

Water Resources Status in Rwanda



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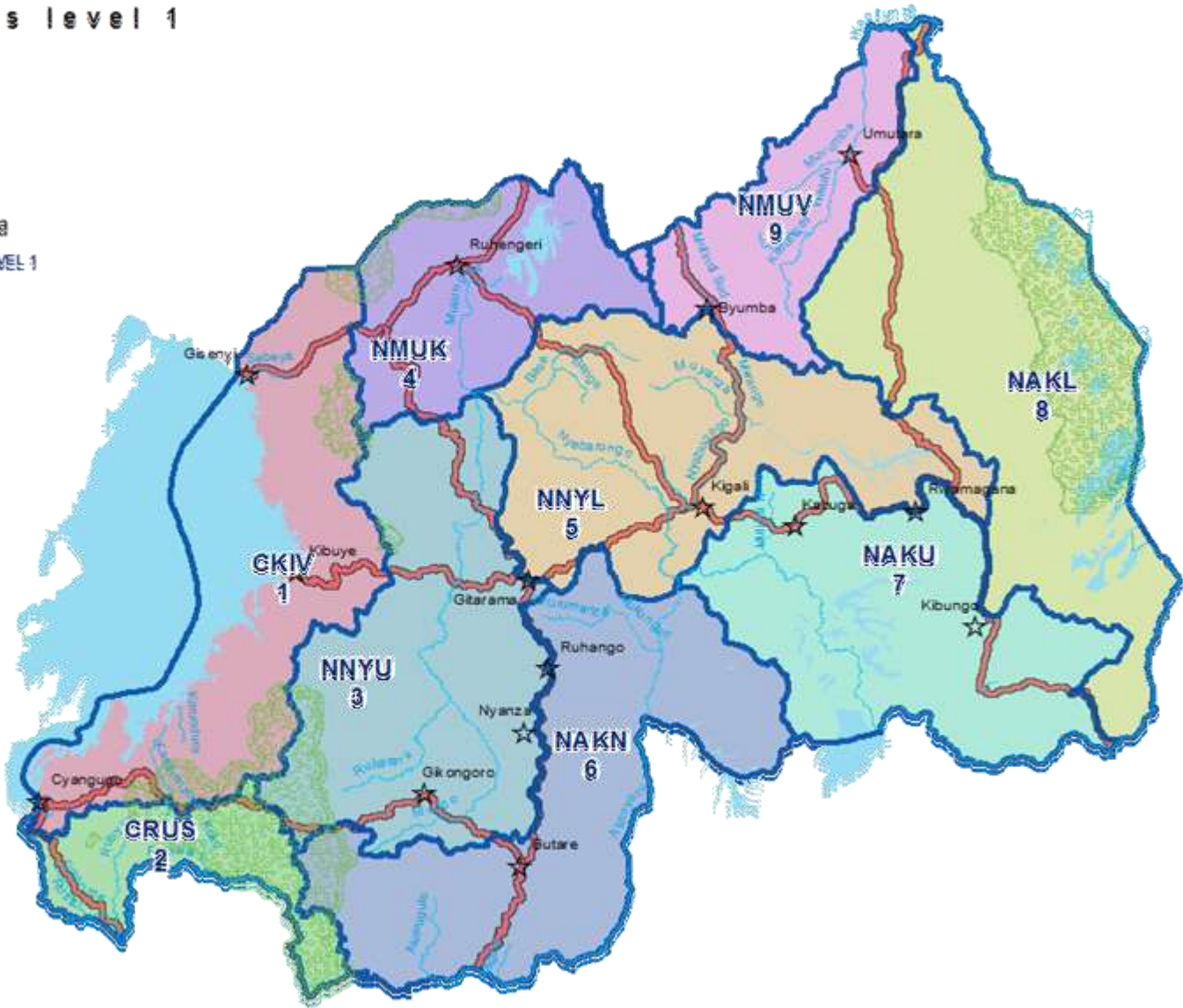
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Catchment division as a basis for water management and monitoring

Catchments level 1

- ☆ City
- National road
- River
- Lake
- Protected area
- CATCHMENT LEVEL 1



Overview of water resources in Rwanda

Parameter	Quantity
Rainfall	27.505 BCM/annum
Total Renewable water resources	6.826 BCM/annum
Ground Water Recharge	4.554BCM/annum
Water availability per capita	504 CM/annum

