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REGIONAL COMMITTEE OF UNITED NATIONS  
ON GLOBAL GEOSPATIAL INFORMATION  
MANAGEMENT FOR THE AMERICAS



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# **X SESSION** **UN-GGIM:** **AMERICAS**

October 18, 19 and 20 - 2023  
**Santiago de Chile, ECLAC**

## **Promotion in the Integration of Statistical and Geospatial Data at INEC - Costa Rica.**

Luis Carlos Paniagua, Instituto Nacional de Estadísticas  
y Censos de Costa Rica

# INEC participation in the Facility Project

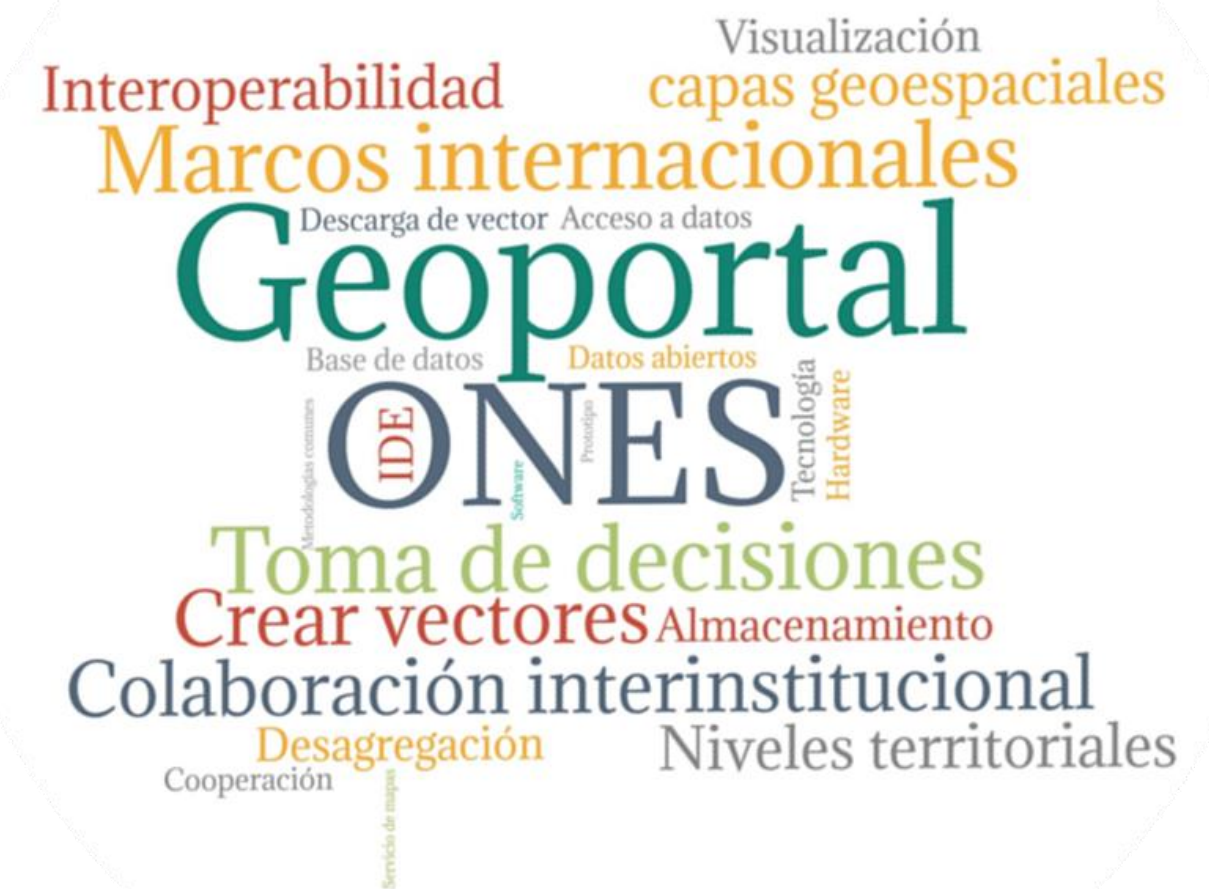
## Opportunities

Cartography Unit (GIT) processes's improvement through the implementation of an IDE based on open source software

Facilitate the geodata integration with statistical data

Improve access to geostatistical data produced by INEC (Publishing)

Support decision-making and the construction of public policies through interoperable geostatistical information



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# Progress of the project stages

## 1. Diagnosis

- Responses to Global Questionnaire (UN-GGIM)
- Specific interviews with technical team
- Survey of data management processes
- Definition of target image

## 2. Workshops

- Technical exchanges in:
- Statistical/geospatial interoperability
- Geocoding data
- Common geographies

## 3. Design

- Definition of requirements
- Definition of components to be incorporated into the platform.



