



Memorandum of Understanding

Between



MINISTRY OF URBAN DEVELOPMENT
Government of India

and



NATIONAL REMOTE SENSING CENTRE
Government of India

Signed on 17th day of August, 2016 at New Delhi

In Creation of Geo-spatial Database for
"Formulation of GIS Based Master Plan for AMRUT Cities"

1. Preamble

Government of India has launched Atal Mission for Rejuvenation and Urban Transformation (AMRUT) in 2015 with the objective to (i) ensure that every household has access to a tap with assured supply of water and a sewerage connection; (ii) developing greenery and well maintained open spaces; (iii) reduce pollution by switching to public transport for non-motorised transport. During the Mission period, 11 reforms will be implemented, of which Formulation of GIS Based Master Plan for 500 AMRUT cities is one of the most important reforms. This reform has the following components:

- Urban geo-spatial database creation at 1:4000 scale
- Formulation of GIS-based Master Plan
- Capacity Building

The MoUD has approved this reform as a sub-scheme of AMRUT and TCPO will be the nodal agency to implement the scheme. Urban geo-spatial database creation at 1:4,000 scale will be carried out by NRSC, Department of Space and Formulation of Master Plan and Capacity Building will be implemented by State Governments.

This MoU is meant to be read with the AMRUT Guidelines, Project Proposal and Design & Standards on sub-scheme under AMRUT of Formulation of GIS-based Master Plans approved by Ministry of Urban Development.

2. Parties

2.1. Executing Party

National Remote Sensing Centre (NRSC) under Department of Space, Government of India, Hyderabad.

2.2. Indenting Party

Ministry of Urban Development (MoUD), Government of India, New Delhi

3. Authorised Signatory

Deputy Director, National Remote Sensing Centre (NRSC), Department of Space, Government of India, Hyderabad

and

Joint Secretary, Ministry of Urban Development (MoUD), Government of India, New Delhi

4. Functionaries and Contact Addresses, Phone, E-Mail Etc.

4.1. NRSC, Department of Space

Organisation	Contact Representative	Designation	Phone / Mobile / Fax / Email	Address
NRSC, Department of Space	Dr.K. Venugopala Rao (Focal Point)	Group Head (US&GIG)	Tel : 040-23884236 / 37 Mobile: 09985866918 Fax : 040-23878962 email: venu_koppaka@nrsc. gov.in	NRSC, ISRO, Dept. of Space, Govt. of India, Balanagar, Hyderabad – 500 037
NRSC, Department of Space	Dr. M.V. Ravikumar	Group Head (ASD&CIG)	Tel : 040-23884228 Mobile: 09866077889 email: ravikumar_mv@nrsc. gov.in	NRSC, ISRO, Dept. of Space, Govt. of India, Balanagar, Hyderabad – 500 037

4.2. Town & Country Planning Organisation

Organisation	Contact Representative	Designation	Phone / Mobile / Fax /E-mail	Address
TCPO	Sh. K.K. Joadder	Chief Planner	Tel : 011-23379353 Fax : 011-23379197 Mob : 09868124616 email: cp.tcpo@yahoo.com	TCPO, E- Block, Vikas Bhawan, Indraprastha Estate, New Delhi- 110002
TCPO	Sh. S. Surendra (Focal Point)	Additional Chief Planner	Tel : 011-23370309, Fax : 011-23379197 Mob : 09868249396 email: ssompalle@yahoo.co.i n	TCPO, E- Block, Vikas Bhawan, Indraprastha Estate, New Delhi - 110002

Day to day correspondence during the course of the project shall be handled by the respective Focal Points identified as above.

5. Date of signing, Effective date and Duration of MoU

Date of Signing: The date of signing in MoU shall be the date on which the above mentioned signatories affix their signatures.

Effective date: The effective date of MoU is that date on which the countdown begins for carrying out the project or task within a specified schedule. It can be the date of signing of the MoU or receiving the advance payment, whichever is earlier.

Duration of MoU: This MoU is valid for duration of **3 years** from the date of commencement. If further extensions are required, it shall be by mutual consent of the parties.

