

GIS for Social Change - I change my city website

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Abstract:

Janaagraha Centre for Citizenship and Democracy launched in July 2012, its new initiative “www.lchangemycity.com”, a social change network platform to enable civic change in Bangalore City in India. The site uses the power of ESRI Products –ArcGIS/ArcGIS server technology, Internet and mobiles to connect people with their elected representatives and civic agencies. The map-based tools view wards, political boundaries, elected representatives, and nearest local civic agency, get info on registering to vote, compare their quality of life with other wards, see the master plan for their area, and get various details about their neighborhood. A key feature of the site is its complaint portal, a tool that allows people to post their complaints regarding civic issues, track complaints on civic amenities in their neighborhood and participate in conversations with the community. The elected representatives can view the complaints from their ward/assembly constituency and residents can see how well they are being responded to.

About the Author:



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Tripti Agarwal is currently working as GIS Manager at Janaagraha/Jana Urban Space Foundation where she manages the GIS team to deliver GIS capability for use in off-line and on-line initiatives. She has 13 years of experience working with city, county, and state agencies to implement mass transportation solutions, land-use/zoning, and sustainable options for urban areas in Arizona, Colorado, California, and Bangalore on Comprehensive plans, zoning, and environmental assessment. She has also presented a Paper “The role of Smartr GIS based solution for Denver Public Schools” at 2005 ESRI conference, San Diego, USA. She holds a Master’s degree in Planning with major in GIS from the University of Arizona, Tucson, USA.

Introduction

Janaagraha is a Bangalore-based not-for-profit organization that works with citizens and government to change the quality of life in India's cities and towns. Founded in 2001 by Ramesh Ramanathan and Swati Ramanathan, Janaagraha started as a movement to include people's participation in public governance and has now evolved into a robust institution for Citizenship and Democracy. Janaagraha seeks to change urban quality of life by improving urban governance using a well-defined framework of change that is based on a systems approach.

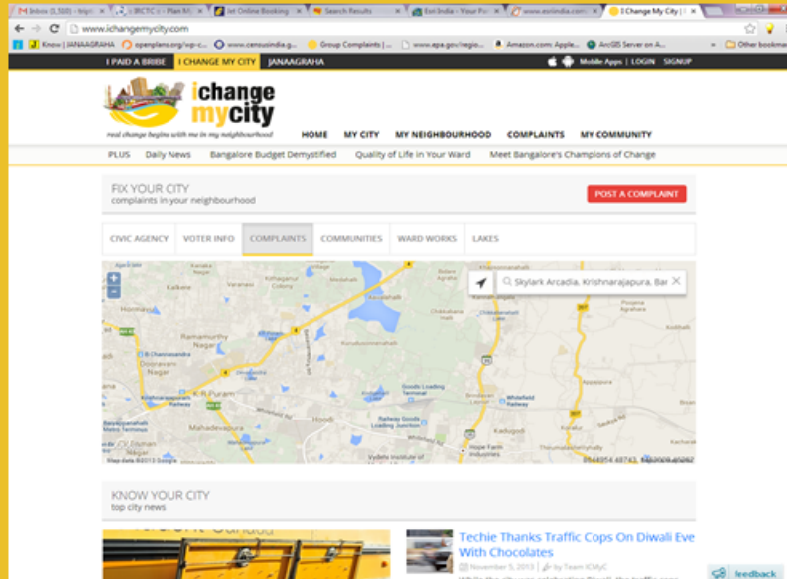
Janaagraha launched "www.Ichangemycity.com" (ICMyC), a social change network platform to enable civic change in Bangalore City in India. ICMyC provides a platform for the people of Bangalore to connect with one another, and with their elected representatives and civic agencies. Citizens can report civic problems in their locality, discuss solutions, share progress reports of interactions with their local civic agency and corporator, and talk about successful resolution of these problems, thus becoming an example of how community action can drive change.

ICMyC provides the following functionality to improve citizen's quality of life:

- To provide information: The site collects and presents information on civic agencies based on proximity to the user's self-identified location on the onsite city map – who to call for water, street lights, garbage, crime, transportation, and so on. Also shared is the city's master plan and land use.
- To Complain: Report issues with civic services (transportation, road network, power, water etc.), and review others' complaints on similar or different issues. The site then collates and shares them with the relevant agencies, as well as the corporator and MLA for your ward. The site provides ability to upload pictures of the issues using mobile devices.
- To Act and Engage: Users can select 'I am affected' buttons to tag on to existing complaints, set up neighborhood groups for civic action and interact on common issues, start neighborhood discussions by posting on forums, sharing ideas and solutions for local issues.