Water availability by Catchments

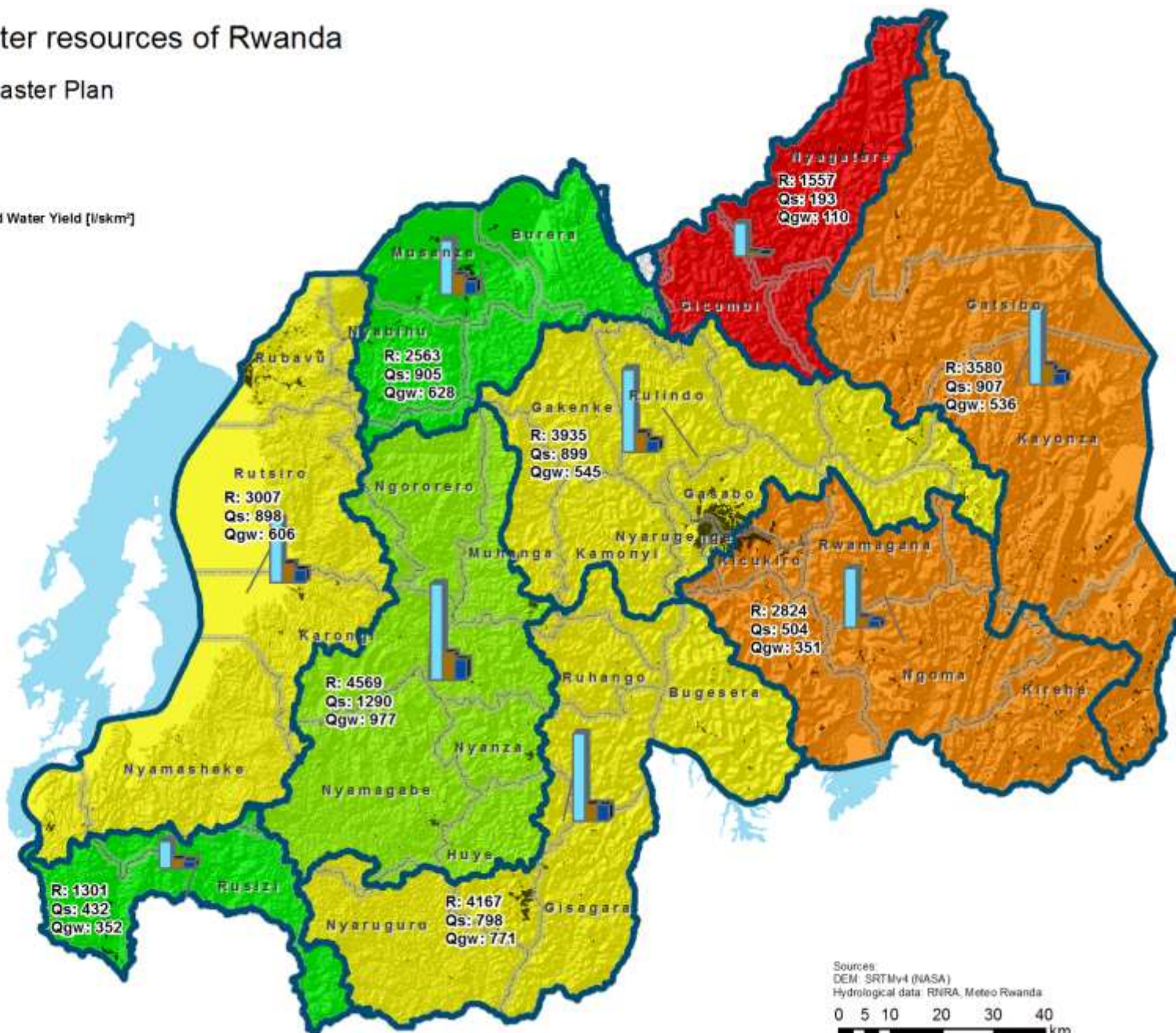
Surface and ground water resources of Rwanda

