

# Technical Unit: A Structure for Working on the Metadata Catalogue in Chile and the Technical Aspects of an NSDI

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**Key words:** metadata, technical unit, infrastructure, National Territorial Information System, Chile, Territorial Information.

## SUMMARY

The efforts made in Chile to make progress towards setting up an NSDI began, after many initiatives taking place over time, in the year 2001, with a Presidential instruction to create the National Territorial Information System (SNIT) and its basic structure.

While the organizational, administrative and policy aspects are well advanced and with a Work Plan defined and approved by the President of the Republic, it is necessary to make definite progress in technical aspects, interoperability, standards and awareness of existing holdings, which requires a special structure, a hundred percent technical and which provides support to the SNIT structure. With this viewpoint in mind, the SNIT was restructured to allow the inclusion of the TECHNICAL UNIT.

The Technical Unit is structured with the participation of members of the more technical organizations of the SNIT, mainly those who create the information. One of first tasks entrusted to this advisory unit was the creation of the “*Metadata Catalogue of the Territorial Information of the Nation*”.

This task involved taking on a substantial challenge, as in Chile there was only one institution which had metadata in a Clearinghouse, this was the Military Geographic Institute which had developed it through a project of the Pan-American Institute for Geography and History.

From the beginning it was clear that any study and/or work done should be based on the ISO international standards, so that they are within international standards. Efforts were to be directed towards the standards of ISO – TC 211, specifically N° 19115. However, it was necessary to structure a detailed working methodology, starting with financing it and finishing with implementing this initiative in the whole country; this covered activities including a detailed study of the standardization and its adaptation to our reality, a trial model, publicizing the new concept, training in its use and management, filling out the forms, designing a methodology and schedule for training throughout the country, planning for migrating existing data towards the standard and many other aspects. The experience has not been easy, the work has been long and each stage has been dealt with one by one. This practical experience It is intended to transfer this practical experience to other countries which, like Chile, aim to achieve order and structure in the creation and management of their territorial information, and need to struggle from day to day to make progress towards setting up their NSDI.

## RESUMEN

Los esfuerzos realizados en Chile para avanzar hacia la materialización de una INDE, se empezaron a estructurar, luego de muchas iniciativas a lo largo del tiempo, a partir del año 2001, con un mandato presidencial que crea el Sistema Nacional de Información Territorial (SNIT) y su estructura básica.

A buen avanzar de los aspectos de organización, administrativos y políticos y con un Plan de Trabajo definido y aprobado por el Presidente de la República, se debía avanzar decididamente en los aspectos técnicos, la interoperabilidad, los estándares y el conocimiento de lo existente, requería de una estructura especial, cien por ciento técnica y que diera soporte a la estructura del SNIT. Con este horizonte se reestructuró el SNIT y se dio cabida a la UNIDAD TÉCNICA.

La Unidad Técnica, se estructuró con la participación de miembros de las organizaciones más técnicas del SNIT, principalmente las generadoras de la información, siendo una de las primeras tareas encomendadas a esta unidad asesora, la *Generación del Catálogo de los Metadatos de la Información Territorial del País*.

La tarea implicaba un gran desafío, pues en el país solo existía una sola Institución que disponía de metadatos en un Clearinghouse, que era el Instituto Geográfico Militar y los había desarrollado a través de un Proyecto del Instituto Panamericano de Geografía e Historia.

Desde un principio se tuvo claro que cualquier estudio y/o trabajo que se desarrollara debía ser en base a las normas internacionales ISO, de manera de quedar insertos en las normativas internacionales, los esfuerzos se debían orientar hacia las normas del TC-211, específicamente la 19115. Pero se debió estructurar una detallada metodología de trabajo, la que partía con el financiamiento y terminaba en la puesta en marcha de esta iniciativa en todo el país; pasando por un detallado estudio de la norma, su adecuación a nuestra realidad, un piloto-prototipo, divulgar este nuevo concepto, capacitar en su conocimiento y manejo, llenar las fichas, diseñar una metodología y programa de entrenamiento a lo largo del país, considerar la migración de los datos existentes y otros tantos aspectos.