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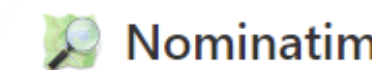
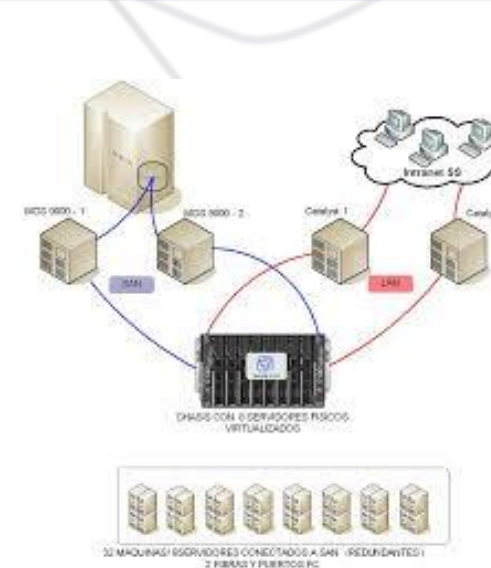


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# Identification of institutional limitations according to requirements

- Need for adequate technological infrastructure (Hardware)
- Need for knowledge and experience in the implementation of the requirements of the FACITY project, learning curve of the new technologies of the project components (Software)
- Deficit of IT technical collaborators, dedicated to the project



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# Continuity of the stages of the Facility project

Management and contracting process of a consultancy specialized in the implementation of the following stages based on the GSGF

## 4. Construction

- Discovery Analysis
- Structural and graphic design of the geoportal.
- Enabling databases, map servers, catalogs and applications

## 5. Adaptation

- SQL server database
- Migration Training and sustainable transfer
- Creation of a test and production environment

## 6. Implementation

- Installation on servers and system configuration
- Implementation of components and subcomponents in the production environment

## 7. Follow-up

Consultant monitoring  
Validation and advice from ECLAC.

Etapa	Actividades
1	A - Plan de trabajo
	B - Análisis Discovery
	C- Diseño estructural y gráfico del Geoportal.
	D- Creación de un ambiente de producción y de pruebas QA (Quality Assurance)
	E- Implementación de los componentes y los subcomponentes en ambiente QA
	F- Migración de base de SQL Server
	G- Implementación de los componentes y los subcomponentes en ambiente de producción.
	H- Asesoramiento en instalación en servidores y configuración del sistema
	I- Capacitación de uso y transferencia sustentable
	J- Presentación Presencial de cierre de implementación del Geoportal Estadístico



