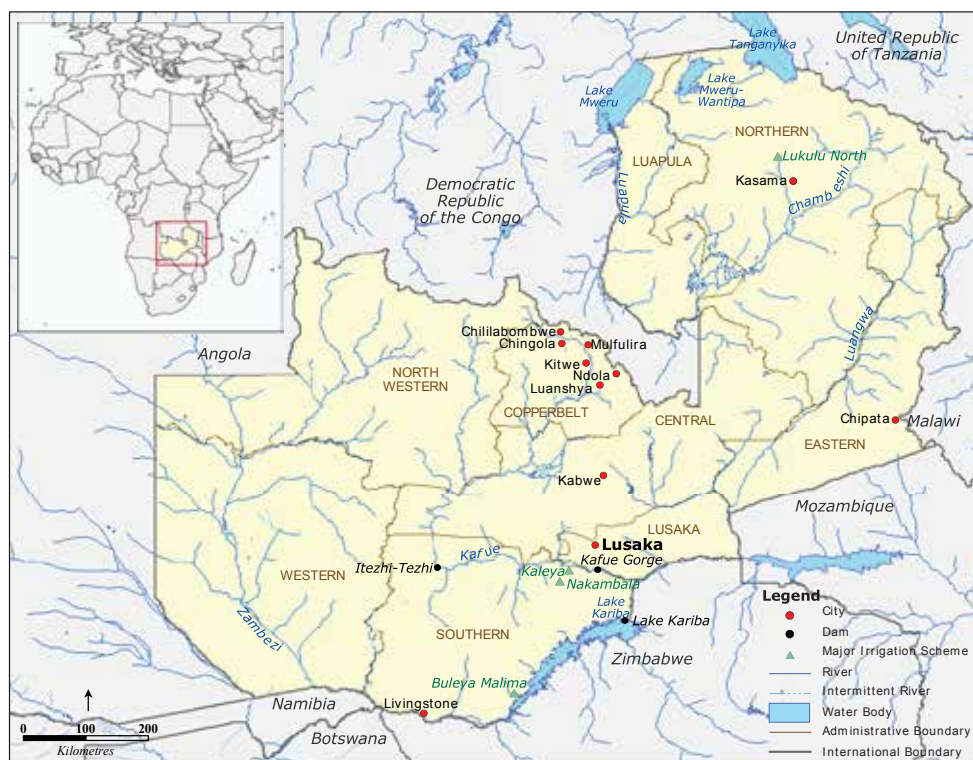
Modest investments in coordinated data collection, collation, analysis and dissemination is vital to demonstrate the benefits of water-related investments to governments, donors and ultimately private capital investors.

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.

This project was implemented by the AQUASTAT Programme of the Food and Agriculture Organization of the United Nations (FAO) on behalf of UN-Water with financial support from United States Department of State (USDS). Brief produced: 13 June 2013

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

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



FAO - AQUASTAT, 2005

ZAMBIA

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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 budget (2006 - 2010). In addition, investment data and analysis do not include any other forms of investment (such as, private sector investments).