La experiencia no ha sido fácil, se ha realizado un largo trabajo y se han ido superando una a una las diferentes etapas. Esta experiencia práctica, se desea traspasar a los países que como Chile, desean alcanzar un ordenamiento en la generación y manejo de su información territorial y deben luchar día a día para avanzar en la materialización de su INDE.

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## 1. INTRODUCTION

The initiative of the National Territorial Information System (SNIT) started in Chile in the year 2000 as part of the “Policy for Modernizing Management by the State” and as a means of advancing towards what is generically known as the National Geo-Spatial Data Infrastructure (NSDI). Not long after starting, the support of the President of the Chilean Republic was achieved on the issuing of two Presidential Instructions. The first laid out the organization of the SNIT and its structure and three clearly defined tasks :

- Study the current situation to diagnose it
- Study the standards
- Formulate a National Plan for the Capture and Standardization of Territorial Information

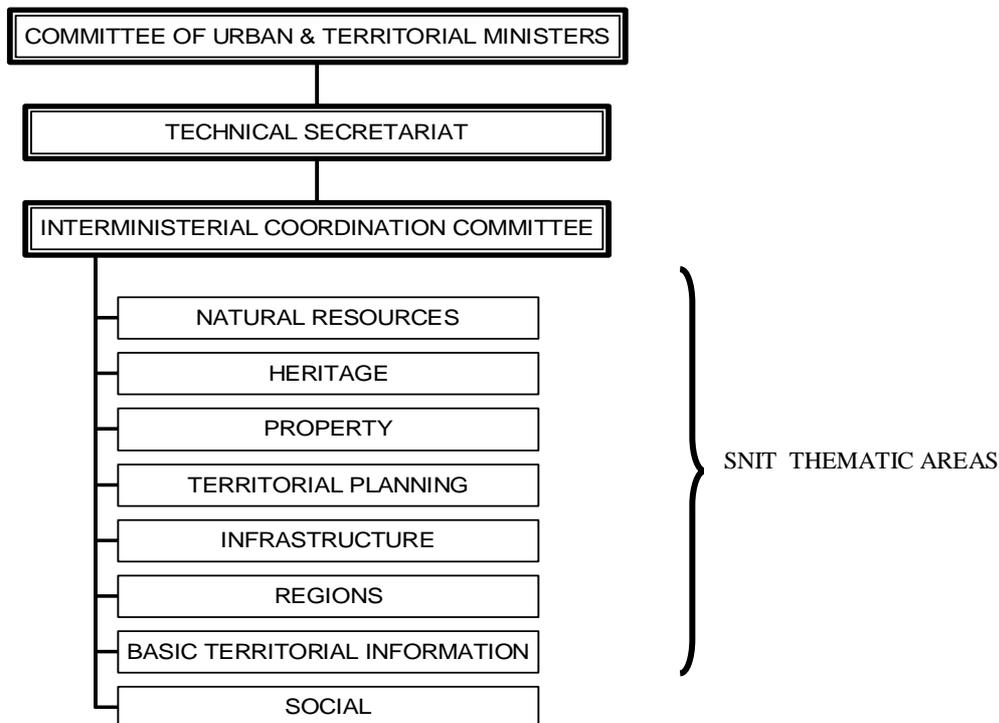


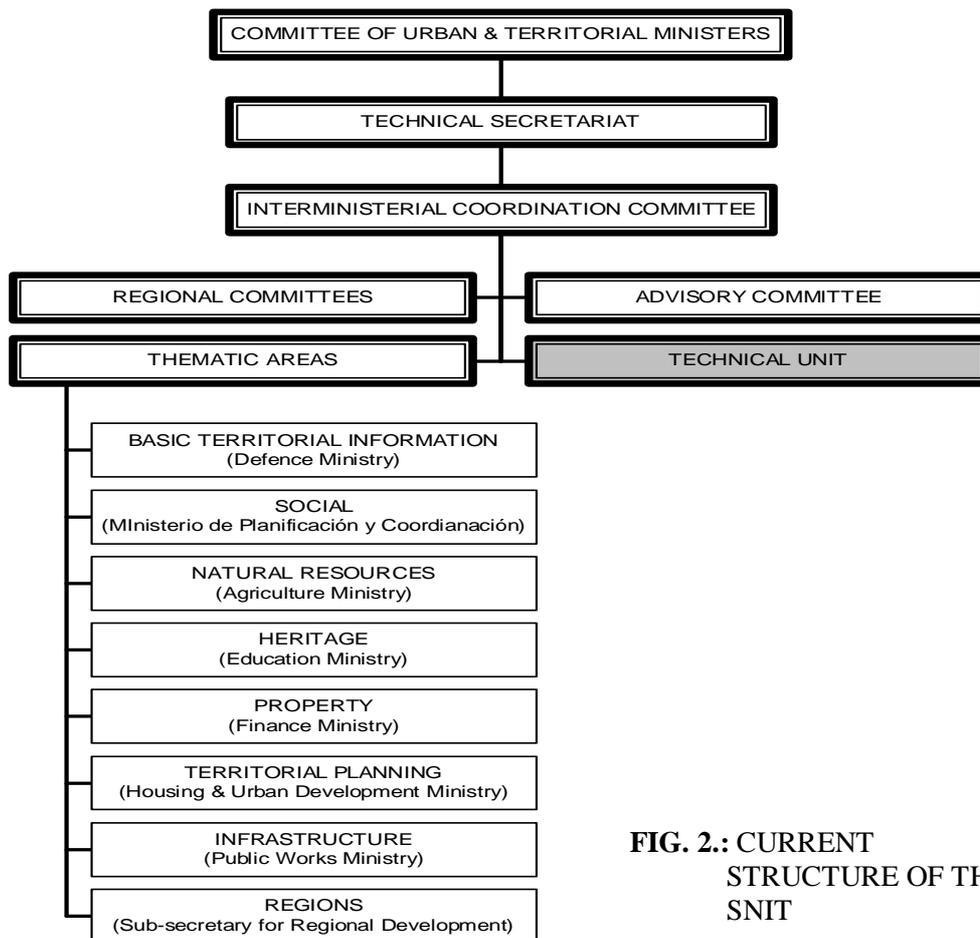
FIG. 1.: ESTRUCTURA INICIAL

The work undertaken was then performed by the Coordination Committee, which had to face the hard task of carrying out a survey at national level, leading to an analysis or diagnosis of the current situation, devise a Work Plan and study the standards.

The second instruction gave backing to the work done and established that :

- The institutions of the state should fulfil the objectives laid out in the “National Plan for the Capture and Standardization of Territorial Information 2003 – 2005”
- The work done should move towards a policy for territorial management in the country, while a law to give legal backing to the Territorial Information System (SNIT) should be proposed