National Water Resources Master Plan
February 2013

Legend



* Per basin volumes in million cubic meter [Mm³]
 R: Accumulated annual rainfall
 Qs: Accumulated annual surface flow in rivers containing ground water flow (Qgw)
 Qgw: Accumulated annual groundwater flow generated by recharge



Sources:
 DEM: SRTMv4 (NASA)
 Hydrological data: RNRA, Météo Rwanda



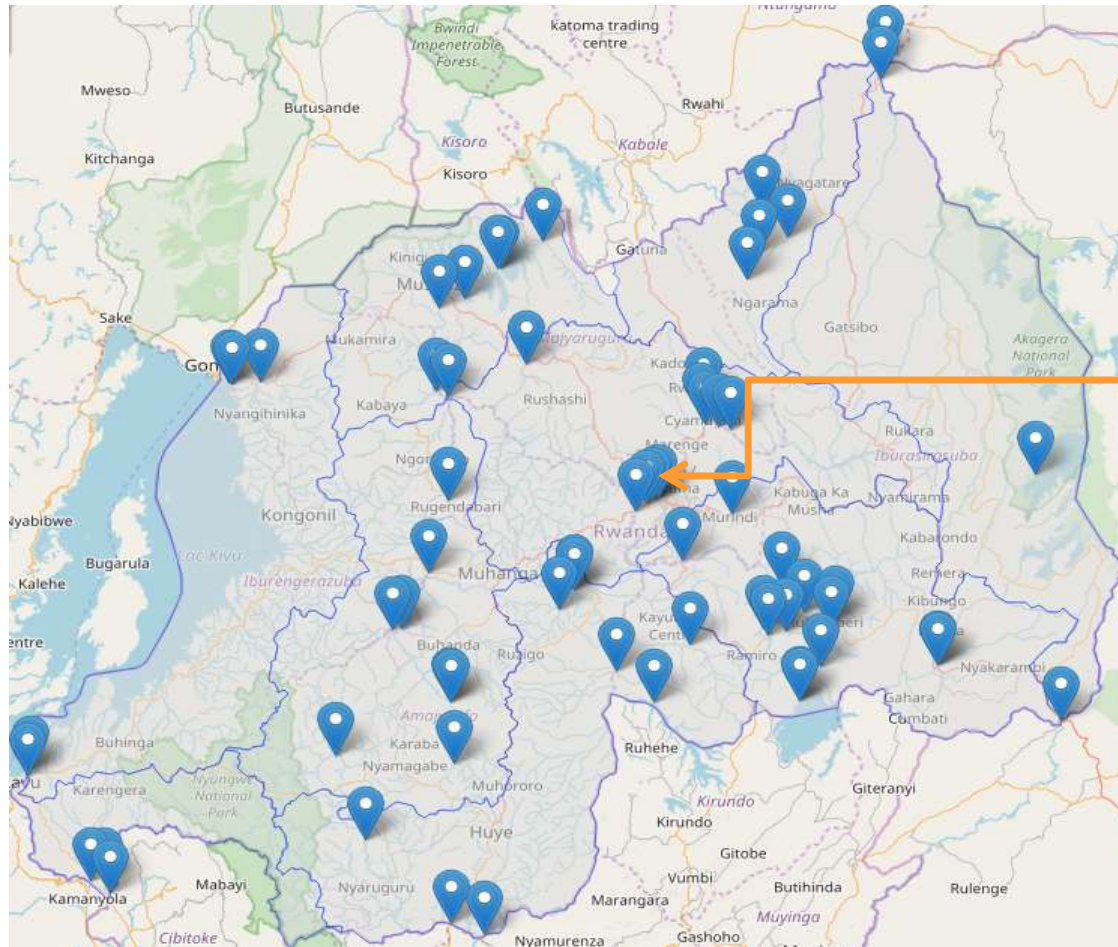
Water availability by Catchments

No	Catchment	Area(Km2)	Renew resources('000 m3)
1	Kivu	2,180	898,000
2	Rusizi	1,004	432,000
3	Nyabarongo upstream	3,162	1,290,000
4	Mukungwa	1,586	905,000
5	Nyabarongo downstream	3,269	899,000
6	Akanyaru	3,265	789,000
7	Akagera upstream	2,939	504,000
8	Akagera downstream	3,223	907,000
9	Muvumba	1,587	193,000

Water availability at main rivers

- In the Nile Basin, average flows at the main hydrological stations are **78m³/s** (at the bridge of the Nyabarongo on Butare-Kigali road), **18.6 m³/s** (at the bridge of the Akanyaru-Road Butare-Ngozi), **100 m³/s** (at Akagera-Kanzenze), **232 m³/s** (at Akagera-Rusumo) and **256 m³/s** (at Akagera-Kagitumba).
- Within the Congo Basin, average flows are **2.7 m³/s** and **2.4 m³/s** at Ruhwa in Bugarama and at Sebeya River in Nyundo, respectively.