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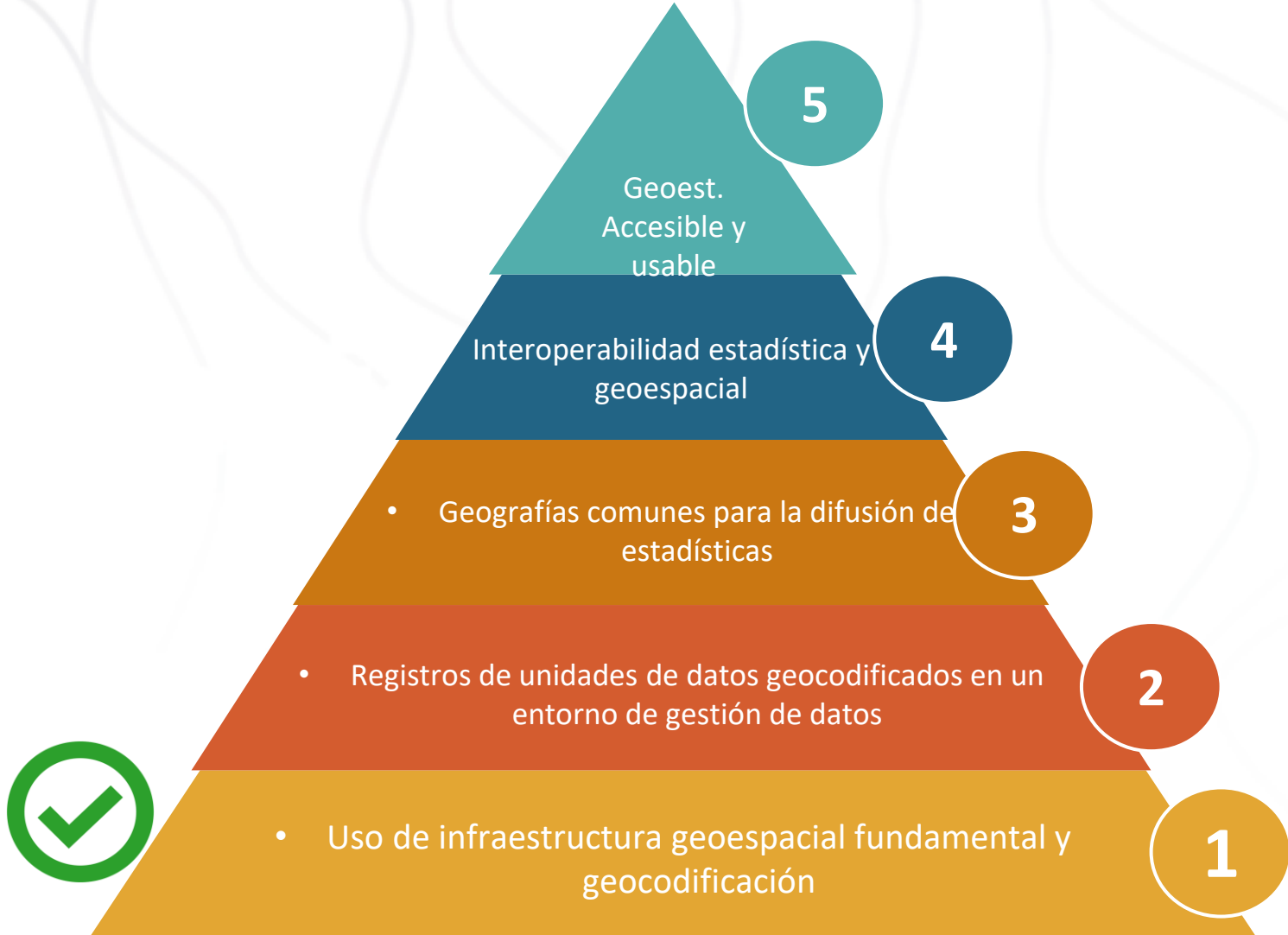
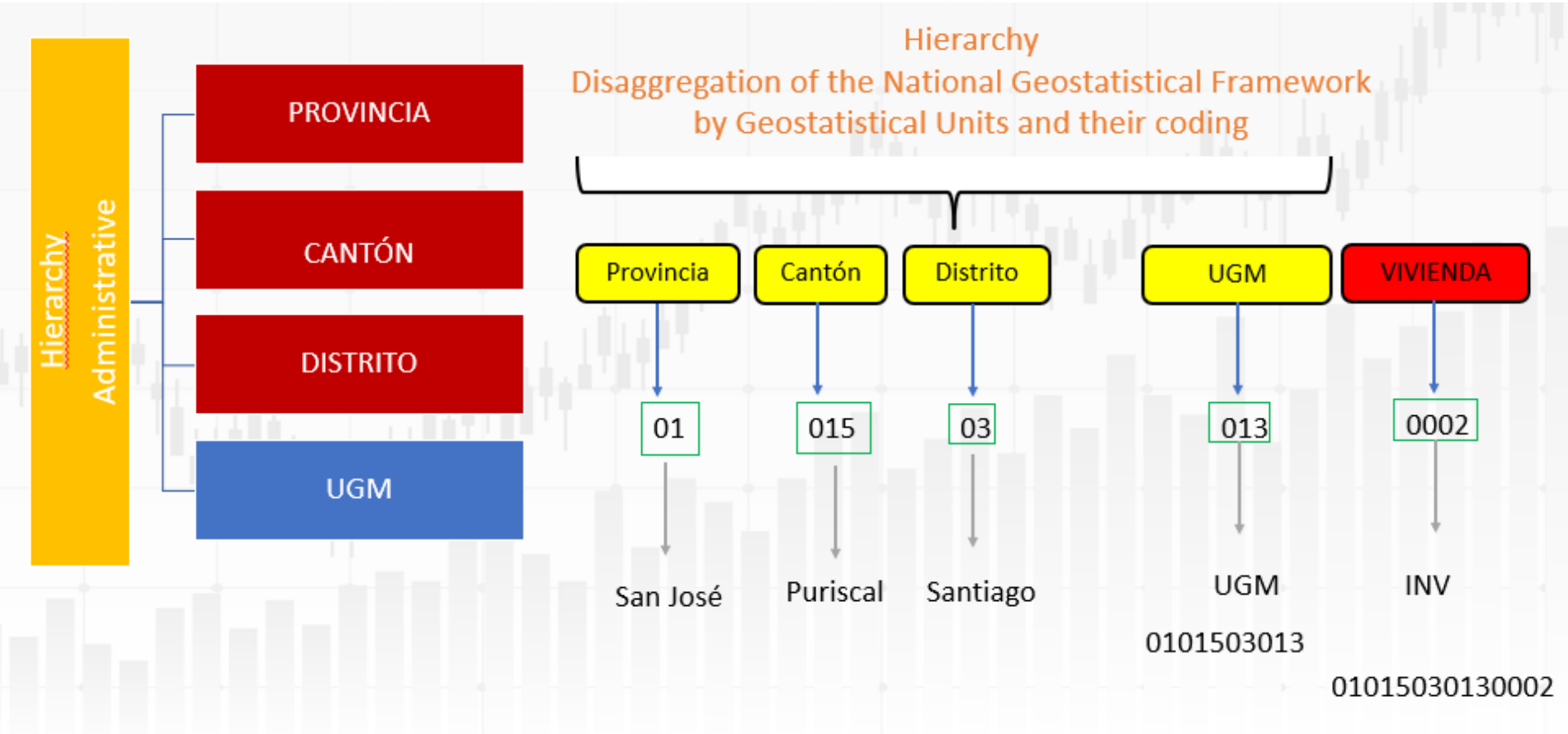
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# Implementation of the GSGF principles in the data and geodata that will be integrated into the geoportal

