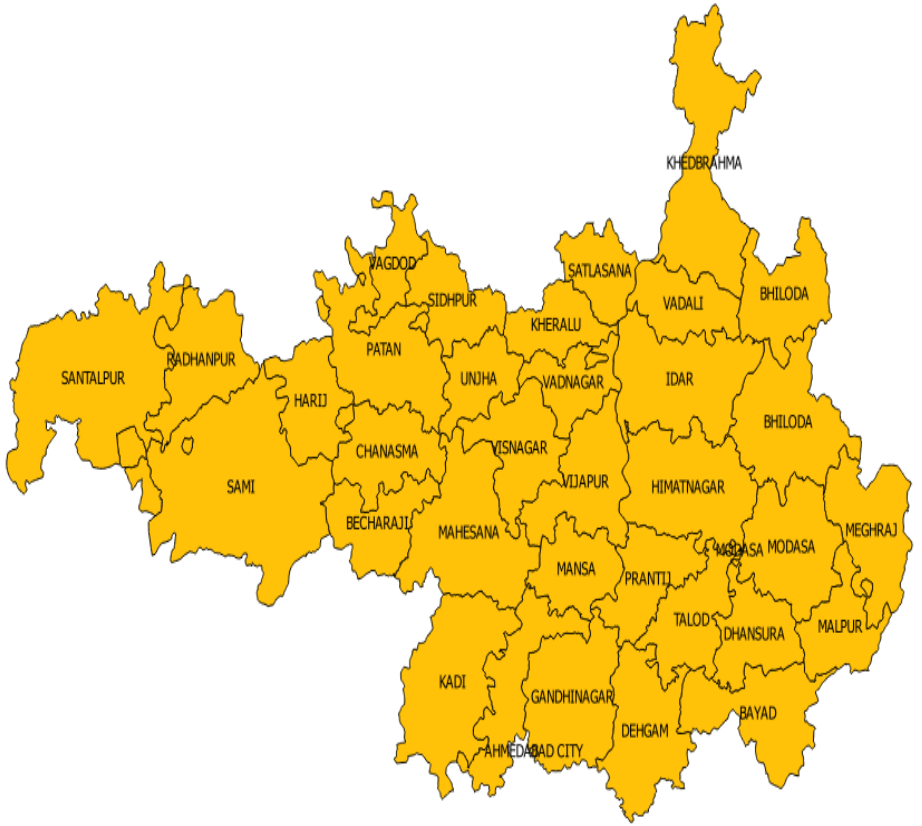
Sabarmati Gas



(Geographical Information System)GIS in SGL

GIS -- Introduction

A geographic information system (GIS) is a system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data.

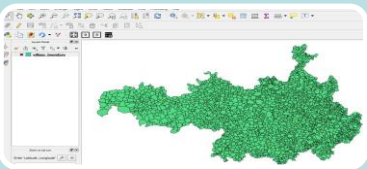
GIS is used as tool in both problem solving and decision making processes, as well as for visualization of data in a spatial environment (Map).

GIS has 5 key factor i.e Hardware, Software, Data, People and analysis to prepare different reports.

Objectives of GIS in CGDs..

Reduce the uses of hard copy by digitizing the As-laid drawings. Entire network can be viewed on single platform.

Easily shareable with other utilities to prevent third party damage.



Useful GIS functionality such as thematic mapping ,performing assets search/spatial search, linear measurement, area measurement, printing tools etc.

For Network planning and where to lay pipeline.

Pipeline/network assets accessible at site through web-browser or mobile phone.

