

National Urban Information System (NUIS) Scheme

MEMORANDUM OF UNDERSTANDING

between
Ministry of Urban Development (MOUD), Govt. of India
and
Survey of India, the National Mapping Agency (NMA)

March 2006



**Town & Country Planning Organisation
Government of India
Ministry of Urban Development**

National Urban Information System (NUIS) Scheme Memorandum of Understanding (MOU)

This Memorandum of Understanding is made between

Ministry of Urban Development, Nirman Bhawan, New Delhi-110011 (hereinafter called “MOUD” and the term “MOUD” shall mean and include its heirs, administrative executors and assigns on the FIRST PART.

AND

Survey of India, the National Mapping Agency (NMA), Department of Science & Technology, Government of India, Hathibarkala Estate, Dehra Dun 248001, (herein after called “NMA” and the term “NMA” shall mean and include its heirs, administrative executors and assigns on the OTHER PART.

1. The Ministry of Urban Development has initiated a Centrally Sponsored Scheme *viz.* National Urban Information System (NUIS) Scheme during the Tenth Five Year Plan which comprises broadly of two major components i.e. a) **Urban Spatial Information System (USIS)** to meet the spatial (maps/images) data/information requirements of urban planning for routine functions and b) **National Urban Databank and Indicators (NUDBI)** for development of town level urban database to support development of indices through a network of Local Urban Observatories (LUOs) under the National Urban Observatory (NUO) Programme.
2. Databases to be developed at two levels are:
 - i) 1:10,000 scale GIS database for Development/Master Plan (as per Annexure I).
 - ii) 1:2,000 scale GIS database for detailed town planning schemes using high resolution remotely sensed data sources (Aerial Photographs) for areas greater than 25 Sq. Kms. For smaller areas the map will be derived from ground surveys (as per the Annexure I) and
 - iii) 1:1,000 scale Utility Maps derived from the 1:2,000 base maps, for 24 towns to be undertaken using Ground Profiling/Penetrating Radar (GPR) technology (as per the Annexure II).
3. Deliverables under the job shall include:
 - Multispectral satellite images for 1:10,000 mapping.
 - Aerial Photo prints used as source for 1:2,000 mapping.
 - Global Positioning System (GPS) data
 - 1:1,000 scale utility maps using Ground Profiling/Penetrating Radar (GPR) technology from 1:2,000 database.
 - Town level mosaic map for each of the two scales as mentioned at Article 2 (i) and (ii) above.
 - GIS data sets containing all layers as specified in the NUIS Standards Document.

- The data shall be delivered in digital format along with two sets of prints in colour.
4. Accordingly the scope of work would include:
 - i) Generation of two levels (1:10,000 & 1:2,000) of base maps from current remotely sensed data sources as per specifications relating to accuracies and features/contents (Annexure -III) documented in the NUIS Standards Documents.
 - ii) Generation of Utility maps for 24 identified towns, (12 towns mapped under Urban Mapping Scheme and 12 towns from those mapped under NUIS Scheme (list at Annexure-II).
 - iii) Developing GIS database with value added graphic data from the ULBs and attribute data compiled by the National Urban Databank and Indicators Unit of State NUIS Cell.
 5. Details of number of themes, contents, features and attribute database parameters and data structure (Annexure-IV) would be guided by the NUIS Standards Document.
 6. While the base map generation would be the exclusive responsibility of the NMA, the digital maps generated under Urban Mapping Scheme of 12 towns identified for Utility Mapping shall be supplied by the Town & Country Planning Organisation (TCPO) and the data for value addition shall be supplied by respective State Govt. Departments.
 7. Attribute data compiled in the ULBs will be given by the identified State Nodal Agencies to be linked to the graphic database generated by the NMA.
 8. The total work of GIS database for 137 towns/cities/urban-agglomerations shall be handled by the NMA. The names of towns/cities/urban agglomerations are given in Annexure-I and for Utility Mapping are given in Annexure-II.
 9. Rates for various jobs as agreed to by the MOUD and the NMA are as follows:
 - a) Rs. 3,000/Sq km for 1:10,000 Scale GIS database.
 - b) Rs. 15,000/Sq km for 1:2,000 Scale GIS database.
 - c) Rs. 6,000/ linear km for 1:1,000 Scale from 1:2,000 Scale Utility Mapping.
 10. Total cost estimate for the job based on the above rates shall be subject to actual area of the town/city/urban-agglomeration as supplied by the beneficiary States to the NMA. Similarly for Utility Mapping, the estimate shall be based on the actual length of the utilities.
 11. Funding pattern of the scheme is in the ratio of 75:25 between the Central Government and the State Governments respectively. MOUD would release to the NMA the funds in three installments i.e. 50%, 40% and 10% of the Central Share as first, second and third

installments respectively. MOUD shall retain the third/final installment till the work is completed and handed over to MOUD or its agents by the NMA. The balance 25% of the State Share will be paid by the respective State Governments to the NMA. MOUD will provide assistance to the NMA to get 25% share released from the State Governments to enable NMA to start the work.

