TSALANO BUSINESS SOLUTIONS

"Innovative ICT Solutions Through Creativity"

RAPID ANALYZER TRAINING MANUAL

Prepared by
TSALANO BUSINESS SOLUTIONS

PREAMBLE

Rapid Analyzer is a Water Telemetry Solution that helps in management of water resources as well as providing in-depth analysis on how water is used/consumed within the municipality.

Rapid Analyzer provides detailed reports that are easy to read and understand, it provides powerful graphs and visuals for easy data interpretation and analysis.

INDEX

1. ACCESSING THE SYSTEM

To access the system, the user needs to open his internet browser and type in the provided URL. The user will be required to supply their username and password for authentication.

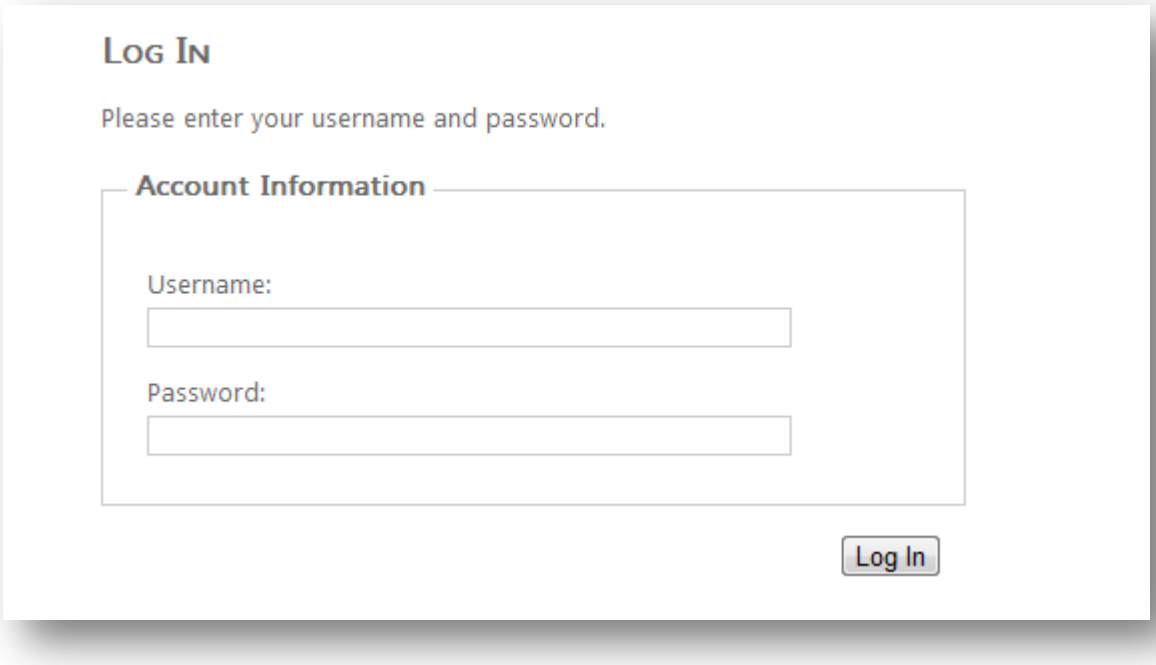


Fig 1. Login Screen

NB:

- Password is case sensitive.

Upon a successful login, The user will be redirected to the system dashboard (see Fig 2). This interface gives the user real-time information represented by gauges for all reservoirs and towers.

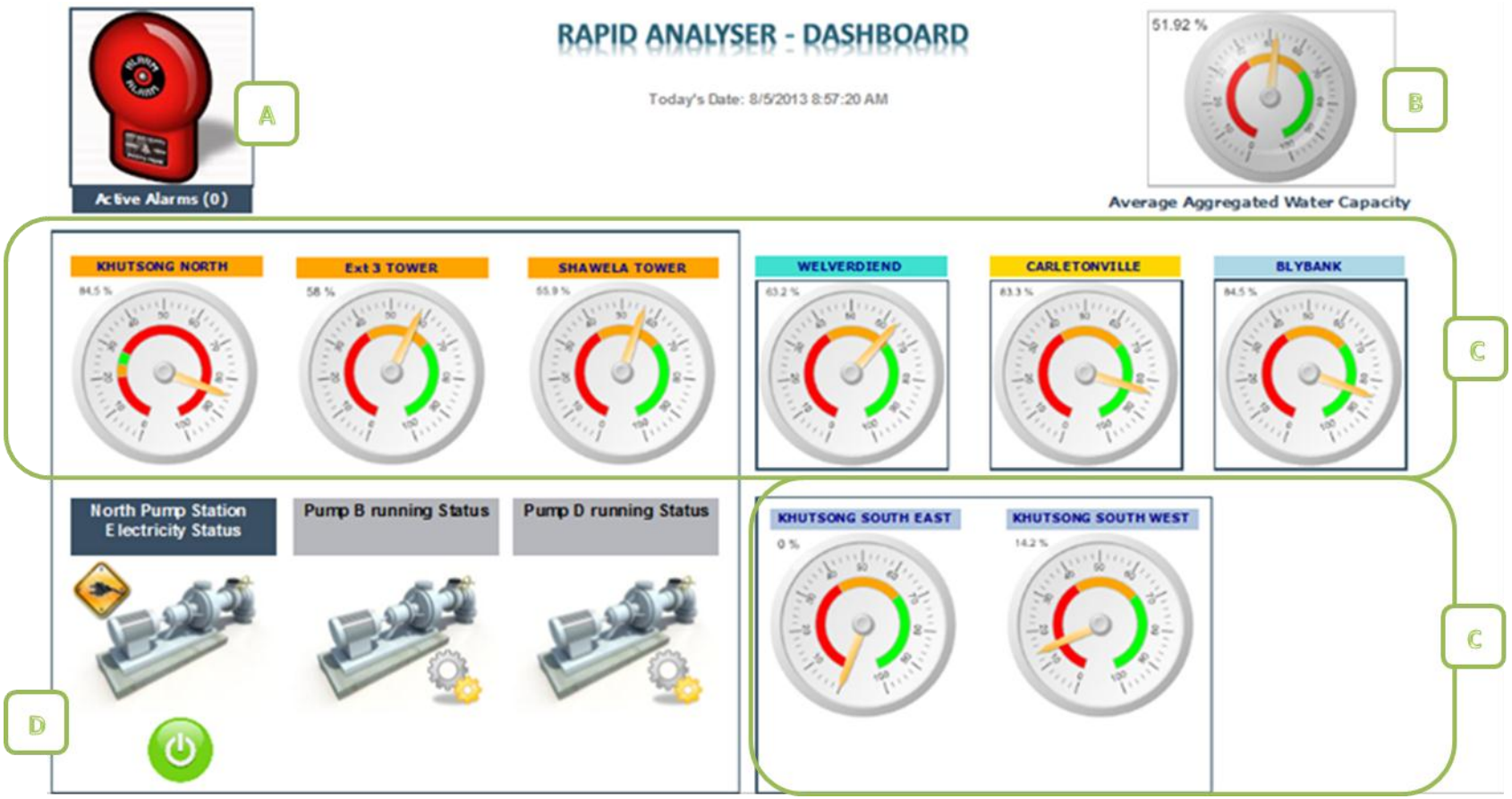


Fig 2. Main Dashboard

A	Shows total alarms for the day collated from all sites, both overflow alarms and below reserve alarms, click on the alarm icon to get more details
B	This gauge gives an aggregated water capacity within the entire municipality
C	The gauges shows water level at each reservoir or tower, click on each gauge to open associated dashboard that will provide more details, **Fig 3**
D	This area provides electricity status at the pump station as well as pump running status, red icon means no electricity or pump is not running, green mean electricity is available or the pump is running

Area "**C**" is a HOTSPOT area, as you move your cursor over the dials/gauges you will realise that it changes from "Arrow" icon to a hand icon, indicating that you can click to open a detailed report. E.g clicking on Khutsong North Dials will lead you to an associated dashboard similar to Fig 3 below.

