

Draft- AP GIS Policy V3

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1. Introduction

Andhra Pradesh, carved out as a new State in June 2014, is making concerted efforts to move rapidly to realize the Vision of "**Sunrise AP**", having already established 7 Development Missions, 5 Grids, 5 Campaigns and the program of Smart Village.

As a large-scale deployment of IT and the related technologies is critical to rapid progress, enhanced productivity and transformation of all the sectors included in the aforementioned initiatives, the State has come up with a comprehensive architecture for e-Governance – **AP State Enterprise Architecture (APSEA), named as e-Pragati** - adopting a **Whole-of-Government** approach. Geographical Information System (GIS) occupies a pivotal place in e-Pragati.

A well-designed and holistic GIS Policy touching all aspects of the creation, maintenance and use of GIS assets is a necessary first step in ensuring that a synergy and harmonization is built into the multiple efforts of the Government in deriving optimum benefits of the geo-spatial information technologies which include the GIS, GPS and Remote Sensing Technologies. The AP GIS Policy is designed to produce such a synergy.

The AP State GIS Policy is a high-level and overarching framework, which is aligned with the national efforts on GIS. At the same time, it envisages laying down the architecture, standards and protocols for developing an Enterprise GIS, building of the appropriate down-stream procedures, practices and putting in place an institutional mechanism for governance of the whole GIS eco-system. A widespread awareness needs to be created on the importance and relevance of the Policy, Practices and Standards – across government, industry, academia and citizens, to realize the vision of the AP GIS Policy.

2. Definitions

- i. **"Aerial Survey"** means the survey carried out using airborne platforms and specialised instruments like aerial cameras, LiDAR, airborne geophysical instruments.
- ii. **"AP State GIS"** is the system that can provide GIS-based Decision Support services to the Government of Andhra Pradesh, its citizens and businesses, by maintaining a state-wide, standardized, seamless and current GIS assets and by developing an Enterprise GIS system capable of effectively using such assets.
- iii. **"g-Governance"** means the system of governance that is founded on use of GIS to provide a scientific and rational basis to decision-making and enhances efficiency and convenience in providing public services to the citizens and businesses.
- iv. **"GI"** or Geographic Information means any information that has a geographical or locational context, and includes satellite images, aerial images, maps, survey data, positioning data, geo-tagged attributes and tables and the derivatives from their processing – all of which are amenable to visual display as maps or images in the spatial domain.
- v. **"GIS"** or Geographical Information System means a system comprising of the infrastructure, geographical data, software for processing such data and provision of services based on geographical information, usually through visualization.
- vi. **"GIS Decision Support System"** means the key GI based applications and services that provide user-required processed GI or solutions that help user to take a scientific and rational decision.
- vii. **"Images"** means pictures obtained from satellites, aerial photography or ground survey using a camera or sensor and the term "Imaging" shall be construed accordingly.
- viii. **"Mapping"** means the process of generating information in map format by processing geographical data derived from ground survey, aerial photography or from satellite images.
- ix. **"Surveying"** means the process of collecting basic geographical data in a systematic manner either on the ground or through aerial photography using

specific instruments like the Electronic Total Station (ETS), GPS devices, Ground Penetrating Radars (GPR), LiDAR, Imaging Camera and includes collection of basic non-spatial attribute data through enumeration and tabulation.

- x. **“Topographic Maps”** means the maps generated by Survey of India, which authoritatively depict the national, state, district and other administrative boundaries, elevation of the land and its cultural and physical features at an appropriate scale.
- xi. **“Thematic Maps”** means the specialised maps that depict the specific themes of interest to different sectors like the forest cover, land-use, soil fertility, land degradation or topographic maps on which such themes are superimposed by tagging with non-spatial attribute data.

3. Vision of AP GIS Policy

The **Vision** of the AP GIS Policy is “touse geographical information for effective planning and implementation of all major development and welfare programs, through the establishment of a holistic GIS eco-system, consisting of the requisite Infrastructure, Platforms, Applications and Interfaces and the human capital,that together can act as a Powerful Decision Support System.

The **Mission** of the AP GIS Policy is “to G-enable all the major projects, programs, schemes and activities of the Government”.

The Objectives of the AP GIS Policy are stated succinctly below:

- a. To provide a basis for **rational and scientific planning** of all major development projects in the areas of Urban Development, Capital Region Development and Infrastructure (Power, Irrigation, Ports, Airports and Transportation);
- b. To provide tools for visualization and analysis of data for **enhancing the productivity** of the primary sector, including agriculture, horticulture and fisheries;
- c. To provide the basis for **more efficient management** and/or **development of natural resources** like Land, Forest, Water and Mines ;

- d. To **promote tourism** by providing a bouquet of location-based services to the tourists;
- e. To establish GIS-based Decision Support Systems for effective and timely **management of Disasters**;
- f. To improve the profile of **Public Health**, by providing visualization and analytical capabilities and enabling timely interventions;
- g. To help the Government agencies to manage, protect and develop **community assets**, through mapping, visualization and prioritization of locations;
- h. To enhance the effectiveness of **traffic management**, especially in urban areas;
- i. To ensure the **safety of citizens** and properties through a surveillance grid;
- j. To play a pivotal role in the realization of the benefits of e-Pragati.

4. Principles of AP GIS Policy

The AP GIS Policy is an overarching document that provides guidance for development of various GIS-based products and applications in a holistic, integrated and interoperable manner. To this end, the following principles are laid down for adoption by all the Departments of the Government, developers, system integrators and organizations using the GIS assets belonging to GoAP.