These new determinations, together with working to put the National Plan into effect covering 9 General Objectives and those of each Thematic Area, also the presentation of a proposal for a policy and a Law, lead to the restructuring of the SNIT. Advisory units were set up attached to the Coordination Committee (made up of representatives of all the ministries of the country), which then gave up certain executive functions and assumed the name of ‘Inter-Ministerial Coordination Committee’.



**FIG. 2.: CURRENT STRUCTURE OF THE SNIT**

## 2. TECHNICAL UNIT OF THE NATIONAL TERRITORIAL INFORMATION SYSTEM

The setup and initial structure of the SNIT, is mainly oriented towards making progress in matters related to the organisation, management and use of Territorial Information and should be interdisciplinary, in the sense of including the various organizations of the state which have worked with Territorial Information, whether creating it or using it.

However, and as part of this work, the moment came when it was necessary to deal with clearly technical issues, when faced with the great quantity of existing geographic and territorial information in the institutions of the state, the datasets often duplicating each other or even in triplicate, without a logical or rational use of it, along with a lack of awareness of its existence, so that often the same information was being created and/or acquired many times over.

This reality and the latest guidelines led to the setting up of the Support and/or Advisory Units, one of which is the Technical Unit of the SNIT. This Unit advised the Inter.-Ministerial Coordination Committee on technical aspects related to standards, metadata, information catalogues, also carrying out all the technical studies required as part of its functions.

For this, professional people from each of the SNIT thematic areas were asked to participate, finally it was set up mainly with professional individuals from the organisations that create the data considered 'Basic Territorial Information' (cartography), including the Military Geographic Institute, the Aero-Photogrammetric Service of the Air Force, the Hydrographic and Oceanographic Service of the Navy and the National Statistics Institute.