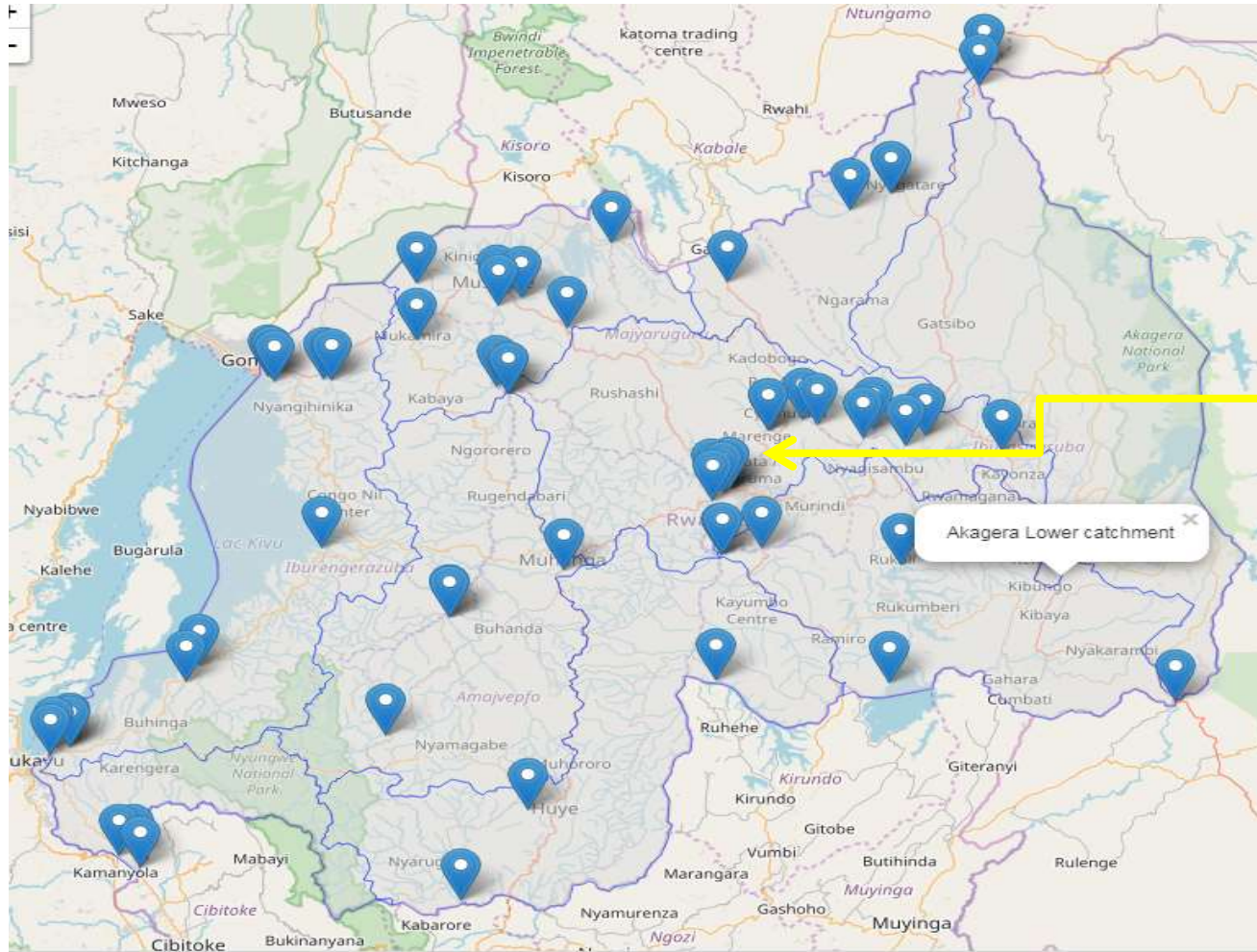
Water Quantity Network In Rwanda



**River Gauging
Stations**

- Water resources monitoring networks are capturing hydrological data from rivers and lakes (Discharge, Water level fluctuation, water velocity)
- Lake Kivu, Bulera and Mugesera lakes and other small lakes in eastern province