## P1: Use of fundamental geospatial infrastructure and geocoding

Production of the Geostatistical Framework, which integrates the concatenation of codes (unique identifiers) province+canton+district+UGM

In addition, the homes have been GeocodedUGM+housing code



# Implementation of the GSGF principles in the data and geodata that will be integrated into the geoportal

## P1: Use of fundamental geospatial infrastructure and geocoding

- Use of fundamental geodata and web services provided through institutional nodes within the Spatial Data Infrastructure (SDI) of Costa Rica (IDECORI), managed by the National Geographic Institute (IGN)
- Use of Geographic names, Road Network, physical infrastructure, hydrography, Orthoimages, cadastre (SNIT-IGN)
- Use of Satellite images (WMS)
- Field work to update the MGN and its associated geodata (INEC)
- Geocoding by addresses (streets and avenues) is not yet standardized, which limits the implementation of principle 2.



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# Implementation of the GSGF principles in the data and geodata that will be integrated into the geoportal

## P3: Common geographies for the dissemination of statistics

Territorial Division for statistical purposes:

- Planning regions
- Province
- Canton
- District

There is a National Geostatistical Framework

Many of the administrative records do not have coordinates, but rather codes.

INEC has partial access to administrative records



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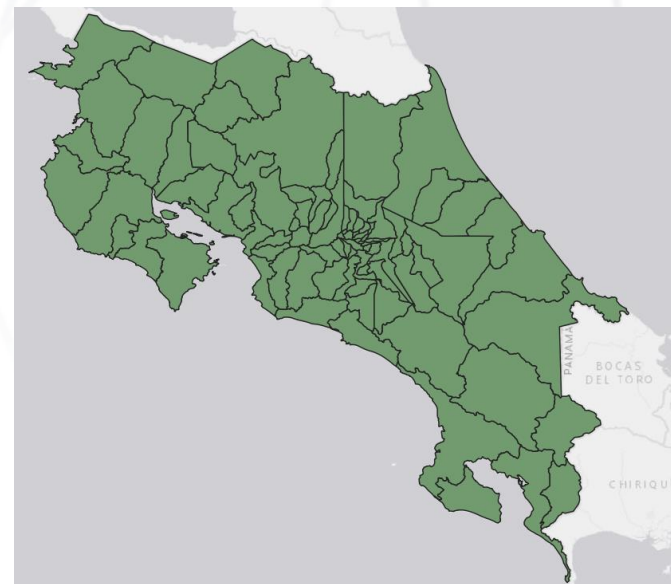
# Implementation of the GSGF principles in the data and geodata that will be integrated into the geoportal

