



***Excel Geomatics***

# **Geo-marketing for Product Sales and Customer Services**

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**Excel Geomatics Pvt. Ltd., Noida**

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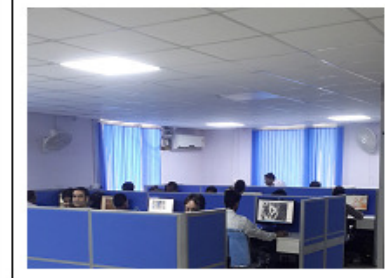
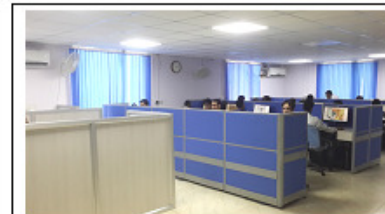
India Geospatial Forum, Hyderabad

## Presentation Outline

- **About Excel Geomatics**
- About Geo-marketing
- Digital Maps for Geo-marketing
- Population Distribution Model

# About Our Company

- ✓ Excel Geomatics is a Consultancy and Value Added Services Company
- ✓ Experienced and motivated group of professionals with strong & diverse educational background like Geology, Geography, Environment, Life Sciences and Forestry, etc.
- ✓ Our resources are cross-trained on various technologies such as
  - Remote Sensing
  - Photogrammetry
  - LiDAR
- ✓ In a short span of time, Excel Geomatics has been able to win multiple International and National projects in following countries-
  - Cameroon
  - Republic of Congo
  - Bangladesh
  - Sudan
  - India
  - Tanzania
  - The USA
  - Canada
  - The UK
  - Lebanon
  - Afghanistan
  - Saudi Arabia



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# About our Company

- ✓ In the last less than 4 years we have been able to win approximately 50 projects in the following domains
  - Agriculture
  - Telecom
  - Forestry
  - Power Sector
  - National Mapping Updates
  - Infrastructure Planning
  - Mineral Exploration & Mining
  - Insurance
  - Environment
  - Flood Hazard Zonation & Vulnerability Assessment
  - Defence
  - Geo-marketing
  
- ✓ More than 80% of our business is repeat business
  
- ✓ Excel Geomatics has recently entered into the GIS education segment with the opening of 'School of Excellence in Geomatics' in the city of Dakar, Senegal through its subsidiary 'Indian-Made in Africa'



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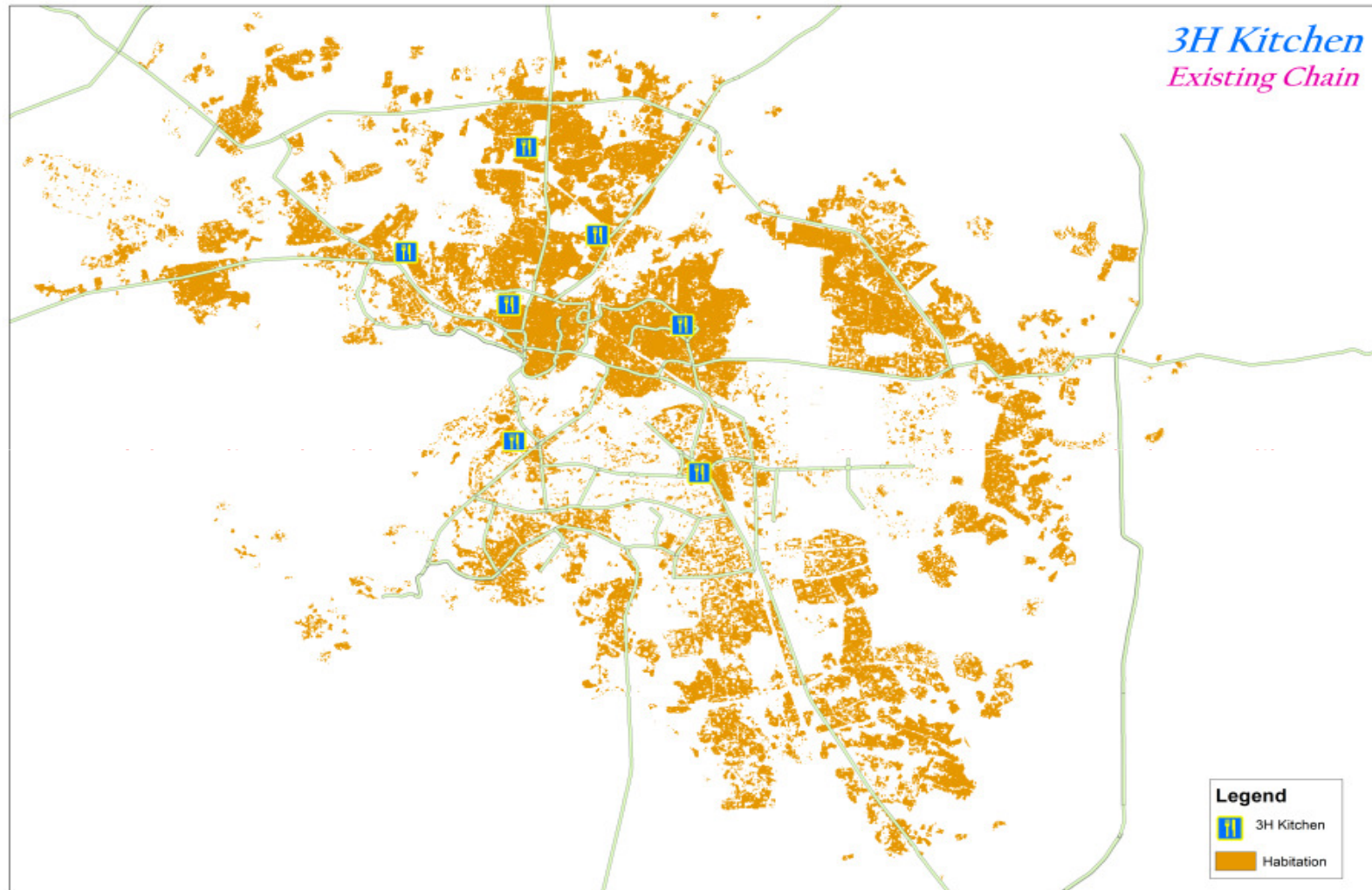




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- Digital Maps for Geo-marketing
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# About Geo-marketing