12. The NMA shall undertake work only for the towns in respect of States that have consented and released their 25% share of the cost of the GIS database under the Scheme to the NMA.
13. The MOUD shall release the first installment of its share immediately on signing of this MOU.
14. The MOUD shall release the second installment based on the following conditions:-
 - (a) Submission of the item wise physical progress of the job.
 - (b) Submission of Utilization Certificate to the extent of 70% of funds released.
15. The NMA shall have to maintain the GIS Database for a period of six months following setting up of the database at State Nodal Agencies. The cost of handholding shall be part of the cost of the total GIS database job awarded.
16. The NMA shall submit to the MOUD a document within a month of award of work containing methods, technology and detailed schedule of activities in accordance with the broad delivery schedule as given below:

Sl.No.	Item of Work	1:10,000 Scale	1:2,000 Scale
		Completion period*	Completion Period*
1.	Data capture	3 months	5 months
2.	Image processing/Photogrammetry	5 months	6 months
3.	Mapping	7 months	10 months
4.	Value addition	9 months	12 months
5.	Linking attribute data	11 months	14 months
6.	GIS Data Base	13 months	15 months
7.	Utility Mapping for 24 Towns		18 months

* Completion period from the date of receipt of Aerial Photos/Satellite Images.

17. The total job of 137 towns/ cities/ urban-agglomerations shall be completed within 18 months from the date of receipt of aerial photos and images. However, the first lot of maps should start rolling in after six months (to initiate value addition and attribute data linking).
18. The MOUD will monitor the progress of the job as per the schedule of activities as mentioned in the Article 16.
19. The NMA shall submit monthly progress in the prescribed Proforma for physical and financial progress in consonance with the activity schedule as mentioned in Article 16 and

also indicate changes if any in the sequence of activities. Any changes in the sequence of activities shall not be entertained, without the prior approval of the MOUD.

20. In case the NMA is unable to complete any stage of the job (as mentioned in Article 16) and if the delay is attributable to reasons under control of the NMA, this will be treated as breach of the MOU to the extent of the stage not completed in time on the part of the NMA. The NMA shall have to refund the amount paid for such stage to MOUD which is to be calculated proportionately and decided mutually by MOUD and NMA.
21. The quality of maps and the database should strictly comply with specifications as given in the NUIS Standards Document. It shall be monitored at two levels *viz* (a) by the NMA and (b) by the MOUD and /or any other agency nominated by the MOUD.
22. The data source for 1:2,000 scale mapping shall be based on data capture initiated subsequent to the date of placement of order and NMA shall not use any archived data; however for 1:10,000 scale mapping, satellite images of October 2005 onwards may be used. The NMA shall submit all the sourced data for 1:10,000 and 1:2000 mapping.
23. The data transfer/issue, storage and utilization shall be governed by the prevalent rules and regulations of the Government of India such as Ministry of Defence regulations and the provisions of the National Map Policy.
24. Any change in the quantity of job (either increase in geographical area of towns as specified in Annexure-I or change in number of towns) for similar specifications shall have to be undertaken by the NMA at the same rate as given in this MOU.
25. Neither party (MOUD or NMA) shall be liable to the other party for any delay or failure to perform its obligations under the MOU (other than the payment terms) if such delay or failure results from a *Force Majeure* event.
26. The topographical database generated under the Scheme shall be licensed to MOUD as per the National Map Policy.
27. The MOUD shall not be responsible for any workmen claim or third party claim in respect of acts or omissions of the NMA, its employees or agents in carrying out the job.
28. In the event of any dispute or differences relating to the interpretation and application of the provisions of the MOU, such dispute or differences shall be referred by either party for Arbitration to the sole Arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises.

The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the Arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law & Justice, Government of India. Upon such reference, the dispute shall be decided by the Law Secretary or the Special Secretary/ Additional Secretary, when so authorized by the Law Secretary, whose decision shall bind the Parties finally and conclusively. The Parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.

In witness of which this Memorandum of Understanding has been duly executed by the parties.

