

		year
Total population (UN Population Division)	<b>758 000</b> inhabitants	2012
Total area	<b>214 970</b> km <sup>2</sup>	
Population density	<b>4</b> inhabitants/km <sup>2</sup>	2012
Human Development Index (UNDP) (between 0 and 1; 1 is highest)	<b>0.636</b>	
Country rank (total 186 countries; 1 is highest)	<b>118</b>	2012
Gender Inequality Index (0 is equality between women and men; 1 is least equality)	<b>0.490</b>	
Water, sanitation and hygiene-related deaths % of total deaths (WHO)	<b>3.4</b> %	2004
Long-term average annual precipitation (CRU CL 2.0)	<b>2 387</b> mm/year	
Long-term average actual renewable water resources (FAO AQUASTAT)	<b>241 000</b> million m <sup>3</sup> /year	
Actual annual renewable water resources per capita (FAO AQUASTAT)	<b>317 942</b> m <sup>3</sup> /inhabitant	2012
% of total actual renewable freshwater resources withdrawn (MDG Water Indicator) (FAO AQUASTAT)	<b>0.6</b> %	2010
Total area equipped for irrigation (FAO FAOSTAT)	<b>150 000</b> ha	2008
% of the cultivated area equipped for irrigation (FAO FAOSTAT)	<b>34</b> %	2008
Ramsar sites (Ramsar)	– number – total area	not available

Water withdrawals by sector (total 1 444 million m<sup>3</sup> in 2010)



## The Money Stream

From 2003 to 2011, the government has invested US\$ 6.12 million (in constant 2010 US\$) on average per year on water-related infrastructure and programmes. Over 90 percent of the government's investments were channeled into agricultural water resources (53.5 percent) and water supply and sanitation - large systems (37.2 percent).

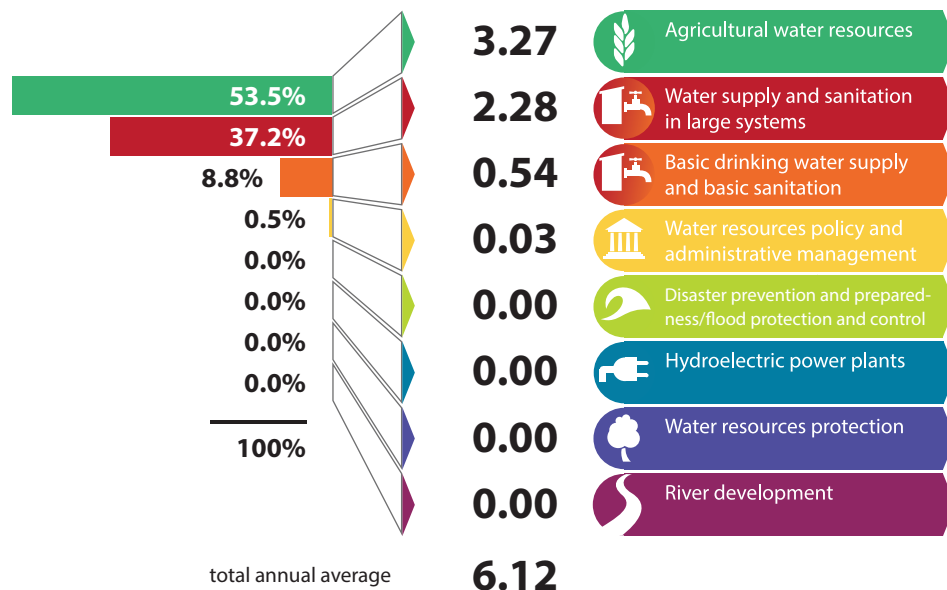
During the same period, official development assistance (ODA) gross disbursements amounted to US\$ 14.05 million on average per year. Three quarters of ODA disbursements were channeled into disaster prevention and preparedness and flood prevention/control (38.6 percent) and water supply and sanitation - large systems (34.7 percent).

Over the period 2003 to 2010, the Government of Guyana's water-related expenditure accounted for an estimated 1.9 percent of total government expenditures.

