



FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:
Resilient Environment
and Sustainable
Resource Management
for All

Leakage Reporting and Management using GIS

A Case Study of the Tema Region of Ghana Water Limited

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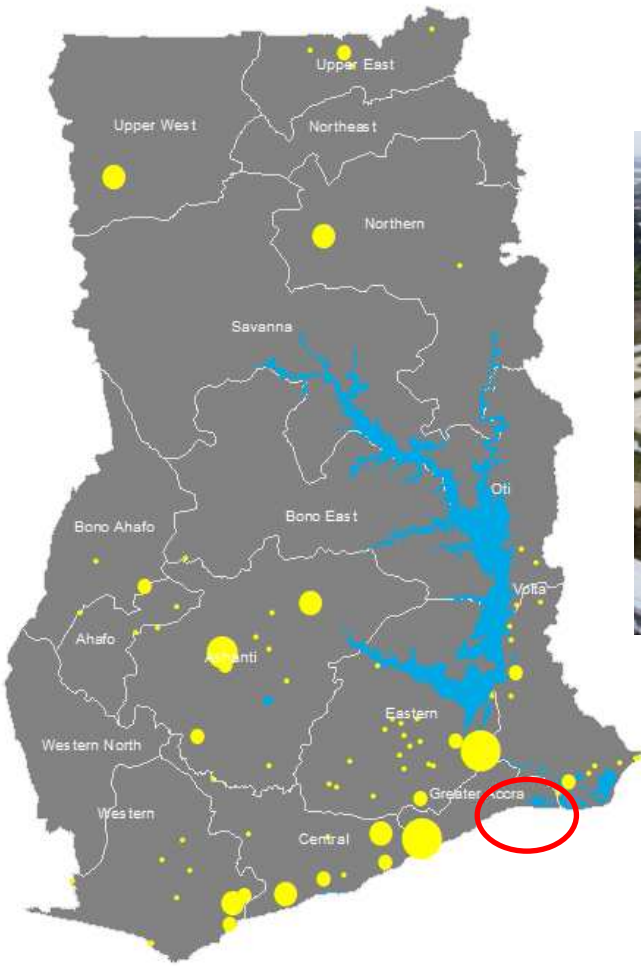


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PROFILE OF GWL



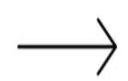
- 91 Urban Water Systems
- 320 Mm³ Annual Production
- Over 900,000 Customer Connections
- Over 13,800km of Network Infrastructure
- Over 5,000 Staff
- 49.4 % NRW



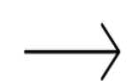
Abstraction & Treatment of raw water



Treated water Transported



Treated water further distributed



Consumers billed

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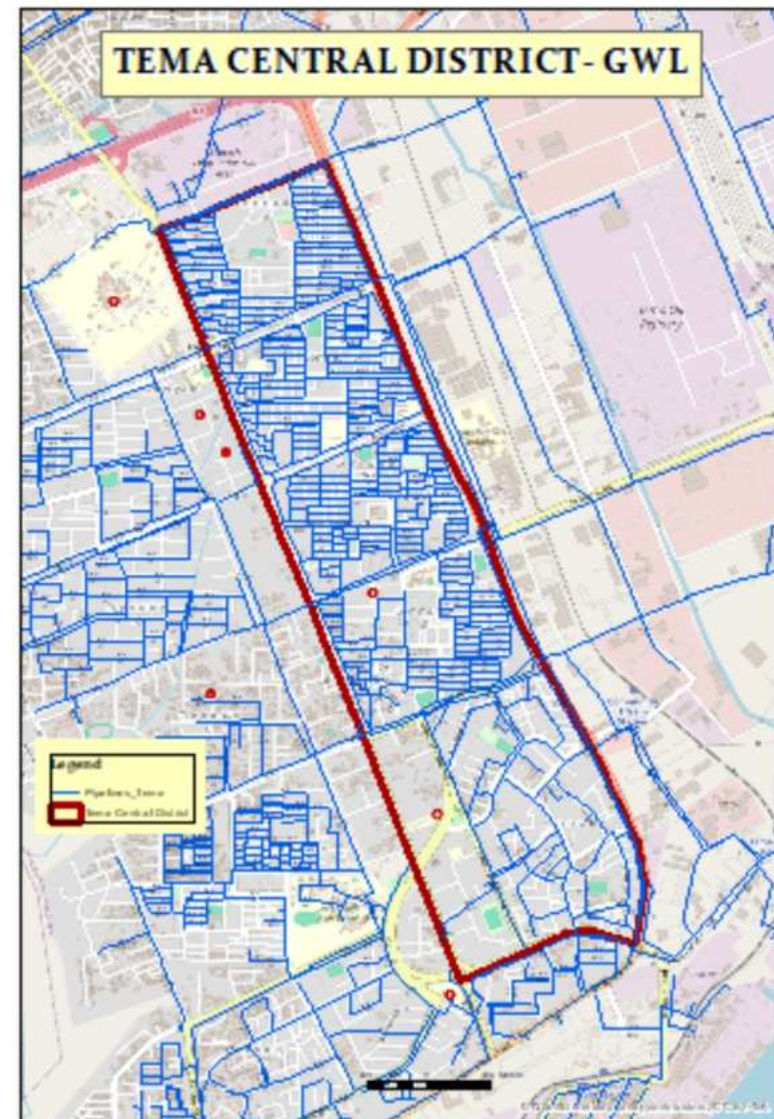