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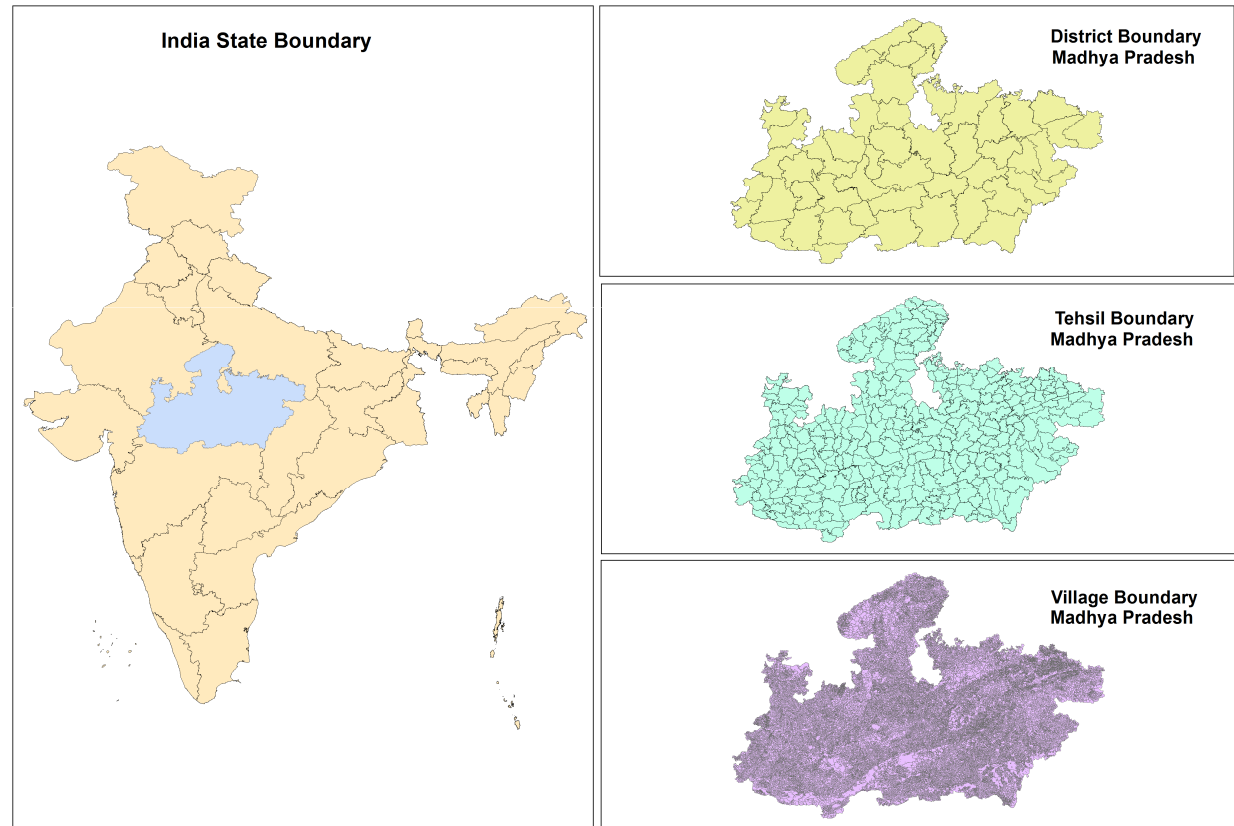
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# Digital Maps & Data for Geo-Marketing

## ✓ Administrative Maps of India for Geo-marketing

- Village and Town Point Data
- Village and Town Administrative Boundary Map
- Tehsil Boundary Map
- District Boundary Map
- Major Road Network



# Digital Maps & Data for Geo-Marketing

- ✓ Population Data according to Census 2011

VILLAGE_NAME	VILLAGE_CODE	PLCN_CODE	TEHSIL_NAME	TEHSIL_CODE	DISTRICT_NAME	DISTRICT_CODE	STATE_NAME	STATE_CODE	LEVEL	TRU	NO_HH	TOT_P	TOT_M	TOT_F	P_06	M_06	F_06	P_SC	M_SC	F_SC	P
Katapali	2137102770380928	38092800	Rengali	02770	Jharsuguda	371	Odisha	21	VILLAGE	Rural	237	1004	504	500	125	53	72	112	53	59	
Kanaktora	2137102770380953	38095300	Rengali	02770	Jharsuguda	371	Odisha	21	VILLAGE	Rural	429	1871	953	918	216	106	110	253	119	134	
Amapali	2137102770380988	38098800	Rengali	02770	Jharsuguda	371	Odisha	21	VILLAGE	Rural	193	809	413	396	103	58	45	256	132	124	
Kakodi(Sunar)	2345703676498492	49849200	Lanji	03676	Balaghat	457	Madhya Pradesh	23	VILLAGE	Rural	272	1273	626	647	146	67	79	96	50	46	
Badwanya	2343803537475553	47555300	Dahi	03537	Dhar	438	Madhya Pradesh	23	VILLAGE	Rural	425	2109	1048	1061	307	156	151	230	105	125	
Narsingh Runda	2346403709504720	50472000	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	29	139	66	73	26	13	13	0	0	0	
Nagan Khedi Poonja	2346403710504825	50482500	Ranapur	03710	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	173	1335	676	659	309	151	158	1	0	1	
Kushalpara	2346403710504846	50484600	Ranapur	03710	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	263	1288	640	648	262	127	135	6	3	3	
Dungara	2346403710504890	50489000	Ranapur	03710	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	59	442	224	218	101	53	48	0	0	0	
Partappura	2346403709504774	50477400	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	26	159	79	80	27	13	14	1	0	1	
Thandla (NP)	2346403706802427	80242700	Thandla	03706	Jhabua	464	Madhya Pradesh	23	TOWN	Urban	3005	15756	8282	7474	2239	1162	1077	811	397	414	
Petlawad (NP)	2346403707802428	80242800	Petlawad	03707	Jhabua	464	Madhya Pradesh	23	TOWN	Urban	3117	15174	7791	7383	1979	1048	931	1073	539	534	
Pachama	2344703602485807	48580700	Ghoda Dongri	03602	Betul	447	Madhya Pradesh	23	VILLAGE	Rural	125	600	300	300	98	45	53	243	114	129	
Meghnagar (CT)	2346403708504556	50455600	Meghnagar	03708	Jhabua	464	Madhya Pradesh	23	TOWN	Urban	2553	12929	6712	6217	2111	1062	1049	758	386	372	
Bhuwada	2343803538475707	47570700	Manawar	03538	Dhar	438	Madhya Pradesh	23	VILLAGE	Rural	239	1228	618	610	162	91	71	58	30	28	
Bhuradabra	2346403709504678	50467800	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	214	1139	575	564	305	165	140	0	0	0	
Chaura	2346403709504575	50457500	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	138	583	299	284	134	66	68	1	1	0	
Hadmatiya	2346403709504700	50470000	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	226	1373	678	695	341	160	181	103	51	52	
Piliya Khandan	2346403709504695	50469500	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	253	1605	808	797	377	196	181	4	2	2	
Kokawad	2346403709504721	50472100	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	267	1595	746	849	354	162	192	2	2	0	
Kalalpal	2346403709504580	50458000	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	321	1718	852	866	400	193	207	0	0	0	
Kaliya Chhota	2346403709504570	50457000	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	194	896	449	447	170	90	80	23	13	10	
Bhoyara	2346403709504579	50457900	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	303	1244	602	642	306	148	158	10	5	5	
Mandli Badi	2346403709504574	50457400	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	232	1215	600	615	311	157	154	0	0	0	
Masanya	2343803536475517	47551700	Kukshi	03536	Dhar	438	Madhya Pradesh	23	VILLAGE	Rural	164	883	437	446	131	62	69	1	1	0	
Ghatiya	2346403709504572	50457200	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	289	1819	880	939	429	223	206	1	1	0	
Machhaliya	2346403709504725	50472500	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	455	2801	1402	1399	713	354	359	15	6	9	
Amba Khodra	2346403709504748	50474800	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	197	1085	531	554	266	127	139	0	0	0	
Malwan	2346403709504577	50457700	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	171	813	429	384	143	80	63	1	1	0	
Pipalya	2346403709504712	50471200	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	192	1273	621	652	333	173	160	0	0	0	
Deojhari Ranwas	2346403709504693	50469300	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	115	505	256	249	119	59	60	1	1	0	
Wagalawat	2346403709504680	50468000	Jhabua	03709	Jhabua	464	Madhya Pradesh	23	VILLAGE	Rural	94	470	233	237	99	53	46	0	0	0	