The Technical Unit met as required by the Inter-Ministerial Coordination Committee, and one of its first tasks was the study for establishing the 'Catalogue of Territorial Information Metadata' of Chile.

### **3. THE METADATA CATALOGUE**

Considering the need to document in an organized and standardized way all the substantial and varied territorial information existing among all the various organizations and levels of government, in addition to this task being one of the Objectives of the National Plan, the Inter-Ministerial Coordination Committee requested that its Technical Unit perform a study leading to the "Catalogue of Metadata for Territorial Information Existing in Chile".

The Technical Unit, although made up of a group of experienced professionals with substantial knowledge, were not able to complete this initiative alone, so the task was contracted to an external business under the supervision of the Technical Unit.

The whole job was planned for a two-year duration, with a Pilot Project in the first year, full implementation and training activities in the second year leading to the drafting and delivery of the information by the SNIT member bodies as from the third year.

From 2003 onwards, studies were performed for putting out to tender the performance of the project "Design of the Catalogue and Metadata for Existing Territorial Information in Chile" which, as defined, covered three stages :

Stage 1: Gathering and Systematic Organisation of International and National Experiences:

A study of the most outstanding experiences at international level, of existing standards for metadata and of the use of portals and catalogues was carried out in order to define the issues and deepen available knowledge of them. The study led to the conclusion that, in order to follow world tendencies and use international standards, the ISO standard from TC-211, N° 19115, would be followed.

At national level, and only at the Military Geographic Institute, there was metadata and a portal, under the FGDC standard, so this needed to migrate to the new standard.

## Stage 2: Definition of a Logical Model for the metadata, the catalogue and page design :

The standard defined had to be adapted to the requirements of the SNIT, so this stage ended with the definition of the minimum fields for the metadata, the definition of the search criteria, the definition of the logical model of the catalogue, the determination of the hardware requirements and the design of the web page.

## Stage 3: Trials

As the name would imply, at this stage there was a trial simulation in a local environment, which enable the verification, by means of a complete exercise, of the working of the System. With a small amount of information from each of the SNIT member institutions, a complete exercise was carried out, in which the system was tested. Metadata record forms were filled out, searches were performed, the records of each form were checked, the degree of difficulty for searches and filling out metadata records was assessed, as was the degree of comprehensibility obtained from the records.

The fulfilment of each one of these stages was checked and approved or rejected by the Technical Unit, which moreover participated in the design of the call for tenders and in the selection of the business organisation awarded the contract.

Finally, this work was presented to the Inter-Ministerial Coordination Committee, which then presented it to the community at national level and decided to continue with its implementation and startup at national level.

In the year 2004 the Technical Unit was re-convened and, using the experience of the previous year, a new public call for bids was put out for the implementation and startup of the Metadata Catalogue, taking as a basis the design and prototype approved the previous year, with the following stages being defined :

### Stage 1: Implementation of the Catalogue in accordance with the work done and approved the previous year

The experience of the trials of the previous year enabled improvements to be made and a real, practical start to be made. This led to a period of trial startup and then full operation, checked through the Internet by all the Technical Unit members and subsequently the SNIT.

This phase also involved the necessary development for migrating the existing information of the Military Geographic Institute, from the FGDC standard to the ISO - TC 211 N° 19115 standard adopted.

### Stage 2: Filling out of the Catalogue with Data, for the territorial information existing in a Ministry (that of National Assets and Resources)

Given that the cost of the Call for Tenders was, in financial terms, borne by the Ministry for National Assets and Resources, the place where the SNIT Technical Secretariat is located, the entry of the data of this ministry was considered to be part of this Proposal and of the work offered.

### Stage 3: Training at national level

The work performed and the Metadata Catalogue should be extended on a wider basis and made known throughout the country, so the need for a training program in

all Chile was recognised. This instructed on how the metadata records are to be filled, and on how to work with the Catalogue. Through this, the importance of this work was emphasized and the benefits of having this information updated, available, and online as a tool for knowledge, query, knowing where the information is and its state.

The goal for the year 2005 consists of each organization around the country starting to fill out the forms and thus in the short term make all the information available at national level.