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Project Area: Tema Region – Tema Central District

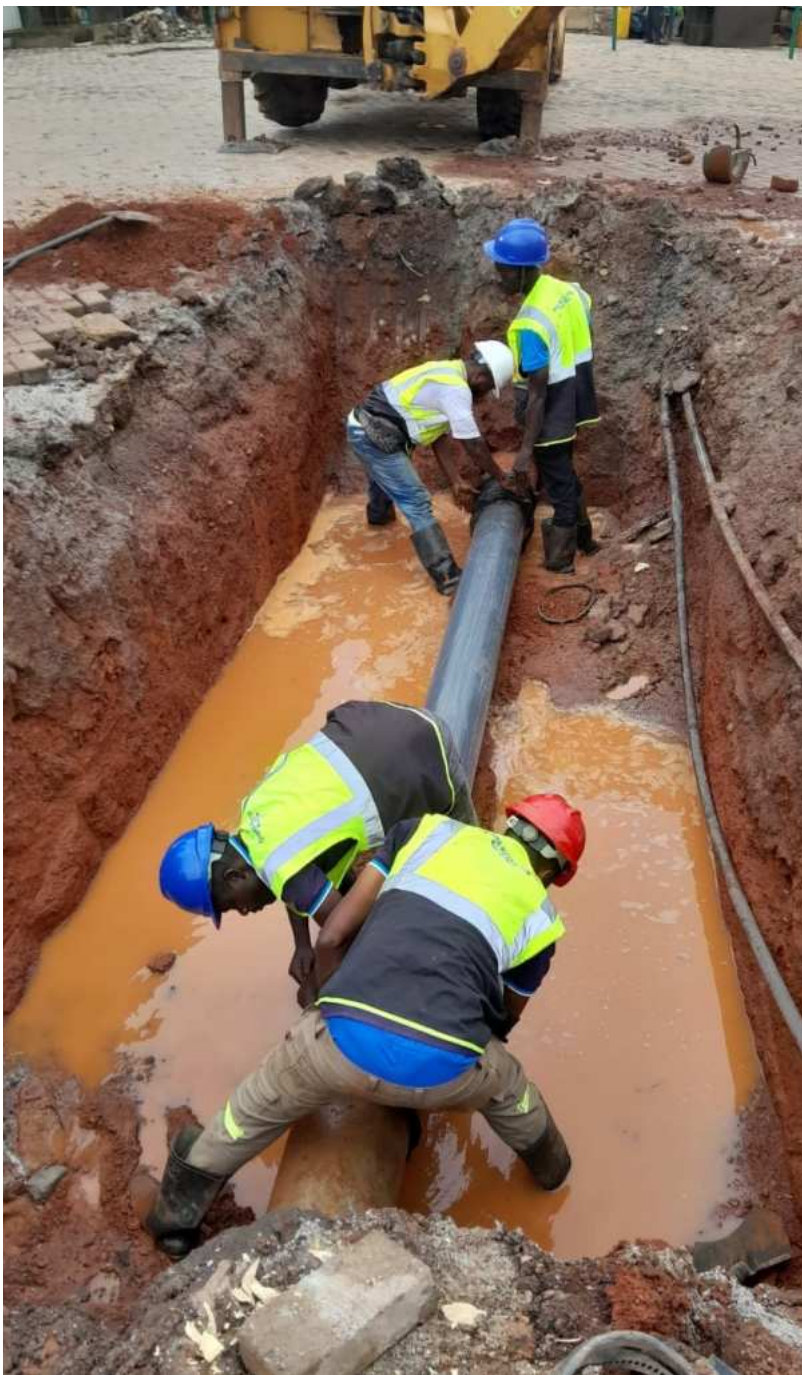
DISTRICTS WITHIN GWL TEMA REGION





Leakage Management





Transition from traditional Leakage reporting methods to application of Geospatial Technology (PRP)

- Traditional leakage reporting methods, such as manual inspections and customer complaints, have proven inefficient and time-consuming.

GHANA WATER COMPANY LIMITED
PIPE BURST/LEAKAGE REPORT

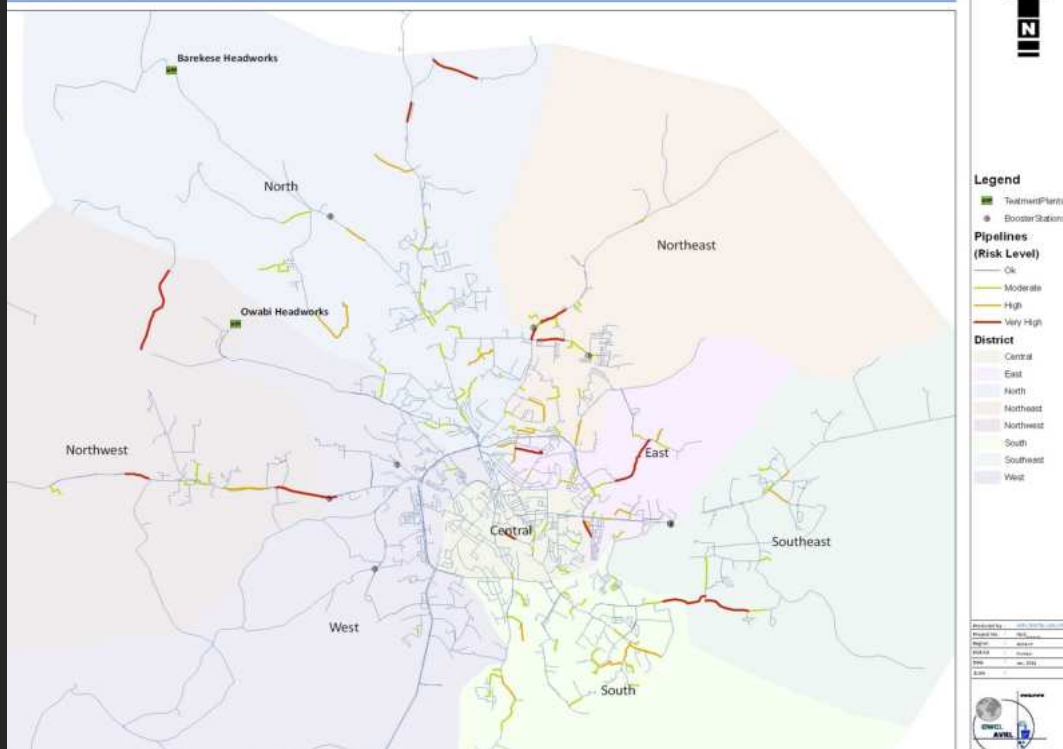
REGION: []
MONTH: []
YEAR: []

Dist	Block	Location	Sector of Work	Cause	Pipe Size	Type of Line	Material	Reported Time		Repair Time		Burst Duration	Burst Duration	Remarks
								Day	Min	Day	Min			
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31

Sep-17

District	No. of Bursts	Causes				Type of Pipeline			Average Burst Duration
		Accident	Vandalism	Operational	Other	Service	Mains	Other	
	57	17	1	39	0	42	15	0	2.2424
	58	12	0	1	45	21	37	0	13.5437
	49	49	0	0	0	34	15	0	4.4167
	40	40	0	0	0	9	31	0	3.4021
	62	0	0	62	0	29	33	0	2.4462
	29	5	0	24	0	4	25	0	3.6277
	39	0	0	39	0	29	9	1	2.7585
	23	0	6	0	17	11	12	0	4.4384
	0	0	0	0	0	0	0	0	0
	31	0	0	31	0	7	24	0	2.6855

RISK ANALYSIS - KUMASI WATER SUPPLY SYSTEM



More Justification for using Geospatial Technology to Manage Water Leaks

Data quality and data integrity issues.