At a certain level of sustained activity, users become civic champions and can share experiences and successes, so that others can be inspired to bring about their own change in their own neighborhoods.

I change my city website - A social networking site for civic action



Find information on your city, ward and its administrators, quality of life & more

Locate your area on the map and post your complaint

See complaints in your area, discuss & recommend solution for the problems

Get in touch with civic bodies & your corporator & find solutions together

Form a neighbor's group, network, fix meetings and act to improve your area

Fig: 1 – Ichangemycity.com – Mapping and Internet for civic action

Implementation

ICMyC website utilizes ESRI products extensively - ArcGIS for Desktop and ArcGIS Server/SDE of spatial maps for locational references. GIS tools and applications are used for intelligent data representation on the website through the mapping service. Spatial data is analysed internally with GIS and is represented on end users' maps on the website.

Geospatial data underpins ICMyC's promise to the user of easy information access and visualization. A timeline of ICMyC maps implementation was prepared by the GIS team in coordination with ICMyC On-line and Tech Team. Issue logs were created to collect issues to ensure effective and timely communication of problems encountered or recommended improvements.

Janaagraha uses Google Map API Premier License and integrated Google Maps with custom collated data layers such as ward boundaries, polling booth boundary, Assembly Constituency, civic agency, land use etc. Even though the data is integrated on display, the layers are separate and are stored on Janaagraha servers to keep proprietary information secure. All in all, the technology platform is a mash-up of maps, global positioning systems, and discussion and complaints forums over the internet and mobiles.

ichangemycity debuted with mapping displayed prominently on the home page, allowing citizens to simply drop a pin anywhere on the map, and displaying information on agencies that have jurisdiction in that location, and the officials responsible for various civic services — roads, water, power, sanitation — and register a complaint online. Presently, the platform allows 50-100 people to get together to complain about a common civic problem and work with agencies to find solutions.

	GIS Projects	316 days?	Tue 13-12-11	Tue 26-02-13
2	[-] Ichangemycity website	265 days?	Tue 23-08-11	Wed 22-08-12
3	Integrate complaint box/Bangalore masterplan /WII scores	8 days?	Tue 14-06-11	Thu 23-06-11 Ar
4	Add Metro, ward, AC	1 day?	Fri 16-12-11	Fri 16-12-11 Ar
5	Add WII Scores	1 day?	Tue 23-08-11	Tue 23-08-11 Ar
6	Table structure for data collection - Agencies	1 day?	Tue 14-06-11	Tue 14-06-11 Pr
7	Recommend Andriod phones for verifying addresses	1 day?	Fri 30-09-11	Fri 30-09-11 Tri
8	Convert data collected into GIS format	1 day?	Tue 23-08-11	Tue 23-08-11 Pr
9	Create civic Services layer	1 day?	Tue 23-08-11	Tue 23-08-11 Pr
10	Add Voter Registration app	1 day?	Tue 23-08-11	Tue 23-08-11 tai
11	Add Admin Boundaries	1 day?	Tue 23-08-11	Tue 23-08-11 tai
12	Need Master Map wireframe	1 day?	Tue 23-08-11	Tue 23-08-11 IJ
13	Finalizing the Bangalore Master plan website - Pie added	1 day?	Tue 23-08-11	Tue 23-08-11 Ar
14	Replace Reliance with Bing map on Complaint Box	1 day?	Tue 23-08-11	Tue 23-08-11 Ar
15	Add WII Slider - Water Supply	1 day?	Tue 23-08-11	Tue 23-08-11 tai
16	Add WII Slider - Open Space	1 day?	Tue 23-08-11	Tue 23-08-11 tai
17	Add WII Slider- Bus Stops	1 day?	Tue 23-08-11	Tue 23-08-11 Ar
18	Data prep for WII sliders	1 day?	Tue 23-08-11	Tue 23-08-11 Pr
19	<New Task>	1 day?	Tue 23-08-11	Tue 23-08-11
20	[-] Develop Master Map Portal on ICMYC	16 days	Fri 09-09-11	Fri 30-09-11 Ar
21	Find Complaints	2 days	Fri 09-09-11	Mon 12-09-11 Ar
22	Find a Civic Agency	3 days	Fri 09-09-11	Tue 13-09-11 tai
23	Find your Administrative Divisions	3 days	Tue 13-09-11	Thu 15-09-11 tai
24	Find land use and building by-laws	2 days	Mon 12-09-11	Tue 13-09-11 Ar
25	Find your voter information	2 days	Thu 15-09-11	Fri 16-09-11 tai
26	Find your liveability scores	2 days	Tue 13-09-11	Wed 14-09-11 Ar
27	Review with Tricom and revisions	1 day	Mon 26-09-11	Mon 26-09-11 Ar
28	Finalize Master map portal	2 days	Thu 29-09-11	Fri 30-09-11 Ar
29	Add descriptions on WII Sliders	1 day	Thu 13-10-11	Thu 13-10-11 Ar
30	Data prep for 15 new WII sliders	1 day	Fri 14-10-11	Fri 14-10-11 Pr
31	Add 15 sliders with selected WII indicator's	3 days	Mon 17-10-11	Wed 19-10-11 Ar
32	Add pie chart ward wise - landuse	2 days	Tue 18-10-11	Wed 19-10-11 Ar
33	Geodatabase design for IJ	3 days	Tue 11-10-11	Mon 17-10-11 tai
34	Overall look/feel for 15 layers/symbols/boundaries shape/sizes	3 days	Fri 21-10-11	Fri 28-10-11 Se
35	[-] Other location maps related wireframes	14 days	Fri 30-09-11	Sat 15-10-11
36	Find Your ward	2 days	Thu 29-09-11	Fri 30-09-11 tai