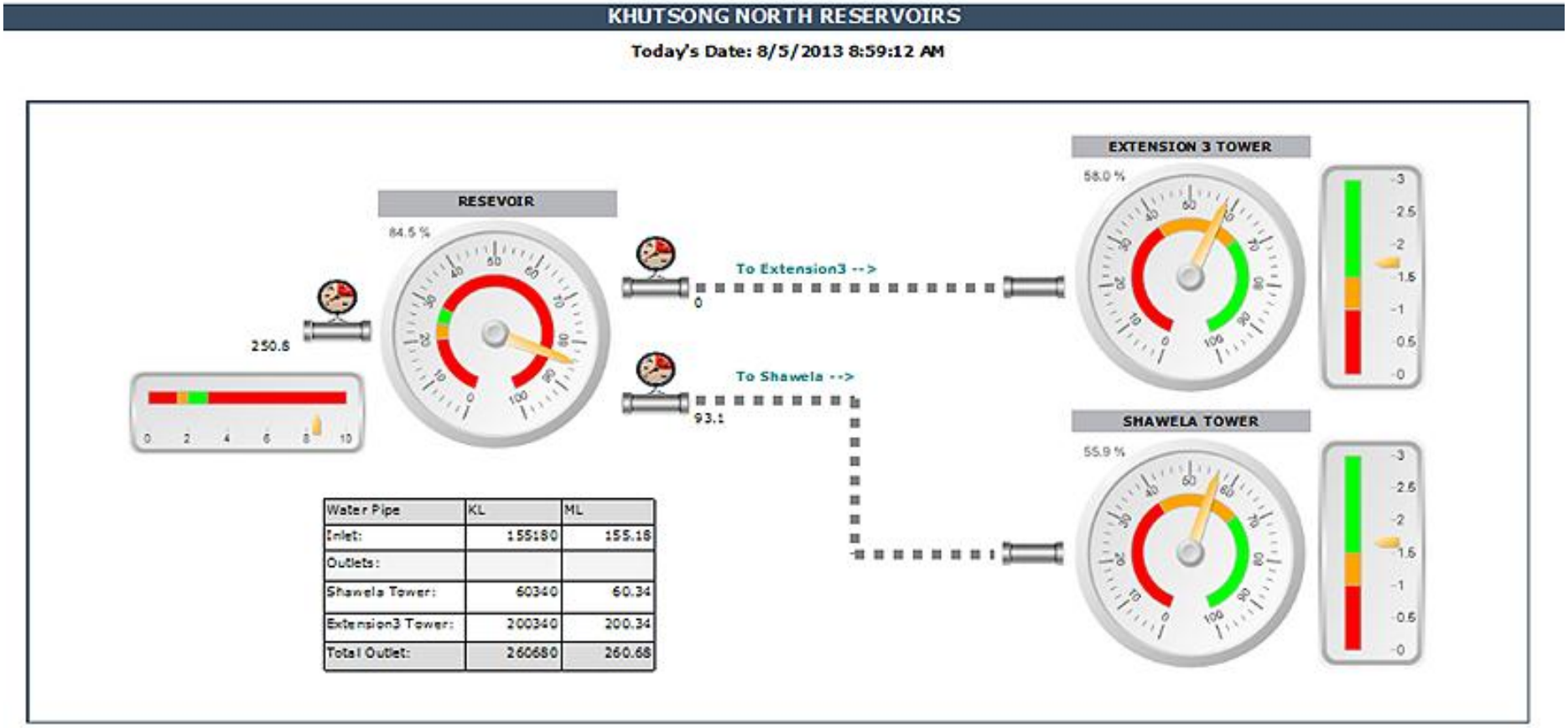


Fig 3. Associated Dashboard

2. MAIN NAVIGATION MENUS

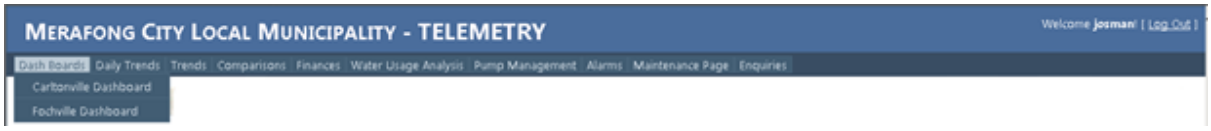


Fig 4. System Menu

The system navigation menu (Fig 4.) is located on the top bar of the website just underneath the website title.

Every user can only navigate to pages where they are given rights to by the system administrator. These rights are assigned by the system administrator. Only the system administrator can amend user details, this is so to ensure the integrity of the system.

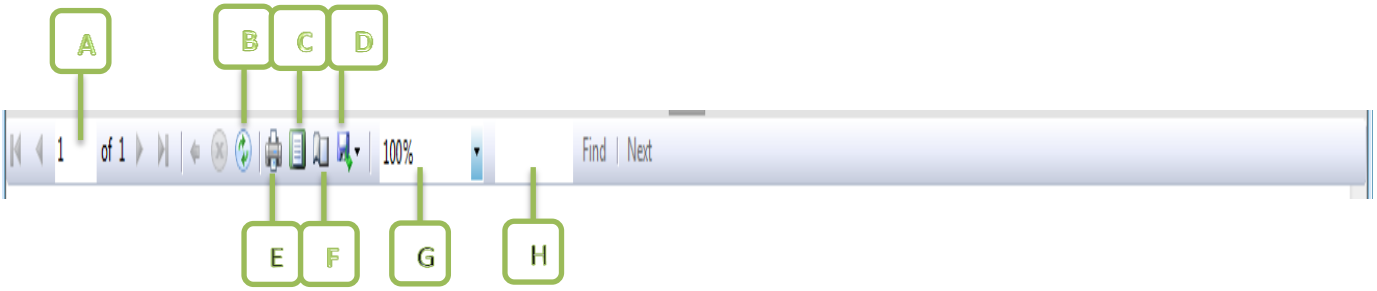


Fig 5. Standard Report Tool Bar Menu

Standard Report Tool Bar Menu appears on every report, it is located above the main report content area and can be identified by icons indicated in Fig 5 above.

Code	Description
A	Number of pages contained within the report, click on left/right arrows to go advance pages
B	Refresh Button, Click refresh button to refresh data on the report
C	Print Layout
D	Save button, The save allows you to save the report in various formats such as Word, Excel, PDF etc, click on the save button, you will be presented with a drop down of various formats which you would then select your format, and you will then choose where you would like your report saved.
E	Print button
F	Page Setup, allows you to select the layout of your report i.e landscape or portrait
G	Zoom
H	Search Text, type in your search string in the text box to look for appearance of your keywords within the report, once they are found they will be highlighted, click next to go to the next keyword.

3. FUNCTIONALITY

3.1 DAILY TRENDS

The System provides trends analysis and variables that can be interrogated are:

- Daily trends for consumed, received water and water level
- Monthly Trends for consumed, received water and water level
- Volume trends for consumed and received

Trends helps the user to further comprehend how water is used.

3.1.1 Daily Level Trends

Fig 6. Trends Analysis Menu

Click ***Daily Trends >>Level Trends*** to open daily trends screen.

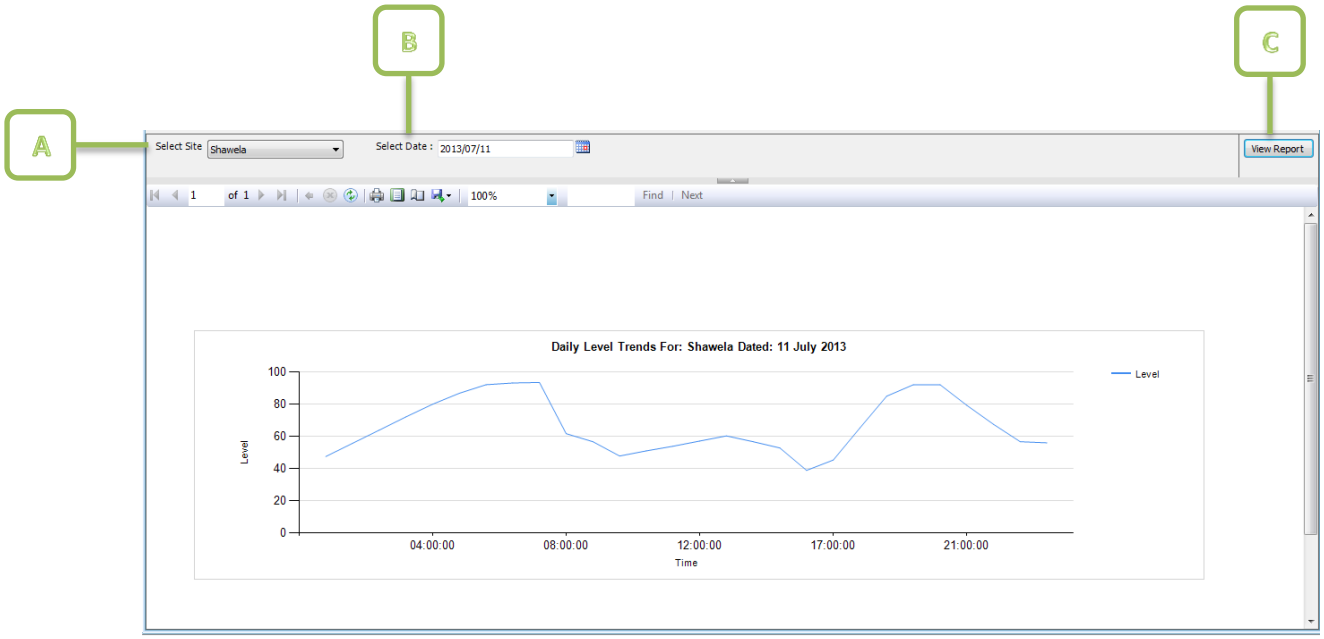


Fig 7. Daily Level Trends

To view water level trends of a particular site, select site from drop down indicated "**A**", and choose date indicated "**B**" then click "View Report" indicated "**C**".

