

**BASIC TECHNICAL GUIDELINES FOR THE DEVELOPMENT OF A
COSIPLAN GIS**

Version agreed upon at the GTE Meeting

Summary of the Proposal

Provide COSIPLAN and IIRSA with a set of basic integrated geo-referenced data on the entire South American region that should serve as an information system on the major integration infrastructure available in the region as well as on the most relevant features of its territory.

This information system is expected to become a cartographic support to the COSIPLAN Action Plan and facilitate geospatial analysis and regional integration planning by the National Coordinators.

Objectives

The main objective is to provide the countries that make up COSIPLAN with the capacity to carry out geospatial analyses of the topics specific to the Council through the development and implementation of a system that uses continental-level geospatial databases with thematic layers grouped by subject matter and that is compatible with the provision of geospatial services.

As for the specific objectives, the geo-referenced data are expected to provide information for the following purposes:

- ✓ Identify any infrastructure related to international integration, its main characteristics and current operability levels;
- ✓ Gain insight into the geographical scope of the Portfolio projects and their territorial expression, as well as their areas of influence;
- ✓ Represent and analyze trade, transport, energy and communications flows;
- ✓ Analyze infrastructure networks;
- ✓ Identify the Hubs and regional integration corridors, areas of influence, complementary areas, etc., and update their vision as they evolve over time;

- ✓ Analyze new infrastructure needs, deficiencies and potentialities
- ✓ Study and define alternative proposals;
- ✓ Communicate and disseminate the results in the form of integrated maps.

Scope

At a first stage, the information layers will cover the themes listed below, detailing the name proposed, the geometry used to represent them, and all the associated data fields. The following data layout will be used:

Example:

X. Theme;

- Name of the layer. Geometry. Attributes [*Field 1; Field 2; Field nth*]

1. IIRSA Portfolio Projects;

- Point Projects [*Code; Hub; Group; Name; Country; Progress/Status; Area; Sector; Anchor Project; API Project; Type of Works; Source of Financing; Type of Financing; Project Stage; Completed Studies*]
- Linear Projects [*Code; Hub; Group; Name; Country; Progress/Status; Area; Sector; Anchor Project; API Project; Type of Works; Source of Financing; Type of Financing; Project Stage; Completed Studies*]

2. Borders and Administrative Jurisdictions;

- International borders. Polygon. [*Name; Country*]
- Provincial borders. Polygon. [*Name; Country*]
- Departmental borders. Polygon. [*Name; Country; Province*]

NOTE: International borders will be represented for reference purposes.

3. Cities/Towns, Localities, Populated Places;

- Cities/towns. Point. [*Type; Name; Country; Province; Department*]
- Localities. Point. [*Type; Name; Country; Province; Department*]

4. Road Network

- National Road Network. Line. [*Type of road; Name or denomination; Type of roadway; Current condition; Length of section (meters)*]

5. Rail Network

- Rail Network. Line. [*Type; Name or denomination; Operability (operational, non-operational); Operator (public, private, other); Track gauge; Main cargo carried; Length of section (meters)*]
- Railroad Stations. Point [*Type; Name or denomination; Rail network name or denomination; Operability (operational, non-operational); Operator (public, private, other)*]

6. Ports

- Ports. Point [*Type of port; Name or denomination; Operator (public, private, other); Current status (operational, non-operational)*]

7. Airports

- Airports. Point [*Type of port (passengers, freight); Name; Operator (public, private, other); Current status (operational, non-operational)*]

8. Logistics Infrastructure

- Free Trade Zones. Point [*Type; Name; Description; Operability (operational, non-operational)*]
- Logistics Centers. Point [*Type; Name; Description; Operability (operational, non-operational)*]
- Dry Ports. Point. [*Type; Name; Description; Operability (operational, non-operational)*]

9. Relevant Binational Infrastructure

- Bridges. Point [*Type (road, rail); Name; Description; Operability (operational, non-operational)*]
- Tunnels. Point [*Type (road, rail); Name; Description; Operability (operational, non-operational)*]

10. Border Controls

- Border Crossings. Point [*Type (river, sea, land, air); Name or denomination; Operational (Yes-No); Hours of operation (permanent, seasonal, other); Category of Control (traditional,*

integrated, single headquarters, two headquarters, other); Type of traffic (freight, passengers, other); Remarks]

11. Protected Areas

- Protected Areas. Polygon [*Type (national park, natural reserve, biosphere reserve, Ramsar site, special protection area, other legal protection status); Name; Area]*
- Indigenous Peoples' Areas. Polygon [*Attributes to be defined]*
- Indigenous Peoples' Areas. Point [*Attributes to be defined]*

12. Hydrography

- Watercourses. Line [*Type (river, stream); Name; Regime (permanent, non-permanent); Navigability (yes, no); Navigable Length; Basin; Basin Area; Average Discharge; Countries]*
- Bodies of water. Polygon [*Type (lake, pond, reservoir); Name; Regime (permanent, non-permanent); Navigability (yes, no); Basin; Tributaries; Distributaries]*
- Hydroelectric Power Plants. Point [*Type; Name; Operability (operational, non-operational, under construction)]*

13. Communications

- Fiber Optic Network. Line [*Operation; Capacity; Availability; Other attributes to be defined]*

14. Energy

- Electric Power Transmission Lines. Line [*Capacity; Point of Origin-Destination; Current operating status]*
- Electric Power Plants. Point [*Type; Installed power generating capacity; Current operating status]*

The layers are not limited to the list above; this is rather a preliminary approach to them. In this regard, it is proposed that the initial data set be kept and managed in such a way as to make it scalable as new information will be constantly added for continuous enhancement. Once the initial product is ready, it will be important to evaluate and agree upon the need to incorporate new thematic layers or update or edit the existing ones. Below is a tentative list of layers for a future update:

- Oil and gas pipeline network
- Provincial road network
- Maritime and river traffic routes
- Relief model
- Other to be defined

Update

An update methodology and schedule should be established by consensus. It is hereby proposed that an update schedule be established according to each thematic layer and following the guidelines to be approved by the National Coordinators. Such updates should provide for the addition of new thematic layers as well as for the update and extension of the attributes already included.

Reference Scale and System

The minimum reference scale hereby established for the data frame is 1:250,000.

The reference system to be adopted is SIRGAS 2000 or WGS84.

Data's Coordinate System: Latitude/Longitude

Projection for producing maps: To be defined

Documentation and Metadata

It is proposed that all work methodologies applied in the system implementation and in data geo-processing be appropriately documented through the preparation of a technical document.

The Latin American Metadata Profile (LAMP), designed on the basis of ISO Standard 19115 —developed by ISO/TC 211—, will be adopted for metadata modeling.

Data Availability

The system should offer the possibility of downloading data along with all their attributes in native ESRI Shapefile format. Internet access to the data should be possible through WMS and transactional WFS.