Signed for and on behalf of –
**MOUD (Ministry of Urban Development,
Govt. of India)**

Signature: M. Rajamani
13/3/06

Name: M. RAJAMANI

Designation: Joint Secretary,
Urban Development,

Date: 13.03.06

Seal: **एम० राजामणि**
M. Rajamani
संयुक्त सचिव, भारत सरकार
Joint Secy., Govt. of India
शहरी विकास मंत्रालय
M/o Urban Development
नई दिल्ली / New Delhi

Signed for and on behalf of –
**NMA (Survey of India, the National
Mapping Agency,)**

Signature: M.C. ... 13/3/06

Name: MAJ GEN M GOPAL RAO

Designation: SURVEYOR GENERAL OF INDIA

Date: 13 MAR 2006

Seal:

Annexure-I

List of NUIS Scheme Towns with Tentative area for mapping

Sl. No.	Town	State	Population 2001	Status	Class	Tentative area for mapping in Sq. Km.		
						Census Area 1991*	Area 1991 + 500 % (For 1:10,000 Scale)	Area 1991 + 20 % (For 1:2000 Scale)
1	Port Blair	Andaman & Nicobar Islands	99984	Town	II	14.14	70.70	16.97
2	Adilabad	Andhra Pradesh	129403	Town	I	20.76	103.80	24.91
3	Dharmavaram	Andhra Pradesh	103357	Town	I	40.45	202.25	48.54
4	Madanapalle	Andhra Pradesh	107449	Town	I	14.20	71.00	17.04
5	Nalgonda	Andhra Pradesh	111380	Town	I	22.00	110.00	26.40
6	Srikakulam	Andhra Pradesh	117320	Town	I	14.10	70.50	16.92
7	Tadepaligudem	Andhra Pradesh	102622	Town	I	20.71	103.55	24.85
8	Along	Arunachal Pradesh	17033	Town	IV	20.00	100.00	24.00
9	Daporijo	Arunachal Pradesh	15756	Town	IV	20.00	100.00	24.00
10	Dibrugarh	Assam	137661	UA	I	16.00	80.00	19.20
11	Nagaon	Assam	123265	UA	I	9.22	46.10	11.06
12	Silchar	Assam	184105	UA	I	15.75	78.75	18.90
13	Tezpur	Assam	105377	Town	I	7.10	35.50	8.52
14	Tinsukia	Assam	108123	UA	I	33.27	166.35	39.92
15	Arrah	Bihar	203380	Town	I	30.97	154.85	37.16
16	Bhagalpur	Bihar	350133	UA	I	30.84	154.20	37.01
17	Darbhangha	Bihar	267348	Town	I	19.18	95.90	23.02
18	Muzaffarpur	Bihar	305525	Town	I	26.43	132.15	31.72
19	Patna	Bihar	1697976	UA	Million Plus	128.61	643.05	154.33
20	Chandigarh	Chandigarh	808515	UA	I	333.00	1665.00	399.60
21	Bhilai Nagar	Chattisgarh	927864	Town	I	89.87	449.35	107.84
22	Bilaspur	Chattisgarh	335293	Town	I	46.47	232.35	55.76
23	Durg	Chattisgarh	232517	Town	I	50.80	254.00	60.96
24	Korba	Chattisgarh	315690	Town	I	35.07	175.35	42.08
25	Raipur	Chattisgarh	700113	UA	I	64.29	321.45	77.15
26	Silvassa	Dadra & Nagar Haveli	21893	Town	III	0.78	3.90	0.94
27	Daman	Daman & Diu	35770	Town	III	5.60	28.00	6.72
28	Delhi U.A.	Delhi	12877470	UA	Million Plus	1437.00	7185.00	1724.40
29	Cuncoim	Goa	15860	Town	IV	28.69	143.45	34.43
30	Curcholem Cacora	Goa	21407	Town	III	22.55	112.75	27.06
31	Mapusa	Goa	40487	Town	III	11.32	56.60	13.58
32	Margao	Goa	94383	UA	II	22.04	110.20	26.45
33	Mormugao	Goa	104758	UA	I	39.55	197.75	47.46
34	Bhavnagar	Gujarat	517708	UA	I	90.16	450.80	108.19
35	Jamnagar	Gujarat	556956	UA	I	35.50	177.50	42.60
36	Nadiad	Gujarat	196793	UA	I	28.48	142.40	34.18
37	Rajkot	Gujarat	1003015	UA	Million Plus	84.60	423.00	101.52