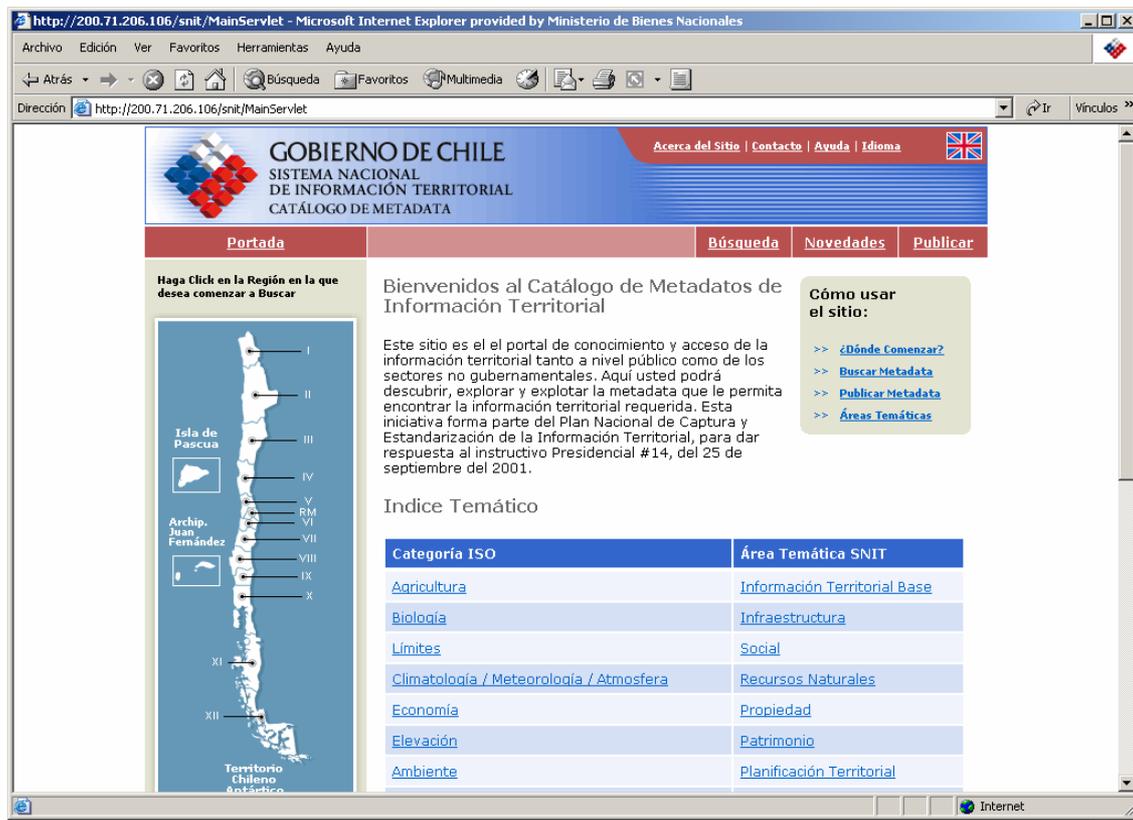


FIG. 3.: MAIN PAGE OF SNIT-CHILE METADATA CATALOGUE

#### 4. CONCLUSIONS

The experiences undergone in Chile to achieve an NSDI have not been easy, yet the setting up of the National Territorial Information System, with the support of the two Presidential instructions, has made significant progress, especially when there is now a proposed or draft law which aims to give the SNIT official existence.

The setting up of a Technical Unit within the SNIT has enabled a substantial advance to be made in the technical aspects, such as the implementation of the Metadata Catalogue and the study of the standards, which will facilitate the interoperability of the various data and information being managed in the country, also making territorial information management more homogeneous around the country.

The state should provide permanent finance for these developments. The Technical Unit arises from the effort of the institutions participating in it, with the aid of its professional staff

with their work being given a financial basis without this becoming an extraordinarily large amount of finance.

This experience, or part of it is considered to have been very positive for the implementation of metadata for those countries which still do not have it.

## **REFERENCES**

The main sources for this text have mainly been internal documents of the SNIT organisation and of the Military Geographic Institute of Chile, see web sites [www.snit.gob.cl](http://www.snit.gob.cl) and [www.igm.cl](http://www.igm.cl) respectively.

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