3.1.2 Volume Trends: Received/Consumed

Fig 8. Trends Analysis Menu

Click ***Daily Trends >>Volume Trends – Received or Consumed*** to open Volume trends screen.

Volume trends indicate the amount of water consumed/received at varying intervals and providing totals in Kilolitres per chosen site.

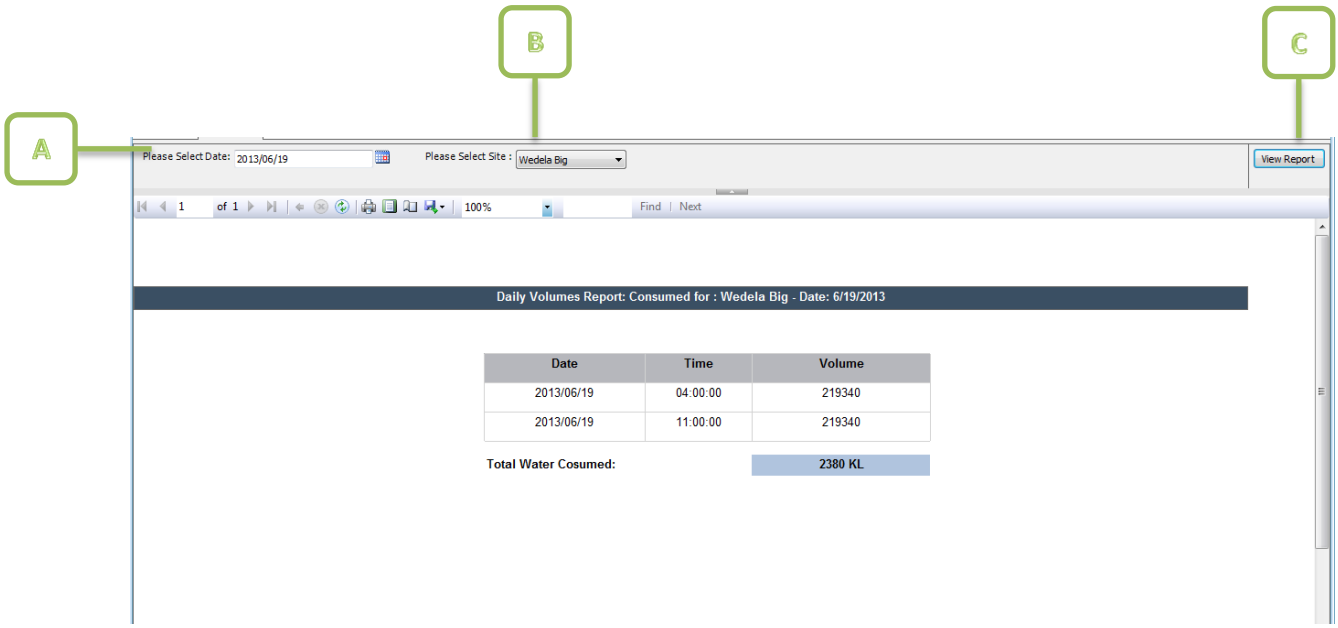


Fig 9. Daily Volume Trends: Consumed/Received

To view daily volume trends of a particular site, select site from drop down indicated "**B**", and choose date indicated "**A**" then click "View Report" indicated "**C**".

3.2 TRENDS

This will allow you to view monthly trends as well as water flow rate trends per reservoir.

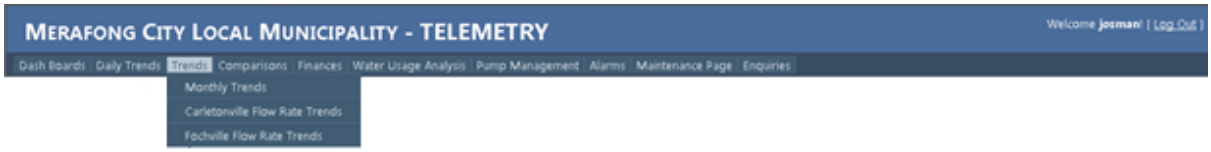


Fig 10. Monthly Trends

Click ***Trends >>Monthly Trends*** to open monthly trends screen.

3.2.1 Monthly Trends

Four types of reports can be generated from this page. A user needs to select from which reservoir/tower ("**C**", **Fig 11**) to generate reports against. Then the user can select one of the following reports to generate:

- **Consumed Water**: by selecting the 'Consumed Water' from "select trend" drop down box ("**A**", **Fig 11**) . Click "View Report" ("**D**", **Fig 11**) to view overall report on water consumption on a selected reservoir for the selected month ("**B**", **Fig 11**).
- **Received Water**: This will give a user the overall report on water received from third party water suppliers per reservoir for the selected month.
- **Consumed and Received**: This will give the user a combination of the above two reports with each line on the graph depicted with a different color for the respective consumed and received report criteria parameters.
- **Water Level**: This will give a user the overall water level shifts for the selected reservoir for the selected month.

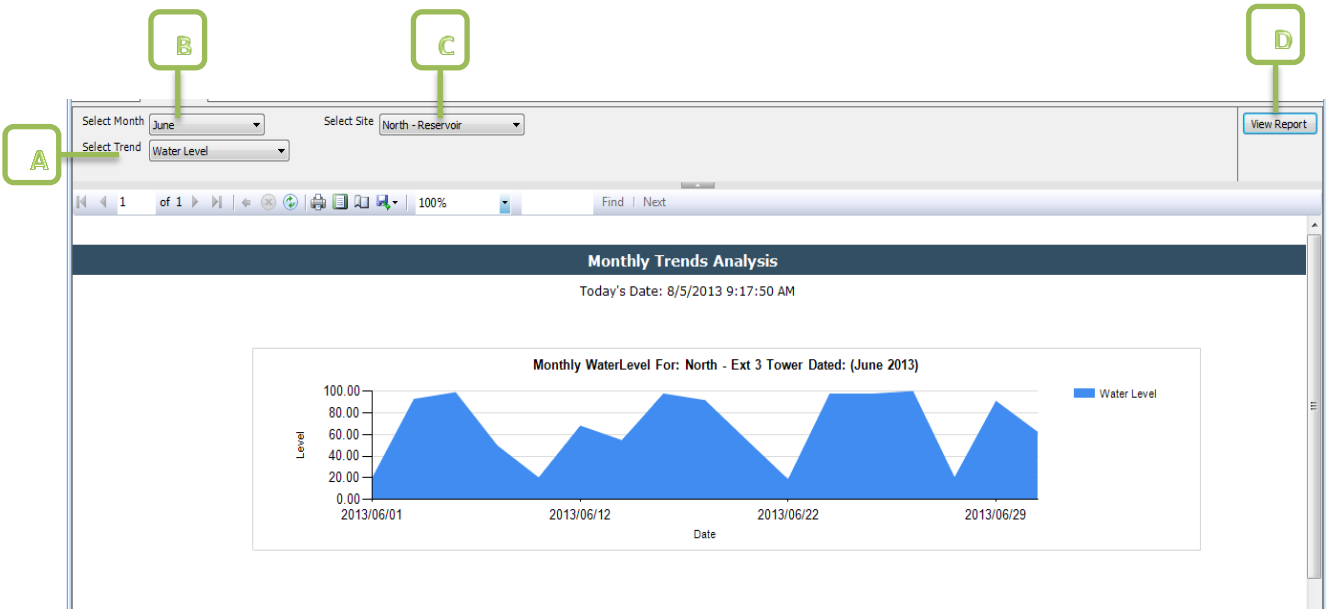
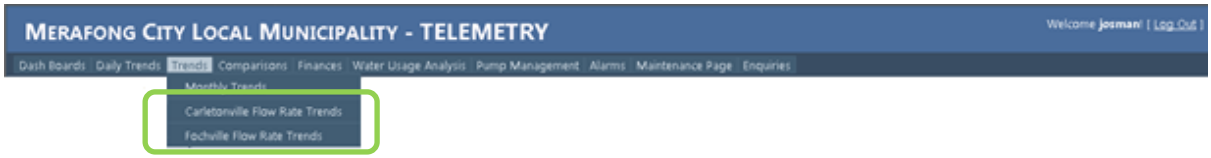


Fig 11. Monthly Trends Analysis

3.2.2 Flow Rate Trends



Click ***Trends >>Carletonville/Fochville Flow Rate Trends*** to open Flow Rate trends screen.

Flow Rate trends provides an analysis for water inflow and outflow rate per reservoir, in simple terms, it helps you understand the rate at which the water has been received or let out of the reservoir, a higher rate or low rate than the norm may signal trouble.