Sl. No.	Town	State	Population 2001	Status	Class	Tentative area for mapping in Sq. Km.		
						Census Area 1991*	Area 1991 + 500 % (For 1:10,000 Scale)	Area 1991 + 20 % (For 1:2000 Scale)
38	Surat	Gujarat	2811614	UA	Million Plus	153.16	765.80	183.79
39	Vadodara	Gujarat	1491045	UA	Million Plus	136.97	684.85	164.36
40	Faridabad	Haryana	1055938	Town	Million Plus	178.24	891.20	213.89
41	Hisar	Haryana	263186	UA	I	49.43	247.15	59.32
42	Karnal	Haryana	221236	UA	I	23.60	118.00	28.32
43	Panipat	Haryana	354148	UA	I	20.82	104.10	24.98
44	Rohtak	Haryana	294577	UA	I	28.38	141.90	34.06
45	Dharamsala	Himachal Pradesh	19124	Town	IV	10.63	53.15	12.76
46	Mandi	Himachal Pradesh	26873	Town	III	4.26	21.30	5.11
47	Nahan	Himachal Pradesh	26053	Town	III	8.78	43.90	10.54
48	Shimla	Himachal Pradesh	144975	UA	I	35.34	176.70	42.41
49	Solan	Himachal Pradesh	34206	Town	III	6.18	30.90	7.42
50	Anantnag	Jammu & Kashmir	97896	Town	II	46.00	230.00	55.20
51	Baramula	Jammu & Kashmir	71896	Town	II	46.00	230.00	55.20
52	Jammu	Jammu & Kashmir	612163	UA	I	46.00	230.00	55.20
53	Sopore	Jammu & Kashmir	59624	Town	II	15.00	75.00	18.00
54	Srinagar	Jammu & Kashmir	988210	Town	I	7.77	38.85	9.32
55	Bokaro Steel City	Jharkhand	497780	UA	I	183.43	917.15	220.12
56	Dhanbad	Jharkhand	1065327	UA	Million Plus	201.44	1007.20	241.73
57	Jamshedpur	Jharkhand	1104713	UA	Million Plus	99.75	498.75	119.70
58	Mango	Jharkhand	166125	Town	I	19.45	97.25	23.34
59	Ranchi	Jharkhand	863495	UA	I	182.09	910.45	218.51
60	Bellary	Karnataka	316766	Town	I	65.90	329.50	79.08
61	Bidar	Karnataka	174257	Town	I	47.05	235.25	56.46
62	Bijapur	Karnataka	253891	Town	I	75.36	376.80	90.43
63	Davanagere-Harihara	Karnataka	364523	UA	I	48.46	242.30	58.15
64	Kolar	Karnataka	113907	M	I	7.91	39.55	9.49
65	Raichur	Karnataka	207421	Town	I	75.24	376.20	90.29
66	Alappuzha	Kerala	282675	UA	I	84.48	422.40	101.38
67	Kollam	Kerala	380091	UA	I	67.65	338.25	81.18
68	Kozhikode	Kerala	880247	UA	I	232.95	1164.75	279.54
69	Palakkad	Kerala	197369	UA	I	59.05	295.25	70.86
70	Thrissur	Kerala	330122	UA	I	88.42	442.10	106.10
71	Kavaratti	Lakshadweep	10119	Town	IV	3.63	18.15	4.36
72	Dewas	Madhya Pradesh	231672	Town	I	100.22	501.10	120.26
73	Gwalior	Madhya Pradesh	865548	UA	I	303.18	1515.90	363.82
74	Jabalpur	Madhya Pradesh	1098000	UA	Million Plus	224.45	1122.25	269.34
75	Sagar	Madhya Pradesh	308922	UA	I	52.07	260.35	62.48