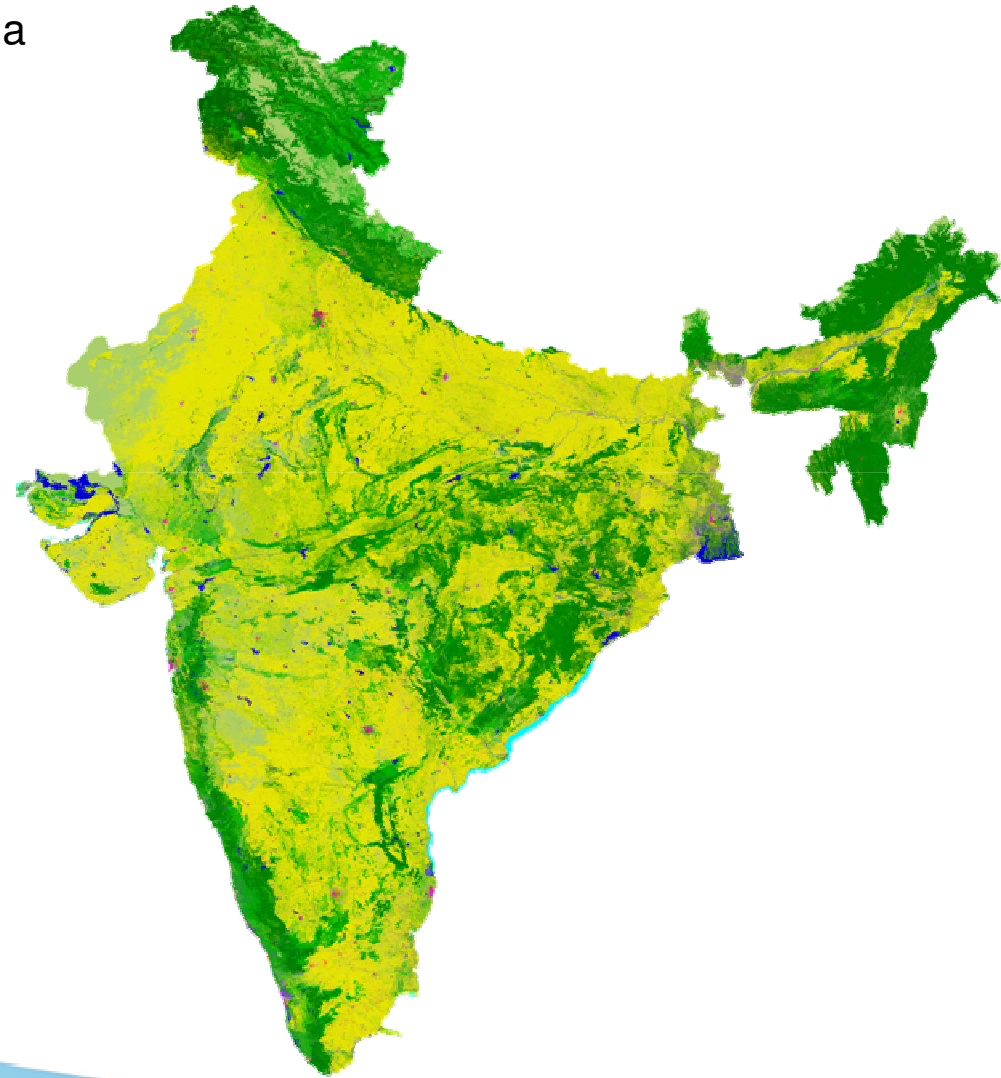


# Digital Maps for Geo-Marketing

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✓ Landuse\Landcover Map of India

