

Country Report 2003

(Based on the PCGIAP-Cadastral Template 2003)

Philippines

Country/state for which the indications are valid:	Philippines
Name of contact person	Concordio D. Zuñiga, CESO III, FGEP
Affiliation, Organization:	Director of Lands Management Bureau
Function, Position:	
Address:	
Email address:	zuniga_lmb@pacific.net.ph

I. Country Report

A. Country Context

Geographical Context

Philippines is one of the South East Asian countries, composed of around 7,100 islands with a land area of approximately 30 Million hectares and lying north of the Equator with the South China Sea on the west and the Pacific Ocean on the east. Specifically, it is scattered within 4 degrees to 22 degrees Latitudes and 116 degrees to 127 degrees Longitudes.

There are three (3) major group of islands namely : Luzon, Visayas and Mindanao. Largest group of islands is Luzon with an area of around 13,900,041 hectares followed by Mindanao with an area of around 10,671,365 hectares and the Visayas region with an area of around 5,662,632 hectares. Of the total number of islands, there are 6,838 islands containing an area of only 5 sq. km. and below and only 21 islands have an area of 500 sq. km. and above. The highest peak is Mt. Apo in Davao, Mindanao with an elevation of 2,954 meters and the longest mountain range is the Sierra Madre Mountains in Luzon with length of 500 km. stretching from the northeast portion of Cagayan province down to the southern portion of Quezon province.

The population of approximately more than 70 million is composed of several Malayan Ethnic Groups, with significant number of mixed racial ancestry such as Spanish, Chinese, and Caucasian. There is a heavy concentration of population in urban areas, majority of which are in Luzon.

Historical Context

Aborigines reached the Philippines thru land bridges from the Malay peninsula. Indonesian followed by Malaysian reached the Philippines by boat. Spanish colonizer reached the Philippines in 1521. However, several hundred years before them, Chinese traders were already visiting the archipelago.

The American Government placed the Philippines under its colonial rule in 1898 thru the Treaty of Paris wherein the Spanish government transferred its authority over the Philippines to the Americans. The Philippines became a member of the Commonwealth and at the end of the

World War II, was granted Political Independence by the American government, although at present, the officially recognized date of Philippine Independence is June 12, 1898.

Current Political and Administrative Structures

There are three (3) major branches of the government namely, the Executive headed by the President, the Judiciary – the Supreme Court headed by the Chief Justice and the Legislative – the Congress composed of the Senate and the House of Representatives.

The President is elected by popular vote. Senators, like the President seeks mandate from the majority of voting population in the entire country every six (6) years while the members of the House of Representatives are elected by Districts every three (3) years.

There are seventeen (17) Regions of which one is autonomous, seventy nine (79) provinces, one thousand four hundred ninety six (1,496) municipalities one hundred fourteen (114) cities and forty one thousand nine hundred forty five (41,945) barangays. The provinces are headed by governors, the municipalities and cities by mayors, all are elected by popular votes.

Historical Outline of Cadastral System

The Cadastral survey program in the Philippines may be said to have its beginning as early as 1903 when the American Civil Government in the Philippines purchased in 1902, some 410,000 hectares of friar lands and had them surveyed and allocated to the occupants under a scheme of agrarian reform. Actual inauguration of cadastral survey projects under the present numbering system however, begun in November 1909 with the first project numbered as Cadastral Project No. 1 covering the town of Pilar Province of Bataan. American surveyors exclusively conducted the cadastral survey from 1909 to 1915. The participation of American surveyors was gradually reduced until 1921 when the execution of surveys were all done by Filipino surveyors. The formalization of the cadastral survey program took shape with the passage of Cadastral Act, Act 2259, on February 11, 1913. This has become the formal mandate that authorized the Director of Lands to conduct cadastral surveys.

Act 2259, provided the mechanism for the compulsory registration of all landholdings covered by cadastral survey. Land titling thru Torrens System is the primary objective of the cadastral survey. The main output is a line map and the metes and bounds of each parcel surveyed and other data that relate to land ownership or land tenure.

B. Institutional Framework

Government Organizations

In the Philippines, the Department of Environment and Natural Resources (DENR) thru the Lands Management Bureau/Lands Management Services, is mandated to administer and manage public lands, government owned lands and all other lands not placed under other government agencies by virtue of Commonwealth Act 141, as amended, otherwise known as the Public Land Act, Cadastral Act 2259, Republic Act No. 6657 otherwise known as Comprehensive Agrarian Reform Law.

