



Komati River Basin Project

Flow monitoring of river flow in and out of the Maguga Dam/Swaziland and the Driekoppies Dam/ South Africa with OTT ecoLog800 / OTT ecoLog500 / Hydras 3



Background

Komati River Basin Water Authority (KOBWA) was established in 1993 with the purpose of implementing the first phase of the Komati River Basin Development Project. It comprised the design, construction, operation and maintenance of the Driekoppies Dam in South Africa and the Maguga Dam in Swaziland. The purpose of the project is to assure water availability in order to promote economic development, so the tasks are

- Evaluating the hydrology of the Komati Basin to determine water availability
- Developing and implementing decision support systems to optimize water allocation/supply
- Facilitating communication between KOBWA and stakeholders on system operation



Task

OTT's part of the project was to supply dataloggers for the monitoring of the river flows into and out of the Maguga and the Driekoppies dams.

The technical needs were high-level:

- Technology designed specifically for environmental monitoring applications
- Robust in construction for long-term deployment
- Long-life internal power source
- Small installation footprint
- Easy to install and maintain
- Remote data transmission capabilities; GSM or satellite
- Software system that is compatible with customer's IT infrastructure
- Flexible data management and data handling.



Monitoring Solution

The remote monitoring system was designed with the following **hardware components and functions**:

- 9 ecolog800 units and 2 ecoLog500 units were deployed at flow measuring points within the KOBWA water management area. All equipment was installed at existing weir sites in South Africa and Swaziland with the rivers crossing borders of both countries
- Parameters are recorded at 15 min intervals and reported 4-hourly via GSM/GPRS using FTP transfer to a secure server hosted by OTT.
- The ecoLog units had to be specially modified to allow for installation in pipes. The vented cables had to be cut, pulled into the cable pipes and then specially prepared and joined in housings specified by OTT Hydromet in Kempten.



The following parameters were selected:

- Water Level
- Conductivity (with Salinity and TDS derived)
- Water temperature
- Internal battery voltage (configurable option)
- GSM signal strength (configurable option)

The remote monitoring system was designed with the following **software components and functions**:

- OTT Hydras3 + RX software was installed on a local PC at the KOBWA offices at Driekoppies Dam, Schoemansdal, Mpumalanga Province, South Africa.

- Data is retrieved via an internet connection using FTP format and the database is populated automatically
- Hydras3 software provides graphical interface and data export functions into other formats (text, Excel).

Summary/Outlook

For a successful implementation of this project the customer KOBWA and OTT South Africa cooperated in the way that after the project scope was determined by the customer, OTT was approached to select and supply the suitable products after an open tender was won by OTT Southern Africa in December 2012. OTT did the site preparation and installation, as well as the commissioning, setup of the database and its configuration. OTT will further support the customer with the database management and (on a three year contract) carry out the system maintenance.

Thanks to the OTT Hydras3 +RX software the post process data handling will be comfortable for the customer



...and there is further potential to the project...

The customer has expressed the following needs for further developments and expansion of the system:

- Development of the system to allow for direct integration of the remote data into the customer's GIS system, bypassing the need for the local PC based software (in development phase)
- Inclusion of existing and new remote, automatic weather monitoring stations into the system
- Upgrading of defunct dam wall monitoring system
- Supply of current meters and water quality instruments

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