Sl. No.	Town	State	Population 2001	Status	Class	Tentative area for mapping in Sq. Km.		
						Census Area 1991*	Area 1991 + 500 % (For 1:10,000 Scale)	Area 1991 + 20 % (For 1:2000 Scale)
76	Satna	Madhya Pradesh	229307	UA	I	86.77	433.85	104.12
77	Ujjain	Madhya Pradesh	431162	UA	I	92.94	464.70	111.53
78	Aurangabad	Maharashtra	892483	UA	I	148.12	740.60	177.74
79	Bhiwandi	Maharashtra	621427	UA	I	28.21	141.05	33.85
80	Nashik	Maharashtra	1152326	UA	Million Plus	321.94	1609.70	386.33
81	Pimpri Chinchwad	Maharashtra	1012472	Town	Million Plus	87.05	435.25	104.46
82	Pune	Maharashtra	3760636	UA	Million Plus	423.42	2117.10	508.10
83	Thane	Maharashtra	1262551	Town	Million Plus	143.76	718.80	172.51
84	Imphal	Manipur	250234	UA	I	36.55	182.75	43.86
85	Kakching	Manipur	28724	Town	III	7.02	35.10	8.42
86	Jowai	Meghalaya	25057	MB	III	7.80	39.00	9.36
87	Tura	Meghalaya	58978	M	II	18.30	91.50	21.96
88	Champhai	Mizoram	26465	Town	III	52.00	260.00	62.40
89	Lunglei	Mizoram	47137	Town	III	44.00	220.00	52.80
90	Dimapur	Nagaland	98096	Town	II	25.54	127.70	30.65
91	Mokokchung	Nagaland	31214	Town	III	32.00	160.00	38.40
92	Baleshwar	Orissa	156430	UA	I	41.82	209.10	50.18
93	Baripada	Orissa	100651	UA	I	29.98	149.90	35.98
94	Brahmapur	Orissa	307792	Town	I	79.80	399.00	95.76
95	Cuttack	Orissa	587182	UA	I	152.99	764.95	183.59
96	Raurkela	Orissa	484874	UA	I	157.17	785.85	188.60
97	Sambalpur	Orissa	226469	UA	I	89.50	447.50	107.40
98	Kraikal	Pondicherry	74438	M	II	35.17	175.85	42.20
99	Amritsar	Punjab	1003917	Town	Million Plus	114.95	574.75	137.94
100	Bhatinda	Punjab	217256	Town	I	114.00	570.00	136.80
101	Jalandhar	Punjab	714077	Town	I	80.41	402.05	96.49
102	Ludhiana	Punjab	1398467	Town	Million Plus	134.67	673.35	161.60
103	Pathankot	Punjab	168485	UA	I	22.10	110.50	26.52
104	Patiala	Punjab	323884	UA	I	31.20	156.00	37.44
105	Bandikui	Rajasthan	16295	M	IV	3.18	15.90	3.82
106	Bijainagar-Gulabpura	Rajasthan	24362	M	III	10.00	50.00	12.00
107	Dungarpur	Rajasthan	43108	M	III	10.24	51.20	12.29
108	Karauli	Rajasthan	66239	M	II	35.00	175.00	42.00
109	Makrana	Rajasthan	91853	UA	II	3.43	17.15	4.12
110	Sawai Madhopur	Rajasthan	101997	UA	I	60.38	301.90	72.46
111	Rangpo	Sikkim	3709	Town	VI	20.00	100.00	24.00
112	Singtam	Sikkim	5432	Town	V	20.00	100.00	24.00
113	Coimbatore	Tamil Nadu	1461139	UA	Million Plus	314.84	1574.20	377.81

Sl. No.	Town	State	Population 2001	Status	Class	Tentative area for mapping in Sq. Km.		
						Census Area 1991*	Area 1991 + 500 % (For 1:10,000 Scale)	Area 1991 + 20 % (For 1:2000 Scale)
114	Madurai	Tamil Nadu	1203095	UA	Million Plus	115.48	577.40	138.58
115	Salem	Tamil Nadu	751438	UA	I	93.31	466.55	111.97
116	Tiruchirappalli	Tamil Nadu	866354	UA	I	165.81	829.05	198.97
117	Tirunelveli	Tamil Nadu	433352	UA	I	86.87	434.35	104.24
118	Tiruppur	Tamil Nadu	550826	UA	I	43.52	217.60	52.22
119	Dharmanagar	Tripura	30790	Town	III	7.77	38.85	9.32
120	Radhakishorepur (Udaipur)	Tripura	21758	NP	III	64.28	321.40	77.14
121	Allahabad	Uttar Pradesh	1042229	UA	Million Plus	114.00	570.00	136.80
122	Ghaziabad	Uttar Pradesh	968256	UA	I	74.64	373.20	89.57
123	Kanpur	Uttar Pradesh	2715555	UA	Million Plus	266.74	1333.70	320.09
124	Lucknow	Uttar Pradesh	2245509	UA	Million Plus	337.50	1687.50	405.00
125	Meerut	Uttar Pradesh	1161716	UA	Million Plus	177.58	887.90	213.10
126	Varanasi	Uttar Pradesh	1203961	UA	Million Plus	83.05	415.25	99.66
127	Bageshwar	Uttaranchal	7803	Town	V	5.00	25.00	6.00
128	Kotdwar	Uttaranchal	24947	Town	III	2.59	12.95	3.11
129	Mussourie	Uttaranchal	29329	UA	III	64.75	323.75	77.70
130	Pithoragarh	Uttaranchal	44964	Town	III	8.99	44.95	10.79
131	Roorkee	Uttaranchal	115278	UA	I	7.74	38.70	9.29
132	Bhatpara	West Bengal	442385	UA	I	15.85	79.25	19.02
133	Durgapur	West Bengal	493405	Town	I	154.20	771.00	185.04
134	Kamarhati	West Bengal	314507	Town	I	10.96	54.80	13.15
135	Kulti	West Bengal	289903	Town	I	32.57	162.85	39.08
136	Panihati	West Bengal	348438	Town	I	19.40	97.00	23.28
137	Rajpur Sonarpur	West Bengal	336707	Town	I	114.00	570.00	136.80
		Total				11151.09	55755.45	13381.31