There are two (2) processes of acquiring title, one is judicial and the other is administrative. In judicial titling there are two (2) proceedings, one is ordinary judicial proceeding which is governed by Property Registration Decree, Presidential Decree 1529 and the cadastral proceedings which is governed by the Cadastral Act, Act 2259. In both cases, it is the Court that issues order of registration.

In the administrative process, the disposition of lands by administrative titling (patents) is vested in the DENR Secretary through the Director of Lands. With the promulgation of Executive Order 192, it was further delegated to the Regional Executive Directors (REDs) and the Provincial Environment and Natural Resources Officers (PENROs), depending on the land area involved. With the aforementioned systems, therefore, there are four (4) government agencies involved in surveying and titling activities, namely, DENR/LMB/LMS, Department of Agrarian Reform (DAR), National Commission on Indigenous Peoples (NCIP) all through Administrative titling,

and the Judicial Court, Regional Trial Court (RTC) and/or the Municipal Trial Court (MTC) for Cadastral proceedings.

Private Sector Involvement

The Cadastral Survey Projects in its earlier years were executed solely by the Bureau of Lands surveyors. However, with the passage of Act 2989 which allowed private surveyors to undertake cadastral projects upon assignment by the Bureau of Lands, cadastral survey program was accelerated. The law was amended by Act 3327 which authorized private cadastral surveyors to negotiate cadastral surveys with the local government units concerned but with the technical supervision being provided for by the Bureau of Lands.

Professional Organization or Association

Surveyors, now known as Geodetic Engineers, are organized into a professional organization called "Geodetic Engineers of the Philippines, Inc." (GEP) comprising of around 5,816 geodetic engineers and about 7,000 junior (associate) geodetic engineers. They are grouped into Regional and Provincial Chapters. Annual assemblies are also being held and grouped as North Luzon Area Assembly, South Luzon Area Assembly, Visayas Area Assembly and Mindanao Area Assembly. Furthermore, Annual National Convention is also being held wherein the Board of Governors are elected by the members and in turn, the Board of Governors elect from among themselves their GEP National Officials.

A representative of the GEP National Board sits as one of the members of the Bidding and Award Committee during the conduct of the Cadastral Survey Project bidding. This is to ensure that there will be impartiality among members of the Committee in the conduct of the bidding process; that the technical requirements are of the highest standard possible; and that the price of the project is reasonable; etc.

The GEP was admitted and registered as member of FIG during the incumbency of Dir. Concordio D. Zuñiga as National President of GEP in 1993-1994 but was delisted for non-payment of dues when he was no longer the National President of said organization.

Licensing

The Board of Geodetic Engineers under the Professional Regulation Commission (PRC) is tasked to give examinations to the aspiring geodetic engineers. Basically, there are five (5) subjects covered by the licensure exam, to wit: Mathematics, Geodesy, Land Laws, Cartography and Theory and Practice.

The examination is held twice a year, every February and August. In order to be eligible to take the exam, an applicant must be a holder of Bachelor Degree in Geodetic Engineering (BSGE).

Education

BSGE as a five (5) year course, is offered by only eight (8) universities: two (2) in Northern Luzon, one (1) in Central Luzon, two (2) in the Metro Manila, one (1) in Bicol Region, one (1) in Visayas and one (1) in Mindanao.

Annually, less than one hundred (100) students are graduating in the course and around half are able to pass the Board Exam.

The course, basically includes the following subject: plain surveying, geodetic surveying, laws on natural resources, land laws, mathematics, astronomy, cartography, photogrammetry, cadastral surveying, lithography, least squares, hydrography, route surveying, mining surveying, land use planning, photo-interpretation, gravimetry, remote sensing, satellites surveying and computer science. Mathematics subjects are scattered from first year to fifth year, from algebra to calculus and matrix.

Only three (3) out of ten (10) students are women and around forty percent (40%) are working students.

C. Cadastral System

Purpose of Cadastral System

The Cadastral Survey in the Philippines is a survey made of extensive areas covering an entire municipality or city consisting of several or many parcels of land undertaken for the purpose of title clearance and land registration.

Cadastral Act 2259 which govern Cadastral Survey, is intended primarily for the purpose of quieting title to any land within a particular area by way of compulsory registration proceedings and thus minimize land conflicts.

The owners of lots surveyed must lay claim to their land holdings and must prove their ownership during the subsequent court proceedings because failure on their part to do so may give the court no choice but to declare these lands as public lands.

