



XXVII FIG CONGRESS

11-15 SEPTEMBER 2022
Warsaw, Poland

Volunteering
for the future –
Geospatial excellence
for a better living

Supporting modernization of land administration in Colombia with joint further education programs

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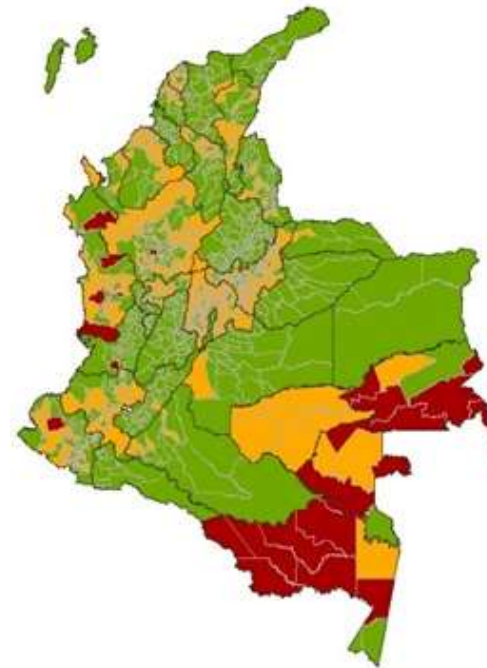
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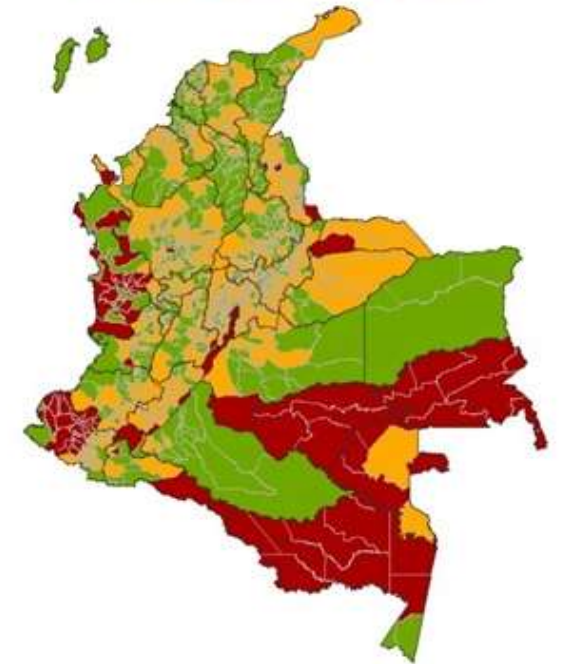
Current cadaster situation in Columbia

- The cadaster in Colombia is outdated and does not reflect the socioeconomic condition of the land (CONPES 2016):
 - **2/3 of the parcels are outdated**
 - **for 1/3 of the territory there is no cadastral records**