- Residential Areas
- Commercial Areas
- Industrial Areas
- Other areas



## Presentation Outline

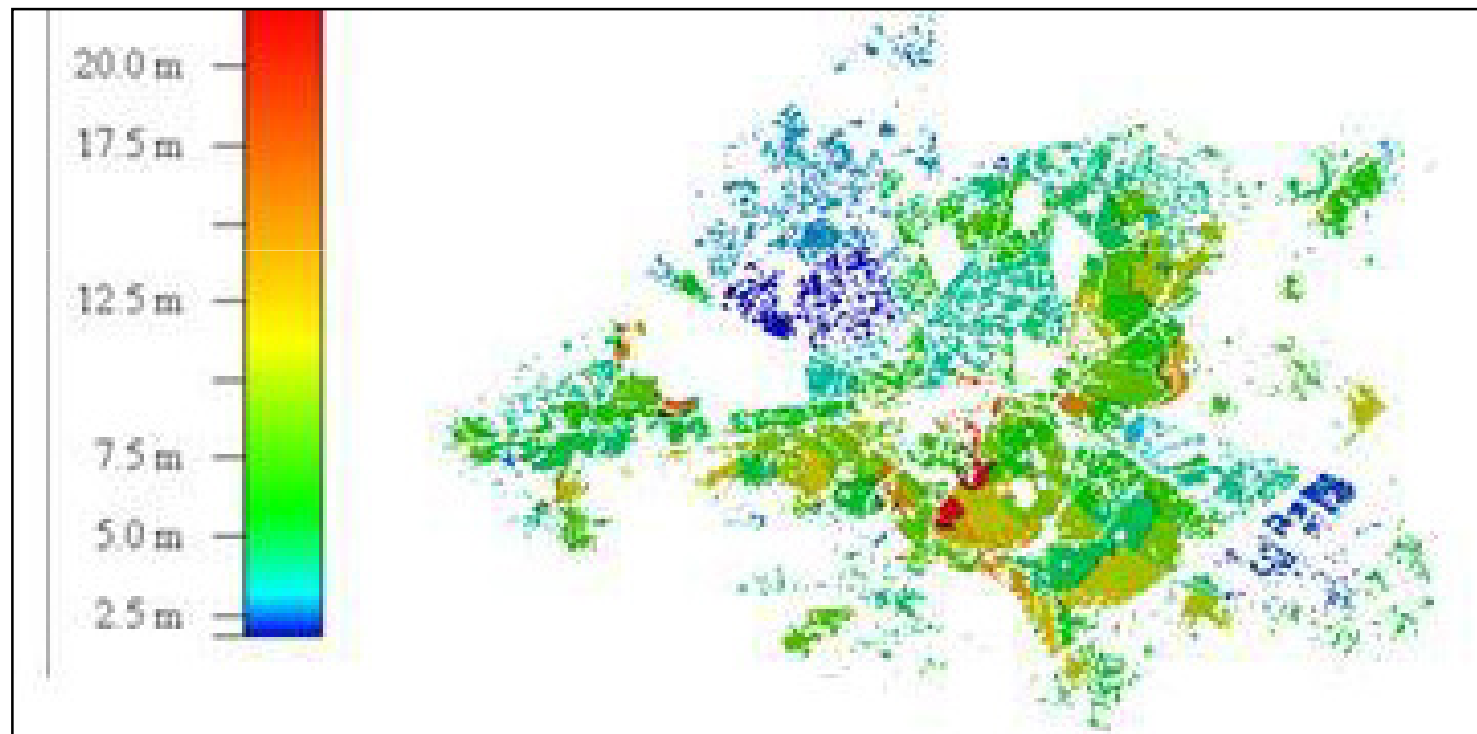
- About Excel Geomatics
- About Geo-marketing
- Digital Maps for Geo-marketing
- **Population Distribution Model**



# Population Distribution Model

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- Raster grid based map showing the distribution of population
- Density of the population per pixel

