

## Chapter 4

# A Conceptual Framework for Implementing a Multipurpose Cadastral System in Morocco

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### **ABSTRACT**

*For a decade, many countries have re-engineered their cadastral systems focusing closely on organizational and technological aspects in order to meet requirements of the new digital era. Appropriate configurations of the cadastral systems have been designed. The cadastral system, as a public institution, has a large relationship with all kinds of customers and includes a number of structural, operational, and functional processes that must be improved. This chapter has the aim to illustrate a new conceptual framework by describing the requirements and the technical perspectives of the Moroccan multipurpose cadastre. Basic concepts are discussed in accordance with various assumptions to provide a deeper understanding of the vision and the new structure. The development of an integrated system for administering land and the establishment of the cadastral information systems are carried out to highlight the fundamental aspects of the multipurpose cadastre.*

### **INTRODUCTION**

The driving forces behind re-engineering the cadastral systems are the new customer needs, the new global changes around the world, the technology evolution, and the state requirements. The cadastral system customers are of two kinds: individuals and group of individuals. The needs of both kinds of customers are significant and should be dealt with great and specific attention. The major customer demand is the system efficiency, which means the ability of the cadastre to determine exactly their properties and provide in a short time the related ownerships. The global changes affect, on the other hand, the nature of the cadastral system to develop. Many efforts may be conducted to improve the certainty of land rights and the security of tenure. Under the globalization, the cadastral system should serve the on-going reforms around the world and serve the urgent requirements of land and territory planning to support

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international companies that will use land inside Morocco. A new system must be developed to increase security on land and to allow its use with respect to local land formalization regarding obligations and restrictions. Through the development of a multipurpose cadastre, various benefits will arise and will have direct impacts on economic and social life. The current technology has seen major increases in different domains. The cadastral system is concerned by these new technological improvements. Varieties of advanced tools were recently introduced that will accelerate, in the future, the processes of surveying, land titling, registration, and mapping. The State, as a primary landowner, needs to establish an efficient system of cadastre to increase the security on land and facilitate land administration. This allows for monitoring of land market, the improvement of planning in urban and rural areas, the regulation of legal framework and statutes of land, and the introduction of new technology to maintain land reform such as redistribution, consolidation, valuation, and assessment. In addition, the multipurpose cadastre will ensure within the society an optimum level of quality and establish a uniform land information system based on properties and parcels.

The implementation of a multipurpose cadastre requires various technical steps to collect data from and for different institutions. This new system will provide an extensive inventory of land in both rural and urban areas. The establishment of regular cadastral sections will serve as a fundamental framework to generalize the land inventory process and the creation of large-scale maps. These will be used as references for the implementation of national land information system. All thematic resources can be added in an easy, progressive, and flexibly manner.

This chapter describes the technical perspectives needed to implement the components of the multipurpose cadastre at different levels. The technical procedures will not be dealt with this study. They must be developed in a national commitment gathering the specialists of various domains. A number of competencies and experts will carry out great efforts to improve technically the development of this new system.

## **THE TECHNICAL REQUIREMENTS FOR THE MULTIPURPOSE CADASTRE**

### **Introduction**

The fundamental network is a geometric foundation that allows a proper spatial linkage between features across an area. All the locational data will be shared and integrated to serve the multiple purposes of the cadastre. The cadastral data and related information will integrate numerically the modern system. To serve these needs, all surveyed properties and parcels must be tied to the cadastral sections to permit adding safely all natural details to the existing cadastral maps.

While this foundation is established for a long-term use, its control points must be compiled accurately and progressively. The ongoing GNSS network is tied to the first and second order of the existing geodetic network and to the International Reference Frame (ITRF2005). When the transferring parameters are compiled, we can densify the GNSS network and provide locational information of the new control points in both the Lambert and Cartesian systems. Once the required density is achieved, the cadastral sections are tied to the new control points. In several projects, various technical issues merit special considerations. One distinguishes the spacing density required between the framework control points and the accuracy levels (Figure 1).

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