Urban cadaster status



Rural cadaster status



Source: IGAC - DPN, 2015

Need for modernization

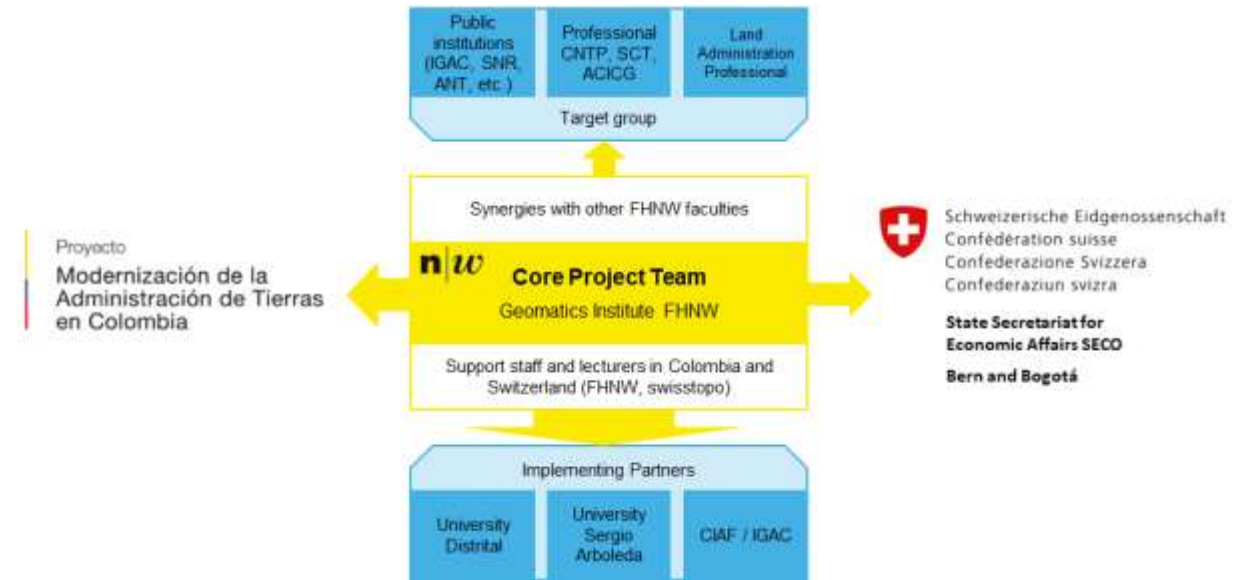
- **Technical standards for cadastral surveying are non-existent**
- **Relevant information that could be useful for enhancing tenure security and improving land use planning is limited**
- **Land values are substantially out of date** contributing to a lack of revenue from property tax collection
- The Peace agreement between the Colombian government and the FARC, approved by the Colombian Congress in December 2016, requires, among other things, **far-reaching reforms in Land Administration**

Challenges in the implementation of the multipurpose cadaster

- **Rethink at all political levels** as well as the restructuring of existing and the creation of new **institutions** in the Land Administration field, including the development of an adapted **legal framework** and the updating of the necessary normative **standards**
- **Decentralization**: trusting in the capacity of territorial entities to manage their own territory
- **Cadaster and registry integration**: Offer legal security of the property

Further education programs as accompanying activities

- The **Swiss State Secretariat for Economic Affairs** (SECO) supports the Colombian government since 2015 by providing technical and technological assistance to the institutions involved in the modernization of the land administration
- In this context, and to address **the need for training professionals, SECO funded a project with the University of Applied Sciences and Arts Northwestern Switzerland** (FHNW)



Partner institutions

- Instituto Geográfico Agustín Cordazzi (IGAC, Bogotá)
 - **regulatory and control body as well as an authorizing entity for cadastral** operators
- Universidad Distrital Francisco José de Caldas (UD, Bogotá)
 - Public university offering curricula in **surveying and cadaster** since decades
- Universidad Sergio Arboleda (USA, Bogotá)
 - Private university focusing on **cadastral** and **environmental** aspects



Target audience

- The training targeted **professionals** who are already actively involved or wish to participate in the further development and implementation of the multipurpose cadaster and other topics related to Land Administration
- These professionals should be able to benefit from their further education for their **personal development** and in general for the economic and social environment and growth in Colombia.

Institutional level

Skills on
strategical and
managerial level,
supervision and data
quality control

Private sector

Skills on
operative-technical
level, standards and
methods, data quality
assurance

**Core
Competencies in
Land
Administration as
a public service**

Didactical concept

- Course format: Certificate of advanced study (CAS) with 15 ECTS (workload of 420-450 hours)
- The course modality was based on a **blended learning** scenario to create the greatest possible flexibility for both students and lecturers
- **Moodle** hosted by FHNW was used, as a web-based collaboration platform, for the course implementation, as it fitted perfectly into a blended learning design
- Structure in **self-contained** modules and yet **built on each other**
- Beside the **e-learning** part, **classroom lectures** and **practical exercises** played an important role
- If software was needed, **free and open-source software** was used
- The entire course and its materials were offered in **Spanish**

