

# KMC PROPERTY TAX MANAGEMENT SYSTEM USING GEOSPATIAL TECHNOLOGY

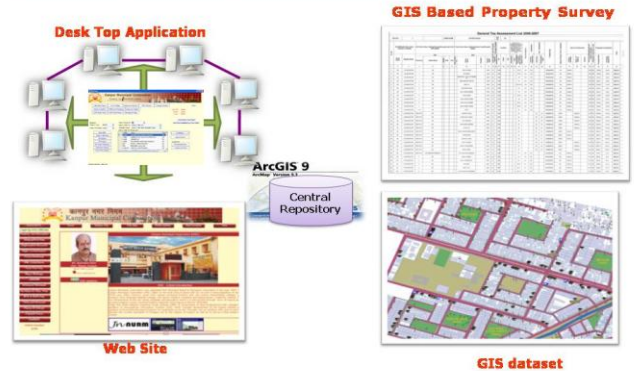
## Use of GIS and ICT Tools

### An age old practice

We have read stories of treasure hunt. The TOOLS needed for hunt were:- a PROBABLE target place of treasure, strategic INFORMATION to reach the target either in the form of some script/ geographical map or some verbal tips. The treasure hunter had to encounter spider net. This net used to give him hope; that he is very near to the hidden treasure



## Major Components of the Project



## WHAT WE HAVE ACHIEVED

### Up gradation of MAP .

On line information to citizens :-

- About property tax details
- property tax calculation based on the **unit area method**
- Property tax liabilities ,
- Existing status of paid taxes ,

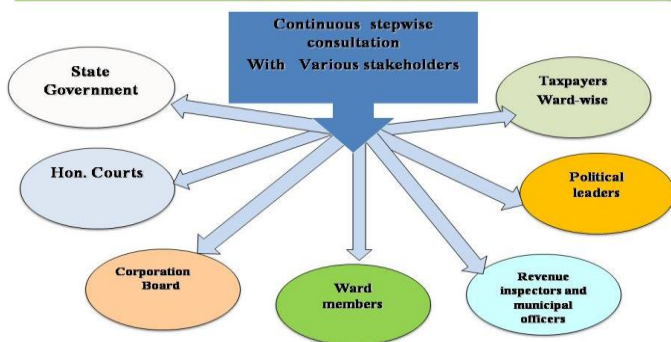
### Online tax payment

Others Municipal forms & format required to the citizens are available on the web.

## An Integrated concept

- Procurement of satellite images
- Ground survey based Geo-rectification of the satellite image
- Updation and migration of existing GIS data set using QB image
- Contact survey to collect details for every property unit
- Spatial ground survey
- Spatial and non-spatial data link to create spatial property database
- Development of web GIS system for online property tax calculation and payment
- Development of desktop application for property database repository management and tax assessment
- Training KMC Personnel
- Renumbering of properties with unique premises no. as prescribed in Modern Municipal law and fixing of house number plates at the cost of owner/occupier

## THE SUCCESS OF THE THIS PROJECT IS BECAUSE OF ...



## Public Awareness Campaign to Educate the Tax payer



# PUBLIC NOTIFICATION FOR GIS SURVEY THROUGH PRINT MEDIA

28/06/08 ६ दिवस का अवकाश  
www.jagran.com

## तार टूटा, तीन राष्ट्रीय पक्षी मरे

**कानपुर नगर निगम**  
PH- 0512-253715, 253416, FAX- 0512-2531662  
E-mail- Kanpur.nagar.nigam@yahoo.co.in

### परिचयन कर विधिवत् 2008

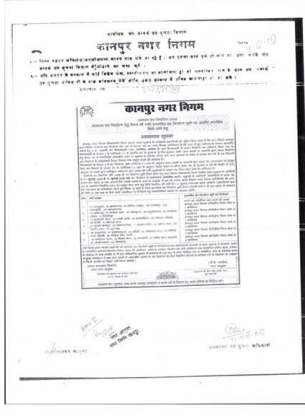
आप निम्नलिखित सूची के तहत अपने घर/आवासीय भू-भाग/सूचना के संबंध में जानकारी के लिए कानपुर नगर निगम के कार्यालय में या निम्नलिखित पता पर आकर या फोन करके या ई-मेल के माध्यम से जानकारी प्राप्त कर सकते हैं।

**आयकर सूचना**

कानपुर नगर निगम के कार्यालय में या निम्नलिखित पता पर आकर या फोन करके या ई-मेल के माध्यम से जानकारी प्राप्त कर सकते हैं।

**आयकर सूचना**

कानपुर नगर निगम के कार्यालय में या निम्नलिखित पता पर आकर या फोन करके या ई-मेल के माध्यम से जानकारी प्राप्त कर सकते हैं।



# Public Awareness

**भवन स्वामी / आवासीय ध्यात दे**

1. यदि आपका भवन आवासीय है तो परचयन कर (प) पर कर अपने भवन का वजन का निर्धारण करें।
2. यदि आपका भवन आवासीय है तो पार्स-222 के अनुसार निर्धारित प्रचयन कर अपने भवन का वजन का निर्धारण करें।
3. यदि आपका भवन आवासीय/आवासीय/वैशेष प्रकार का है तो आपका भवन का निर्धारण कर (प) पर आवासीय कर के लिए पार्स-222 के अनुसार निर्धारित प्रचयन कर निर्धारण करें।
4. अपने भवन का परचयन कर 31.07.2008 तक भवन का वजन पर 2008-09 के परचयन कर में 20 प्रतिशत की छूट प्राप्त करें।