- a. **Principle of Sharing:** The GIS assets created by the Government or created by others with substantial financial support of the Government, shall be made accessible to all the departments, irrespective of which department or agency has so created them. This principle shall, however, not apply to those GIS assets, the sharing of which with other departments may not be in the interests of the nation or the safety, security and privacy of the citizens of the State.
- b. **Openness of GIS Assets:** All the shareable GIS assets of the Government, as defined in the 'Principle of Sharing', except those which are confidential or secret in nature, shall be hosted in the public domain for free and non-discriminatory access by the citizens, developers and technology companies, at a nominal price, so calculated as to meet the cost of maintenance of such GIS assets.

- c. **Open General License:** The use of Open GIS Assets, made accessible to the public shall be subject to terms and conditions similar to the Open Source Software under the Open General License.
- d. **Use of GIS by Government Departments and Agencies:** All Departments and Agencies of the Government shall endeavour to undertake the following governance activities using a GIS-based Decision Support System:
 - i. Planning of all development projects falling within the purview of the objectives of this Policy set out in Clause 3 thereof shall be based on GIS.
 - ii. Allocation of funds to the administrative Department or in turn to the territorial offices for implementation of schemes shall be based on GIS-supported monitoring and analysis tools.
 - iii. All the dashboards and MIS formats used in respect of the projects and schemes specified in (i) and (ii) above, shall have the features to visualize the progress on a GIS system and to drill down to the logically lowest sub-unit relevant to the project or scheme.
 - iv. All programs, projects or schemes, in urban and rural areas, shall use GIS-based cadastral maps of the applicable scale, for decision-making or for providing any services to the stakeholders.
 - v. The architects and designers of all e-Governance projects including the projects taken up on a PPP basis, more particularly, those falling within the purview of the e-Pragati program, shall incorporate GIS features in the basic architecture and design.
- e. **Open Standards:** The AP GIS shall be developed using Open Standards and Interfaces, such that it can interoperate with other systems, and the community can develop products and applications using the AP GIS assets.
- f. **Service Orientation:** The AP GIS shall be developed with service orientation, in a customer-centric manner, so that end users are most benefited by the same.

5. AP GIS Eco-system

In order that the GIS gets mainstreamed into the e-Governance system, and becomes sustainable, it is necessary to create the "AP GIS Eco-system", which shall consist of the following components:

- a. **AP GIS Architecture**, which shall be in conformity with the e-Pragati and follow the Business, Data, Application and Technology principles laid down there under. The AP GIS Architecture shall be prescriptive in respect of the geospatial data and metadata standards and APIs, but indicative in respect of the rest.
- b. **GIS Data Assets**, which shall consist of the spatial data, the attribute data and the metadata, besides the master data and data of all control points.
- c. **GIS Applications**, which include the applications, developed by the Government Agencies and private agencies.
- d. **Mobile GIS and App-ecosystem**, which is a large set of GIS-based apps that can be accessed by citizens through smartphones.
- e. **AP GIS Portal "Swarna Bhoomi"**, which will act as a single point of reference in respect of the following:
 - i. Access by authorized personnel of the Government Departments for using and updating the GIS Assets
 - ii. Knowledge Management of GIS, including all standards relevant to GIS.
 - iii. Event Management relating to GIS events
 - iv. GIS App Store
- f. **Stakeholders of AP GIS**, including the Departments and Agencies of the Govt of AP and Govt of India, Citizens and Businesses, GIS Industry and academia.

6. AP GIS Standards

The AP GIS shall conform to the standards published by the global standards setting bodies like the OGC in respect of geospatial data and applications, ISO in respect of Information Security and other standards bodies in respect of the other components of the ecosystem. The Government of AP shall establish an institutional structure,

within the overall governance structure defined in Clause 7, with responsibility for Development, Notification, Maintenance and Enforcement of Standards relating to GIS.

7. AP GIS Governance Structure

- a. The AP GIS Policy shall be governed by APSAC under the Planning Department of GoAP.
- b. APSAC will manage all matters relating to GIS, and to implement this policy. The organizational structure and funding of the Agency shall be such as may be notified.
- c. The Agency shall be competent to undertake any work contemplated under the policy autonomously. However, any project involving domain data shall be designed and implemented only with the express consent and in close coordination with the concerned line departments.

8. Capacity Building in GIS

The implementation of AP GIS needs large capacities to be built at various levels, starting with field surveyors, to data processors, programmers, system analysts and architects, both in the Public and Private Sector. The following initiatives shall be taken in this regard:

- a. **Training and support to line Departments:** APSAC will impart training and capacity building to line departments of Govt. of AP in the fields of Remote Sensing and advanced survey techniques.
- b. **Introducing GIS Courses in Universities:** All the Universities in AP shall be advised to introduce specialized courses in GIS at the Degree and Post-graduate levels. The curriculum for the GIS courses shall be designed in consultation with the Industry.
- c. **Establishing a Geospatial Education Hub:** A Geospatial Education Hub shall be established in the state on a PPP model, to be a one-stop-shop for a wide-range of requirements in the field of geospatial education.

9. Geospatial Industrial Economic Zone (GIEZ)

A Geospatial Industrial Economic Zone shall be established at an appropriate location in AP to catalyse the growth of geospatial industrial units. GIEZ shall have the following features.

- i. GIEZ shall attract GIS companies to set up their development service, consulting, R&D and educational units within the GIEZ.
- ii. Units set up in the GIEZ shall be granted the status of 'Infrastructure Industry' and will be given all consequential benefits.
- iii. State-of-the-Art GIS infrastructure shall be established as a shared facility to foster the growth of MSME's and start-ups in the GIS space.