Course content

24.01. - 01.08.2020

Diplomado y Certificado de Estudios Avanzados (CAS) en ADMINISTRACIÓN DE TIERRAS EN COLOMBIA EN EL MARCO DE LA POLÍTICA PÚBLICA



Introduction to Land Administration and Leveling of Students previous knowledge



Geodetic fundamentals and geodetic data error theory



Colombian geodetic framework, local reference networks and methods of data acquisition



Quality Model for the Management of Land Administration information



Masive cadastral survey "barrido predial masivo"



Basis of (geo) data modeling



Modern concepts of land administration information management and infrastructure



Spatial Data Infrastructure for Land Administration and conceptualization of the Land Administration Systems



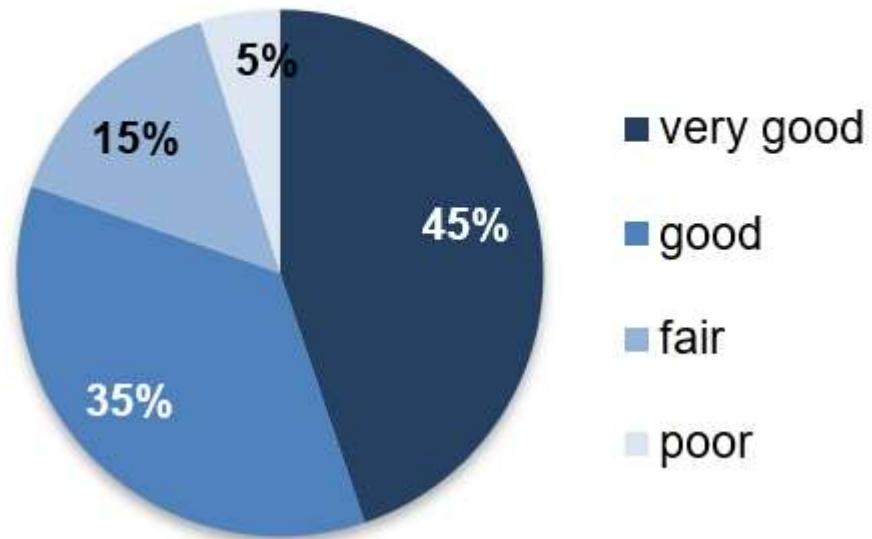
Cadastre as a Public Service and Other Trends in Land Administration

Title issued and certification

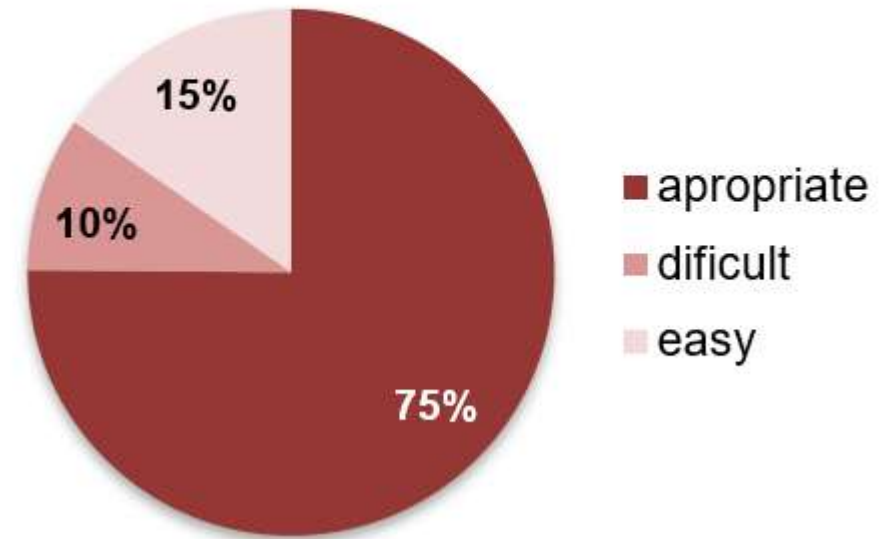
- In order to validate both training modalities in the educational systems of Colombia and Switzerland, a doubled certification was applied as following:
 - A **Diplomado certificate** issued from the partner **institutions UD, USA and IGAC**:
 - after meeting the attendance requirement
 - A **CAS certificate** issued by the **FHNW**, after meeting the following three requirements:
 - 1) approved final exam
 - 2) a sufficient CAS thesis
 - 3) at least 80% of the class hours attended