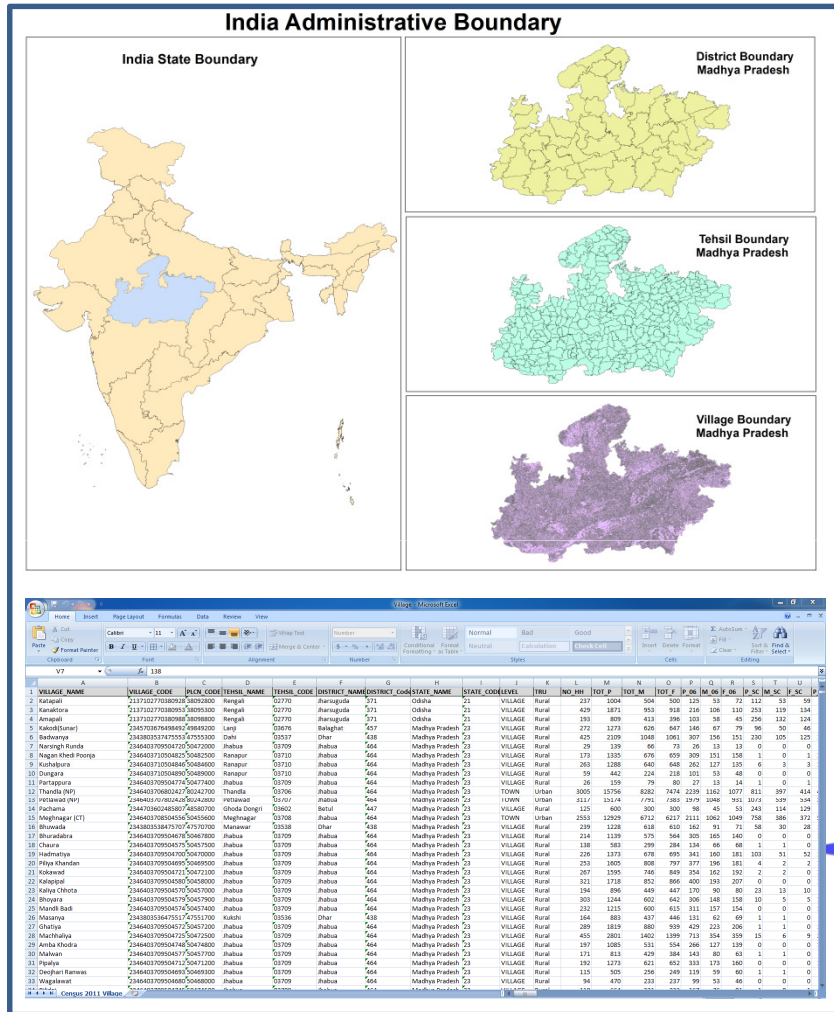


Population Distribution Model of Amritsar





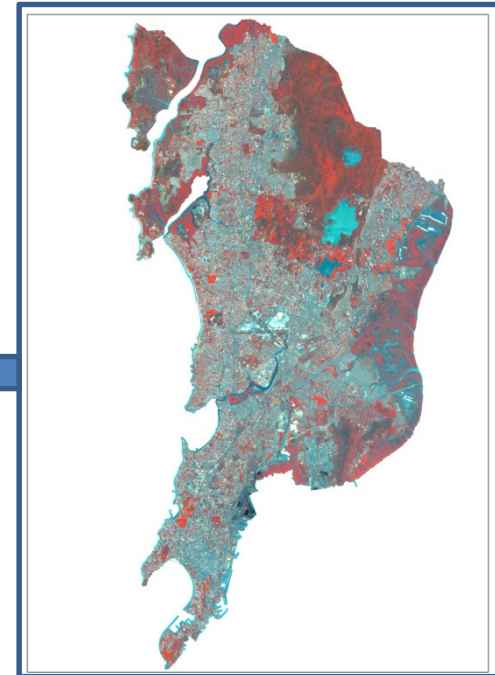
# Population Distribution Model



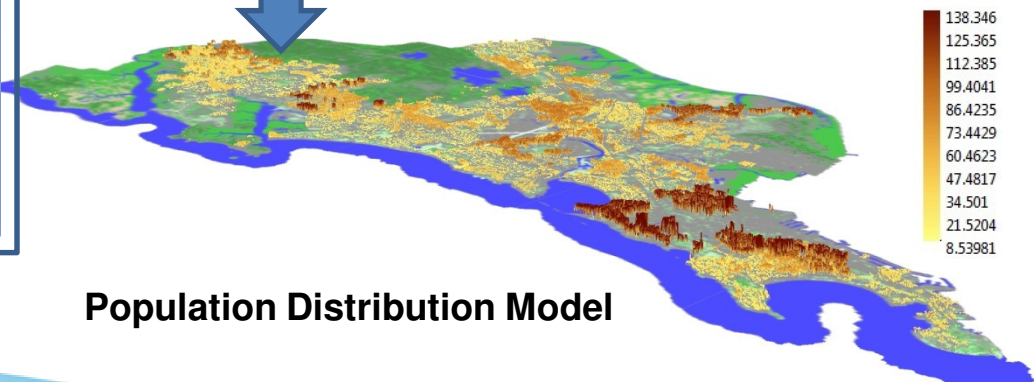
Census 2011 Data



Classification, Weightage & Data Processing



Satellite Image



Population Distribution Model



# Visualization and Analysis

The screenshot shows the MapInfo Professional interface with the following components:

- Map Window:** Displays a population density map with a yellow AOI boundary. The map is color-coded from blue (low density) to red (high density).
- AOI Browser:** A table showing the results of the AOI analysis.

ID	Node_Sum
24	145,441.4
- Grid Manager:** Shows the active grid: 'population\_density\_data\_amritsar\_15m.grid'.
- Region Inspection:** A dialog box for selecting attributes to add for all active grids. The 'Sum of nodes' attribute is selected.

1 layer selected  
records 1 - 1 of 1

## AOI Based Analysis



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# Why Population Distribution Model?

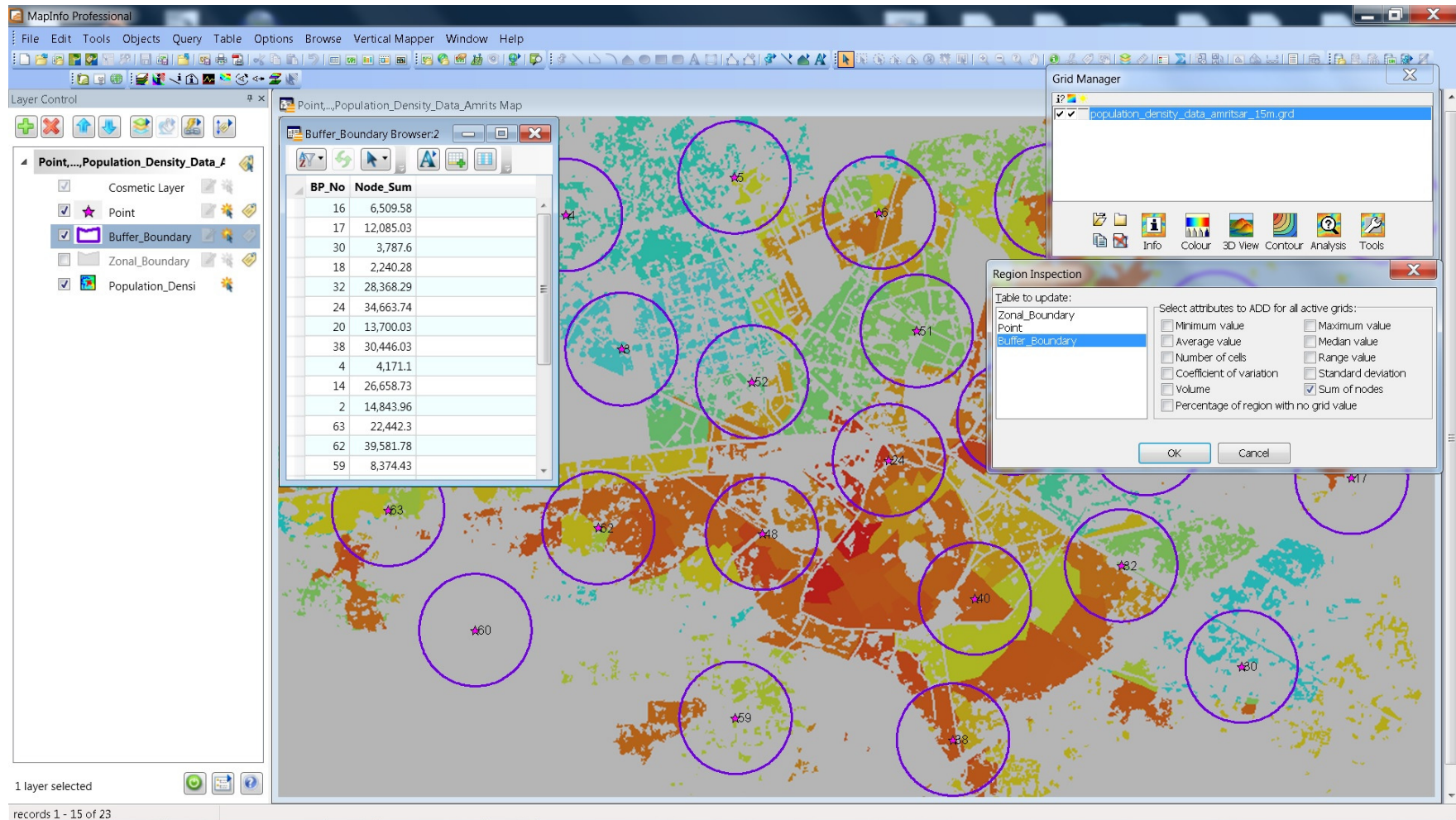
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- The population density of an area can be one of the most important determining factors for planning of business and marketing campaign.
- It's not enough only to know how many consumers live in a specific state or a city but it is also important to know how the distribution of population within a city, ward or even within a village is.
- 'Population Distribution Map' will allow planners to choose a location for a business that is accessible to the largest number of people.
- Using 'Population Distribution Model' it is possible to know the population within any buffer, boundary, or AOI