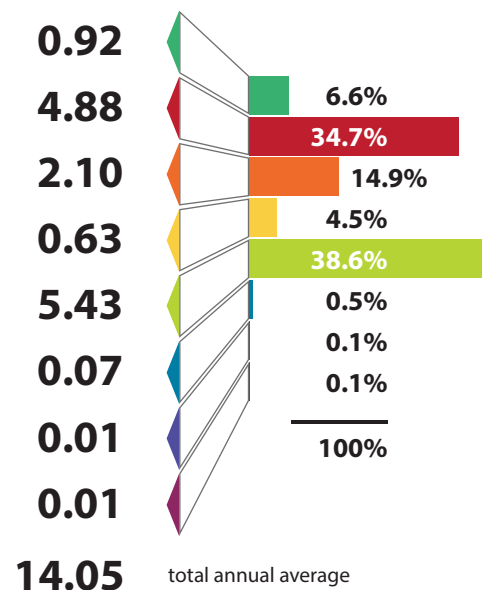
Estimated % of water-related expenditure to total government expenditure (2003 to 2010)



Annual average government expenditure during the period 2003 - 2010 and budget for the year 2011 (million constant 2010 US\$)

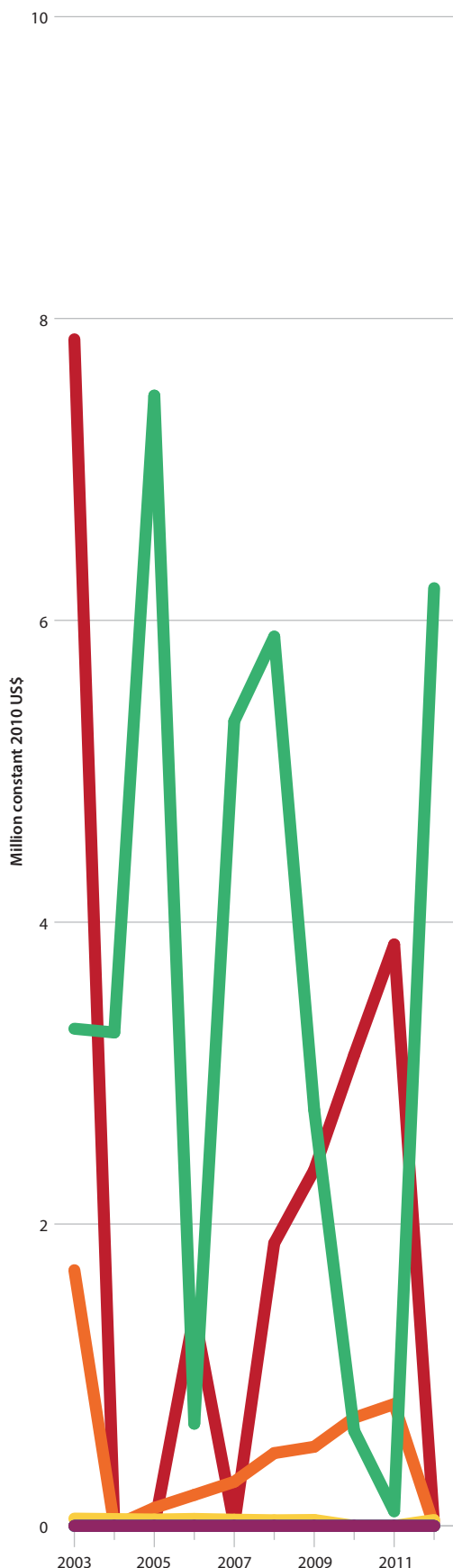


Annual average official development assistance gross disbursements during the period 2003 - 2011 (million constant 2010 US\$)