Course evaluation

Did the course meet your expectations?



How do you rate the difficulty of the module?



Follow-up projects

- Due to pandemic and other contingency nor a second implementation of CAS I neither the development of a second CAS was possible
- Among the project partner, various courses were proposed in the last two years fitting the actual needs:
 - Short course duration – so called *Diplomados* (workload of 60-150 hours)
 - Distance teaching
 - based on the (updated) didactical material of the CAS



Conclusions

- A **diversification of the training offers** could be of great importance in Colombia to cover the variety of technical and management professionals with different levels of training and experience
- The European **CAS format**, although very demanding for the students, is certainly **transferable to Colombia**
- A **scaling** down (to a *Diplomado*) as well as up (to a *Especializacion*) is advisable for further implementations
- The structuring of the **course into modules** offers great flexibility for the execution and adaptation of new and still-evolving topics. This allows the use of individual module contents in other short courses
- It is very important that the **institutions responsible** for the development of Land Administration in Colombia **work hand in hand** with the **academic institutions** that train professionals to update and strengthen the human capital necessary to carry out a state-of-the-art cadaster and an integral and functional Land Administration System

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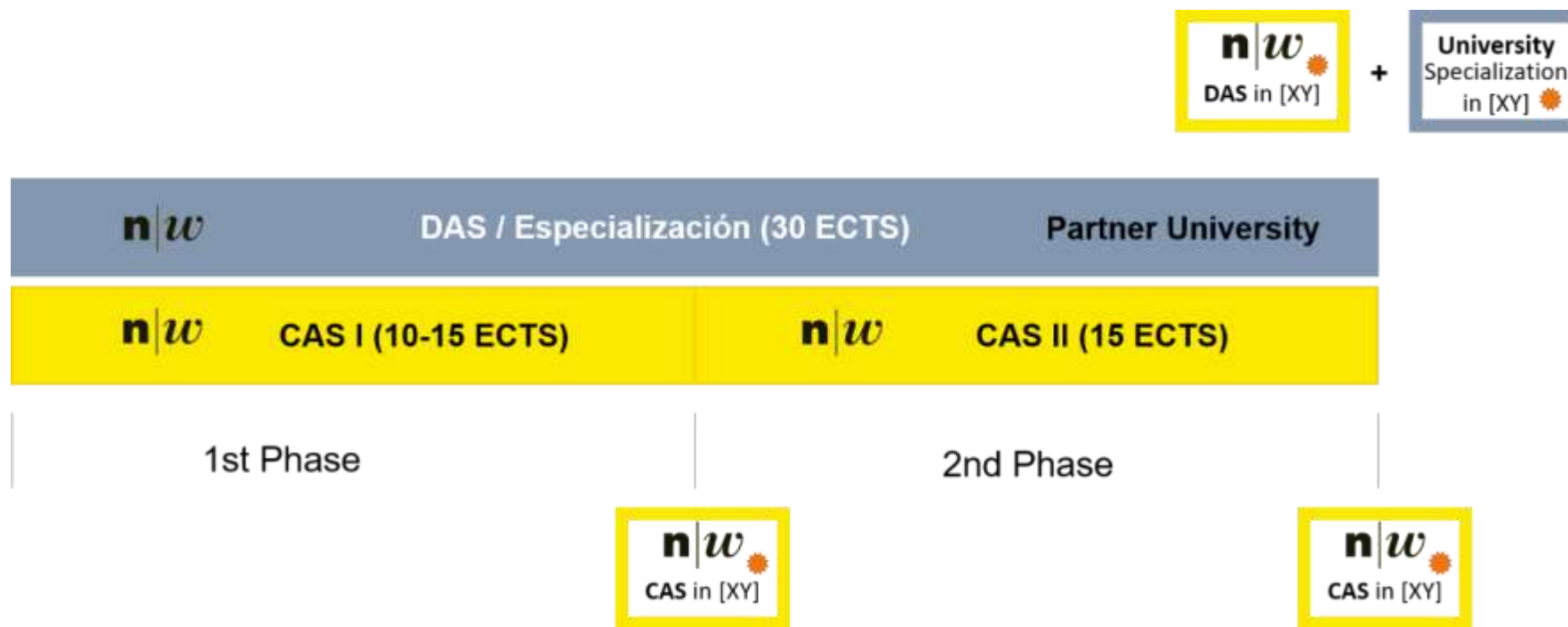