# Visualization and Analysis



## Buffer Analysis



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# Visualization and Analysis

The screenshot displays the ArcMap interface with the 'Zonal Statistics as Table' tool running. The map shows a city divided into wards, each with a unique ID and a color-coded zone representing population density. The 'Zonal Statistics as Table' dialog box is open, showing the following settings:

- Input raster or feature zone data: Bhopal\_Ward\_Data
- Zone field: Ward
- Input value raster: Bhopal\_Population\_Density.tif
- Output table: C:\Users\Vineet\Documents\ArcGIS\Default.gdb\ZonalSt\_shp3
- Ignore NoData in calculations (optional):
- Statistics type (optional): SUM

The 'Table' window displays the following data:

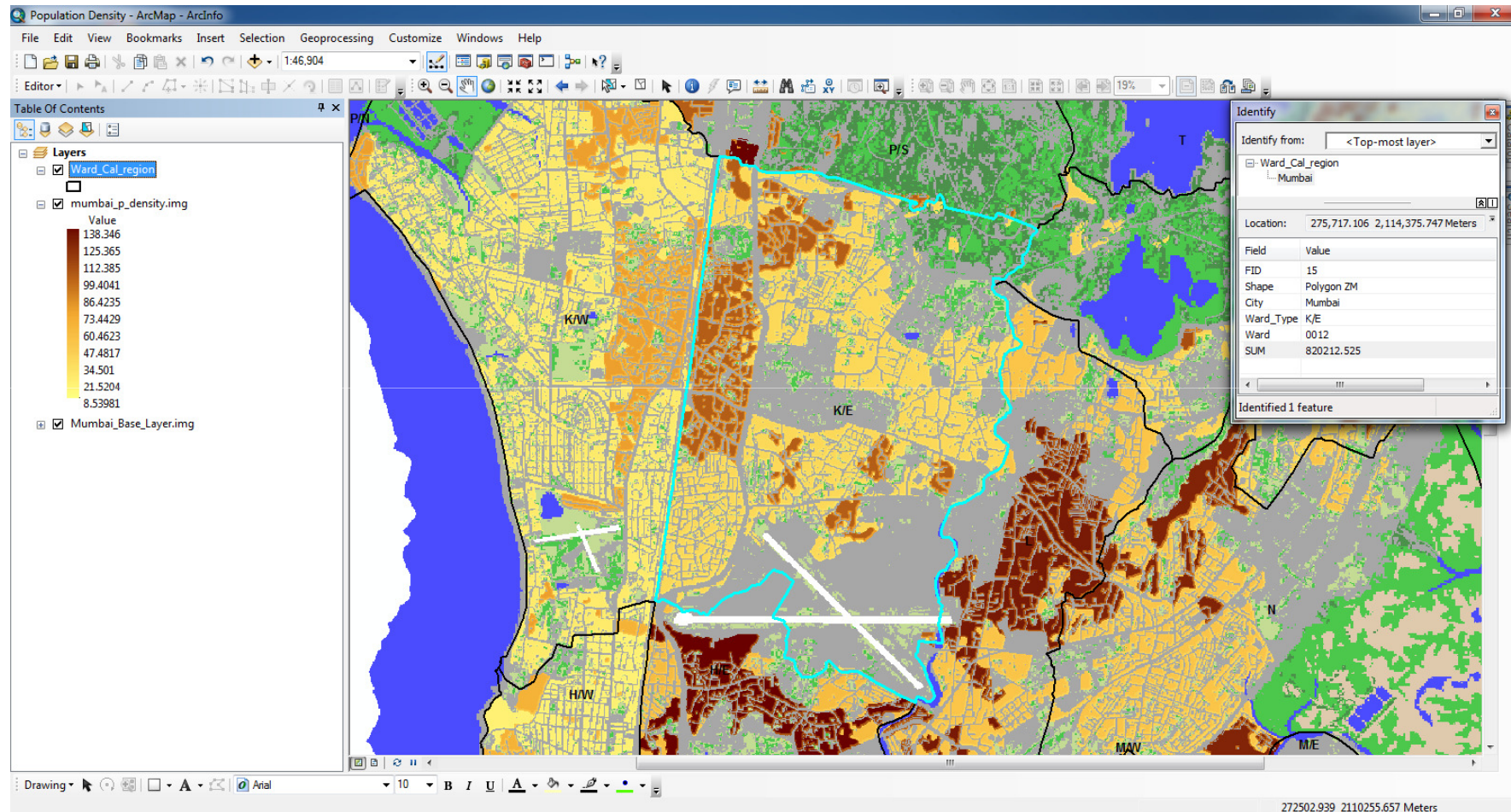
Rowid	WARD	ZONE	COUNT	AREA	SUM
1	0051	1	2560	576000	29336.162
2	0050	2	5056	113760	31830.002
3	0049	3	1947	438075	16139.736
4	0048	4	663	149175	7880
5	0052	5	23849	536602	63957.27
6	0053	6	8711	195997	34125.27
7	0027	7	3761	846225	27863.379
8	0054	8	4851	109147	24047.213
9	0047	9	1969	443025	6921
10	0025	10	1963	441675	24912.852
11	0028	11	4180	940500	27981.387
12	0046	12	920	207000	18974.502
13	0026	13	1770	398250	21815.676
14	0045	14	947	213075	23024.252
15	0055	15	2202	495450	19472.902
16	0058	16	3467	780075	30677.758
17	0029	17	815	183375	17854.186
18	0044	18	2564	576900	10806.142
19	0024	19	2114	475650	22471.891
20	0030	20	1579	355275	23666.988
21	0023	21	1214	273150	17094
22	0031	22	865	194625	26651.811
23	0056	23	2930	659250	27093
24	0032	24	1224	275400	15762.348
25	0022	25	1721	387225	18014.912
26	0041	26	539	121275	13967.174
27	0060	27	1509	339525	25085.635
28	0042	28	2482	558450	19798.291
29	0057	29	683	153675	16311.88
30	0043	30	2005	451125	23870.432
31	0033	31	1513	340425	13612.815
32	0040	32	865	194625	12704.688
33	0020	33	1301	292725	21287.277
34	0034	34	1019	229275	15828
35	0039	35	1276	287100	12774.049
36	0019	36	1255	282375	16313.014
37	0038	37	1804	405900	43454.27
38	0018	38	1309	294525	13802.992