## Division of the national territory into different levels of disaggregation (National Geostatistical Framework)

7 PROVINCIAS



84 CANTONES



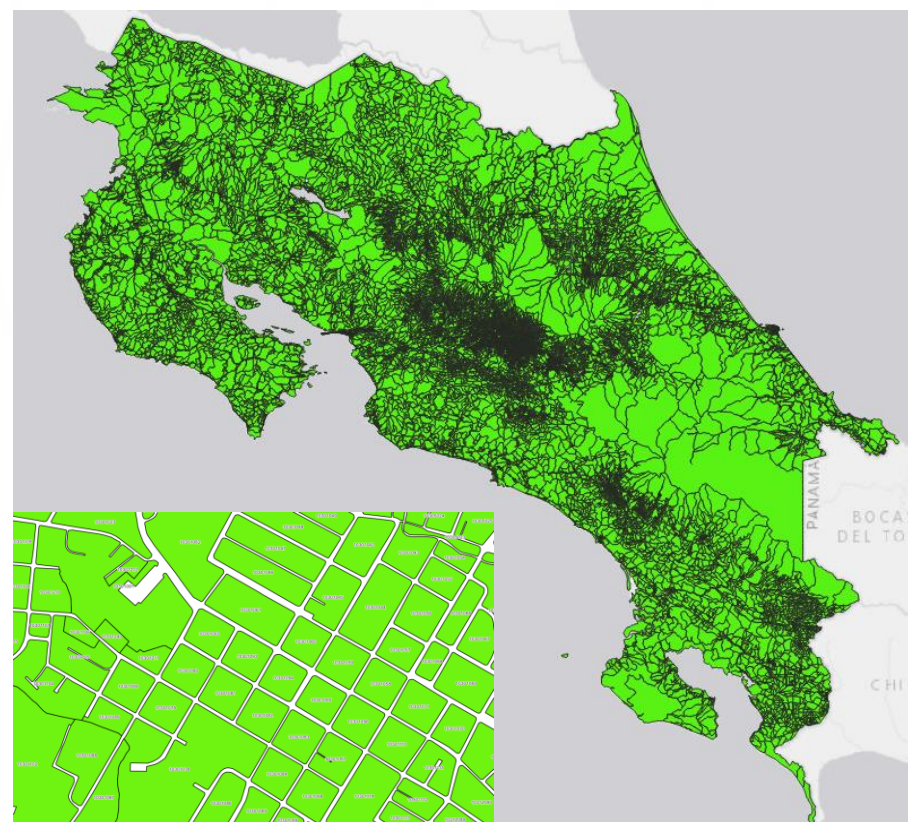
492 DISTRITOS



1.583.081 VIVIENDAS



50.776 UGM



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# Implementation of the GSGF principles in the data and geodata that will be integrated into the geoportal

## P4: Statistical and geospatial interoperability

The 9694 national law (2019) stating National Statistical System (SEN) contemplates:

- Regulations for the geocoding of administrative records
- Guidelines for the dissemination of statistics and access to SEN microdata.
- Quality assurance framework.

The Geographic Classification Manual for statistical purposes of Costa Rica states the regulation for geocoding.

Code of good statistical practices



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# Implementation of the GSGF principles in the data and geodata that will be integrated into the geoportal

## P4: Statistical and geospatial interoperability

Standards for geospatial data specified by IDECORI have been implemented such as:

- Catalog of Geographic Objects for Fundamental Data of Costa Rica
- Official Geographic Metadata Profile of Costa Rica
- Geodetic Reference System of Costa Rica



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# Implementation of the GSGF principles in the data and geodata that will be integrated into the geoportal

## P5: Accessible and usable geospatially enable statistics

INEC will have its Statistical and Geospatial Geoportal during the first quarter of 2024, which will allow the publication of geospatially enabled statistical information in a usable and accessible form. In a way that promotes the use of standard web services and linked data methods to provide dynamic and readable access to this data with the necessary guarantees regarding its integrity.

INEC will be able to comply with the regulations of publishing in the INEC node in the IDECORI-SNIT, making web services (WMS and WFS) available.



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# Upcoming challenges

- Develop SDG indicators through the use of geospatial information and the use of Geospatial Information Technologies, associating statistics with them.
- Create alliances with the National Geographic Institute to take advantage of the data updated by INEC in the field, so that geospatial information of national interest can be validated.
- Modernize INEC's transversal processes (data collection, sampling and production of geodata) so that the existing technological and geospatial gap is reduced.
- Publish the National Geostatistical Framework and the updated infrastructure inventory, in an interoperable manner for decision making, for example for disaster management and reduction.



DESAFIOS



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# Thank you



**EN EL INEC TENEMOS LA TECNOLOGÍA  
DE NUESTRO LADO....!!!**



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