To view flow rate trends for a particular day, select date ("**A**", **Fig 12**) and click View Report ("**B**", **Fig 12**).

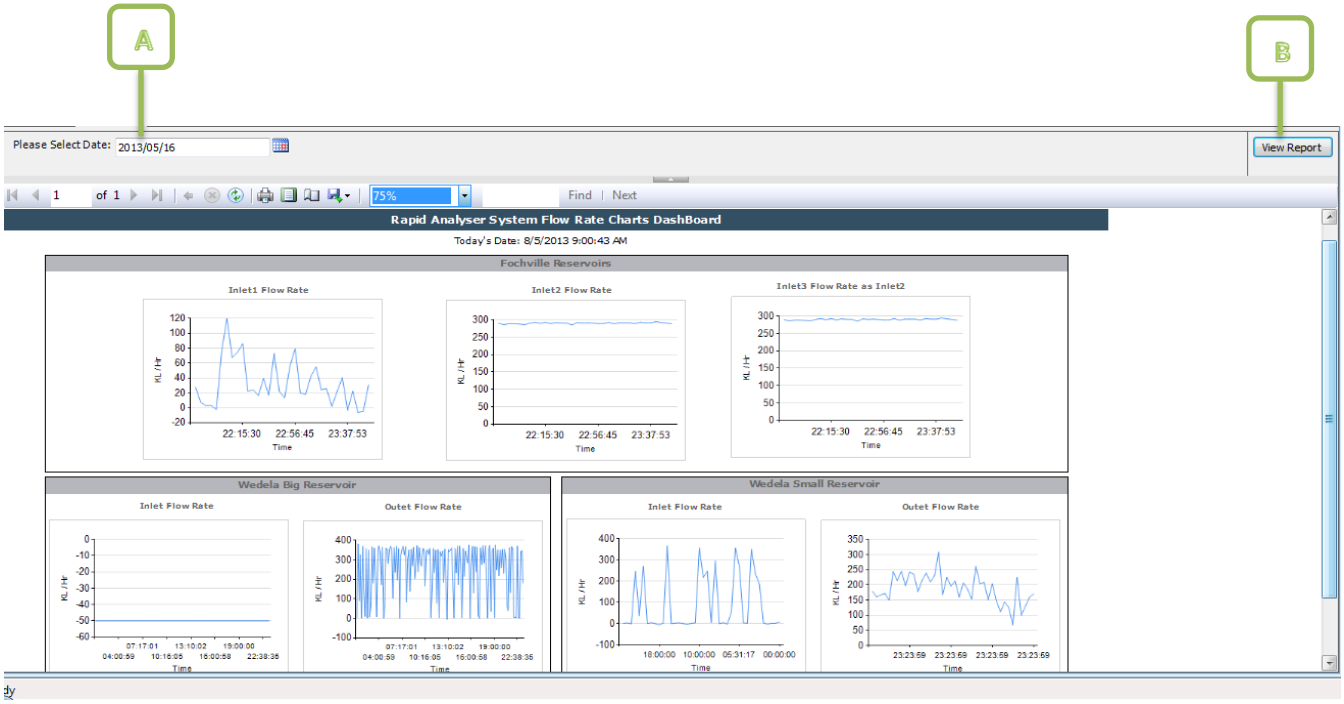


Fig 12. Flow Rate Trends Analysis

3.3 COMPARISONS

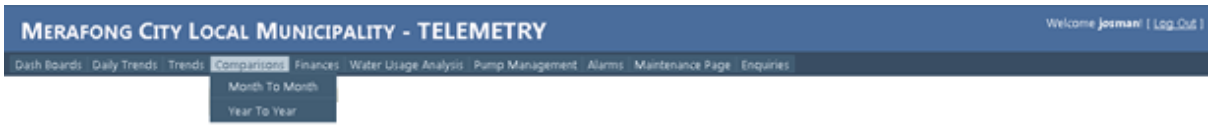


Fig 13. Comparisons

Click ***Comparisons >>Month To Month*** to open Month to Month screen.

This functionality allows a user to compare data/calculate variance across two different dates. The following are provided:

3.3.1 Month To Month Comparison

A comparison on a month to month basis can be performed on the water consumed and water received. Once all variables have been entered then the system will calculate the variance of water user/consumed for the same month of different years.

To calculate variance, Select month ("**B**", **Fig 14**) then Years to compare ("**A**" & "**C**", **Fig 14**) below, Click "View Report" ("**D**", **Fig 14**) to calculate variance and view results.

NB: for the report to work well, the user need to make sure that they choose different years ("**A**" & "**C**", **Fig 14**).

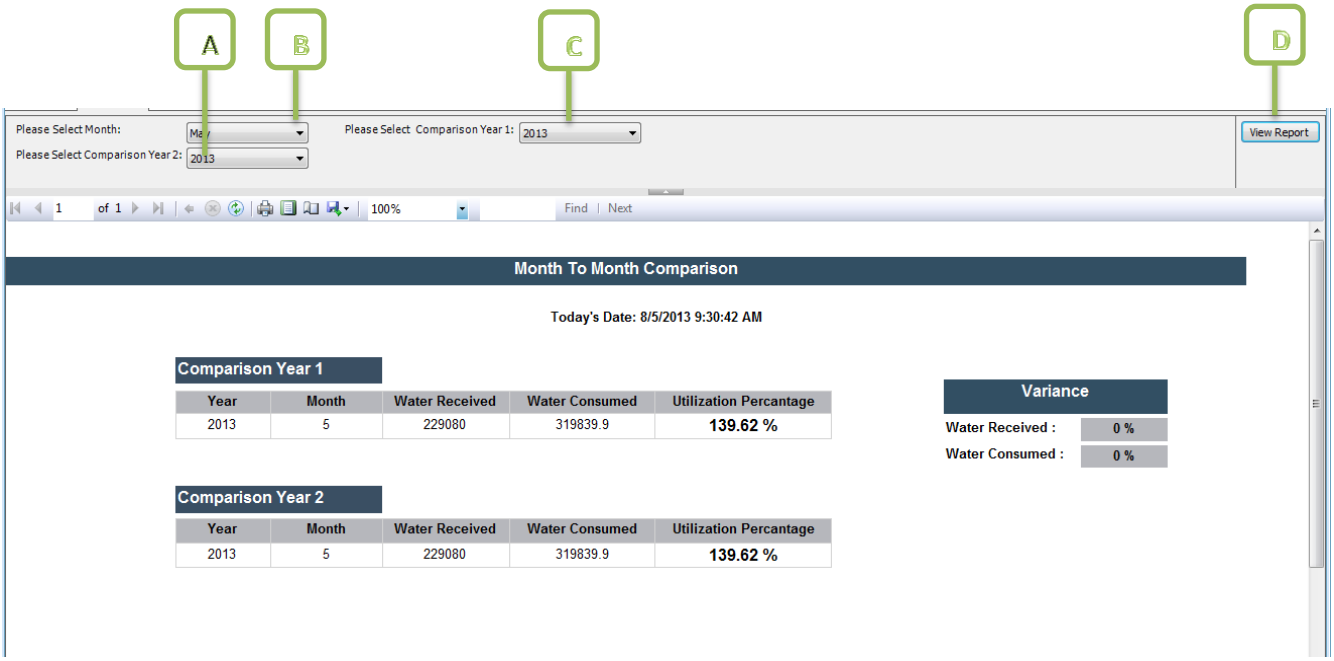


Fig 14. Month to Month Comparisons

3.3.1 Year To Year Comparison

Click ***Comparisons >>Year to Year*** on the navigation menuto open Year to Year screen.

Year to Year comparison works the same as Month to Month comparison, however here we only comparing years only.

Variance will be calculated from January until the current month calendar month, e.g. if current calendar month is June, variance will be calculated from January until June for both comparing years.

To calculate variance for year to year, select years to compare ("**A**" & "**B**", **Fig 15**) below, Click "View Report" ("**C**", **Fig 15**) to calculate variance and view results.

NB: You cannot calculate variance for like years.