Easy identification of hotspots.

Prioritize repair works.

Equitable allocation of resources.

Tracking of repair.

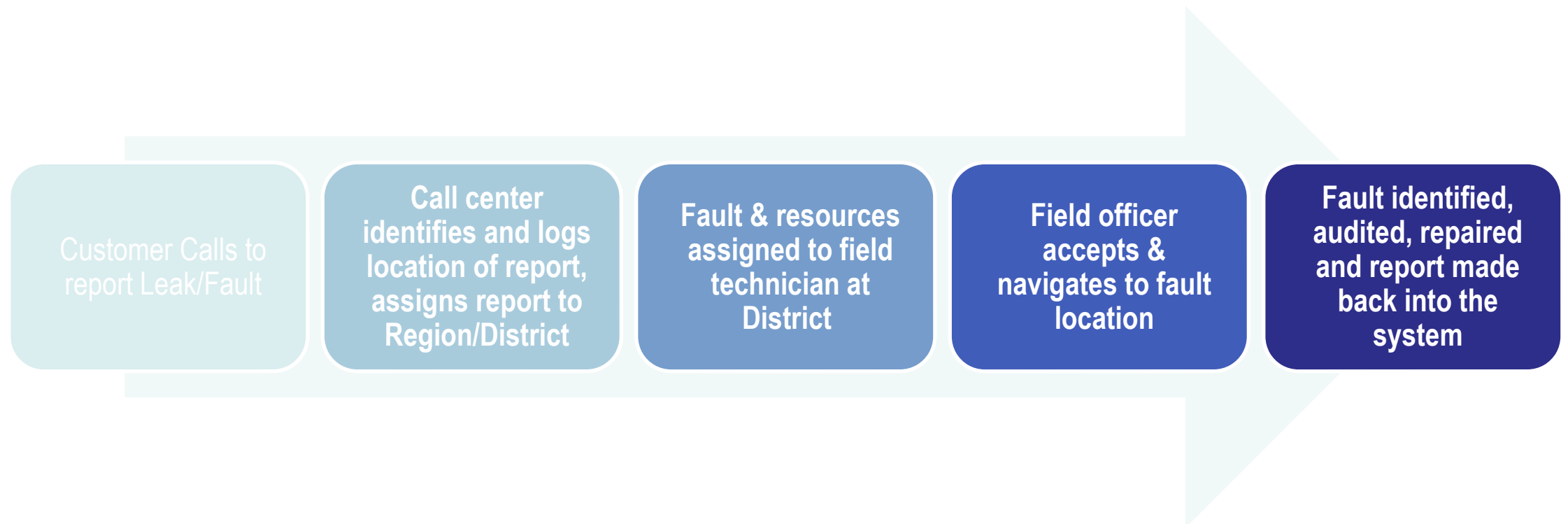
Timely resolution to curb losses.

Data integration to study leakage patterns.

Customer participation: User friendly interface

Application Workflow

- Prerequisite: Mapping and validation of all WD assets: 95% completed (pipelines and customer locations).
- Design and implementation of comprehensive dashboard.
- Dashboard consists of **web-based** and **mobile version** built within ArcGIS Enterprise environment. Once a leak is reported, dashboard provides real time view of progress of work.



Ghana Water Customer Care Center Configuring this site

Ghana Water Customer Care Center How may we help you?
Report and track water supply related problem reports

Using public feedback to deliver world-class service.