कानपुर नगर निगम 2008 तक परचयन कर निर्धारण कर में भवन के वजन पर 20 प्रतिशत की छूट प्राप्त करें।

**भाग सूट के ज्ञान स्वामी/अपना गृहकर आप समझें।**

कानपुर नगर निगम (कानपुर) का भवन का वजन पर 20 प्रतिशत की छूट प्राप्त करें।

**कानपुर नगर निगम**  
PH- 0512-253715, 253416, FAX- 0512-2531662  
E-mail- Kanpur.nagar.nigam@yahoo.co.in

**परिचयन कर विधिवत् 2008**

आप निम्नलिखित सूची के तहत अपने घर/आवासीय भू-भाग/सूचना के संबंध में जानकारी के लिए कानपुर नगर निगम के कार्यालय में या निम्नलिखित पता पर आकर या फोन करके या ई-मेल के माध्यम से जानकारी प्राप्त कर सकते हैं।

**आयकर सूचना**

कानपुर नगर निगम के कार्यालय में या निम्नलिखित पता पर आकर या फोन करके या ई-मेल के माध्यम से जानकारी प्राप्त कर सकते हैं।

**कानपुर नगर निगम**  
PH- 0512-253715, 253416, FAX- 0512-2531662  
E-mail- Kanpur.nagar.nigam@yahoo.co.in

**परिचयन कर विधिवत् 2008**

आप निम्नलिखित सूची के तहत अपने घर/आवासीय भू-भाग/सूचना के संबंध में जानकारी के लिए कानपुर नगर निगम के कार्यालय में या निम्नलिखित पता पर आकर या फोन करके या ई-मेल के माध्यम से जानकारी प्राप्त कर सकते हैं।

**आयकर सूचना**

कानपुर नगर निगम के कार्यालय में या निम्नलिखित पता पर आकर या फोन करके या ई-मेल के माध्यम से जानकारी प्राप्त कर सकते हैं।

# GOVERNMENT ORDERS FOR GIS SURVEY

**परिचयन कर विधिवत् 2008**  
PH- 0512-253715, 253416, FAX- 0512-2531662  
E-mail- Kanpur.nagar.nigam@yahoo.co.in

आप निम्नलिखित सूची के तहत अपने घर/आवासीय भू-भाग/सूचना के संबंध में जानकारी के लिए कानपुर नगर निगम के कार्यालय में या निम्नलिखित पता पर आकर या फोन करके या ई-मेल के माध्यम से जानकारी प्राप्त कर सकते हैं।

**आयकर सूचना**

कानपुर नगर निगम के कार्यालय में या निम्नलिखित पता पर आकर या फोन करके या ई-मेल के माध्यम से जानकारी प्राप्त कर सकते हैं।

**परिचयन कर विधिवत् 2008**  
PH- 0512-253715, 253416, FAX- 0512-2531662  
E-mail- Kanpur.nagar.nigam@yahoo.co.in

आप निम्नलिखित सूची के तहत अपने घर/आवासीय भू-भाग/सूचना के संबंध में जानकारी के लिए कानपुर नगर निगम के कार्यालय में या निम्नलिखित पता पर आकर या फोन करके या ई-मेल के माध्यम से जानकारी प्राप्त कर सकते हैं।

**आयकर सूचना**

कानपुर नगर निगम के कार्यालय में या निम्नलिखित पता पर आकर या फोन करके या ई-मेल के माध्यम से जानकारी प्राप्त कर सकते हैं।

# Property Tax Reform Intense Discussion in the Kanpur Municipal Corporation Board

**जीत ली जंग**

कानपुर नगर निगम के बोर्ड में परचयन कर (प) पर कर के वजन पर 20 प्रतिशत की छूट प्राप्त करने के लिए मतदान हुआ।

कानपुर नगर निगम के बोर्ड में परचयन कर (प) पर कर के वजन पर 20 प्रतिशत की छूट प्राप्त करने के लिए मतदान हुआ।

कानपुर नगर निगम के बोर्ड में परचयन कर (प) पर कर के वजन पर 20 प्रतिशत की छूट प्राप्त करने के लिए मतदान हुआ।

**नगर निगम सदन में सरल कर का एक स्तर में जबर्दस्त विरोध**

कानपुर नगर निगम के बोर्ड में परचयन कर (प) पर कर के वजन पर 20 प्रतिशत की छूट प्राप्त करने के लिए मतदान हुआ।

कानपुर नगर निगम के बोर्ड में परचयन कर (प) पर कर के वजन पर 20 प्रतिशत की छूट प्राप्त करने के लिए मतदान हुआ।

कानपुर नगर निगम के बोर्ड में परचयन कर (प) पर कर के वजन पर 20 प्रतिशत की छूट प्राप्त करने के लिए मतदान हुआ।

# 1. DOOR TO DOOR PROPERTY SURVEY

## 1. DOOR TO DOOR PROPERTY SURVEY

- Procedure
  - House Number in the field is verified against the data on the map and in the Billing Database Sheet.
  - The House Number is marked on the map and identified / marked in the Billing Database Sheet.
  - For multi storied buildings, the records are marked as a group in the Billing Database Sheet.
  - Any corrections to the property shape is marked on the map.



