ARGENTINE PROPOSAL TO DEVELOP A GEO-REFERENCED INFORMATION SYSTEM FOR COSIPLAN

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 territorial analysis and integration planning by the National Coordinators.

Objectives

The main objective is to build a set of geographical data files containing the background information required for the analysis of the issues related to international territorial integration, the COSIPLAN Portfolio projects and the integration infrastructure available in the South American countries. This information should be integrated at the continental level in thematic layers by subject matter.

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;

- ✓ Establish and propose regional integration corridors, areas of influence, complementary areas, etc;

- ✓ 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 deemed necessary to attain the aforementioned objectives should cover, as a minimum, the themes listed below for the entire South American territory.

Example:

> **X. Theme;**
> ▪ Name of the layer. Geometry [*Field 1; Field 2; Field nth*]

1. **Portfolio Projects**;

   ▪ Point Projects [*Code, Hub, Group, Name, Country, Progress/Status*]
   ▪ Linear Projects [*Code, Hub, Group, Name, Country, Progress/Status*]

2. **Borders and Administrative Jurisdictions;**

   ▪ International borders. Polygon. [*Name; country*]
   ▪ Provincial borders. Polygon. [*Name; country*]
   ▪ Departmental borders. Polygon. [*Name; country*]

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 (route, expressway, minor road); Name or denomination; Type of roadway (paved, gravel, dirt); Length of section (meters)*]

5. **Rail Network**

   ▪ Rail Network. Line. [*Type; Line or Name; Operability (operational, non-operational); Length of section (meters)*]

   ▪ Railroad Stations. Point [*Type (passengers, freight); Name or Line*]

6. Ports

- Ports. Point [*Type of port (passengers, freight); Name; Operability (operational, non-operational)*]

7. Airports

- Airports. Point [*Type of port (passengers, freight); Name; Operability (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, not operational)*]

9. Relevant Infrastructure

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

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

10. Border Crossings

- Border Crossings. Point [*Type (river, sea, land, air) Category of Control (main road network (RVF), freight, single headquarters, other); Name; Description; Operability (operational, non-operational)*]

11. Protected Areas

- Protected Areas. Polygon [*Type (national park, natural reserve, biosphere reserve, Ramsar site, special protection area, other); Name; Description*]

12. Hydrography

- Watercourses. Line [*Type (river, stream); Name; Regime (permanent, non-permanent); Navigability (yes, no)*]

- Bodies of water. Polygon [*Type (lake, pond, reservoir); Name; Regime (permanent, non-permanent); Navigability (yes, no)*]

- Hydroelectric Power Plants. Point [*Type; Name; Operability (operational, non-operational, under construction)*]

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 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 the need to incorporate new thematic layers, update or edit the existing ones, or add new elements or information fields to the ones already included in the database.

Update

It is hereby proposed that an update schedule be established according to each thematic layer and following the guidelines to be established by the National Coordinators.

At a first stage, update processes should be carried out on a real-time basis for the COSIPLAN Portfolio projects, and on an annual basis for the rest of the layers included in the database.

Updates should be proposed by the National Coordinators within the deadlines or update schedules established by each country. Such updates should provide for any addition of new elements to the database that might be deemed relevant as well as for the extension of attributes already included with new information.

Reference Scale and System

The minimum reference scale proposed for the data frame is 1:1000000, though larger scales may be used according to availability.

WGS84 is the reference system to be adopted, without any projection applied.

Documentation and Metadata

All work methodologies applied to data geo-processing, edition, compilation, generalization, etc., should be appropriately documented in a technical document containing at least, for each thematic layer, the following items:

- a detailed flowchart of tasks and intermediate products;
- the data source;
- the data time limit;
- the capture scale;
- any specific observation deemed relevant

Metadata should accompany each thematic layer in order to be consulted through the ArcCatalog module included in ArcGIS 10. Such metadata should contain a brief detail of the sources of information used, the data time limit, update date, etc.

Data Availability

The data should be available in native format ESRI *Shapefile* for downloading from the Internet or for their distribution in DVD-ROM or any other electronic medium so as to use them as input for analysis in the Geographic Information System ArcGIS 10 or another data modeling software (Ex: TRANSCAD). Later, they can be published in a freely accessible WMS map service.

Tentative Schedule of Tasks (approximately for a 4- or 5-member team with appropriate equipment)

a) Pre-Processing Stage (2 months)

1. Compile information and inventory
2. Make a diagnosis of processing needs
3. Draw up a work schedule

b) Processing Stage (3 to 6 months)

4. Geo-processing of data (edit geometries, make topologic adjustments, introduce corrections, etc.)
5. Processing of attributes (standardize tables, editing, harmonize attributes)
6. Generate unified layers (combine and add thematic layers)
7. Final editing

c) Post-processing Stage (1 to 2 months)

8. Data audit
9. Validation (National Coordinators)

10. Store, publish and communicate results

Total Time: 8 - 10 months