Agricultural development, realization of Municipal Land Use Plan and more accurate Tax Mapping, are some of the benefits that may result upon completion of the Cadastral Survey in the area.

Types of Cadastral System

There are two (2) types of Cadastral System in the Philippines, one is Graphical Cadastre (Fig. 1) and the other is Numerical or Regular Cadastre (Fig. 2).

These two (2) systems can be executed either by ground method or by aerial photogrammetry. Basically, numerical cadastre is associated with surveying while graphical cadastre, with mapping.

While the Numerical Cadastre produces bearings and distances of boundary lines of lots with the area up to the hundredths of a meter (derived from computations), the graphical cadastre simply gives the shapes of the lots with the distances of the boundary lines derived from scaling the lines on the maps and the area determined by scaling or planimeter or by templates.

The Graphical Cadastre was discontinued in favor of the more accurate Numerical Cadastre.

Cadastral Concept

The primary objective of the cadastral survey is land titling. Any land use information that are obtained in the process are gathered not for economic development purposes as we perceive them to be at present but for additional information in support of tenure or legal hold.

Every parcel of lot in the coverage area of a cadastral survey project is assigned a lot number which shall be done consecutively from one and without duplication. An assigned lot number in one barangay (barrio) cannot be assigned to a certain lot in another barangay (barrio) of the coverage municipality.

The project is divided into cases. The procedure is, one case for every barangay regardless of whether one barangay is less than 1,000 lots or more than 1,000 lots. However, the Bureau of Lands, realizing the urgency of the need to finish soonest possible the cadastral survey in the entire country, it resorted to contracting the cadastral projects by Module, wherein one (1) Module consists of one (1) barangay. A municipality with twelve (12) barangays may have twelve (12) cadastral survey module contractors. All the said modules will bear the same Cadastral Survey Number.

Normally, one (1) title covers one (1) lot. However, there are instances that a single title encompasses two (2) or more lots within the same barangay, more often, the said lots are adjoining.

The titles contain among others, the tie point, technical description of the lot itself, the metes and bounds, the area, and the adjoining man-made and natural features.

Content of Cadastral System

The following are the output of the Cadastral Surveys:

- 1) Cadastral Maps (CM) indicating individual parcels and their actual geographic position.
- 2) Lot Data Computation Books
- 3) Lot Description Books

- 4) Monument Description Books
- 5) Technical Description of all lots within the Cadastre
- 6) Geographic Positions of Reference Points
- 7) Land Use Maps and Land Use Registers
- 8) Political Boundary Maps
- 9) Tax Maps used for Realty Tax Valuation/Collection
- 10) List of all claimants/occupants or owners of lands
- 11) Cadastral Cost Registers
- 12) Miscellaneous data land surveys, land disposition and titling, occupancy, profiles and other land and survey information needed for planning and for land management purposes.

A Cadastral Survey returns as listed above is basically composed of textual (non-spatial) data such as Lot Description Books, Lot Data Computation Sheets, List of Claimants, etc. and Spatial Data made up of complex geographic objects including network of lines such as lots, roads, rivers, etc.

The numbers of concrete monument and the description of lot corners are indicated on the Cadastral maps and also the name of claimants except when space limitation does not permit it. The respective lot numbers are indicated normally, in consecutive and regular order. Forest Lands, Reservations and other unalienable are also treated as one lot but with remarks as Forest Land, Military Reservation, etc.

The Cadastral maps also show the names of all claimants adjoining the projects boundaries as well as the lines between the adjoining claims which are drawn in dash lines. Adjoining approved surveys are indicated by the lot and the corresponding survey number and name of claimant.

Local names of natural features such as mountains and all bodies of waters such as rivers, esteros, arroyos, etc. are indicated on the Cadastral Maps. The names of barangays (barrios) are also indicated within their respective boundaries. Easements are indicated either three (3), twenty (20), or forty (40) meters depending on the classification of land.

When Cadastral lot is equivalent to a previously approved survey, both the cadastral number and the number of previously approved survey are indicated.

Grid lines and plane coordinates, graticule lines and geographic coordinates, survey control stations and traverse lines, political boundaries and monuments and Reference/Location Monuments are also indicated.

All lands within a Cadastral Survey Project, in the absence of titles are presumed public lands. For this reason, all claims therein are contestable by the government. During the Cadastral hearing, the Director of Lands, as representative of the Government sees to it that land rights are properly settled and adjudicated, should a claimant fail to prove his claim, the land will be declared public by the court in accordance with the claim of the government. It is for this reason, that during the conduct of survey, all owners of properties, titled or not, cannot refuse to have his land surveyed.