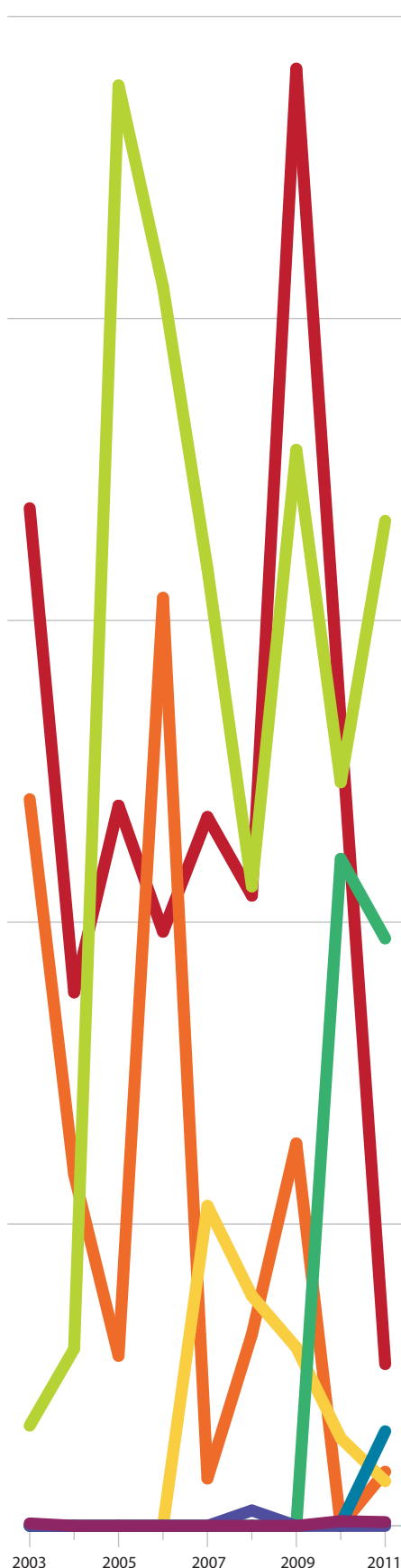


# Status and Trends

**Government expenditure during the period 2003 – 2010 and budget for the years 2011 & 2012 (million constant 2010 US\$)**



**Official development assistance gross disbursements during the period 2003 - 2011 (million constant 2010 US\$)**



## Government water-related investment over the period 2003 to 2012:

- Agricultural water resources received the largest share of investments during this period, with notable peaks in 2005, 2008 and 2012, when it received 7.5, 5.9 and 6.2 million constant 2010 US\$ respectively.
- In 2003, water supply and sanitation – large systems received 7.9 million constant 2010 US\$, representing the largest amount invested by the government in one water-related category over this period.

## Water-related official development assistance over the period 2003 to 2011:

- Overall water-related ODA disbursements averaged 14.1 million constant US\$ over the period with a high in 2009 (20.5 million constant US\$) and a low in 2004 (7.0 million constant US\$).
- Flood prevention / control combined with disaster prevention and preparedness received with 38.6 percent, the highest share of ODA disbursements. In 2008, it accounted for 60 percent of water-related ODA disbursements with 9.3 million constant 2010 US\$.
- Water supply and sanitation – large systems received 34.7 percent of ODA disbursements over the period with a peak in 2009, when 9.7 million constant US\$ amounted to 36.9 percent of all water-related ODA disbursements.
- Agricultural water resources received support from ODA only in 2010 and 2011.

Actual expenditure refers to the amount spent by the government during a given year. Where actual expenditure data is not available, the government budget is used and 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 December 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/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.

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

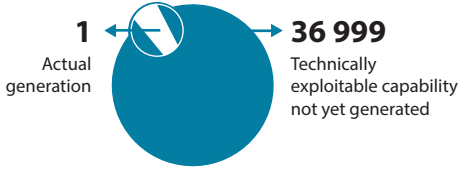
**River development:** Integrated river basin projects; river flow control; dams and reservoirs. Excluding dams primarily for irrigation and hydropower and activities related to river transport.

## Energy for Water, Water for Energy

### Impact for development

With an installed capacity of 1 MW, Guyana generated 1 GWh in 2008, which represented less than one percent of the nation's hydropower technically exploitable capability.

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



## Environment and Ecosystem Health

### Impact for development

According to a 2010 UNEP report, floods, land and water pollution, and increased pressure on biodiversity are identified as main environmental priorities for Guyana. Some estimated 17.7 million litres of untreated sewage are reportedly discharged per day into the mouth of the Demerara River. The problem of land and water pollution is a consequence of several factors, such as: inadequate infrastructure, limited monitoring, insufficient financial resources, lack of strong enforcement of environmental regulations. In the interior of Guyana, mining activities degrade surface water and groundwater.