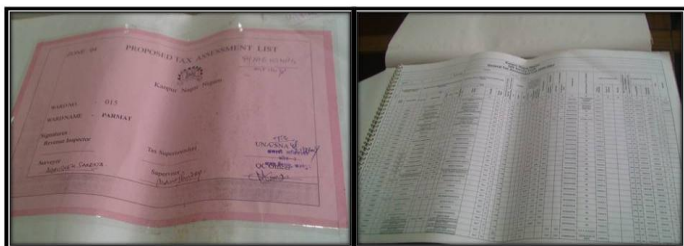
## Preparation of New Assessment List

- Door - to - Door Contact Survey for updation of assessment list
- More than 53 attributes layers collected from field
- Property data sets classified into 46 category

GIS Survey Form		General Tax Assessment List 2006-2007	
Serial No.	WARD NAME	SECOND WARD	CHA. No. NA
1	...	...	...
2	...	...	...
3	...	...	...
4	...	...	...
5	...	...	...

Property Survey Format

## Preparation of Proposed Assessment List



Submission of Ward-wise Proposed Assessment List for Verification

## Preparation of Final Assessment List

### Ward-wise Assessment List Register



### Ward-wise Assessment List Details



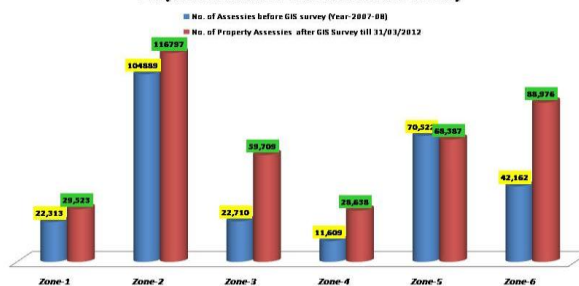
## Properties Added in Tax net After GIS Survey

Till 31/03/2012

Zone	No. of Assessies before GIS survey (Year-2007-08)	No. of Property Assessies after GIS Survey till 31/03/2012	No. of Properties added after GIS survey	No. of Assessies added after GIS survey
Zone-1	22,313	29,523	52,875	7,210
Zone-2	1,04,889	1,16,797	1,32,173	11,908
Zone-3	22,710	59,709	71,480	36,999
Zone-4	11,609	28,638	39,650	17,029
Zone-5	70,522	68,387	83,970	-2,135
Zone-6	42,162	88,976	96,105	46,814
<b>Total</b>	<b>2,74,205</b>	<b>3,92,032</b>	<b>4,76,253</b>	<b>117,827</b>

## Properties Added in Tax net After GIS Survey

### Properties Added in Tax net After GIS Survey



## ADDITIONAL REVENUE GENERATION

### Property Tax Demand Enhancement After GIS

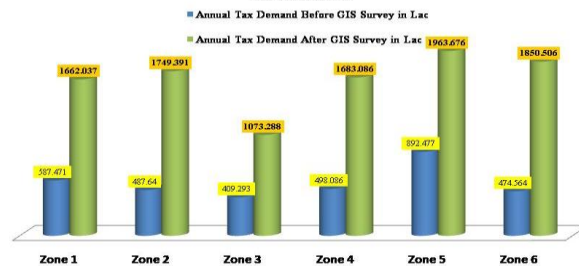
Till 31/03/2012

Zone	Annual Tax Demand Before GIS Survey (in Lac) (2007-2008) INR	Revised Annual Tax Demand After GIS Survey (in lac) till (31/03/12) INR	Difference Tax (in Lac) INR
Zone-1	587.471	1662.037	1254.248
Zone-2	487.640	1749.391	1300.748
Zone-3	409.293	1073.288	754.782
Zone-4	498.086	1683.086	1203.220
Zone-5	892.477	1963.676	978.216
Zone-6	474.564	1850.506	1297.480
<b>Total</b>	<b>334.953</b>	<b>9981.986</b>	<b>6632.453</b>

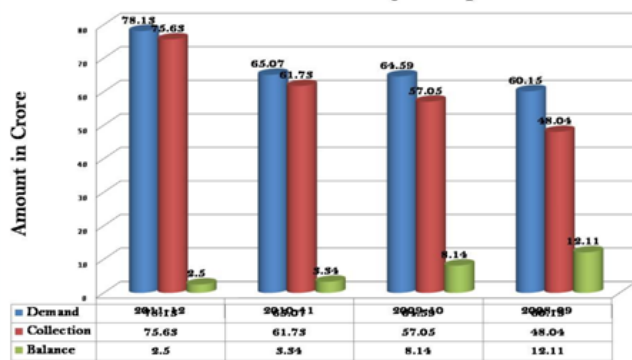
## Annual Tax Demand Increasing rate after GIS Survey

### Property Tax Enhancement After GIS Survey

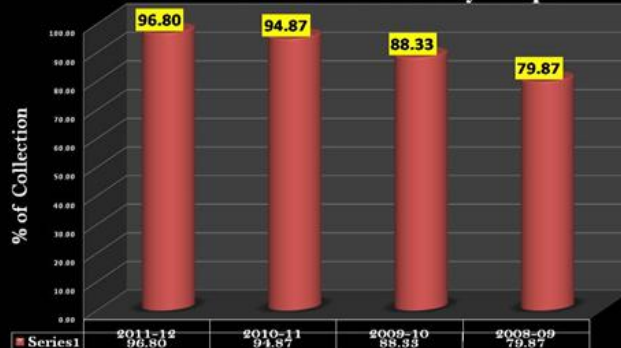
Till 31/03/2012



## Kanpur Nagar Nigam Collection Efficiency Graph



## Kanpur Nagar Nigam Collection Efficiency Graph



# 2. DEVELOPMENT OF SERVER BASED PROPERTY TAX APPLICATION SYSTEM

## Desktop Application

### Objective

- Development of desktop application for property database repository management, updation and tax assessment
- Migration of existing MS Access-based property tax application to MS-SQL based application