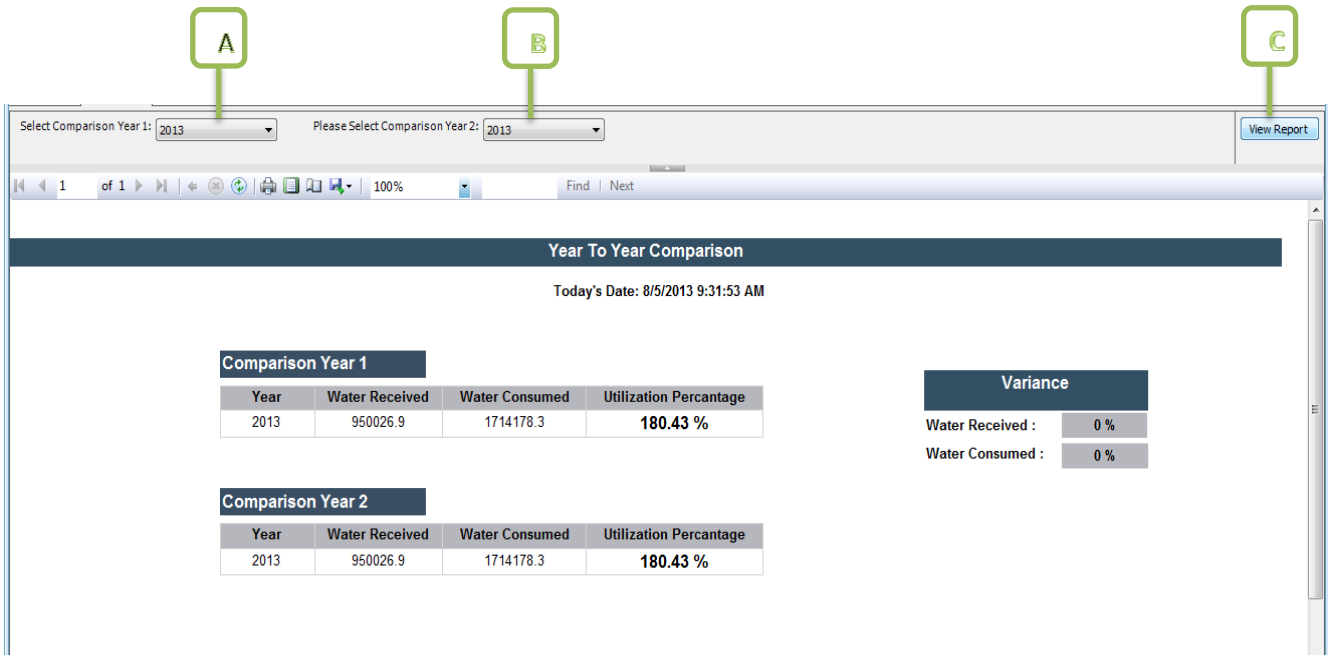


Fig 15. Year to Year Comparison

3.3 FINANCES

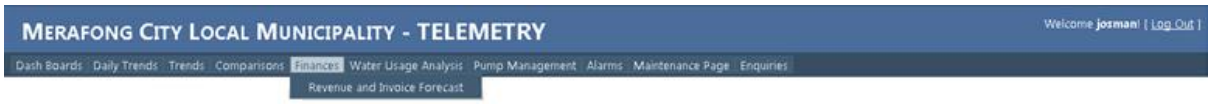


Fig 16. Finances

Click ***Finances>>Revenue and Invoice Forecast*** on the navigation menu to open Finances screen.

Financial reporting is incorporated into System. It provides minimal information relating to water usage both consumption and receivable.

3.3.1 Water Revenue Forecast

This functionality see ("**F**", **Fig 17**) below, allows financial personnel to quickly estimate the amount of revenue expected from the community for the present calendar month.

- water received will be water received from all reservoirs under the user's municipality. This value is a sum of all water received under the present month. Information that comprise this total are recorded in real-time into the Telemetry data store
- Cost Price is the cost in Rands the municipality incurs from third party water supplies for a liter of water
- Selling Price is the selling price in Rands for a liter of water that the municipality charges its customers. This value is configured in the Maintenance section of this system
- Projected revenue is an estimate the municipality expects to receive from the community provided all revenue collections procedures are effective. This figures is computed as follows: take the overall water received from third parties, subtract from that, a percentage of wasted water (this is setup in the maintenance section of the system), again subtract free basic water that the municipality expects to give out to the community, and multiply that by the difference between the cost of a liter and the selling price.

NB: Follow the steps below to calculate Revenue and invoice forecast:

- Enter a numeric number of Households under your municipality, see ("**A**", **Fig 17**) below.
- Enter free basic water allocation per household, see ("**C**", **Fig 17**) below.
- Select Year, see ("**B**", **Fig 17**) below.
- Select Month, see ("**D**", **Fig 17**) below.
- Click "View Report", see ("**E**", **Fig 17**) below.

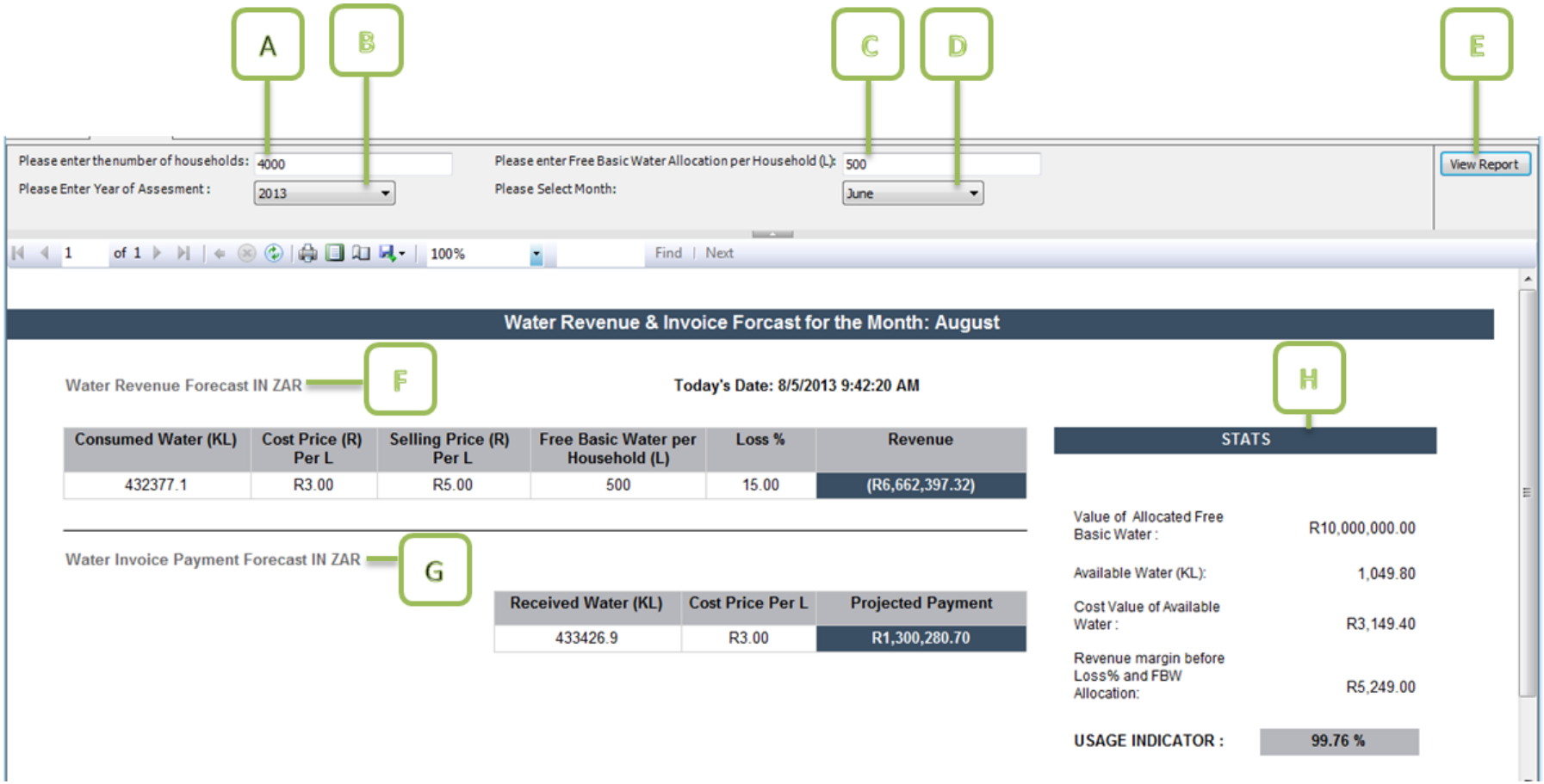


Fig 17. Water Revenue & Invoice Forecast

3.3.2 Water Invoice Payment Forecast

Water Invoice Payment Forecast , see ("**G**", **Fig 17**) above, provides a quick estimate of the amount of money in Rands that the municipality expects to pay to respective water service providers.