Fig: 2 – Ichangemycity – GIS launch timeline

GIS Data Model and Maps Functionality:

The geodatabase is the common data storage and management framework for ArcGIS. It combines “geo” (spatial data) with “database” (data repository) to create a central data repository for spatial data storage and management. The ICMYC geodatabase data model provides a framework to help develop and implement a uniform repository of geographic database defined by ICMYC team and share information between various programs of Janaagraha. The model contains point, line, and polygon geometry with unique id’s, standard map projection and scale as well as topology rules and relationship classes. The Centralized data storage helps centralized management and access to data for officials working in remote and independent programs. GIS team developed map functionality process flow for various 13 web pages including find your ward, post a complaint page, civic agency page etc and master map portal using ArcGIS desktop/ArcGIS Server functionality with Java Script on top of Google map API.

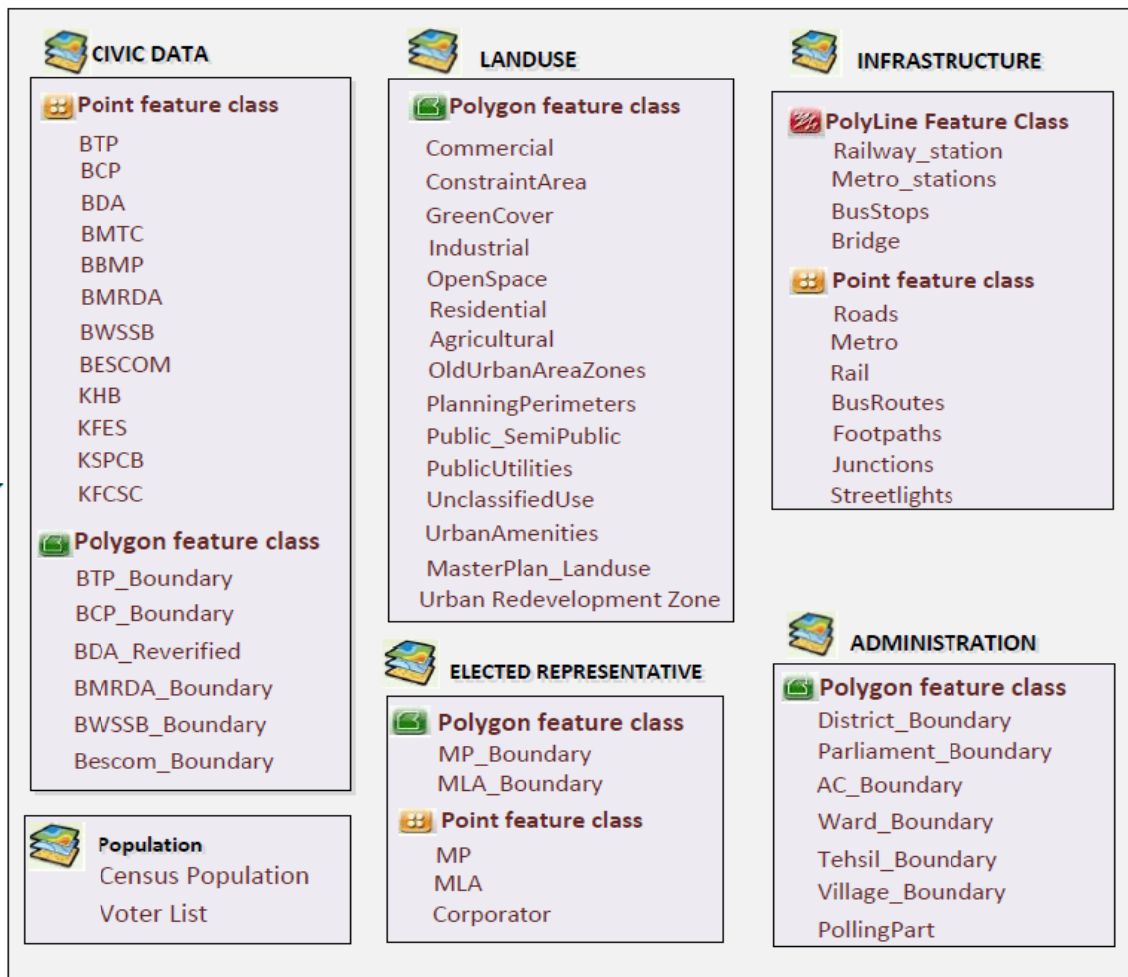


Fig: 3 – Ichangemycity – GIS data Model

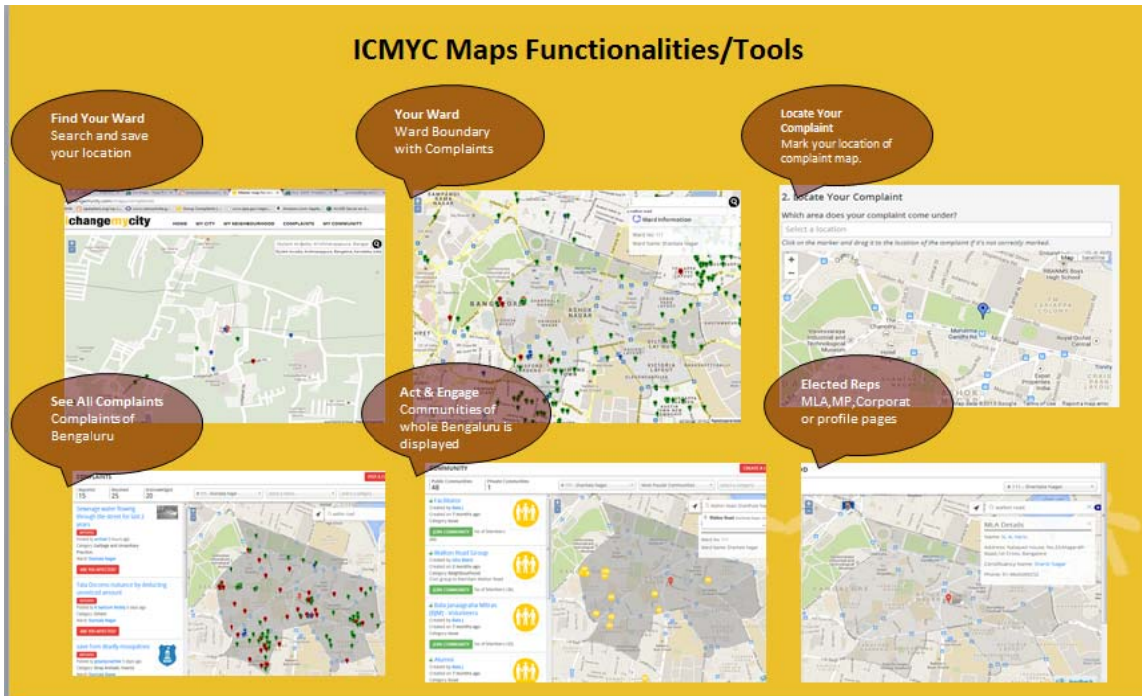


Fig 4: Ichangemycity – Map Functionality

Master Map Portal in Icmyc website

- Civic Agency - Find relevant civic agency for your ward
- Voter Information - Find polling booth locations for your ward.
- Elected Representatives – Find your MLA, MP, Corporator
- Landuse Master Plan – Find land use proposed for your area.
- Complaints – Find your complaints registered in your ward and can sort category wise.
- Communities - Find your communities registered in your ward.