### Major Functionalities

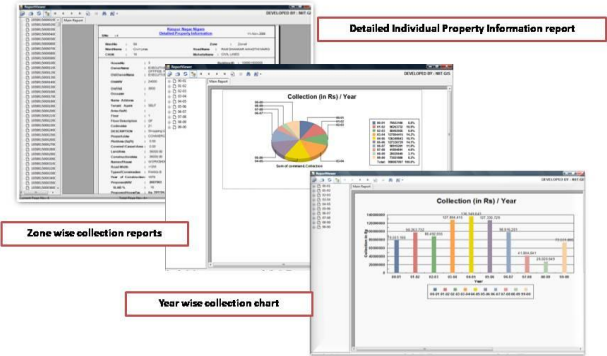
- User friendly interface for data addition and updation
- GIS interface to perform spatial queries on database
- Generate various kinds of reports required in the day to day operations
- Tax calculation module
- Keeping a complete track of a property in terms of the dues, payments and ownership changes etc

### Technology Used

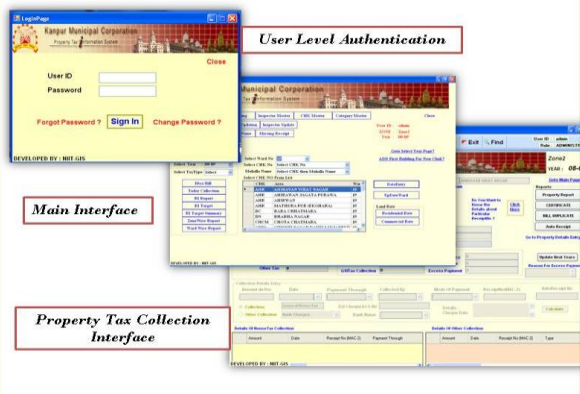
- Vb.Net & MS-SQL 2005

## Glance of Desktop Application

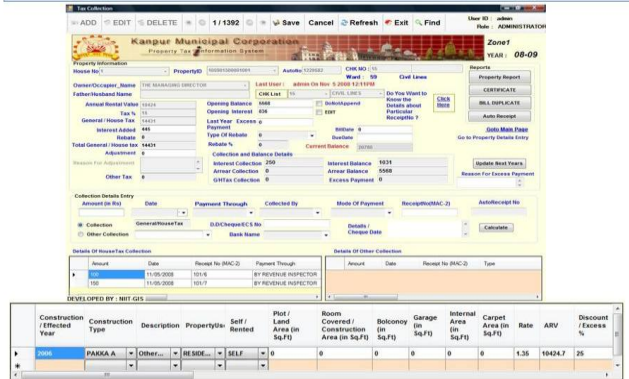
### Some Sample Reports



## Glance of Desktop Application

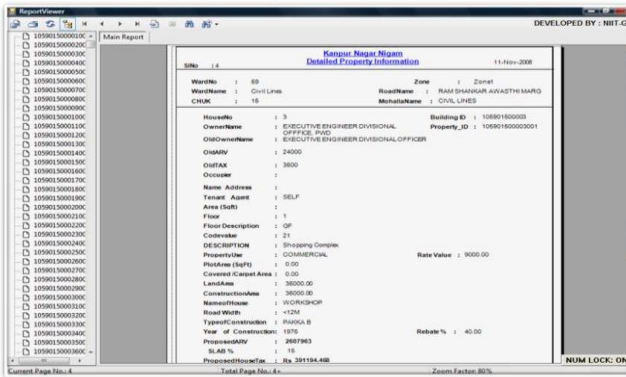


## Glance of Desktop Application



## Glance of Desktop Application

### More than 60 different types of reports



## Glance of Desktop Application

### Report Generation Module



# 2. DEVELOPMENT OF GIS BASED INTRACTIVE & ATTRACTIVE WEBSITE

<http://kmc.up.nic.in>

# Special features of KMC Website

## Objective

- Development of a web application for self assessment and payment of property tax, with additional functionalities

## Major Functionalities

- Online self property tax calculation
- Online property tax payment facilities
- A facility to access maps at different administrative hierarchy eg. Wards, Property
- GIS based spatial searching and identification of properties
- Online Birth /Death registration
- Online Grievance Redressal module
- Library of different forms for downloading
- Citizen forum for interactive discussion

## Technology Used

- Microsoft Windows
- ASP.Net (VB.Net)
- JavaScript and HTML
- ArcIMS 9.2

- XP Professional IIS 6.0
- Microsoft Visual Studio Dot Net 2005
- SQL Server 2005
- ArcSDE 9.2