* Area of the town to be mapped is indicative and the final area will be subject to the actual urban area of the town at the time of survey.

List of Towns for Utility Mapping

A. Urban Mapping Scheme (UMS) Towns					
Sl. No.	Name	States	Region	Class	Ave. Linear km
1	Itanagar-Naharlagun	Arunachal Pradesh	North East	III	100
2	Gaya	Bihar	East	I	350
3	Chandigarh	Chandigarh	North	I	350
4	Gurgaon	Haryana	North	I	350
5	Mysore	Karnataka	South	I	350
6	Kochi	Kerala	South	I	350
7	Bhopal	Madya Pradesh	Central	MILLION PLUS	900
8	Aizwal	Mizoram	North East	I	350
9	Pondicherry	Pondichery	South	I	350
10	Ajmer	Rajasthan	West	I	350
11	Gangtok	Sikkim	North East	III	100
12	Asansol	West Bengal	East	I	350
	Total				4250
B. National Urban Information System (NUIS) Scheme Towns					
Sl. No.	Name	States	Region	Class	Avg. Linear km
1	Nalgonda	Andhra Pradesh	South	I	350
2	Raipur	Chattisgarh	Central	I	350
3	Mormugao	Goa	West	I	350
4	Surat	Gujarat	West	I	350
5	Shimla	Himachal Pradesh	North	I	350
6	Jamshedpur	Jharkhand	East	I	350
7	Pune	Maharashtra	West	MILLION PLUS	900
8	Cuttack	Orissa	East	I	350
9	Ludhiana	Punjab	North	I	350
10	Coimbatore	Tamil Nadu	South	MILLION PLUS	900
11	Kanpur	Uttar Pradesh	Central	MILLION PLUS	900
12	Roorkee	Uttaranchal	North	I	350
	Total				5850
	Grand Total (A+B)				10100

NUIS SCHEME DESIGN STANDARDS

Parameter (All values at 3 σ)	1:10,000	1:2000
A] IMAGE STANDARDS		
Generic/Standard Resolution	▪ 5m XS or better	▪ 0.2 m
IRS Image Resolutions recommended	▪ 5.8 Multi-spectral ▪ 2.5 m XS	▪ Aerial Pan / XS
Projection for image outputs	LCC/TM	LCC/TM
Datum for image products	WGS 84	WGS 84
Image Frames (geometrically corrected; important for seamlessness)	3' 45" X 3' 45"	45" X 45"
Image Position (Planimetric) Accuracy (0.5 mm of scale) in m	5	0.5 (0.25mm of scale)
Band-to-Band Registration for XS data (0.25 pixel) in m	~1.5	~0.1
B] THEMATIC MAPPING STANDARDS		
Minimum Map Frame size for incorporation to NRR	3' 45" X 3' 45"	1' X 1'
Image Registration accuracy @ 0.5 pixel (RMS)	1.25m	0.1m (0.25 pixel)
Map Projection	LCC/TM	LCC/TM
Datum	WGS 84	WGS 84
Position (Planimetric) Accuracy (1mm of scale) in m	10	0.50 (0.25mm of scale)
Minimum Mappable Unit (MMU) (3 x 3 mm of scale) in sq mts	900	4 (1mm X 1mm)
DEM Z-Spacing as 1mm of scale in m	10	2
DEM Z-Accuracy in m	5	1
Thematic Accuracy of Classification/Mapping	90/90	90/90
Map Formats	▪ Digital GIS compliant ▪ Paper	▪ Digital GIS compliant ▪ Paper
C] GIS DATABASE STANDARDS		
Spatial framework	Seamless - National	Seamless – Local
Tie-Point Intervals for Spatial Framework	45" X 45"	15" X 15"
Coordinate units for Precision	Decimal-Seconds	Decimal-Seconds
Projection	Geographic	Geographic
Datum	WGS 84	WGS 84
Minimum Frame size for NRR	3'45" X 3'45"	45" X 45"
GIS DB Tic Registration Accuracy (0.25mm of scale) (RMS) in m	2.5	0.5