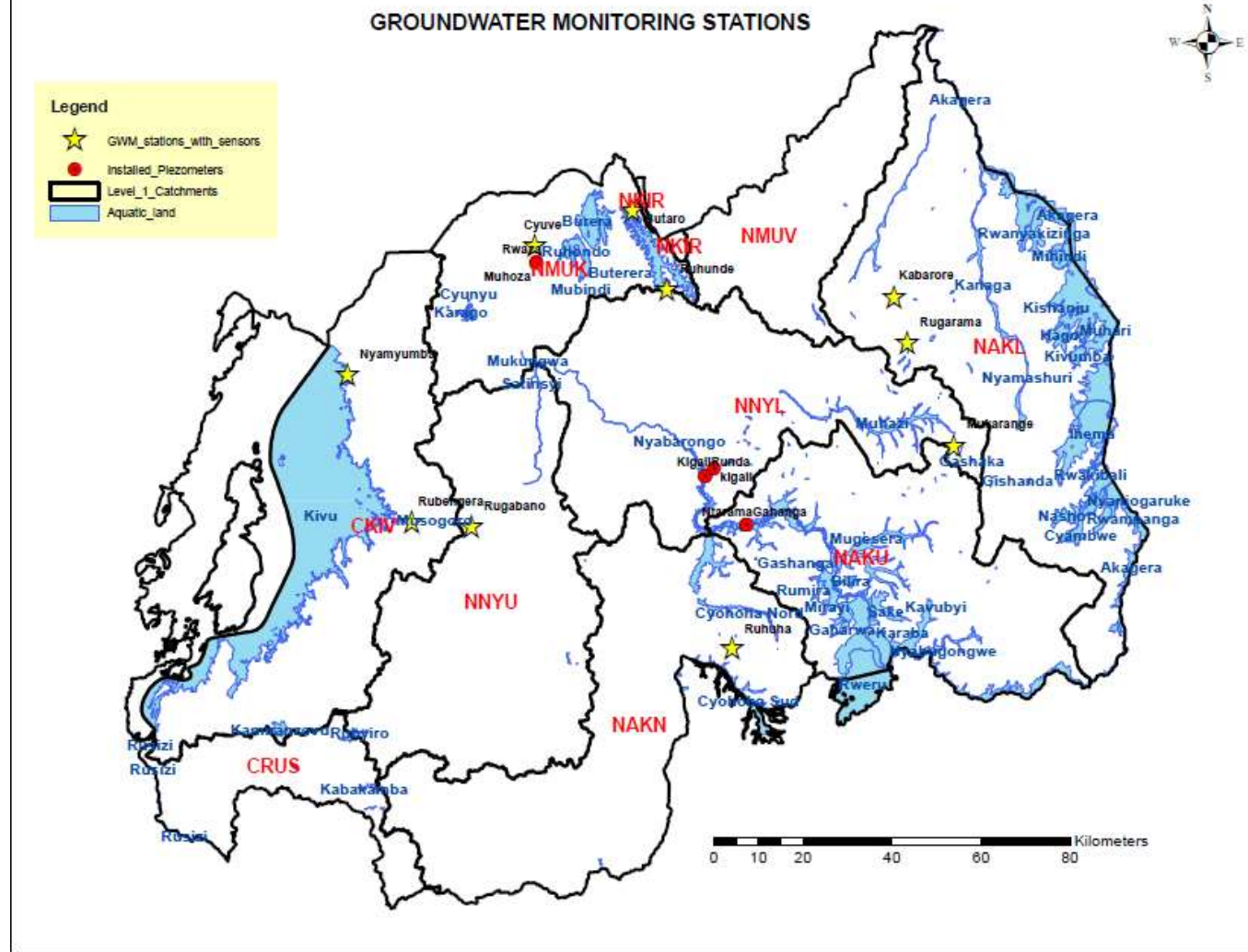
Water Quality Network In Rwanda



**Water Quality
Stations**

- Water resources monitoring networks are capturing water quality data from rivers and lakes and groundwater.