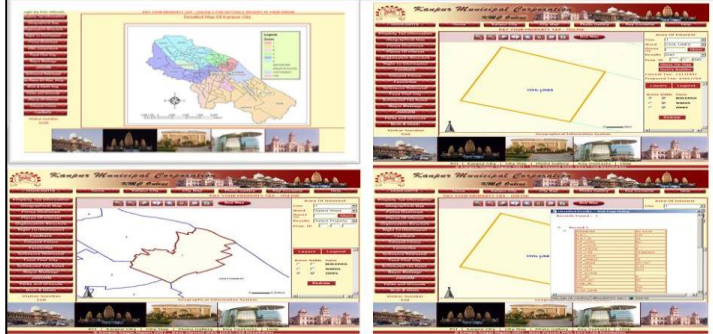
# Information Availability

- An overview of the City
- On-line property tax calculation
- Hassle free online property tax payment facilities
- A facility to access different maps based on Zones, Wards and Property
- GIS based spatial searching and identification of properties
- Monthly per sq. feet rates used for calculation of property tax.
- Circle rates of property used for the calculation of property tax for non-residential properties.
- Ward wise/Property wise maps with civic infrastructure details like roads, lanes, by lanes, parks, electric poles, telephone poles, railway lines, hotels, hospitals, police stations, schools, cinema hall etc.

# On-Line Tax Calculation System

# View Stepwise On-Line Tax Calculation System

# On-Line GIS based spatial searching and identification of properties



# On-Line Tax Payment System



# Ward-wise rates for Residential/Non-Residential Properties

Maximum Monthly Rent rates (Rs./ Sq. Ft./ Month): 2016, for Tax Assessment of all the Residential buildings/plots of 110 wards of KMC. These rates will be effective since 01/01/2016 to 31/03/2016.

S.No	Ward Name	Pakka bhawan RCC or RBC			Other Pakka bhawan			Kacha bhawan			Residential Plot in which Building is Not Constructed		
		<12m road	12 to 24m road	>24m road	<12m road	12 to 24m road	>24m road	<12m road	12 to 24m road	>24m road	<12m road	12 to 24m road	>24m road
01	Aligarh	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
02	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
03	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
04	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
05	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
06	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
07	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
08	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
09	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
10	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
11	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
12	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
13	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
14	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
15	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
16	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
17	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
18	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
19	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
20	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
21	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
22	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
23	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
24	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
25	Amli	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	

**Kanpur Municipal Corporation**  
2MC Online

Home Kanpur City City Map Photo Gallery Key Contacts Help

**Applications**

To view & Print the forms you need Acrobat reader. Click here to download for free

For downloading a form document, right-click on the form, click on 'Save Target as' in the pop-up menu, browse to location where you want to save the document and click 'Save'.

Forms	Type
Birth / Death Registration Form	
Self Assessment Of Property Tax	
License / Renewal Of License To Manufacture For Sale / Distribution Of Wholesale / Retail	
License For Advertisement	
License / Renewal Of License To Itinerant Vendors	

RTI | Kanpur City | City Map | Photo Gallery | Key Contacts | Help  
© Kanpur Nagar Nigam 2007. Best Viewed With 1024 x 768 Resolution

**On-Line Birth & Death Registration**

Login for Registrar

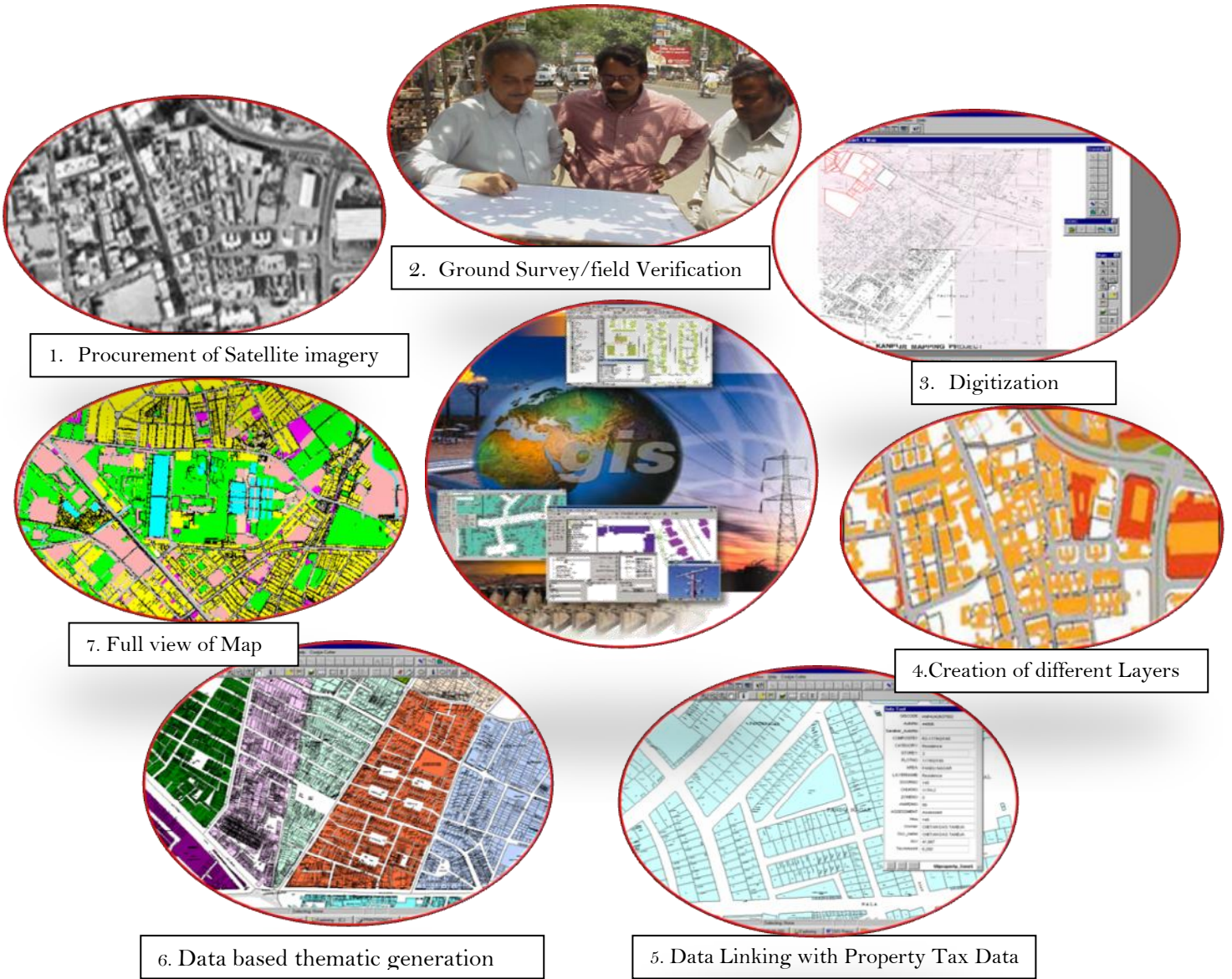
Login ID:   
Password:

By Entering details:

Registration Number:   
Acknowledgement Number:   
Name:   
Father's Name:   
Mother's Name:   
Gender:   
Zone:   
Ward:   
City:   
From Date:   
To Date:

Registration No.	Acknowledgement Number	Child Name	Father Name	Mother Name	Date of Birth	Child Gender	Zone Code	Ward Name	Amount Payable
KANPU2009-016860		Anil Kumar Prasad	Anshu Devi	Anshu Devi	3/1/2009 12:00:00 AM	M	3		
KANPU2009-016862		Rinkaj Gupta	ESIA	ESIA	3/1/2009 12:00:00 AM	M	3		
KANPU2009-016864		Nand Kishor Yadav	Prabhika	Prabhika	3/1/2009 12:00:00 AM	M	3		
KANPU2009-016866		Vineeta Kumar Mishra	Prityanka	Prityanka	3/1/2009 12:00:00 AM	M	3		
KANPU2009-016867		Anil Dubey	Radhha	Radhha	3/2/2009 12:00:00 AM	M	3		
KANPU2009-016869		Nahar Singh	Sanno	Sanno	3/2/2009 12:00:00 AM	M	3		
KANPU2009-016870			Rani	Rani	3/2/2009 12:00:00 AM	M	3		
KANPU2009-016871		Mahid Mehandi	Arman Bano	Arman Bano	3/2/2009 12:00:00 AM	F	3		
KANPU2009-016872		Shashi Bhushan Singh	Rashmi	Rashmi	3/2/2009 12:00:00 AM	M	3		
KANPU2009-016873		Anil Kumar Dutt	Chhama Dutt	Chhama Dutt	3/2/2009 12:00:00 AM	F	3		

# 4. GIS BASED PROPERTY MAPPING/TRACKING PROCESS

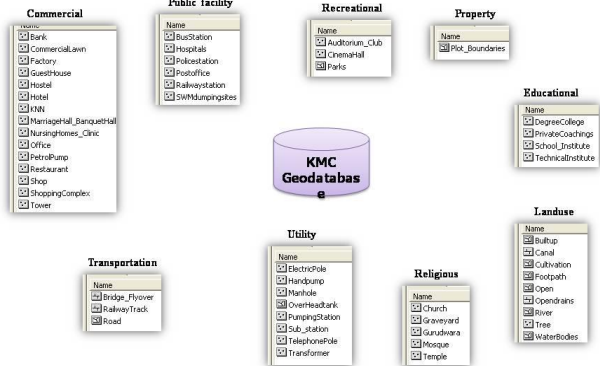


# GIS MAPPING & LINKING

- Satellite Image Based Mapping
- DGPS Survey for Sub-Meter Positional Accuracy
- More than 53 feature included
- Detailed ground survey for ground truth mapping
- Spatial and Non-Spatial data linking

## ABOUT GIS DATA SET

### Details of Layers



## ABOUT GIS DATA SET

- Spatial and Non-Spatial data linking

**Spatial Data with all features captured from field survey and digitization of images**

**Linked data after the integration of both Spatial and Non-spatial data on the basis of unique Building ID for property**

**Non-Spatial data collected from the door to door contact field survey of all 110 wards**

## ABOUT GIS DATA SET

### Process and Technology used

**Collection of 200 DGPS Points**

**Georeferencing of Satellite image with DGPS Points**

**Spatial Adjustment of Basemap data (legacy database KNN) with georeferenced Image**

**Digitization of satellite images for features like Roads, Water bodies, Open Plots, Builtups etc**

## Base Map

### With Property Details

**Roads**

**Building cover**

**Non-Spatial Linking**

## DIGITIZATION OF MAP'S BASED ON LATEST QUICK BIRD IMAGINARY



## Achievements:

- Project has been published as one of the best practice by:- [PEARL](#) (An initiative under JNNURM) volume -2.
- Project has been published as one of the best practice by ASCI, Hyderabad.
- Project has been published as one of the best practice by Computer Society of India, 2011.
- A paper based on this project has been published in the Arc India News magazine January-March 2009 edition volume-3.