### Water quality index 2010

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

42.8

A score of 100 indicates optimal performance.

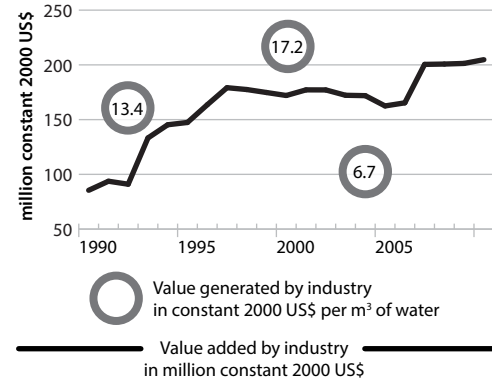
## Water Intensity in Industry

### Impact for development

Industrial water use is distributed in the manufacturing/bottling of beverages, food processing, extraction of minerals (gold and other). The extractive industries are located in the interior and remote areas of the country and are regulated by the mining regulations with respect to water discharge. During dry seasons, conflicts arise when mining is done on rivers / creeks, which serve as potable water sources to local communities.

### Value generated by industry per m<sup>3</sup> of water

(FAO AQUASTAT, World Bank)



During 1992 to 2000, the value generated by industry per m<sup>3</sup> of water increased by 3 percent annually, and during 2000 to 2005 this value decreased by 21 percent annually.

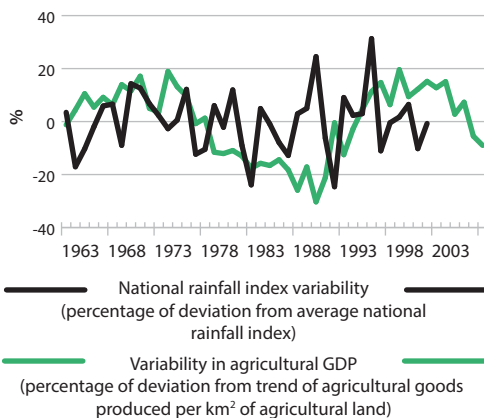
## Irrigated Agriculture

### Impact for development

The National Drainage and Irrigation Authority has been spending large sums to build and improve drainage and irrigation infrastructure. These investments have contributed to earnings of over US\$40 million in export sales of rice alone. Guyana's rice export has increased both in volume and value in 2010, surpassing all previous records. Yet, limited and dilapidated drainage and irrigation infrastructure, especially in main agricultural developed areas, remains a challenge. In 2011, agriculture accounted for 21 percent of gross domestic product. In 2012, women accounted for 8 percent of the economically active population in agriculture.

### Rainfall variability and agricultural GDP

(FAO AQUASTAT, World Bank)



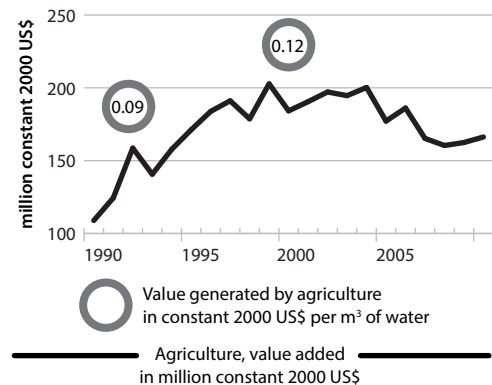
The vast majority of agricultural activities takes place in the coastal plains. For more than 8 km inland the land is below sea level at high tide. Therefore, drainage and water control are major problems, and agricultural development has always been tied to the defense against water intrusion from the sea and from rainwater runoff.

The establishment of conservancies (i.e.: large shallow dams that trap surface water runoff) and extraction pumps on rivers has sustained regular irrigation water supply. During dry periods these systems ensure the ability to meet demand, although some deficit in water supply occur under extreme events, such as during El Niño occurrences.

During 1992 to 2000, the value generated by agriculture per m<sup>3</sup> of water increased by 3 percent annually. Rice and sugarcane are the main irrigated crops. In addition a small area of citrus and vegetables is irrigated.