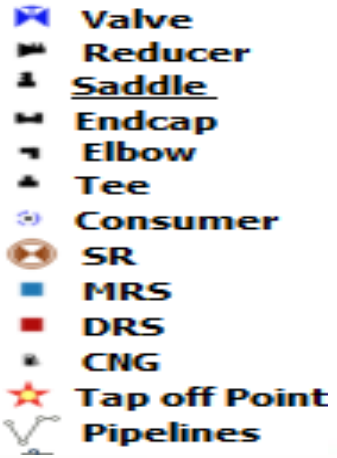
GIS in SGL -- Introduction

- **SGL adopted open source based GIS system in Year 2016 by engaging STP(Science Technology Park) Pune. Open Source based GIS system opened the way for unlimited access and reduced hefty licensing fee.**

- **SGL has 6 Desktop users who maintain the GIS daily operation such as As-laid porting, Data QA/QC, field verification of assets.SGL has 40 Nos of Web GIS users who can access the GIS at browser or mobile phones at any time any where.**

- **GIS Maps is also facilitated to other statuary auditors/ Companies on request.**

- **Gas Objects/features that are being captured in GIS is shown in screenshot.**



Progress so far…

- **SGL has mapped 360 KM of Steel, 4000 KM of MDPE and 100% of other Assets such as VALVE, MRS, DRS, CNG STATIONS,COMMERCIAL CUSTOMER, TLP etc.**

- **SGL is in process to host the GIS System in house. Till now SGL GIS system was hosted in STP, Pune (*Implementation Partner to SGL*).**

- **GIS and Synergee (*network planning software*) integration for planning/extending current Gas Pipeline network and determining capacity utilization of different section of pipeline to achieve maximum utilization of existing Pipeline.**

- **Identification of isolation valve in upstream and downstream in case of planned or unplanned outages/leakages to isolate the section of pipeline to reduce gas loss.**

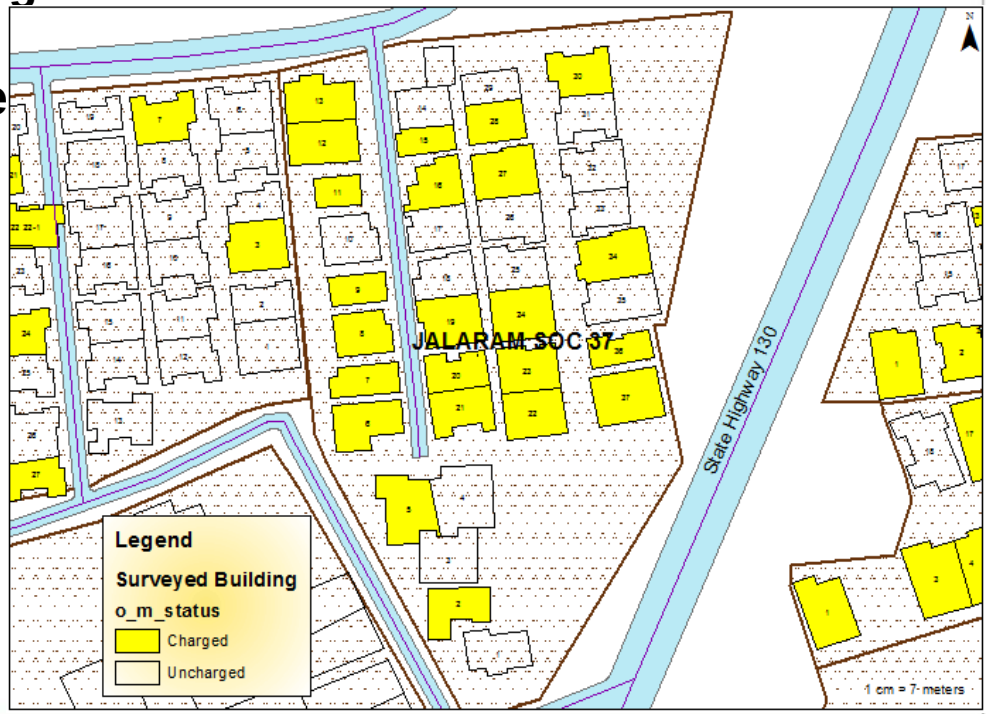
- **Landbase/Landuse availability for all charged places. And requisition of required landbase in case of network planning in new area. (*total GA area = ~20000 sqkm , Charged area = ~ 6400 sqkm, Planned area for F.Y18-19 = 2400 sqkm*)**

New Initiatives…

SGL is carrying out a project to map the ground potential and existing customer in GIS.