Groundwater monitoring stations



Groundwater monitoring networks are capturing water table to assess valuation of groundwater table
Groundwater monitoring has been started recently

Data Collection (Manual)



- Water levels on rivers and lakes are recorded three times a day (8h, 12h, 17h). Each station is managed by hydrological observer
- Discharges measurements on rivers are done by using ADCP, Current meter equipment, Dilution method ;
- 41 different hydrometric stations; 10 on lakes and 31 on rivers (8 automatic using AWLR providing data at 15 min frequency; however, there is ongoing rehabilitation of some stations as well as new stations

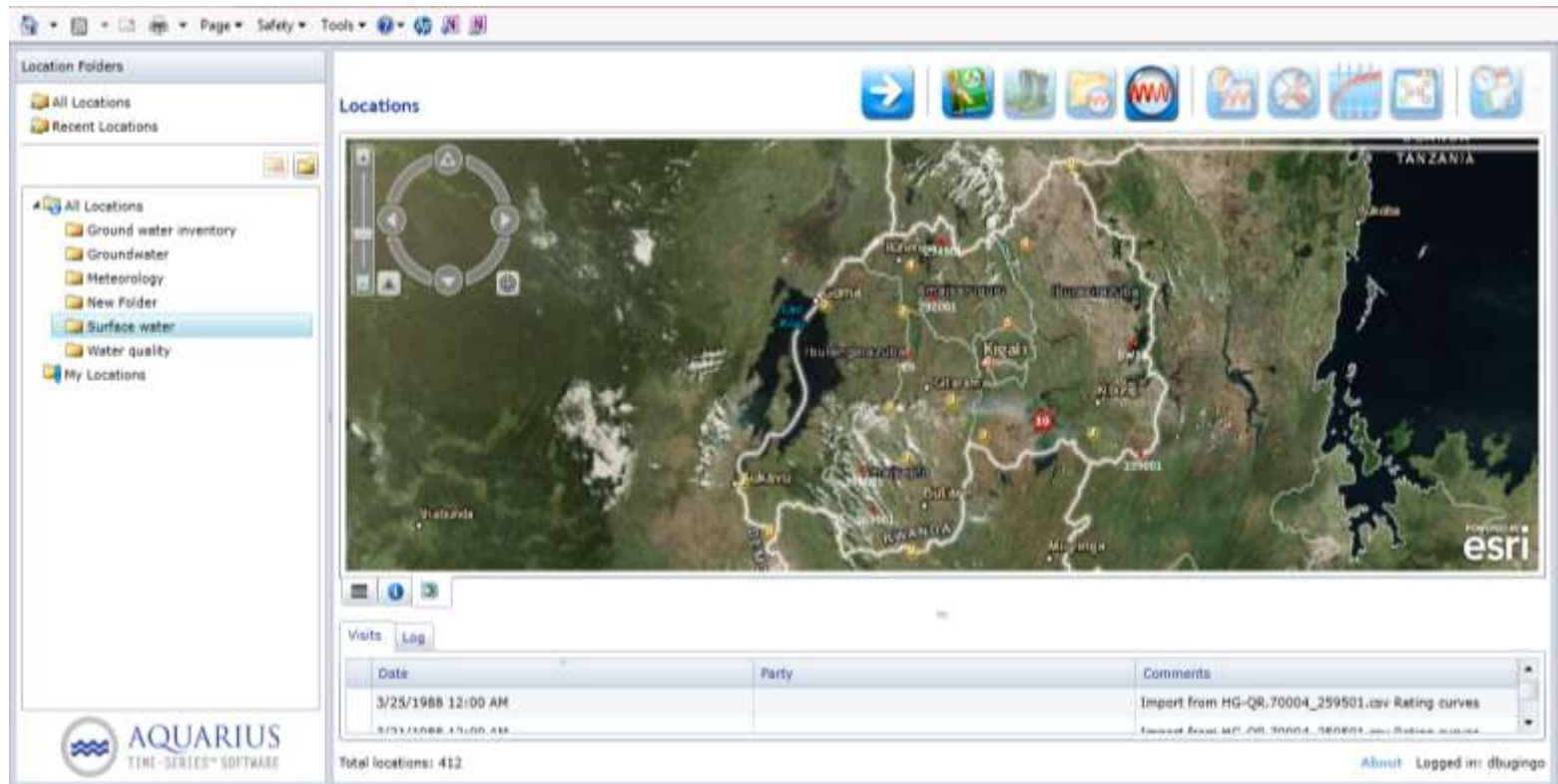
Data Collection/Telemetry)