## Recognition of the work-awards

- **Geo-spatial excellence award-2009 for best decision support system in local Government in 2009** by Sri Saurabh Gupta, Editor GIS Development Magazine, dated 12.02.2009 at Map World Forum, Hyderabad.
- **Indian Geospatial Award-2009** for utilizing geo-spatial technologies as part of e-governance initiative in 2010 by Sri T. Ramaswamy, Secretary Information & Technology, Govt. of India, at New Delhi.
- **SKOCH “ICT INDIA AWARD”** for Property Tax Management System, 2010 by Sri Jaipal Reddy, Minister of Urban Development, Govt. of India dated 01.09.2010 at SKOCH ICT India Award 2010, New Delhi.
- Selected under *The Top-100 ICT Projects in INDIA during 2011 & Awarded certificate of Merit* for Unique Property Numbering System dated 1<sup>st</sup> Sept., 2011 by Sri Montek Singh Ahluwalia, Vice-Chairman, Planning Commission, Govt. of India, at SKOCH ICT India Award 2011, New Delhi.
- Project has been awarded **CSI-Nihilent Award-2011** in the project category G2C by Computer Society of India dated 02.12.2011 at Ahmedabad.
- Project has been awarded **U.P. State e-Governance Awards-2009** in the project category “Government Process Re-engineering” by Sri Anoop Mishra, Chief Secretary Govt. of Uttar Pradesh dated 07.12.2011 at Lucknow.
- Project has been awarded **Special Achievement in GIS in India (SAG Award) Award** by Sri Sailesh Nayar, Secretary Science & Earth, Govt. of India dated 08.12.2011 at 12<sup>th</sup> ESRI India User’s Conference, New Delhi.







### Technical Description:

KMC application uses the three-tier architecture based on ESRI technology. An ArcSDE service conveys spatial data between Geographic Information System (GIS) applications and a database. The system architecture uses database management systems (RDBMSs) – SQL Server with ArcSDE. It is a registered collection of ArcGIS feature classes. The application that can connect to and access spatial data from an ArcSDE service will be automatically designed in the application. The solution component for KMC application development and deployment follows three-tiered system architecture as given below:

- **Presentation Tier** or Client Tier where the users access the KMC application through internet browser
- **Application Tier** where the KMC application business logic resides
- **Data Tier** where the KMC application databases reside

### Time Frame:

Initially it was one year but it was extended twice i.e. it took 3 years to complete.

### Principal Involved in the Innovation:

1. To make e-governance GIS enabled and use it as decision support system.
2. The system has resulted in enhancing the coverage by more than 50% & property based tax revenue by more than two times as compared to the system that existed prior to the introduction of the GIS based application.

### Originality/Novelty of the innovation:

e-Governance is GIS enabled and forms a Spatial decision support system in a local government. The system has resulted in enhancing the property based tax revenues by three times as compared to the system that existed prior to the introduction of the GIS based application. The other positive fallouts of this Endeavour have been:

1. Transparency in governance
2. Reduction in delays in government processing of grievances
3. Online tax payment and status verification facility removes intermediary agents facilitating the same.
4. Better revenues for investments into civic facilities

## Advantages over known alternatives:

### *Previous Situation*

One of the main problems of the Kanpur Nagar Nigam (City Corporation) and Kanpur Jal Sansthan (Kanpur Water Company) has been the extremely low tax revenues. Kanpur Municipal Corporation (KMC) used to do survey in the gap of every five years and additional properties were marked upon to collect property tax. Due to Annual Rental Value (ARV) method, citizens had to face lot of problems on the assessment basis and rates of payment.

The ARV method was quite subjective and depending upon the understanding of laws by the municipal staff, citizens had to face the non-conformity of the standard rate. Database of the houses were not adequate to take all the properties under tax net. Due to rise in the number of the properties, the demand for services were also increasing which had created too much of animosity between the citizen and administrative wings of KMC.

There were differential rates of property tax for both the industrial and non-industrial buildings though located in the same location. This used to be the bone of contention between citizens and Kanpur Municipal Corporation. Though, citizens used to pay taxes but they were not very regular in payment and thus it finally resulted in to litigation cases.

Property tax reforms in KMC established the system of scientific, transparent and self assessed system of tax collection, based on rational parameters which are now acceptable by the citizens. This reform has worked in way that the whole system became responsive to citizens as well as to the service provider.

### **Outcome of the Project**

The outcome of the reform was very productive as the number of properties covered under the tax net increased manifold and added to the revenues of the KMC. The increased revenue was used for infrastructural development.