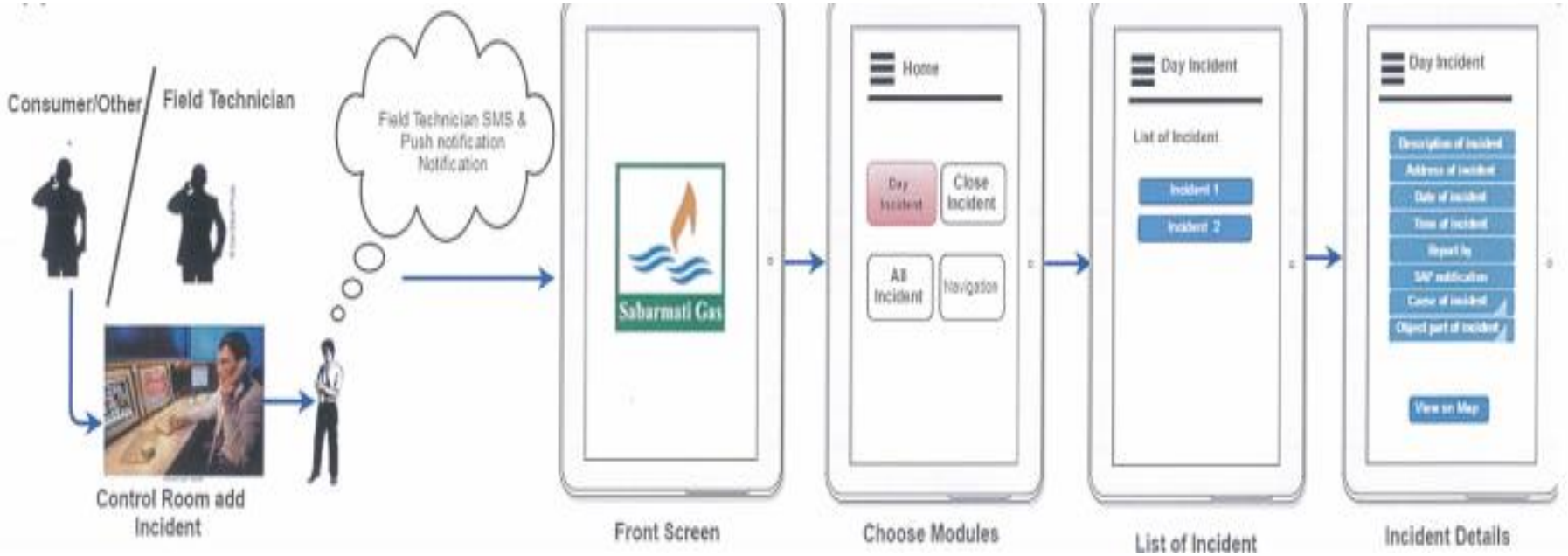
Advantages:

- **Help to optimize utilization of existing network.**
- **Help to increase the penetration rate in existing network.**
- **Help to reduce cost per connection.**
- **Domestic Customer mapping to GIS can help to find exact location of customer in case of any emergency.**
- **Integration of SAP and GIS.**