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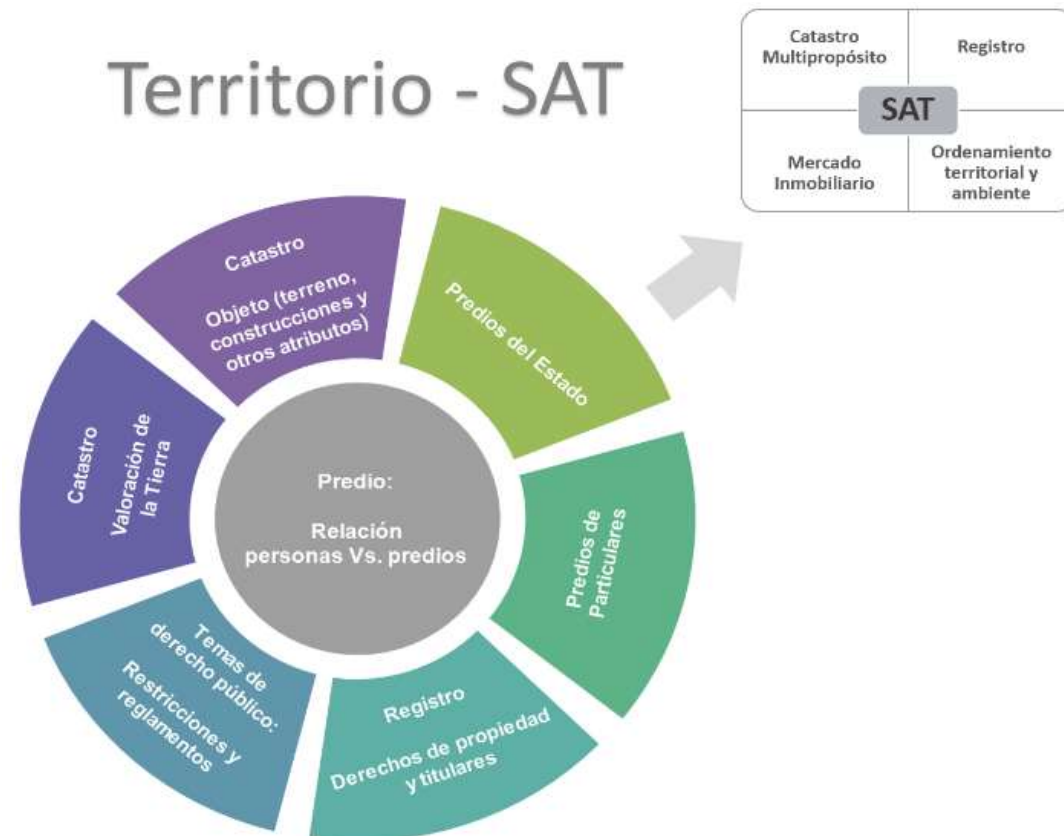
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Accademic certification



Aims of the modernization



Source: IGAC - SNR, 2016