3.3.2 Statistics

Statistics, see ("**H**", **Fig 17**) above enhances the report by providing the following information:

- Value of allocated free basic water in Rands
- Value of current available water within all reservoirs in Rands
- Revenue in Rands that can be expected from current available water before "free basic allocation" can be factored in
- Usage Indicator, this calculates in percentage form how much water has been utilized in the entire municipality for the selected date, ("**B**" & "**D**", **Fig 17**) above

3.4 WATER USAGE ANALYSIS

Fig 18. Water Usage Analysis

Water usage analysis provides robust water usage analysis reports to view data in different dimensions, Available reports are as follows:

- Aggregate Received Water
- Aggregate Consumed Water
- Multi Year Received Water
- Multi Year Consumed Water
- Yearly Water Received
- Yearly Water Consumed

3.4.1: Aggregate Received Water

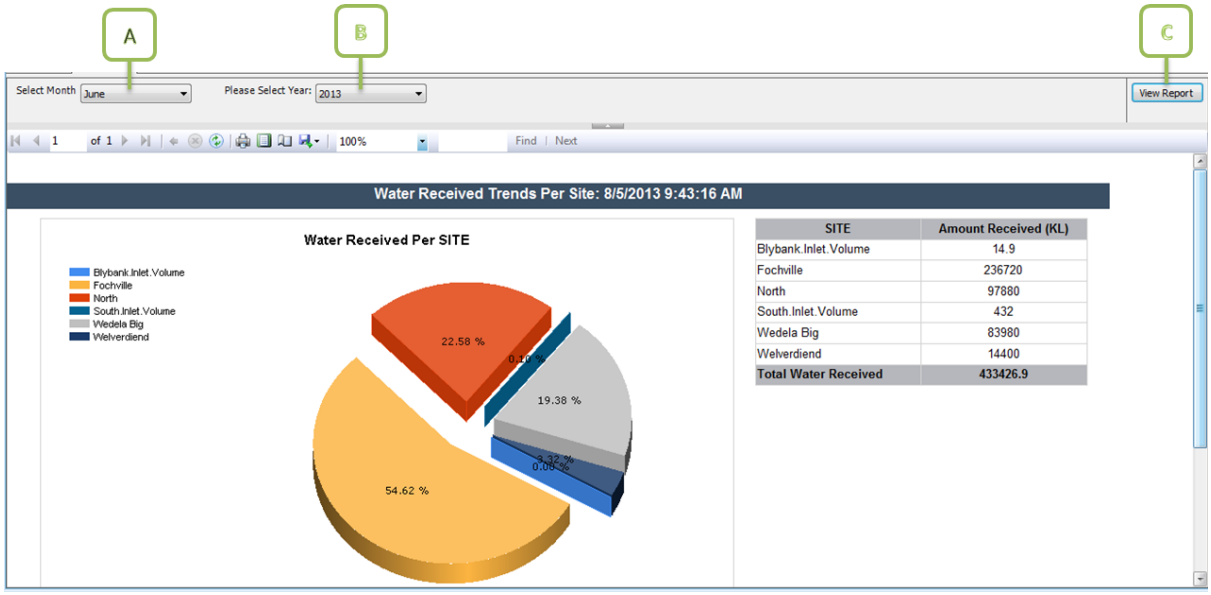


Fig 19. Aggregate Water Received

Aggregate water received shows the amount of water received per site, it illustrates which sites account for much of the water that has been received for a selected month and year see ("**A**" & "**B**", **Fig 19**) above.

The Pie chart shows water received volumes in percentages and the table to the right shows actual volumes in Kilolitres per site and sums up all water received.

3.4.2: Aggregate Consumed Water

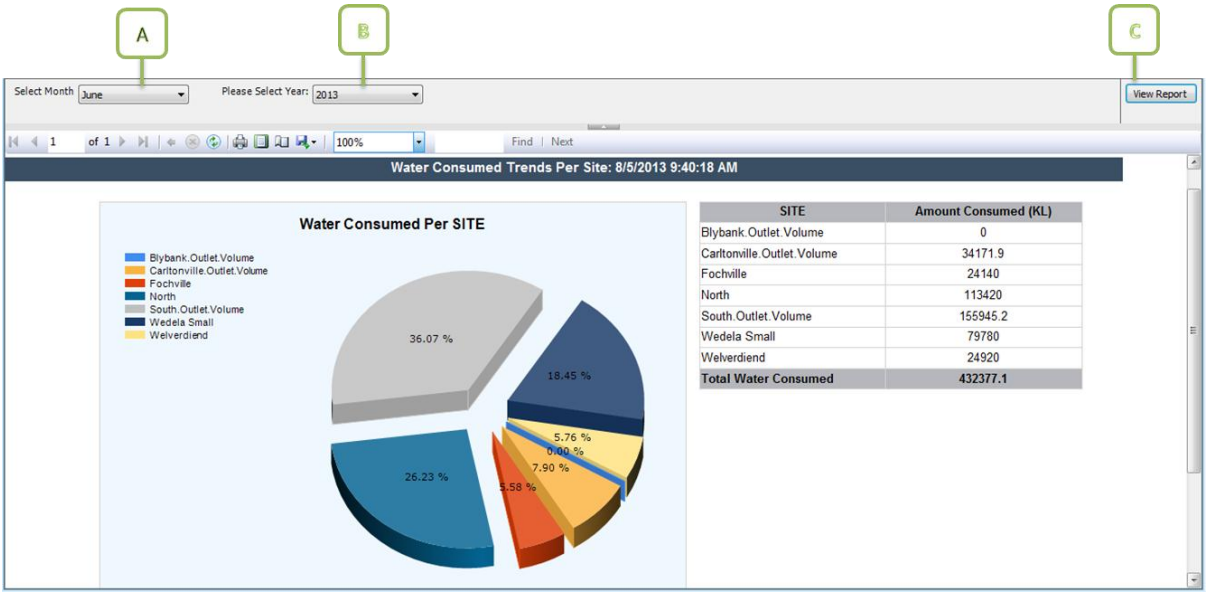


Fig 20. Aggregate Water Consumed

Click ***Water Usage Analysis>>Aggregate Consumed Water*** on the navigation menu to open Water Consumed screen.

Aggregate water consumed shows the amount of water consumed per site, it illustrates which sites account for much of the water that has been consumed for a selected month and year see ("**A**" & "**B**", **Fig 20**) above.

The Pie chart shows water consumed volumes in percentages and the table to the right shows actual volumes in Kilolitres per site and sums up all water consumed.

Click ***Water Usage Analysis>>Aggregate Consumed Water*** on the navigation menu to open Finances screen.

3.4.3: Multiyear Received Trends

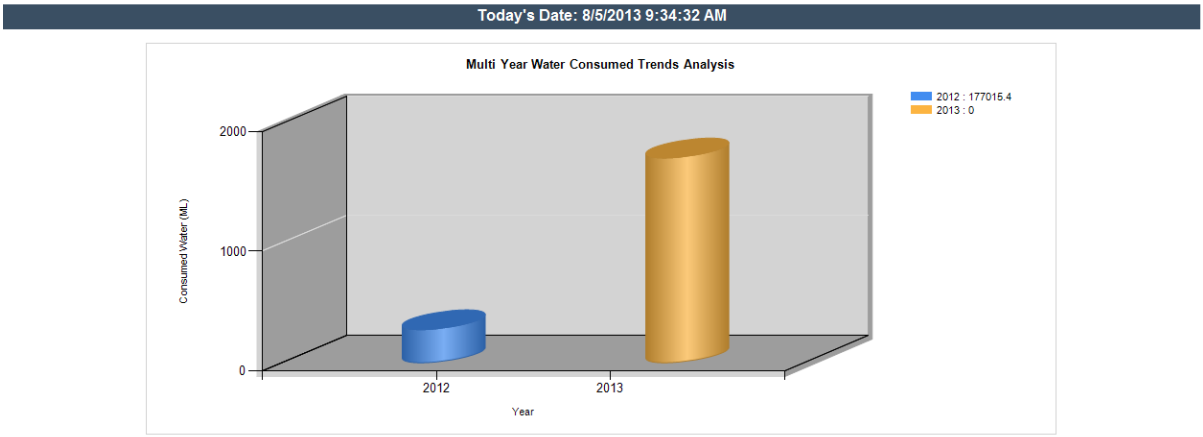


Fig 21. Multi Year Received Trends

Click ***Water Usage Analysis>>Multi Year Received Trends*** on the navigation menu to open the screen.

Multi year received trends provides a totalised amount of water received from all reservoirs per year, the system will show total water received thus far in the current year and three (3) previous years.

This helps to do comparisons and spot the trends over the years to be enable you to understand if water consumption is increasing or decreasing .

