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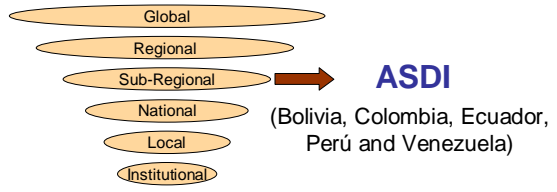
Andean Spatial Data Infrastructure (ASDI)

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Spatial Data Infrastructure Initiatives



ASDI
(Bolivia, Colombia, Ecuador, Perú and Venezuela)

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Andean Community (CAN)

- International organization for the economic and social integration of Bolivia, Colombia, Ecuador, Peru and Venezuela with the Andean Integration System (AIS).
- The executive body of the CAN is the General Secretariat (SGCA).
- The CAN has the capacity to generate supranational community norms for direct application and immediate effectiveness in the Member Countries.




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Andean Context

- 120 million inhabitants living in an area of 4 700 000 square kilometers.
- Approximately 25% of the planet's biological diversity.
- 16,8% of birds, 10,5% of amphibians and 10,3% of mammals worldwide.
- Natural area under protection is 15% of the total surface area of the sub-region.
- 230 million hectares of forest surface, equivalent to almost 35% of the wooded surface in Latin America and the Caribbean and 6,5% worldwide.
- The forest surface includes an Amazon area of approximately two million km², almost 50% of the Amazon territory in the South American Continent.
- The Andean Cordillera is the longest mountain chain in the world (7.250 kilometers) and has the highest glaciers located in tropical latitudes.

These natural resources sustain the economic functioning of the Andean Countries, since approximately 20% of the GDP depends on the exploitation of natural resources like agriculture, fishing and mining.

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Andean Problems

- **Erosion** affects the development of cultivation and reduces the capacity for absorption of moisture and the availability of nutrients and organic material.
- Significant increase of the fishing industry has caused a **reduction of biomass of the main species**, affecting coastal ecosystems.
- **Deforestation** is one of the principal problems, as 90% of it is caused by uses for agriculture that are not sustainable.
- **Water contamination** by discharge of dangerous elements by industries like chemical, petrochemical and tannery.
- **Air contamination** mainly caused by the manufacturing industry, slash and burn agriculture, extractive oil and mineral exploitation, the use of fossil fuels in the process of energy generation and automotive exhaust.
- **"El Niño" phenomenon** that is an oceanic-atmospheric alteration, which is most intense in the Pacific Ocean and severely affects the coasts of Peru and Ecuador. This phenomenon tends to increase precipitation and produces grave droughts in different parts of the world.

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Why an Andean Spatial Data Infrastructure (ASDI)?

The Andean Community needs to have tools and elements that permit it to investigate the impact of these phenomena and changes in a visual way, identifying the geographic space on which they were produced or the affected places in order to take the best actions. Thus, the geographic information plays one of the critical roles to conduct sub-regional studies over one continuous geographic space:

- They allow for the early recognition of the economic, social, cultural, migratory, security and political impacts.
- They provide elements for the analysis of the impacts of different phenomena like: climate change, natural disasters, El Niño phenomenon, global warming, rising sea levels, greenhouse gas emission, etc.
- They offer a global vision over the CAN Territory as just one region and the analysis and solutions are represented in this way, as well.

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What is Andean Spatial Data Infrastructure (ASDI)?

The ASDI is a working group formed by the National SDI's, each National SDI works in direct coordination with the local SDI's. The SGCA is in charge of the coordination and support of the National SDI's, acting as a catalyst for the national efforts and will work towards the alignment of the Regional and Global SDI. Furthermore, it will supply constant coordination with the National SDI and the Local SDI's within each country and provide the necessary elements which facilitate the constant communication among them.

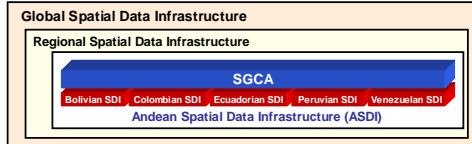


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Andean Spatial Data Infrastructure (ASDI)

Actually, there are two existing National SDI's, one in Colombia (ICDE) and one in Peru (IDEP).

Progress in Colombia

- Standards of geographic information like metadata, quality of data, geospatial positioning, and feature type catalogue.
- Elaboration of a clearinghouse which gathers information from national institutions.
- Definition of national policies of geographic information like agreements among national institutions for the production, maintenance, distribution and access to spatial data.
- Development of capacity-building for the creation and development of the skill within the institutions and individually.

Colombia has a good level of training courses on the topics of geographic data, SDI, etc. and it is promoting the sharing of this knowledge with other countries of the sub-region. In this way, the National Geographic Institution of Colombia (Agustin Codazzi), with the collaboration of the Organization of American States (OAS), prepares courses on Spatial Data Infrastructure with scholarships for employees of National Institutions of countries in South America interested in the implementation of this topic.

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Andean Spatial Data Infrastructure (ASDI)

Progress in Perú

- Promulgation of a National Norm to create the Coordinating Committee for Peruvian Spatial Data Infrastructure (IDEP), formed by the main national institutions that generate spatial and statistical data. IDEP is sustained by the Peruvian National Ministerial Decree that created its Leadership Committee.
- The Leadership Committee of the IDEP has been elaborating on the profile of the Project of Public Investment, the National Spatial Data Infrastructure Implementation Plan and the National Spatial Data Policies.

Strategy used by Peru to get support of the government leaders

Based on the elaboration of an analysis regarding the budget which national institutions used in: the developing of geographic information systems, acquiring air photography and satellite images, obtaining spatial data and buying equipment related to the treatment of digital cartography. This analysis showed huge duplication of efforts and budget in all the aforementioned activities. This demonstrated the problem to government authorities and enabled their support for the creation of a National Spatial Data Infrastructure.