### Value generated by agriculture per m<sup>3</sup> of water

(FAO AQUASTAT, World Bank)





## Water - related Disasters\*

### Impact for development

Guyana has not been impacted too significantly by water-related disasters. Nonetheless, the available data indicates that between 1980 and 2011, over 650 000 people were affected. During the same period, there are only four data points of reported economic damage, totaling million current US\$ 709 worth in economic damage.

Estimates from climate models developed by the United Kingdom's Meteorological Office's Hadley Centre, predict that Guyana will experience a general drying trend. Even though Guyana belongs to those countries in the world with the highest rainfall, models show that Guyana will be among the most affected countries in the world by climate change, with average precipitation having decreased by roughly 1 mm/day between now and 2050. A drying trend of this nature dictates the need for storage reservoirs, extensive drainage and irrigation networks, and management systems. The goal has been to sustain and improve livelihoods through interventions that would benefit individuals and the country as a whole.

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

Year	Number of Events	Deaths	Affected	Economic Damage (million current US\$)
2011	0	0	0	-
2010	1	0	-	15
2009	0	0	0	0
2008	1	0	100 000	-
2007	0	0	0	0
2006	1	20	35 000	165
2005	1	31	354 717	500
2004	1	0	-	-
2003	1	0	100 000	-
2002	1	0	180	-
2001	0	0	0	0
2000	1	10	5 950	-
1999	1	0	200	-
1998	1	0	12 200	-
1997	1	1	7 000	29
1996	1	0	27 310	-
1995	1	1	870	-
1994	0	0	0	0
1993	1	0	3 500	-
1992	1	0	300	-
1991	0	0	0	0
1990	2	0	300	-
1989	1	0	0	-
1988	1	0	550	-
1987	1	0	2 000	-
1986	0	0	0	0

- means no data available  
(Dartmouth Flood Observatory)



## Tracking Water Governance

### Impact for development

Guyana has well established national institutions and agencies overseeing water-related matters. However, there is a lack of monitoring data to make informed decisions on the efficient use and management of water sources. The government faces the need to strengthen these organizations through training of staff and increasing budgetary allocations.

Several institutions are involved in the management of Guyana's water resources. For example, water supply to the majority of the country is provided through the Guyana Water Authority (GUYWA); monitoring of water quality and sewerage and sanitation activities are under the Ministry of Health; the National Drainage and Irrigation Board (NDIB) is responsible for drainage and irrigation; the Ministry of Public Works, Communications and Regional Development establishes water sector policy, and the Hydrometeorology Department of the Ministry of Agriculture oversees monitoring and assessment of surface water and groundwater resources and the provision of basic meteorological information.



## Drinking Water Supply and Sanitation

### Impact for development

Water, sanitation and hygiene factors were responsible for over 300 deaths in 2004, which accounted for 3.4 percent of all deaths in Guyana. 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) outcomes. 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.

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

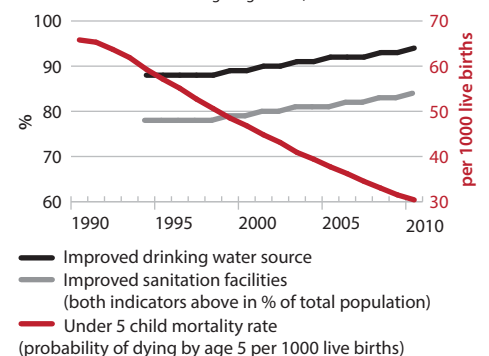
15 February 1977

(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.)

Some 94 percent of the population in Guyana used an improved drinking water source in 2010 (98 percent

### 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)



in urban areas and 93 percent in rural areas) as compared to 88 percent in 1994. Some 84 percent of the population had access to improved sanitation facilities in 2010 (82 percent in rural areas and 88 percent in urban areas), up from 78 percent in 1994. Despite these improvements, the sewerage and water services face operational, maintenance, financial, and institutional challenges.