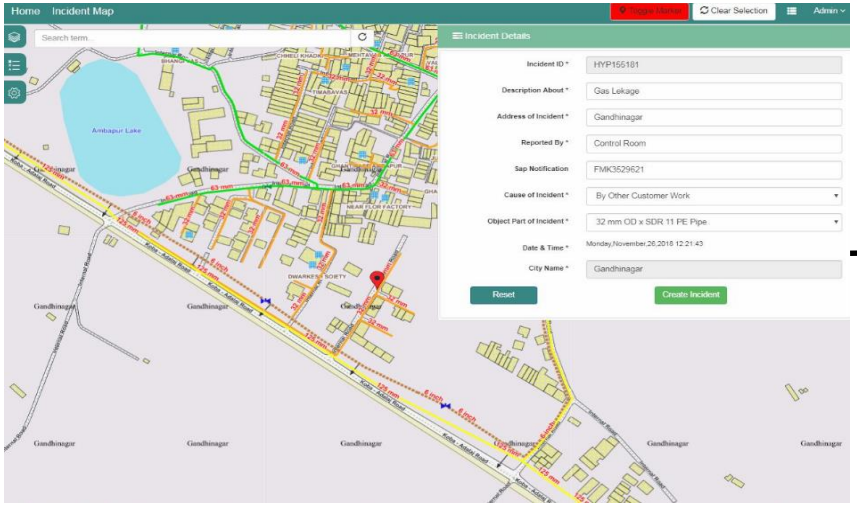


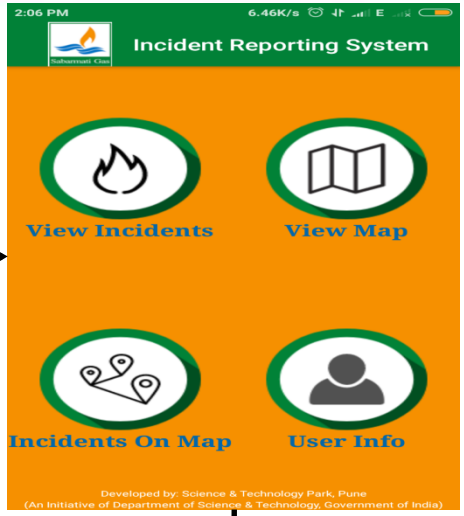
New Initiatives…

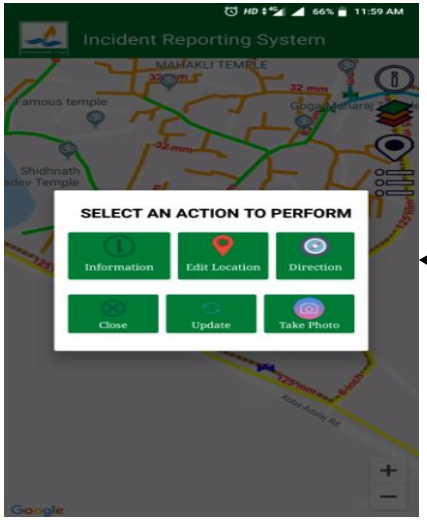
SGL has introduced Incident Reporting App, which provides the exact/nearby location of any leakage or incident pinned point on Map by SGL control room executive.



New Initiatives…Continue







Way Forward…

- **SGL is planning to have it's own DGPS (Differential Global positioning System) Based asset co-ordinate capturing from ground. Mobile phone based GPS has accuracy only up to 3 meter in best scenario. Average accuracy can vary from 5 M to 12 M.**

Advantage of DGPS:

- **Achieving accuracy up to 10 cm. 50 - 60 CM accuracy in worst case scenario such as cloudy weather etc.**

- **Help to ERT & O&M team to get exact location of pipeline in case of damages that can minimize time to repair network. Minimizing time to restoring gas can minimize the gas loss.**

DGPS DEVICE

What more can be done…

IoT (Internet of Thing) , BIG DATA, SCADA and GIS integration for getting live data from site equipments to minimize the mitigation, increase safety and for making fast decision.

Drone Mapping for identifying encroachment and surveillance in High pressure network.

Challenge and Learning…

Challenge:

- **Availability of As-laid drawing.**
- **Update in landbase in timely manner.**
- **Getting the Pipeline divergence report on time.**
- **Finding suitable and adequate GIS resourcing.**
- **Lack of GIS Awareness to field user.**

Learning:

- **Continuous training to GIS Operator and GIS Users.**
- **Upkeep of GIS system (Continuous AMC) and continuous evolution.**

Thank you