Parameter (All values at 3σ)	1:10,000	1:2000
Position (Planimetric) Accuracy (1mm of scale) in m	10	0.5 (0.25mm of scale)
Coordinate Movement Tolerance (CMT) (0.125mm of scale) in m	1.25	0.25
Weed Tolerance (WT) (0.125mm of scale) in m	1.25	0.25
Sliver Polygon Tolerance (SPT) (LESS-THAN MMU) in m	<900	<4
Grid Size (for Image/Raster/DEM Layers) (0.5mm of scale) in m	5	1
D] OUTPUT/SERVICES STANDARDS		
Output Formats (Filter as defined by National map Policy)	<ul style="list-style-type: none"> Digital GIS compliant Digital web-compliant Paper 	<ul style="list-style-type: none"> Digital GIS compliant Digital web-compliant Paper
Output Framework	<ul style="list-style-type: none"> Admin Units – District, Taluk, Villages, Urban Local Body Boundaries, Local Planning Area, Master Plan Boundaries Cadastre Reference Natural Regions User defined region polygon Spatial Framework grids 	<ul style="list-style-type: none"> Admin Units – Villages, Wards/Blocks, Master/Zonal Plan Boundaries Cadastre Reference Natural Regions User defined region polygon Spatial Framework grids
Output Media	<ul style="list-style-type: none"> On-line download Off-line Download CD-ROM/DVD 	<ul style="list-style-type: none"> On-line download Off-line Download CD-ROM/DVD
Output Projection	UTM / Polyconic / User defined	UTM / Relative / User Defined
Output Datum	WGS 84	WGS 84
Output Formats	GIS format, GeoTIF, TIF, Shape file, Jpeg, NSDE and others	GIS format, GeoTIF, TIF, Shape file, Jpeg, NSDE and others
Output Symbology	As per Layer Legend	As per Layer Legend
E] FRAMEWORK/LAYER ACCURACY STANDARDS		
National Framework Quality/Accuracy - Tolerable limits for area of standard admin units	<0.1% of taluk or village or tile areas	0.3% of tile areas
Framework Verification <ul style="list-style-type: none"> CMT and Weed Tolerance Bound Box 	<ul style="list-style-type: none"> < 1.25 As per 1:50 NSF 	<0.25
Position (Planimetric) Accuracy Better than (or equal to) 1.5 mm of scale in m	15 m Output to be sampled and certified for position accuracy quality	3 m Output to be sampled and certified for position accuracy quality

Parameter (All values at 3σ)	1:10,000	1:2000
Thematic Accuracy of Classification/Mapping	To be reported from Metadata 90/90	To be reported from Metadata 90/90
Minimum Map Unit (MMU)-Not less than (or Equal to) (3 x 3 mm of scale) in sq mt.	900	4(1mmx1mm)
Scale Distortion Factor for Analog Outputs only- Not more than (or equal to)	3%	3%