# Rapid Assessment

## Overall

### Pressures on water

The highest density of population, roughly 90 percent, is within the coastal area and thus all residents of the coastal area depend wholly on groundwater supply to meet their domestic needs. One exception is the Georgetown area, where 30 percent of the water used is surface water from the East-Demerara conservancy. Although Guyana has institutions, agencies, policies and regulations in place to promote proper water management, the country still faces numerous water-related challenges, such as: (i) inadequate irrigation water supply during dry seasons and flooding during wet seasons in farming and residential areas; (ii) contamination of potable water supplies, leading to water-borne diseases, such as vector-borne lymphatic-filariasis, and leptospirosis; (iii) limited and dilapidated drainage and irrigation infrastructure, especially in the main agricultural areas, and (iv) lack of highly-qualified personnel within water sector institutions.

### Investments

Overall, less than an estimated 2 percent of the total government expenditures has been spent on water-related matters. Government investments have been allocated mainly to agricultural water resources and water supply and sanitation - large systems. ODA disbursements went mainly to disaster prevention and preparedness and flood prevention/control and water supply and sanitation - large systems.

## Assessments

- 
**Irrigated agriculture** ●●●○○○  
 Recent improvements in drainage and irrigation infrastructure have led to an increase in irrigated crop yields.
- 
**Drinking water supply and sanitation** ●●○○○○  
 Since 1998, both urban and rural areas have experienced a constant increment in use of an improved drinking water source and improved sanitation facility. The maintenance of water supply and sanitation services in Guyana has always been a challenge.
- 
**Water intensity in industry** ●●○○○○  
 During 1992 to 2000, the value generated by industry per m<sup>3</sup> of water increased by 3 percent annually, and during 2000 to 2005 this value decreased by 21 percent annually.
- 
**Water-related disasters** ●●○○○○  
 Although Guyana is not a disaster-prone country, forecasts predict that Guyana will be significantly affected in terms of drying trend.
- 
**Water for energy, energy for water** ●●●○○○  
 In Guyana, almost the entire technically exploitable hydropower potential remains untapped. There are plans to develop hydropower in the country.
- 
**Environment and ecosystem health** ●●○○○○  
 Water pollution and increased pressure on biodiversity are identified as main environmental priorities for Guyana.
- 
**Tracking governance** ●●●●○○  
 Guyana has institutions, agencies, policies and regulations in place to promote proper water management, though the country still faces water stress challenges.

## Data Quality

- ★☆☆☆☆  
There is a lack of data on certain key indicators.
- ★★★★☆  
Limited data on drinking water quality is available.
- ★★☆☆☆  
Data is not readily available.
- ★★☆☆☆  
A detailed disaster database is not available.
- ★★☆☆☆  
Data is not readily available, especially on the energy requirements of providing water and treating wastewater.
- ★★☆☆☆  
Data is not readily available.
- ★☆☆☆☆  
Data is not readily available. There is no data available on the equity and human rights on sanitation and drinking water within the 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 Guyana is sparse.

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.

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

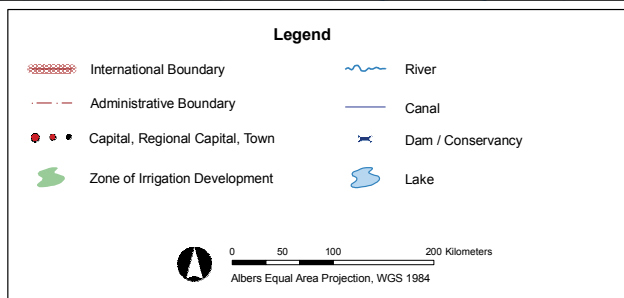
<http://www.unwater.org/WaterCountryBriefs.html>



- Regions of Guyana**
- I Barima - Waini
  - II Pomeroon - Supenaam
  - III Essequibo Islands - West Demerara
  - IV Mahaica - Mahaica
  - V East Berbice - Corentyne
  - VI Cuyuni - Mazaruni
  - VIII Potaro - Siparuni
  - IX Upper Takutu - Upper Essequibo
  - X Upper Demerara - Berbice

# 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 (2003 – 2010) and government budget (2011 & 2012). In addition, investment data and analysis do not include any other forms of investment (such as, private sector investments).



GUYANA

FAO - AQUASTAT, 2013

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