Cadastral proceeding is a judicial proceeding because it is in the court that land titles are settled and adjudicated. It is in **rem**, because it is instituted against the whole world to bar indefinitely all those who might be minded to make objections of any sort against the right sought to be established, that is, the title to the property.

As of December 2002, the status of Cadastral Survey in the Philippines is as follows:

- 1) From a total of 1,496 municipalities, there are 827 with approved cadastral survey, 321 are in-progress, 280 are partially surveyed, 65 are still unsurveyed and 3 are abandoned.
- 2) Out of 114 cities, 89 are with approved cadastral surveys, 16 are in-progress, 9 are partially surveyed and there is no unsurveyed.

Cadastral surveys in-progress is either with on-going fieldwork or the survey returns are being verified in the different DENR Regional Lands Management Services.

Partially surveyed municipalities have a previously approved public land subdivision, group settlement survey, and/or townsite reservation subdivision. The said surveys cover only certain portion of the city or municipality, unlike the Cadastral Survey which encompasses the entire municipality.

The municipalities and cities with approved cadastral surveys covers 4,487,311 lots with a total area of 17,848,035 hectares, roughly 59% of the total area of the country. However, the data stored in the different Regional Offices of the DENR are still all in hard copies not in digital forms. Computer-based Land Information System and digital mapping project is hampered by funding constraints.

D. Cadastral Mapping

Cadastral Maps

Cadastral lots and other details of the cadastral surveys are plotted on reproducible materials such as drafting film 0.003 inch with polyster or mylar encompassing areas within spheroidal quadrangle of one minute of arc in latitude and one minute of arc in longitude (approximately 1.8 km by 1.8 km) and drawn in the Philippine Plane Coordinate System Philippine Reference System of 1992 (PPCS-PRS92). Cadastral Map sheets are approximately 54 by 54 centimeters in size and carries a standard scale of 1:4,000.

Sectional Cadastral Maps are drawn on larger scale such as 1:2,000; 1:1,000; 1:500; on the same size as the standard cadastral maps to show tracts of land which appears too small on the standard scale of 1:4,000. These lots are usually residential lots in the poblacion or town proper.

Contiguous Cadastral Maps (CCM) on a smaller scale of 1:8,000 or 1:16,000, show parcels of lands which are too big to be contained on the standard scale of 1:4,000. These lots are forestlands, reservations and big undivided land holdings consisting of hundreds or thousands of hectares within a municipality.

All public lands within cadastral projects are shown on the cadastral maps with separate lot numbers. Previously approved surveys are also shown with their respective survey numbers and equivalent cadastral lot number and with corresponding remark either "Accepted", "Amended", or "Rejected".

Cadastral maps are being used as projection maps in the different DENR Regional Offices which enable them to be periodically updated. However, there are Cadastral Maps which are incomplete, especially those pre-war Cadastral Surveys, and therefore, not being updated. The DENR Regional Offices uses blank 54 x 54 cm. tracing paper as projection maps in lieu of the Cadastral Maps.

Example of Cadastral Maps

Attached herewith are examples of two (2) types of Cadastral Maps, Figure 1, shows the graphical Cadastral Map, Cadastral Mapping (symbol: Cadm), and Figure 2, shows the numerical (regular) Cadastral Survey Map (symbol: Cad).

In Cadmapping, the survey control is executed on the ground but the lot corners are determined by plane table and alidade or transit and stadia. The area is graphically estimated.

The Regular Cadastre calls for accurate survey and therefore, the survey control points and all lot corners are directly observed. Lot area is determined by computation.

Role of Cadastral Layer in SDI

The completion of Cadastral program will provide the Philippines a springboard for land-based development. The program envisions to achieve the following goals:

A. National Goals such as:

1. Promotion of social development and social justice.

2. Improvement of habitat through development of human settlements and proper management of environment.
3. Accelerated regional development especially the rural areas.
4. Attainment of self-sufficiency in food and greater self-reliance in energy.
5. Maintenance of internal security and harmonious international relations.

B. The Executive Branch Goals such as:

1. To provide comprehensive and accurate data on land resources of the country.
2. To accelerate settlement and adjudication of land titles.
3. To facilitate and accelerate public land management and disposition.
4. To provide a basis for an integrated tax mapping system and land evaluation.
5. To provide an effective base to accelerate the land use and classification for socialized housing programs.
6. To delineate the boundaries of all political subdivisions in the country.
7. To provide economic data for land based developmental studies and projects.
8. To provide mapping basis for land zoning and land use programming.