CONTENT OF NUIS SCHEME AT 3 LEVELS

MASTER PLAN (1:10000 SCALE)		ZONAL PLAN (1:2000 SCALE)		UTILITY MAPPING (1:1000 SCALE)	
SPATIAL	ATTRIBUTE *	SPATIAL	ATTRIBUTE *	SPATIAL	ATTRIBUTE
<p>(A) FROM RS IMAGES/TOPOMAPS</p> <ol style="list-style-type: none"> 1. Urban land use / land cover 2. Physiography 3. DEM (for outside city area) 4. Geomorphology (for outside city area) 5. Geological structures (for outside city area) 6. Lithology (for outside city area) 7. Drainage 8. Soil (for outside city area) 9. Surface water bodies 10. Road 11. Rail 12. Canal 13. Transportation nodes <p>(B) INCORPORATED MAPS TO BE OBTAINED FROM CITY ADMINISTRATION /TCPO:</p> <ol style="list-style-type: none"> 14. Slopes (city and outside city area) 	<ol style="list-style-type: none"> 1. Developmental Attributes Obtained From City Administration/Tcpo: <ul style="list-style-type: none"> ▪ Regional Setting ▪ Demography ▪ Socio-Economic Development ▪ Industry ▪ Land Use Housing And Slums ▪ Traffic & Transportation ▪ Facilities And Services ▪ Environment Governance 	<p>(A) FROM AERIAL PHOTOS:</p> <ol style="list-style-type: none"> 1. Urban layer of point features 2. Urban network layer of line features 3. Urban land cover layer of polygon features <p>(B) MAPS FROM CITY ADMINISTRATION/TCPO:</p> <ol style="list-style-type: none"> 4. City planning zone / ward map 5. Urban property cadastres 6. Land value data <p>(C) DERIVED MAPS FROM NUIS APPLICATION (GIS MODELS TO BE WORKED OUT):</p> <ol style="list-style-type: none"> 7. Urban land use/land cover 8. Urban land use change 9. Zonal planning 	<ol style="list-style-type: none"> 1. Developmental attributes (on ward basis) obtained from city administration/TCPO will be as given for 1:10000 scale 2. In addition the following is also to be incorporated from city/TCPO records: <ul style="list-style-type: none"> ▪ Development Control Regulation ▪ Authorization / Approval records / documents ▪ Land requirement ▪ Available infrastructure ▪ Land owner ship ▪ Compensation ▪ Land requirement for the scheme ▪ Past land pooling schemes ▪ Urban cadastre data ▪ Area: Original Plot with and without structure, Final Plot with and without structure. ▪ Value: Original Plot with and without structure, Final Plot developed & undeveloped with and without structure, Final Plot developed & 	<p>(A) FROM AERIAL PHOTOS:</p> <ol style="list-style-type: none"> 1. Urban layer of point features 2. Urban network layer of line features 3. Urban land cover layer of polygon features <p>(B) MAPS FROM GPR SURVEYS/CITY RECORDS:</p> <ol style="list-style-type: none"> 4. Water networks 5. Sewerage networks 6. Power networks 7. Telecommunication network 	<p>Attributes as applicable – but containing all details of each of the utility. (This has to be worked out as attribute tables in consultation with city administration and NIC). These agreed-to attribute datasets for the utilities has to be provided by city administration/TCP O.</p>

MASTER PLAN (1:10000 SCALE)		ZONAL PLAN (1:2000 SCALE)		UTILITY MAPPING (1:1000 SCALE)	
SPATIAL	ATTRIBUTE *	SPATIAL	ATTRIBUTE *	SPATIAL	ATTRIBUTE
15. Geomorphology (for city area) 16. Geological structures (for city area) 17. Lithology (for city area) 18. Soils (for city area) 19. Location of all heritage sites 20. Location of slums, squatters and other blighted area 21. City planning zone / ward map 22. Village revenue boundary 23. Cadastral map 24. Location of pollution generating industries/facilities 25. Earthquake epicenter data 26. Past flooding data 27. Land value 28. Soil depth 29. Soil texture 30. Location points of major utilities (water, post office, telecom, power, sewerage etc.) (C) DERIVED MAPS FROM NUIS			undeveloped with and without structure less value of Original Plot with structure, Increment Value of Final Plot developed excluding value of structure less Value of Final Plot undeveloped excluding value of structure <ul style="list-style-type: none"> ▪ Final Plot Number ▪ Net Demand ▪ Development costs ▪ Details of acquisition property ▪ Compensation paid to person for acquisition ▪ Land acquisition acts. ▪ Zoning regulations, ▪ Land acquisitions norms ▪ Compensation ▪ Transfer development right ▪ Compensation ▪ Available amenities to be transferred to Development Authority ▪ Compensation ▪ Land disposal details done by the authority ▪ Disposal cost ▪ Disposal rules ▪ Time required for disposal 		

MASTER PLAN (1:10000 SCALE)		ZONAL PLAN (1:2000 SCALE)		UTILITY MAPPING (1:1000 SCALE)	
SPATIAL	ATTRIBUTE *	SPATIAL	ATTRIBUTE *	SPATIAL	ATTRIBUTE
APPLICATION (GIS MODELS TO BE WORKED OUT): 31. Land use change 32. Urban suitability 33. Environmental sensitivity 34. Hazards zonation (Earthquake, flood, erosion etc.) 35. Air pollution 36. Water pollution (surface & ground water) 37. Tourism development 38. Transportation plan 39. Industrial plan 40. Trends of population 41. Planning scenarios 42. Ground Water Prospects 43. Slope 44. Road Buffer zone 45. Railway station Buffer zone 46. Water body and watershed buffer zones			<ul style="list-style-type: none"> ▪ Development cost, ▪ List of agencies on whom development charges are levied for use of land 		