#### **1. Information Availability**

- An overview of the City*
- On-line property tax calculation*
- Hassle free online property tax payment facilities*
- A facility to access different maps based on Zones, Wards and Property*
- GIS based spatial searching and identification of properties*
- Monthly per sq. feet rates used for calculation of property tax.*
- Circle rates of property used for the calculation of property tax for non-residential properties.*
- Ward wise/Property wise maps with civic infrastructure details like roads, lanes, by lanes, parks, electric poles, telephone poles, railway lines, hotels, hospitals, police stations, schools, cinema hall etc.*

#### **2. Process Re-Engineering**

### **Information Collection system changes as follows:-**

- Kanpur City Level information collection system:**  
*Kanpur City level information specially the basics of the city and landmark are available on-line.*
- Digital Maps of the City is available**  
*The city map which was previously on tracing paper and ammonia print is available in 1:1000 scale in digital format with details up to the property level.*
- Property Tax Data :**  
*Property tax data which was available on paper only, now it is globally available through website.*
  - *Property Tax liabilities*
  - *Existing status of paid taxes*
  - *Annual taxes due to be paid,*
- Tax Calculation System:**
  - *Previously it was manually calculated .*
  - *Now software based calculation on the Unit Area Method and On-line tax payment is available on-line through KMC web-site.*
  - *One can calculate and view stepwise calculation with all relevant details.*
- On-Line Birth & Death registration:**  
*Birth & Death registration is available On-Line previously it was on paper .*
- Different type of reports based on above mentioned facilities is always available on server or on-line.**

### **3. Citizen Centricity & User Convenience:-**

*The functionalities in the web-site provide following services/conveniences to stakeholders (citizen/Government Departments):-*

- On-line property tax calculation and view steps of calculation*
- Online property tax payment facilities*
- A facility to access different maps based on Zones, Wards and Property (Restricted to Govt. use)*
- GIS based spatial searching and identification of properties*
- Ward wise/Property wise maps with civic infrastructure details like roads, lanes, by lanes, parks, electric poles, telephone poles, railway lines, hotels, hospitals, police stations, schools, cinema hall etc.*
- The information is being used for R&D, planning of infrastructure and other projects.*

### **4. Transparency in Government Process:**

- Almost 100% property tax coverage in the KMC area.*
- Transparency & Speed in working.*
- Online tax payment and status verification facility removes intermediary agents*
- Better revenues for investments into civic facilities*
- Property details (attribute data) and GIS database (spatial data) available at the click of mouse.*

### **5. Time Saving/ Efficiency improvement initiatives**

- Reduction of time in surveying the area and mapping.
- Time saving in tax calculation.
- Better understanding of property tax calculation.
- User friendly application for day to day tax management
- Web application for hassle free Tax calculation and payments
- Creation of GIS based spatial property database
- Map based tracking of property tax defaulters
- Revenue generation efficiency.
- Renumbering of properties with unique premises no. and fixing of house number plates.

Base data generated during this reform has been used by the KMC at different fronts which includes citizen centric initiatives to make government more responsive for development purposes.

#### **GIS Map used in –**

- ❖ By Kanpur Municipal Corporation (KMC) for planning and revenue generation.
- ❖ Delimitation of KMC Wards- 2006.
- ❖ Ward wise Backward Population Survey- 2007.
- ❖ BPL (Below Poverty Line) Survey - 2007
- ❖ For planning, design/implementation of water supply & sewerage projects under JNNURM.
- ❖ By Kanpur Electric supply Company (KESCO) for power distribution planning and revenue generation.
- ❖ Census -2010-11 For enumerator block boundaries
- ❖ For Development of City Mobility Plan by U.M.T.C

#### ***Achievements/ Results***

This reform became a huge success in Kanpur to create an umbrella effect for covering large number of properties under it. The data below gives out an outlay of the assessed properties after GIS Survey:

- ❖ Increase in number of Properties

#### **Increase in number of property under tax net after GIS Survey**

<b>Zone</b>	<b>No. of Assessed properties before GIS survey (Year-2007-08)</b>	<b>No. of assessed Properties after GIS Survey till 31/03/2012</b>
Zone-1	22,313	51,250
Zone-2	1,04,889	1,11,820
Zone-3	22,710	68,811
Zone-4	11,609	38,231

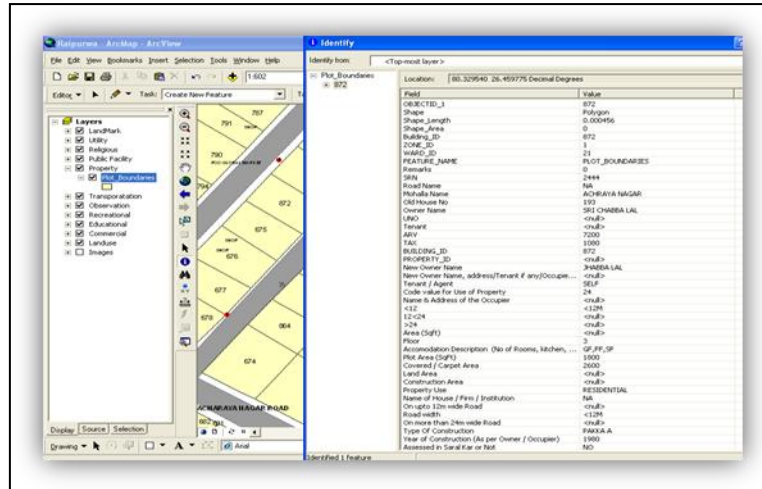
Zone-5	70,522	86,454
Zone-6	42,162	92,181
<b>Total</b>	<b>2,74,205</b>	<b>4,48,747</b>

The table shows that, the number of properties increased from 2, 74,205 to 4,48,747 which means that after the survey 1,74,542 properties were added into the tax net. Hence, the new reform is beneficial for both government and the KMC.

❖ **Costing of the project**

This project cost was Rs 130 lakhs , Rs 70 lakhs were of URIF funding and the remaining money was raised by the KMC from its own resources.

**Property Tax Records in GIS**



**Map linked to Municipal Records**

**Additional Revenue Generation**