## Zonal Analysis





# Visualization and Analysis



## Ward-wise Analysis



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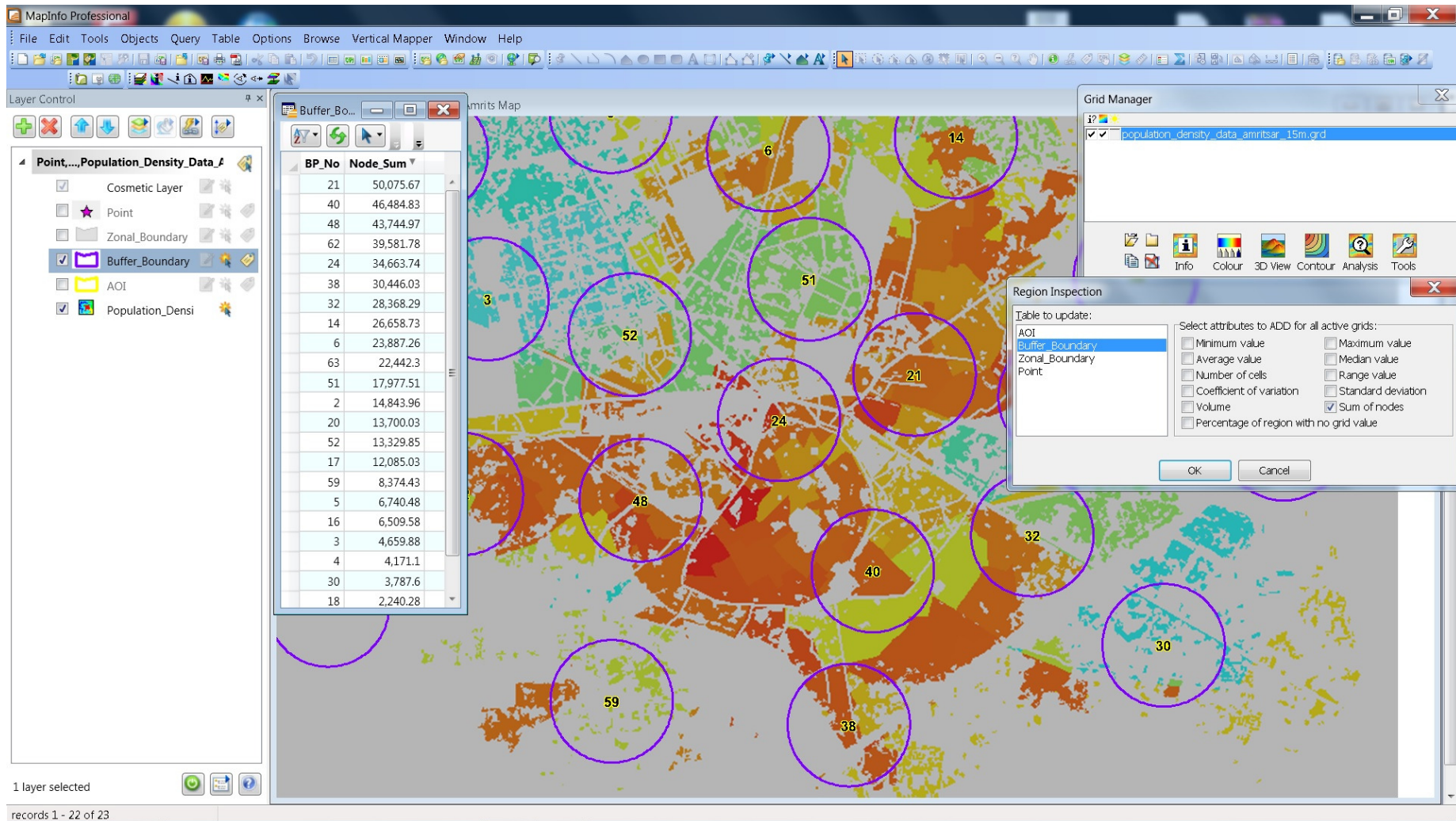
# Geo-marketing Applications of Population Distribution Model

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- This map has found its usefulness in the business application areas such as
  - Selection of ATM location based on the population that could be covered within a buffer zone
  - Allotment of franchises or opening of a retail outlet based on population covered and not by the distance between them
  - To know the approximate population covered by signals from each Telecom Tower, etc.