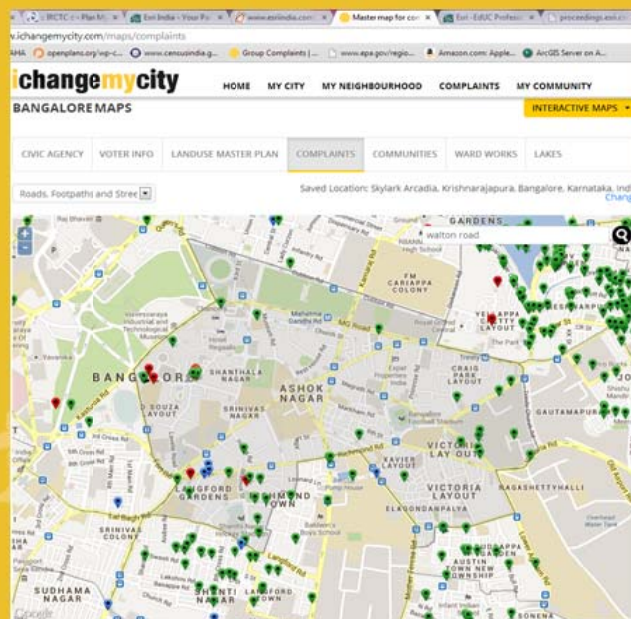


Fig 5 – Ichangemycity - Master Map Portal

GIS on Cloud

Janaagraaha deployed ArcGIS Server in the cloud using Amazon Web Services. so all the gis data/map services for ICMYC app are coming from the cloud. Cloud GIS is the combination of running GIS software and services on cloud infrastructure and accessing GIS capabilities using the web.