C. Reform Issues

Cadastral Issues

In spite of the introduction of computers in the operation of several government activities, the retrieving, updating and tracking of Cadastral Maps and other data are being done manually.

The land sector through the years has experienced remarkable increase in clientele and in number of records to manage. However, it cannot cope with this situation due to several reasons such as funding constraints, existing auditing rules and regulations, lack of manpower, etc. This was aggravated by inadequate space, poor storage facilities and frequent transfer of offices. Fire and natural calamities such as floods also contributed to the lost and damage of valuable records and documents.

Proliferation of fake survey plans and land titles, are becoming a problem of the government. The absence of reference data from Cadastre on file with the Lands Management Bureau (LMB)/Regional Lands Management Services (LMS) make it harder to detect such spurious documents.

Survey plans, lot area computation sheets, technical descriptions, etc. are not issued Memorandum Receipt (MR) to employees unlike chairs, tables, typewriters, etc. making it vulnerable to pilferage.

Current Initiatives

Several projects are being eyed by the government to address the above-noted problems such as Land Records Management and Information System (LRMIS) and Land Administration and Management Project (LAMP). Their aim, among others, is to automate land records.

With fully computerized Cadastral Information System, the government hopes to achieve the following:

1. The Land/Cadastral data/information can be shared with other government offices as well as the requesting public as quickly as possible.
2. The system can be used in expediting processing of documents and verification and approval of public land application and subsequent subdivision/consolidation surveys.
3. The documents/maps can be reproduced as many as required copies at instant wherein the files will be free from incidence of tampering, mishandling or even losses.
4. The documents, data and spatial images can be sort, retrieve and tract easily as the need arises.
5. Digital Spatial and textual data can reduce the storage space requirement of voluminous documents such as maps and other survey returns to just 30%.

Attachments :

Fig. 1: Graphical Cadastral Map

Fig. 2: Numerical Cadastral Map

References

1. Act 2259 or Cadastral Act.
2. DENR Administrative Order No. 98-12, the Revised Manual of Land Surveying Regulations in the Philippines.



FIG. 1
(13)