# Case Study 1: Buffer Analysis for Proposed ATM Sites





# Case Study 2: Population in Telecom Cell Service Area

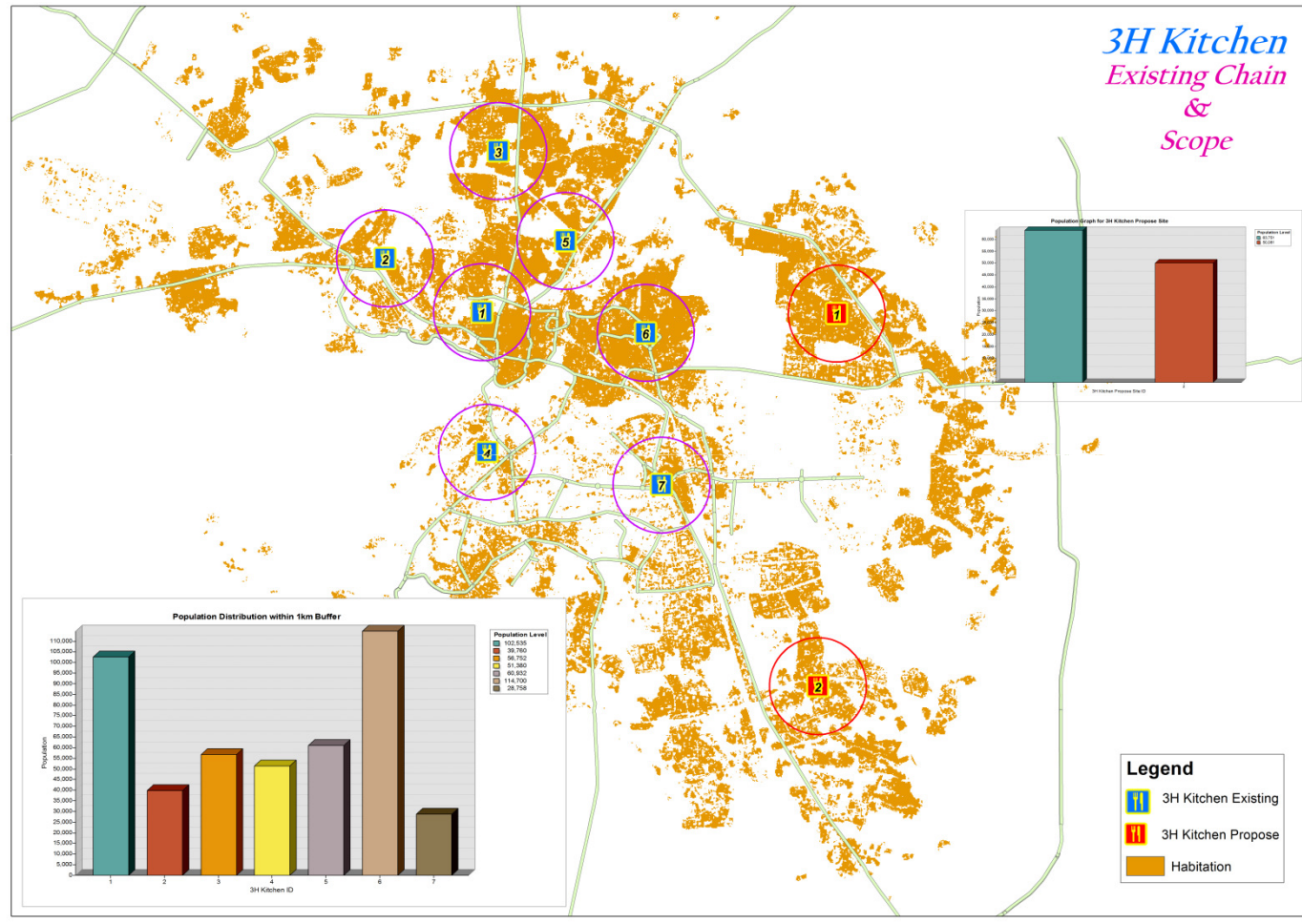
Service\_Area\_Region Browser

OBJECTID	Float_	Site_Name	Cell_ID	Longitude	Latitude	Cell_Name	Site_1st_N	Population	Area_Sqkm
1	0.0000000000	PUNKAP0013	PUNKAP0013C	075°23'49.66"E	31°23'18.77"N	KAP0013C	Ajit Nagar, Kapurthala	5,843	1.94
2	0.0000000000	PUNKAP3048	PUNKAP3048C	075°22'41.70"E	31°23'17.38"N	KAP3048C	Kthala Laxmi Nagar	3,413	2.29
3	0.0000000000	PUNKAP3048	PUNKAP3048A	075°22'41.70"E	31°23'17.38"N	KAP3048A	Kthala Laxmi Nagar	709	0.16
4	0.0000000000	PUNKAP0001	PUNKAP0001A	075°22'41.77"E	31°22'59.70"N	KAP0001A	Kapurthala-4	2,279	0.65
5	0.0000000000	PUNKAP0007	PUNKAP0007A	075°23'0.49"E	31°22'59.70"N	KAP0007A	Bhagat Singh Avenue	7,733	1.16
6	0.0000000000	PUNKAP3048	PUNKAP3048B	075°22'41.70"E	31°23'17.38"N	KAP3048B	Kthala Laxmi Nagar	1,926	0.27
7	0.0000000000	PUNKAP0007	PUNKAP0007C	075°23'0.49"E	31°22'59.70"N	KAP0007C	Bhagat Singh Avenue	2,250	0.10
8	0.0000000000	PUNKAP0001	PUNKAP0001B	075°22'41.77"E	31°22'59.70"N	KAP0001B	Kapurthala-4	4,370	0.12
9	0.0000000000	PUNKAP0007	PUNKAP0007B	075°23'0.49"E	31°22'59.70"N	KAP0007B	Bhagat Singh Avenue	3,474	0.53
10	0.0000000000	PUNKAP0013	PUNKAP0013A	075°23'49.66"E	31°23'18.77"N	KAP0013A	Ajit Nagar, Kapurthala	3,240	1.42
11	0.0000000000	PUNKAP0013	PUNKAP0013B	075°23'49.66"E	31°23'18.77"N	KAP0013B	Ajit Nagar, Kapurthala	3,427	0.60
12	0.0000000000	PUNKAP0011	PUNKAP0011A	075°22'29.10"E	31°22'41.77"N	KAP0011A	Kottu Chowk, Kapurthala	2,156	0.12
13	0.0000000000	PUNKAP0012	PUNKAP0012A	075°22'59.80"E	31°22'40.11"N	KAP0012A	Archies Gallary	2,005	0.21
14	0.0000000000	PUNKAP0001	PUNKAP0001C	075°22'41.77"E	31°22'59.70"N	KAP0001C	Kapurthala-4	6,628	1.03
15	0.0000000000	PUNKAP0012	PUNKAP0012C	075°22'59.80"E	31°22'40.11"N	KAP0012C	Archies Gallary	4,932	0.32
16	0.0000000000	PUNKAP0011	PUNKAP0011B	075°22'29.10"E	31°22'41.77"N	KAP0011B	Kottu Chowk, Kapurthala	1,026	0.13
17	0.0000000000	PUNKAP0004	PUNKAP0004A	075°24'12.06"E	31°22'22.36"N	KAP0004A	Sanik School Kapurthala	2,891	1.44
18	0.0000000000	PUNKAP0011	PUNKAP0011C	075°22'29.10"E	31°22'41.77"N	KAP0011C	Kottu Chowk, Kapurthala	3,845	0.92
19	0.0000000000	PUNKAP0021	PUNKAP0021A	075°22'43.31"E	31°22'19.30"N	KAP0021A	Sultanpur Road Kapurtha	2,668	0.22

Zoom: 8.251 mi    Editing: None    Selecting: None



# Case Study 3: Use of Population Distribution Model in Expansion of Restaurant Business



***Thank You!***

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