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Andean Spatial Data Infrastructure (ASDI)

The ASDI is a group of efforts of the national institutions and users of spatial data, who are oriented to guarantee that the production apply international standards to facilitate its interchange, reuse and access.

One of the principal objects of the ASDI is to reduce the large budgets applied to the duplication of spatial data production and it focuses its activities on: adopting international standards and linking them to Andean sub-regional characteristics to promote supranational norms on the interchangeability, interoperability, accessibility and use of spatial information, to produce fundamental framework data to which all the national institutions have access, and to reduce the costs of duplicate production.

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Andean Spatial Data Infrastructure (ASDI) - Weaknesses

- Individualized management of the spatial data: each institution uses its own data and does not know what the others have.
- Different standards of content, specifications and protocols for the data integration.
- The same kind of data from different sources causes the duplication of efforts and use of financial resources.
- A small numbers of technicians have enough knowledge about the terms used in a spatial data infrastructure (standards, policies, technologies, etc).
- The government leaders are misinformed about how important the geographic information tool is to the development of their societies.
- It is very difficult to share spatial data among the national institutions furthermore to know about what information they have.
- Deficit of information policies and legal definitions for the production and accessibility of spatial data.
- Lack of budget to support the National SDI's.

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Andean Spatial Data Infrastructure (ASDI) – Strengths and Beneficiaries

- The interests of the principal institutional producers and users of spatial data in the formulation of ASDI.
- There is a similarity and continuity of geographic characteristics in all the Andean Community that facilitate common characterization.
- There are some standards defined inside the Andean Community that can be used at a sub-regional level.
- The General Secretariat of the Andean Community supports the project of implementation of the ASDI.
- It is possible to generate proposals of supranational norms in order to facilitate the establishment of the National SDI's.

The beneficiaries of the ASDI will be the community in general, through the enablement of decision-making by national and regional political leaders, particularly in sectors which require spatial data for specific purposes (Environment, Infrastructure, Public Health, Poverty Reduction, etc.)

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Andean Spatial Data Infrastructure (ASDI) - Strategies

- **Capacity Building:** SGCA has been programming a training course on SDI concepts with the support of the Agustín Codazzi Geographic Institution of Colombia, which has a great deal of experience on SDI and other topics related to geographic information. The SGCA is looking for the resources to implement it.
- **Support at the highest level (Presidents of the Member Countries).** This support is not just about promulgating laws that allow for its creation and the use of norms to facilitate the access of the spatial data; it also requires the necessary resources for its implementation and development in the short, middle and long-term.
- Preparing an **Andean survey** and then presenting the results to the main country authorities in order to share the knowledge and the importance of the SDI to government leaders as a better tool for policy makers and the budget savings it brings.
- **Organizing meetings** between the **main national producers of spatial data**, the principals of the Statistical and Geographical Institutions. The purpose is to show them the ASDI initiative and the creation of an Andean Committee to handle the initiative.

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Andean Spatial Data Infrastructure (ASDI) - Strategies (cont.)

- **Establishing a permanent ASDI workgroup**, comprised of technical staff from the national institutions, which will be in charge of elaborating the legal, political, and technical proposals that they consider pertinent. The SGCA is in charge of providing the elements to ensure continuous communication (for example: virtual space for the ASDI group, including notice of upcoming meetings, virtual library of documents, interesting links, announcements, chat, etc.)
- The proposals of the ASDI workgroup can be presented as **policy proposals** to the highest authorities of the Andean Community and after their approval can be converted to **Supranational Andean Norms**.
- **Establishment of alliances with international organizations and national institutions** involved with the development of the SDI to propitiate the transfer of technologies, best practices and experience to the Andean Community. It is essential to have enough economic support from international organizations interested in initiatives like this in order to achieve its sustainable development.
- **The construction of a base Andean Community map** (a map with the five Member Countries: Bolivia, Colombia, Ecuador, Peru and Venezuela) in a scale 1:1 000 000 with the participation of all countries and containing the framework data defined for ASDI.

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Andean Spatial Data Infrastructure (ASDI) - Conclusions

- The Member Countries of the Andean Community have similarly problematic environments, furthermore they know about the significance of natural resources for the development of their economies. These reasons give them the opportunity to **propose common policies** to facilitate the access to spatial information as an important tool to create a sustainable environment in the CAN.
- ASDI promotes the **efficient use of resources**: eliminates the duplication of the resources used by the national institutions to generate and maintain spatial data and provides a mechanism for sustainable increases consistent with the sub-regional goals.
- The ASDI is the product of necessity of the Andean Countries to obtain a mechanism that facilitates the collection of the **opportune and appropriate elements for decision-making** for the sustainable development of the Member Countries.

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Andean Spatial Data Infrastructure (ASDI) – Conclusions (Cont.)

- The **proposal capacity of the SGCA is an advantage** to get the support of the government to obtain the goals defined for ASDI. However, the cooperation of international organizations is necessary to guarantee the implementation and maintenance of ASDI and to promote the creation of the National SDI in the Member Countries that do not have them yet.
- The **National Institutions should assume a leadership role** in the coordination of geospatial information. They could act as more than producers of spatial data. Instead they have the capacity to propose norms that will benefit their countries and the five Member Countries.
- It is important that **ASDI take advantage of the knowledge of other SDI initiatives** in all spheres and the experiences obtained by Peru and Colombia in the implementation of their National SDI's in order to use best practices to guarantee the better implementation of the Andean Spatial Data Infrastructure.

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