3.4.4: Multiyear Consumed Trends

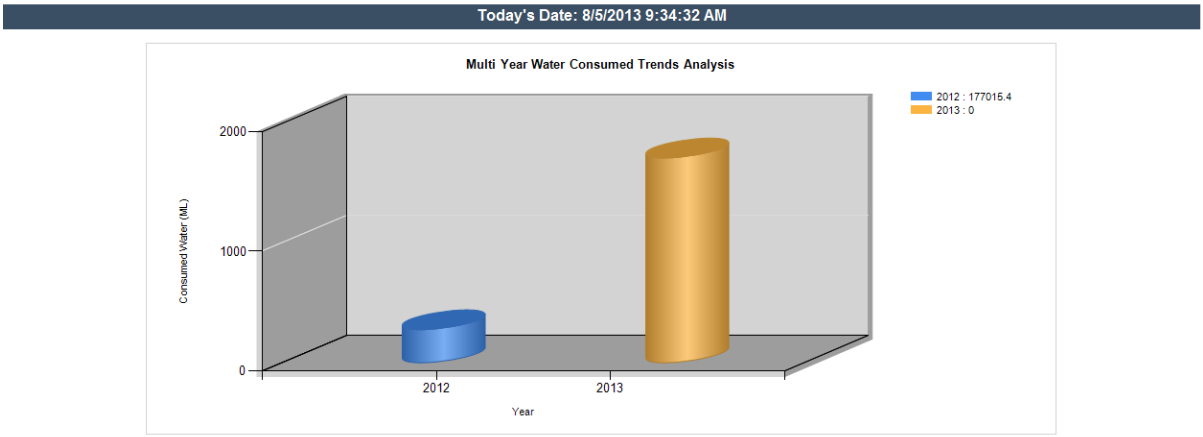


Fig 22. Multi Year Consumed Trends

Click ***Water Usage Analysis>>Multi Year Consumed Trends*** on the navigation menu to open the screen.

Multi year consumed trends provides a totalised amount of water consumed from all reservoirs per year, the system will show total water consumed thus far in the current year and three (3) previous years.

This helps to do comparisons and spot the trends over the years to be enable you to understand if water consumption is increasing or decreasing .

3.4.5: Yearly Water Received

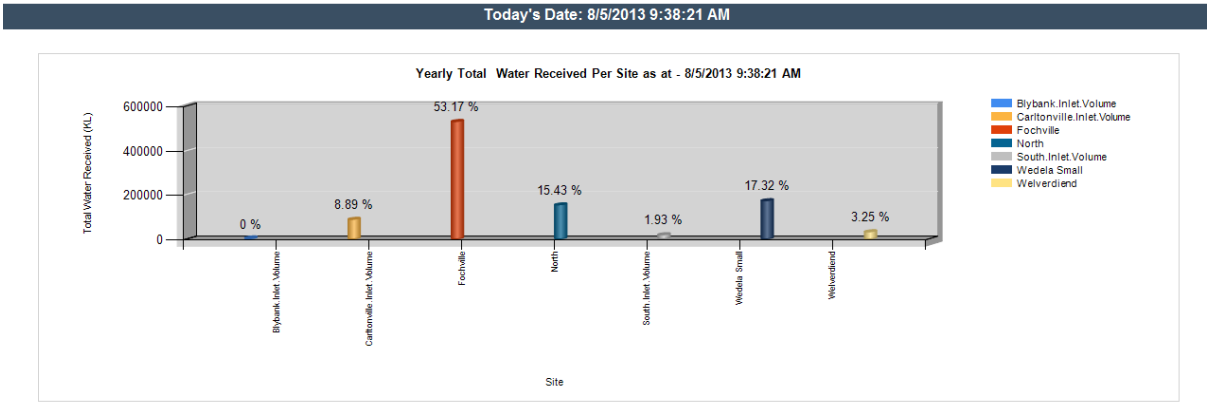


Fig 23. Yearly Water Received

Click ***Water Usage Analysis>>Yearly Water Received*** on the navigation menu to open the screen.

Yearly Water Received graph shows patterns per site for the entire year, it enables you to see which site has received the most water in the entire municipality.

3.4.6: Yearly Water Received

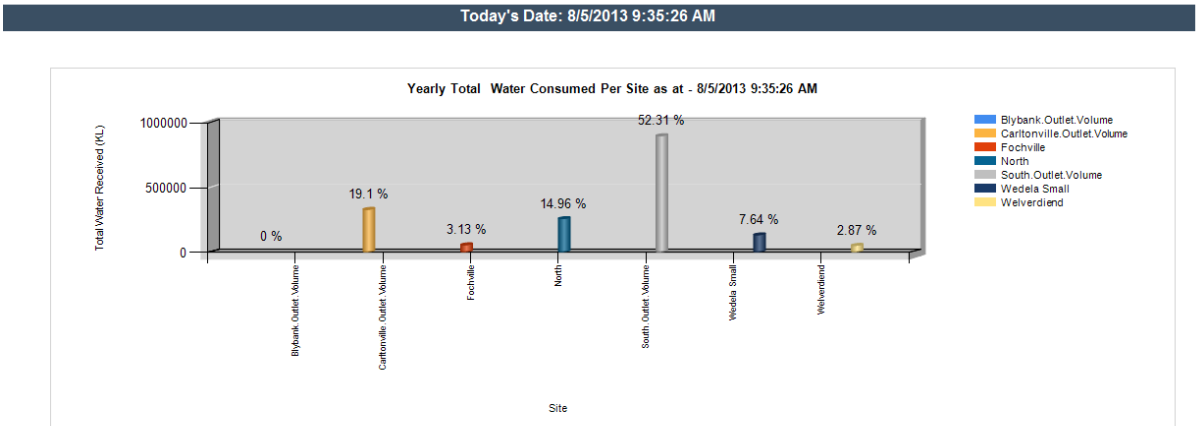


Fig 24. Yearly Water Consumed

Click ***Water Usage Analysis>>Yearly Water Consumed*** on the navigation menu to open the screen.

Yearly Water Consumed graph shows patterns per site for the entire year, it enables you to see which site has consumed the most water in the entire municipality.

3.5 PUMP MANAGEMENT

Fig 25. Pump Management

Click ***Pump Management>>Start/Stop Pump*** on the navigation menu to open the screen.

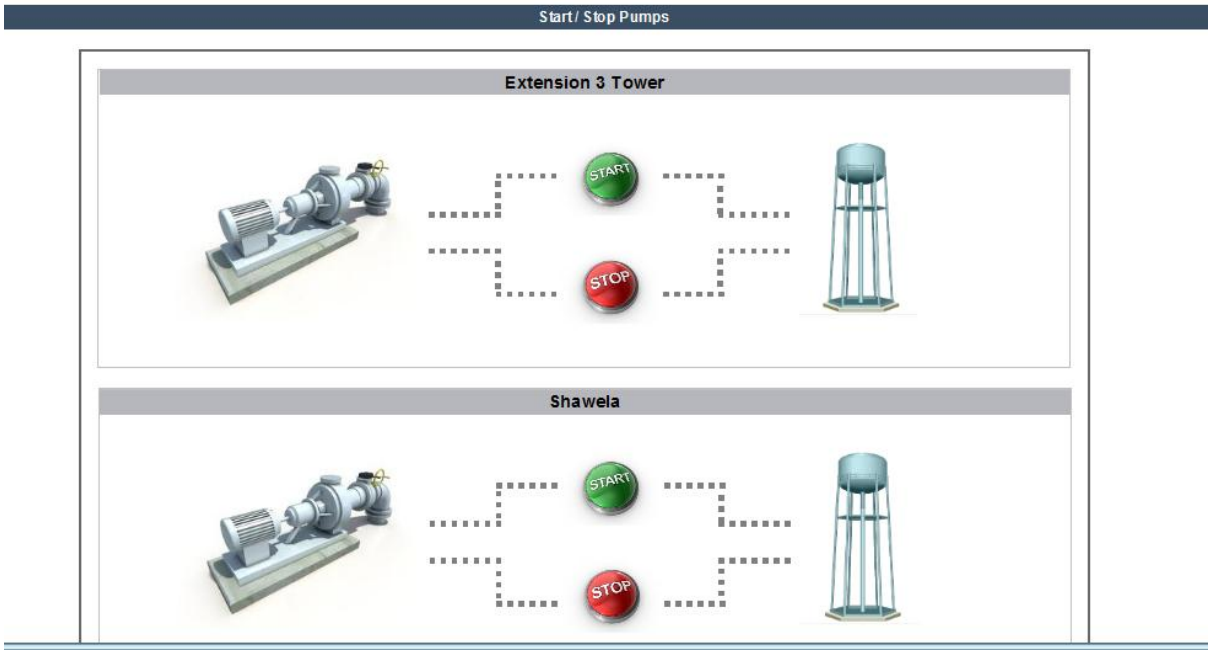


Fig 26. Start/Stop Pump

There are sites that have been fully automated and can be remotely controlled from the comfort of your chair.

Simply choose which site you want to control by clicking either the Start or Stop button, clicking Start button will initiate the water pump and it will start pumping the water into the Tower or Reservoir. The Stop button will stop the pump from running or cause it to abort.