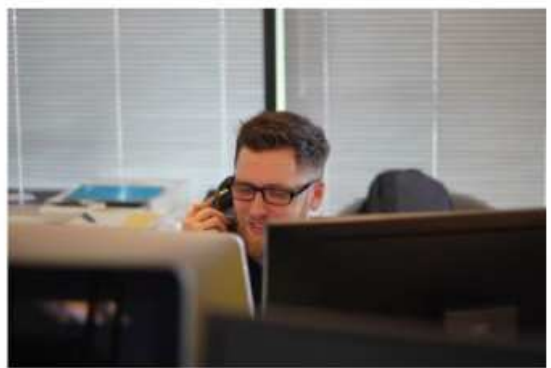
How it Works

Bringing high levels of openness and accountability to Ghana Water customer services.



Report a Problem

The process of reporting and resolving a non-emergency problem has never been easier.



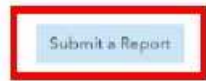
Contact Call Center

The Call Center is open 24 hours a day, 7 days a week, 365 days a year. Call **0800 40000** to submit a water supply related problem.



Submit a Report

Use the Citizen Problem Reporter application to view existing reports and submit a new non-emergency problem in our community.



Workflow and Application Highlights



Water Supply Related Problems

Report a problem:

Type of Problem:

Problem Details:

Full Name:

Phone Number:

Email:

Where is the problem located?

Click the map to draw the location.

Would you like to add a photo?

1 attachment(s) selected

Workflow and Application Highlights

Customer Care Tasks 1 selected / 2 records

Category	Type of Problem	Visible to the public	Status	Submitted On	Full Name	Location
Utility	Water Leak	Yes	Submitted	March 24, 2022	James Wesley	Tema, Greater Accra
Utility	Water Leak	No	Cancelled	February 23, 2022	Jonathan Green	Everpure Ghana

Details Photos Comments (4)

Water Leak

Utility problem reported on March 24, 2022.

Details: Wet ground for days

James Wesley
32323002
jw@mail.com

Location: Tema, Greater Accra

Status:

Submitted Received In Progress Completed

Assigned To:


Edited 46 minutes ago



Workflow and Application Highlights

Customer Complaint Dashboard


Illegal Water Use



1

11 new last 7 days


Water



11

11 new last 7 days


Cloudy Water



0

11 new last 7 days

Other




11

11 new last 7 days

Group | Problem Reports | Survey Results


Customer Complaint Dashboard

Problem Status



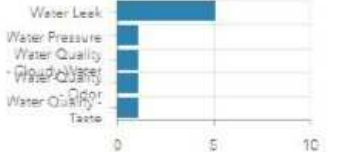
Problem Category

- Damaged or Leaking Fire Hydrant: 1
- Illegal Water Use: 1
- Water Leak: 5
- Water Pressure: 1

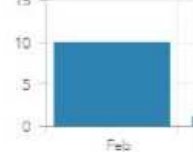


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Type of Problem




New Reports



Group | Problem Reports | Survey Results

Customer Complaint Dashboard


Resolution Quality



3.50


✔ Target: / 5.00

Resolution Time




2.00

! Target: / 5.00



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Surveys



2

- ✔ **Damaged or Leaking Fire Hydrant**
23/02/2022
Would Recommend: 10
- ✔ **Water Quality - Cloudy Water**
23/02/2022
Would Recommend: 6

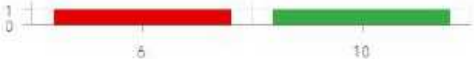
Customer Service



3.00

! Target: / 5.00

Recommend Problem Reporter to Friend or Colleague



Detractors (0 - 6) Passives (7 - 8) Promoters (9 - 10)

Group | Problem Reports | Survey Results



Workflow and Application Highlights



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Considerations & Challenges

Ensuring the **accuracy** and **reliability** of leakage reports and location data is crucial for effective leakage management. Major considerations and challenges include:

Proper training and user adoption among GWL personnel and customers.

Seamless integration of the GIS platform with GWL's existing information systems and databases is necessary for efficient data management and decision-making.

Reliable internet connectivity and ICT infrastructure.

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THANK YOU !!!!



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SUSTAINABLE DEVELOPMENT GOALS | International Federation of Surveyors supports the Sustainable Development Goals

Commission # 4 & TF

Commission's name: Facing the Changing Climate & Environmental Degradation: Hydrospatial Solutions

Serving Society for the Benefit of People and Planet