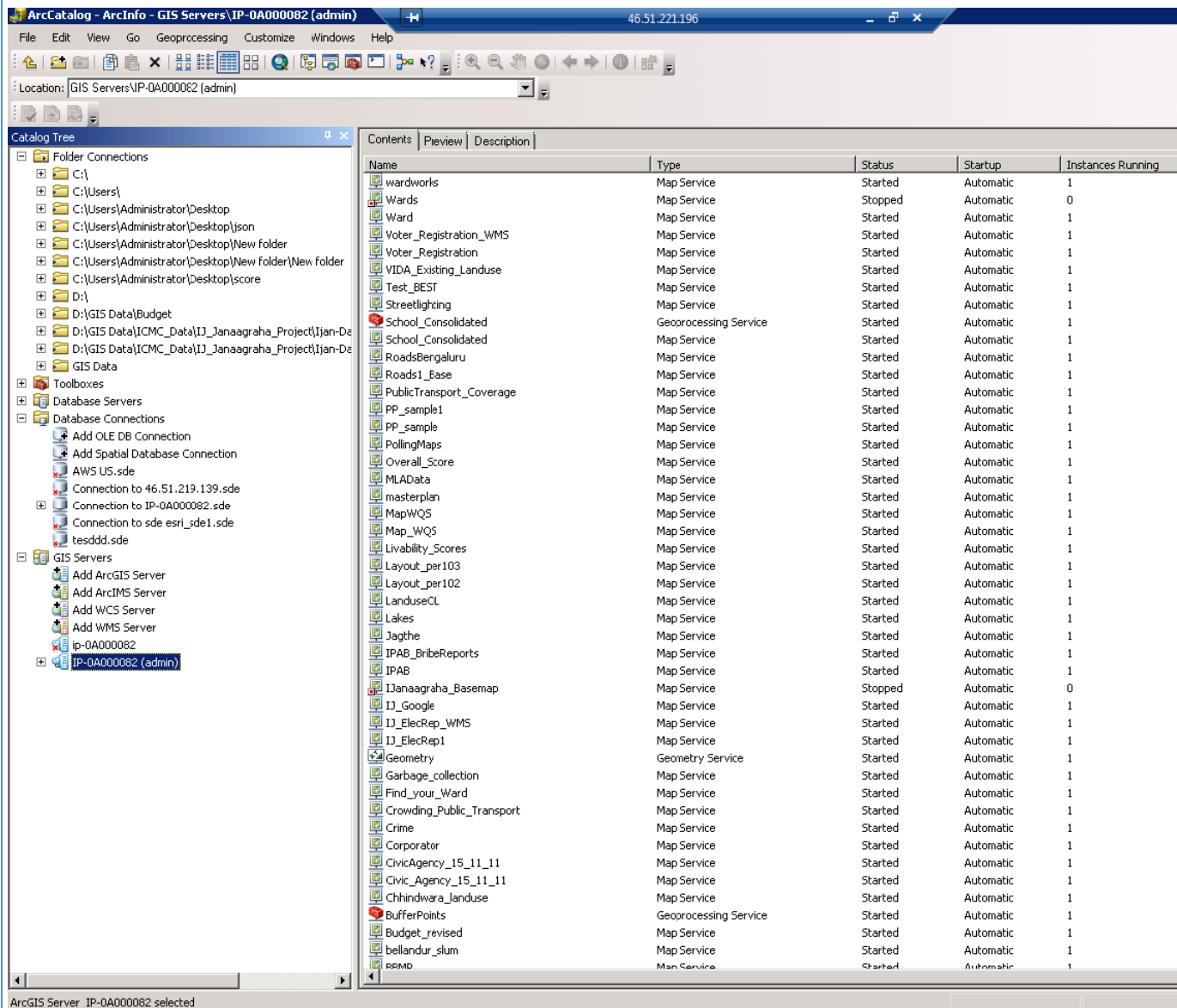


Fig 6 – Ichangemycity.com –GIS on Cloud

Benefits of using GIS:

1. Improved decision making
GIS is the go-to technology for making better decisions about location. ICMYC provides interactive maps that can better inform citizens and can make better decisions about the locations. For the citizen, information is sought in context of his/her location, and GIS based information organization makes the data relevant and meaningful.
2. Improved transparency for citizen engagement
Bangalore ward Quality Score, lakes, budgets information etc. that have been uploaded and communicated through clickable maps on ICMYC website help in improving the transparency for citizen engagement.
3. Improved communication
GIS-based maps and visualizations greatly assist in understanding situations and in storytelling. ICMYC forms a bridge between citizens and the government. ICMYC GIS interactive maps allows problem reporting (like blocked drains, potholes or traffic light failure) with one click of the mouse on the map. Detailed information is then sent to the respective officials who can deal with the problem. This improves the experience the citizen has with the authority and therefore the level of satisfaction.
4. Managing geographically
In cities, where several local authorities deliver services in close neighborhoods, it is difficult for the citizens to understand and find relevant information from several web pages. Therefore, combining the spatial information on a common web page, delivers relevant information for the citizens as they only wish to easily find the information they need.

Conclusion:

(ICMyC) has grown significantly since its launch in 2012. This online hyper-local civic change network has seen over 6,000 complaints being reported by citizens, with an impressive 4,000 of these being resolved. Over 12,000 users have registered on the site and shown their commitment to changing the city of Bangalore through their actions.

Due to "ArcGIS Javascript extension for Google maps API V2" has not been upgraded V3, all the gis layers are published now through GeoJSON format/Open Layers option that works with google map api v3. The ICMYC platform now uses Geolocation APIs provided by browsers, as well as updated data formats for its maps (such as GeoJSON API). The site now contextualizes its hyper local data according to a users' neighborhood, so that it is presented in the most relevant and engaging manner possible.

In recognition of its path-breaking hyper-local social change network, www.ichangemycity.com, Janaagraha has been awarded the Google Global Impact Award. The award comes with ~\$500000 for Janaagraha to expand ICMYC to include 3 metropolitan cities and 15,00,000 citizens in three years.

References:

1. <http://www.deccanherald.com/content/265441/janaagraha-launches-ichangemycity.html>
2. <http://www.google.com/giving/global-impact-awards/janaagraha-centre-for-citizenship-and-democracy/>
3. http://articles.timesofindia.indiatimes.com/2013-11-01/bangalore/43591907_1_rs-3-crore-award-omidyar-network-india-advisors-thermax-ltd