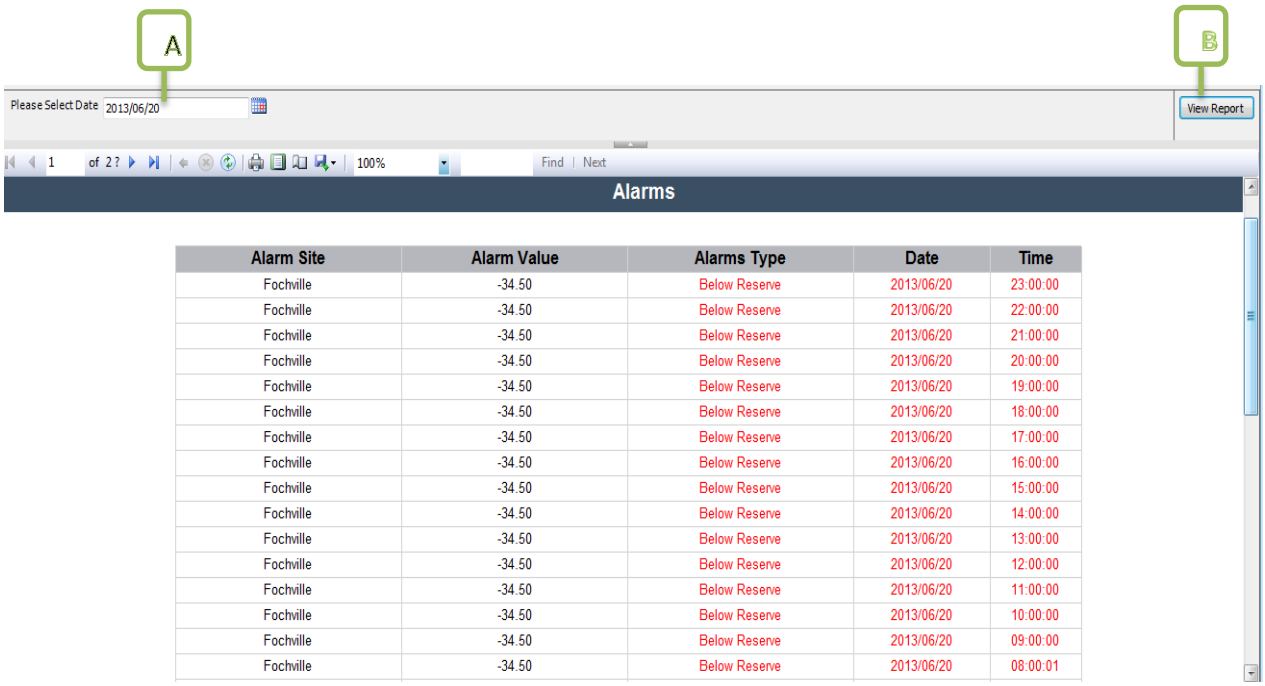
Because this is a sensitive function, only those personnel with elevated rights will be able to use this functionality.

NB: The systems administrator can grant or deny rights to this functionality

3.5 ALARMS

Fig 27. Alarms

Click ***Alarms>>Alarms*** on the navigation menu to open the screen.



Alarm Site	Alarm Value	Alarms Type	Date	Time
Fochville	-34.50	Below Reserve	2013/06/20	23:00:00
Fochville	-34.50	Below Reserve	2013/06/20	22:00:00
Fochville	-34.50	Below Reserve	2013/06/20	21:00:00
Fochville	-34.50	Below Reserve	2013/06/20	20:00:00
Fochville	-34.50	Below Reserve	2013/06/20	19:00:00
Fochville	-34.50	Below Reserve	2013/06/20	18:00:00
Fochville	-34.50	Below Reserve	2013/06/20	17:00:00
Fochville	-34.50	Below Reserve	2013/06/20	16:00:00
Fochville	-34.50	Below Reserve	2013/06/20	15:00:00
Fochville	-34.50	Below Reserve	2013/06/20	14:00:00
Fochville	-34.50	Below Reserve	2013/06/20	13:00:00
Fochville	-34.50	Below Reserve	2013/06/20	12:00:00
Fochville	-34.50	Below Reserve	2013/06/20	11:00:00
Fochville	-34.50	Below Reserve	2013/06/20	10:00:00
Fochville	-34.50	Below Reserve	2013/06/20	09:00:00
Fochville	-34.50	Below Reserve	2013/06/20	08:00:01

Fig 28. Daily Alarms

The Systems provides Alarms for overflows and when critical low level has been reached, ("**A**", **Fig 1**) on Page 5 indicates the number of Alarms that have been raised for the day, clicking on the alarm Icon will lead you to a more elaborate report (Fig 28) above. The report can also be sorted by site by simply clicking on the site name.

("**A**", **Fig 28**) allows you to select and view alarms that were raised on the chosen day, click ("**B**", **Fig 28**) to view the report.

3.6 HEARTBEAT

Fig 29. Heartbeat

Click ***Maintenance Page>>HeartBeat*** on the navigation menu to open the screen.

SITE	CONNECTION STATUS	LAST CONNECTION DATE	SEVERITY STATUS	BATTERY STATUS	ELECTRICITY STATUS	LEGEND
Wedela Small	False	2013/06/07 13:26:49	⚠	24.6	0	↓
Wedela Big	False	2013/06/07 13:27:29	⚠	24.7	0	↓
Welverdiend	False	2013/06/07 10:17:48	⚠	26.6	0	↓
Fochville	False	2013/06/07 13:25:52	⚠	25.9	0	↓
North	False	2013/06/07 13:27:24	⚠	29.2	1	↓
Blybank	False	2013/06/07 12:41:36	⚠	13.1	0	↓
Shawela	False	2013/06/07 13:27:14	⚠	22.8	0	↓
South	False	2013/06/07 13:03:58	⚠	10.1	0	↓
Carletonville	False	2013/06/07 11:56:36	⚠	13.4	0	↓

Fig 30. Heartbeat Screen

Heartbeat monitors all sites where data is collected remotely and displaying connection status. The "Connection Status" column will give an indication if the site is up or down by displaying "True" for an actively connected site or "False" for a site that has lost connection to the server.

- "Last Connection Date" column shows the last date the connection was made to the site
- "Severity Status" column will show an exclamation icon for any site that has been down for over 3 hours, this is to prompt immediate investigation.
- "Battery Status" shows battery power level.
- "Electricity Status" indicates if the site has electricity by showing "1" or "0" where there is no electricity.
- "Legend" correlates to "Connection Status", if "Connection Status" is False then "Legend" will show a Red Downward Arrow or Green Upward Arrow for a site whose "Connection Status" is True.

3.7 USER MAINTENANCE

Fig 31. User Maintenance

Click ***Maintenance Page>>User*** on the navigation menu to open the screen.

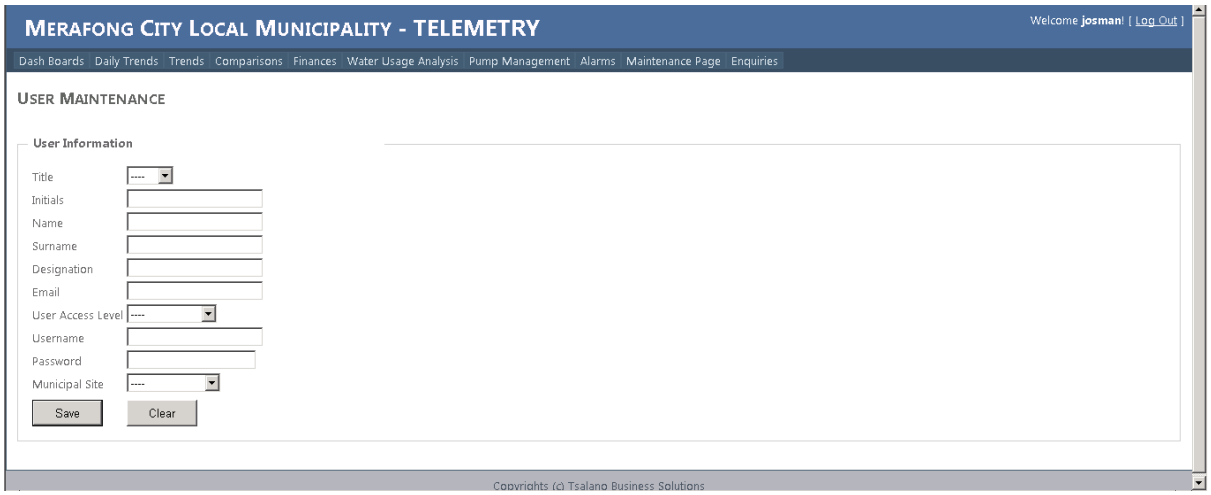


Fig 32. User Maintenance Page

User Maintenance page allows the systems administrator to add new users to the system, assign user authentication level as well as maintaining system configuration.

4 CONTACT INFORMATION

Physical Address:

8 Victoria Link

Route 21 Corporate Park

Irene

WEB: www.Tsalano.co.za

Email: Info@tsalano.co.za

Tel: 012 345 2395

Fax: 012 345 1535

Contact Personnel:

Name	Email Address
Likotsi Morienyane	LikotsiM@Tsalano.co.za
Josiah Senona	JosiahS@Tsalano.co.za
Jimmy Domingo	JimmyD@Tsalano.co.za