6. Scope of Work

The scope of work includes the following:

- Generation of 1:4,000 scale Urban Geospatial Database using very high resolution satellite data 0.5 mt or better. The feature content, standards, accuracy, geometry, layers, spatial attribute information etc. will be as per the Design & Standards document.
- Ortho-rectified images will be provided for mapping
- Facilitate Spatial attribute data collection in association with Urban Local Bodies.
- Digitization of utility layers from digital scanned maps provided by the urban local bodies and concerned line departments.
- Digitization of administrative boundaries, cadastral boundaries required for master plan formulation and other data from digital scanned maps provided by the urban local bodies and concerned line departments.
- Generation of Contours
- Field verification/Vetting by ULBs.
- The suggestions/modifications of States/ULBs to be incorporated into the final maps during vetting
- Generation of final maps

7. Methodology

Very high resolution, 0.5 mt or better, latest (acquired within one year time period) satellite data will be used to prepare the geospatial layers on 1:4,000 scale. The geospatial layers will be as per the feature content (Spatial & Attribute Data Standards) given in Design & Standards. Onscreen interpretation and digitization techniques will be adopted for mapping of the layers in WGS-84 datum and UTM projection. The utility layers, administrative boundaries and cadastral layer will be prepared from the digital scanned

maps provided by the Urban Local Bodies and concerned line departments. The maps provided will be geo-referenced with respect to satellite data and the corresponding layers will be digitized. The field verification and attribute data collection will be carried out in association with Urban Local Bodies. The final geo-spatial database will be updated and populated with the field data and attribute data.

8. Deliverables

- 1:4000 scale Urban Geospatial Database
- Ortho-corrected satellite data will be provided
- Town level mosaic map
- GIS data sets containing all layers as specified in the Design & Standards document.
- The data shall be delivered in digital format along with two sets of prints in colour. The two sets of prints shall contain the mosaic and sheet wise. Of these two hard copy sets, one set of print shall be provided for vetting and another set has to be provided as final map.
- Satellite images, primary and secondary data/maps collected from State Govt. shall be returned.

9. Technical Specifications

The MoUD has constituted a Committee to finalise the Design & Standards document for formulation of GIS based Master Plan. The technical specifications shall be as per Design & Standards.

10. Applicable Documents

- AMRUT Guidelines
- Project Proposal on Formulation of GIS Based Master Plans for AMRUT Cities
- Design & Standards

11. Guidelines on Data and Map Security

- As per Remote Sensing Data Policy (RSDP-2011)

12. Responsibilities of each Party

12.1 Responsibilities of MoUD/State Mission Directorates/State Town Planning Departments/ULBs

12.1.1 At Central level

MoUD/TCPO will monitor and coordinate the implementation of the sub-scheme and release of funds.

12.1.2 At State level

State Mission Directorate will responsible for:

- i. Prioritization of cities for mapping
- ii. Demarcation of Area of Interest (AOI) for Mapping
- iii. Detailed attribute data collection, required for Master Plan preparation
- iv. Providing secondary data/ maps of Utilities such as water, sewerage, telecom and power; administrative boundaries, required for master plan formulation and cadastral layers and other data.
- v. Ground Truth/field verification/vetting
- vi. Co-ordinate with NRSC, Department of Space, Urban Local Bodies, State Government departments and Line departments

12.2 Responsibilities of NRSC, Department of Space

- i. Satellite Data Acquisition of very high resolution of 0.5 mt or better
- ii. Geo-referencing / Ortho-rectification of Satellite data.
- iii. Generation of 1:4,000 scale Base Geospatial Database using very high resolution satellite data.
- iv. Facilitate Ground Truth/Field Verification/Vetting will be done in association with State Mission Directorate.
- v. Preparation of GIS database of Utility layers, Administrative boundaries, Cadastral boundaries from digital scanned maps/AutoCAD/GIS data provided by the Urban Local Bodies and concerned line departments.
- vi. Geo-spatial database finalization.
- vii. Project deliverables as mentioned in SI .8.