8 automatic using AWLR providing data at 1 hour frequency;

Advantages; Improved safety for personnel, Reduced equipment loss due to flood events or exposure to harsh environments and Reduced maintenance costs

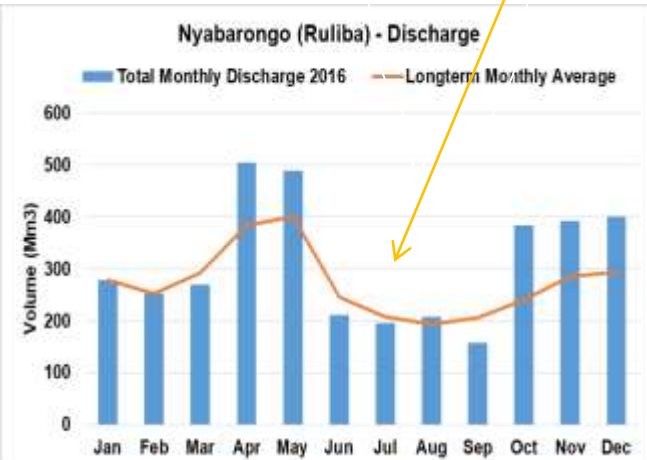
Water Resources Data Dissemination



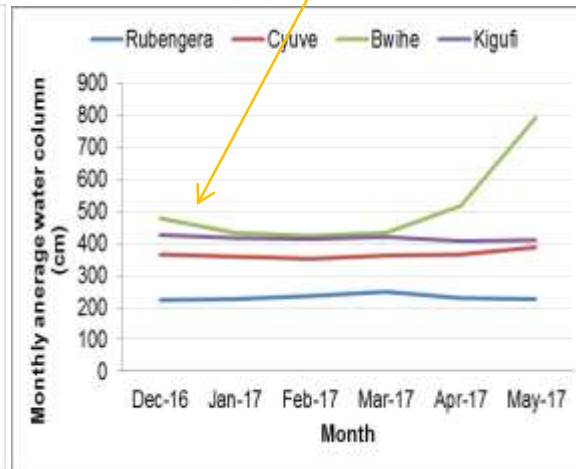
- Data stored in database are processed to produce information;
- Data are shared free of charge to consultants, NGOs, Government institutions, students and researchers upon request.

Water Resources Data Dissemination

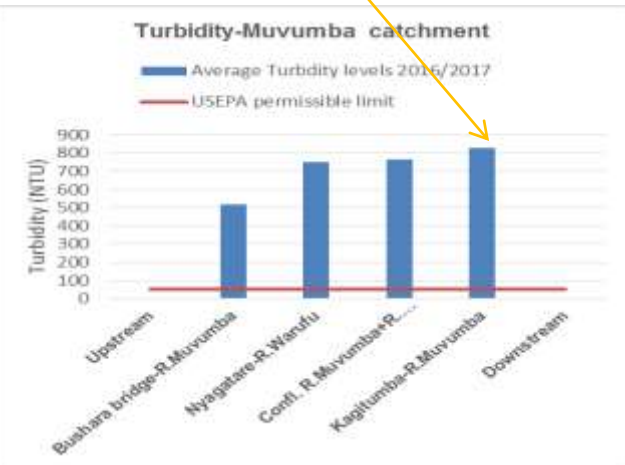
Water Quantity



Ground Water



Water Quality



- The information (report) is generated on yearly basis;
- The hydrological bulletin is published on yearly basis and shared to water users and stakeholders
- Plan for seasonal report; to be published also to media;

THANK YOU