13. Project Time Schedule

As and when State Governments raise the demand for mapping of the towns selected under AMRUT and approved by APEX committee, the MoUD will place the order to NRSC, Department of Space. NRSC shall complete the mapping work within the six months from the date of issue of order. However, the total duration of the project is 3 (three) years from the date of signing of MoU.

14. Schedule of Prices and Consideration

The unit rate for geo-database creation at 1:4000 scale including satellite data acquisition, ortho-rectification and geospatial database creation and base map preparation under AMRUT is @Rs. 9529/- per sq. km. for cities having planning areas less than 50 sq.km. and @Rs. 8888/- per sq. km. for cities having planning areas more than 50 sq.km. as quoted by NRSC, Department of Space vide letter no. NRSC:RSAA:12/2014 dated 08.12.2014 (Annexure-I). The Area of Interest (AoI) will be provided by State Mission Directorate. The total cost will be worked out on pro-rata basis based on area of mapping. The above costing is based on earlier estimates hence necessary provision for revision will be mutually decided and used under the project.

15. Funding

The entire cost will be met out of AMRUT funds under relevant heads including “Capacity Building and Reforms Support” resources. Funding will be provided by Government of India based on existing norms and unit costs provided by NRSC.

Ministry of Urban Development/ TCPO will coordinate and facilitate procurement of satellite imagery, creation Geo-database and including payments to NRSC, Department of Space on pro-rata basis for the extent of area mapped as proposed and required by State Governments, calculated on the basis of the cost provided by NRSC, Department of Space.

15.1 Fund Flow

The fund flow for over three years is as under:

Sl. No.	Year	Estimated Fund Requirement (Rs. Cr)*
1	2016-17	22.0
2	2017-18	45.0
3	2018-19	48.9
4	Total	115.90

*Subject to demand for mapping area raised by State Governments

16. Payment schedule

The payment will be released to NRSC, Department of Space as per schedule below:

- 20% of the project cost will be released on approval of mapping proposal, as an advance for data acquisition.

- 40% of the project cost on completion of data acquisition for data processing, base map & thematic map creation.
- Next 20% on delivery of draft maps with suggestions/modifications suggested by States during vetting.
- Final 20% installment on delivery of final maps.
- Funds at every stage will be released subject to furnishing of the utilization certificate and physical progress of deliverables duly reported by competent authority.

No Tax Deduction at Source (TDS) would be admissible. The payment will be made in the name of Pay & Accounts Officer, National Remote Sensing Centre, payable at Hyderabad.

17. Project Monitoring

The project will be monitored by Monitoring and Review Committee as approved in AMRUT Mission by MoUD. The composition of Monitoring and Review Committee is as under:

- | | |
|---|----------------|
| • Chief Planner, TCPO | Chairman |
| • Group Head, Urban Studies and Geo-informatics, NRSC | Member |
| • Professor of Planning, School of Planning & Architecture, Delhi | Member |
| • Additional Chief Planner | Member |
| • Town & Country Planner | MemberConvener |

IN WITNESS WHEREOF, the Parties here to have caused this MoU to be signed in their respective names on the day, the month and the year herein before mentioned.



Shri. V. Bhanumurthy
Deputy Director (RSAA)
NRSC/ISRO, Hyderabad
उप-निदेशक, आरएसए/By. Director, RSAA
राष्ट्रीय नुदूर संवेदन केन्द्र
(Seal)
National Remote Sensing Centre
इसरो, अन्तरिक्ष विभाग, भारत सरकार
ISRO, Dept. of Space, Govt. of India
बालानगर, हैदराबाद/Balanagar, Hyderabad-500 037.

Witness:



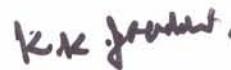
Dr. K. Venugopala Rao
Head, USD
NRSC, Department of Space



Shri Neeraj Mandloi, IAS
Joint Secretary
Ministry of Urban Development

(Seal)

नीरज मंडलोई/NEERAJ MANDLOI
संयुक्त सचिव/Joint Secretary
शहरी विकास मंत्रालय
Ministry of Urban Development
भारत सरकार/Govt. of India
नई दिल्ली/New Delhi



Sh. K. K. Joadder
Chief Planner
Town & Country Planning Organisation,
Ministry of Urban Development