Fig. 1: Graphical Cadastral Map

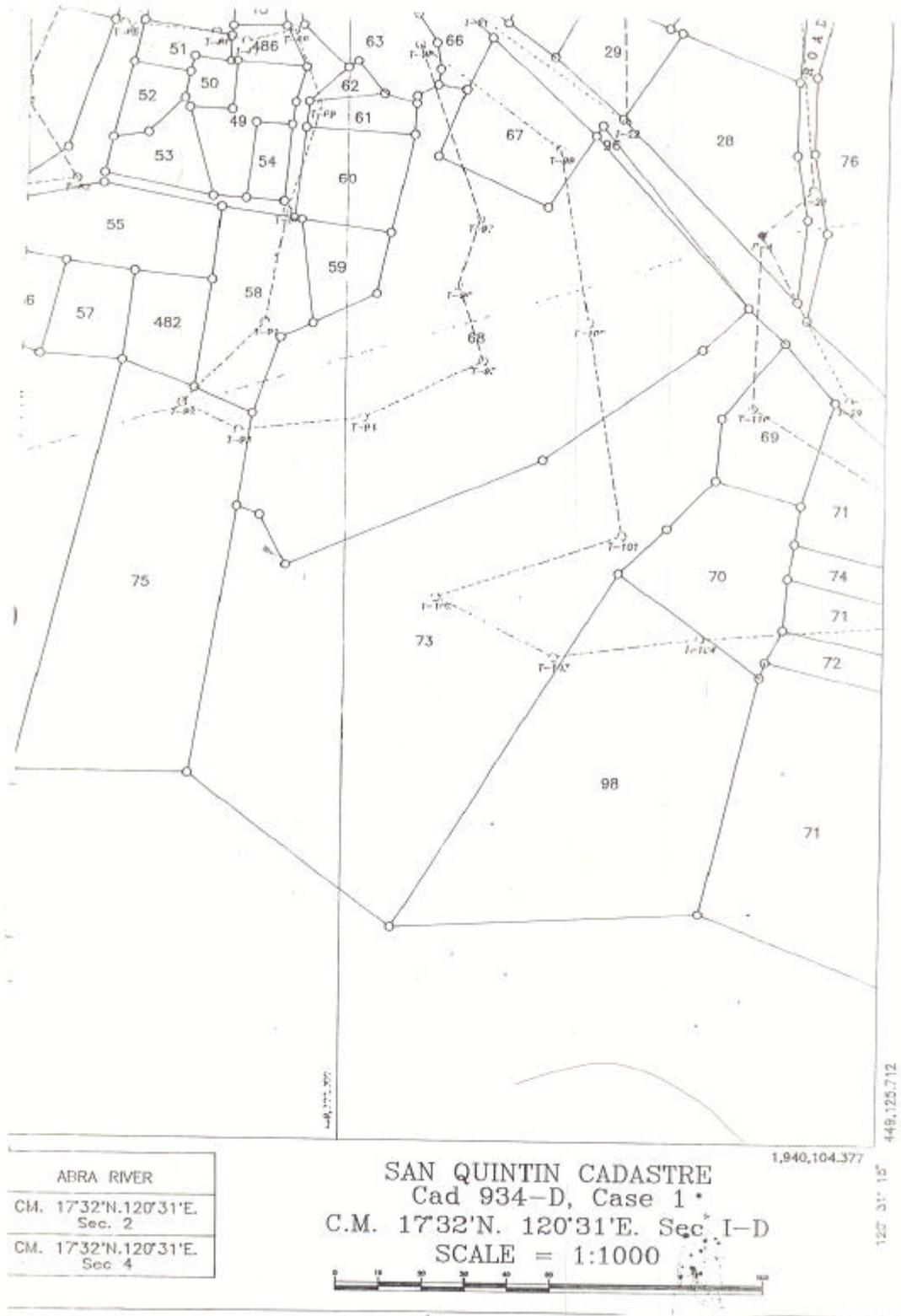


FIG. 2
(14)

Fig. 2: Numerical Cadastral Map

II. Questionnaire

1. Cadastral Principles

Deed or title registration

- 1.1 Is your cadastral system based on deeds registration or on title registration ?
- deeds registration
 - title registration
 - other:

Registration of land ownership

- 1.2 By law, is registration of land ownership compulsory or optional ?
- compulsory
 - optional
 - other:

- 1.3 If felt necessary, please, comment on the actual practice and the legal consequences.

Claimants should appear in Court and should file an answer on or before the date of initial hearing. Failure to do so, he will lose his rights to such land and will authorize the Court to declare the lot as public land. Under the Administrative land titling, public land applications are filed with the Community Environment and Natural Resources Office (CENRO) for processing. If in order, the applications shall be forwarded to the Provincial Environment and Natural Resources Office (PENRO), Department of Environment and Natural Resources --Regional Office (DENR-Regional Office), or DENR-Central Office for the approval and signing of patent, depending on the area of the lot applied for. After approval, the patent shall be returned to the PENRO for numbering and transmittal of the same to the Register of Deeds (ROD) concerned.

Approach for the establishment of the cadastral records

- 1.4 Are landowners required to register their properties systematically during the initial establishment of the cadastre or is registration sporadic, i.e. triggered only by specific actions (such as for example sale) ?
- systematic
 - sporadic
 - both
 - all properties are already registered
 - other:

2. Cadastral Statistics

Population

2.1 What is the **population** of your country ?

70 million

2.2 Please, estimate the **population distribution** between urban and rural areas.

urban:	...70... %
rural:	...30... %
<hr/>	
total:	...100... %

Number and distribution of land parcels

2.3 Please, estimate the approximate **total number of the smallest uniquely identified land units**, often called "land parcels" in your country, including urban and rural areas ?

50 million

The total number would include all freehold and state owned land, regardless of registered, non-registered or informal holding.

2.4 What is the approximate **total number of registered strata or condominium units** ? This number would be in addition to the number of land parcels indicated in 2.3 ?

189, 572 (159,092) – Residential (30,480) – Commercial
--

2.5 For **URBAN areas**, please, estimate the **distribution between the smallest uniquely identified land units, often called "land parcels"** (i) that are legally registered and surveyed, (ii) that are legally occupied but not registered or surveyed, and (iii) that are informally occupied without any legal title (this may include illegal occupation or squatting).

legally registered and surveyed:	...70... %
legally occupied, but not registered or surveyed:	...5... %
informally occupied without legal title:	...25... %
<hr/>	
total:	...100... %

If the estimation is too difficult or complex using land parcels, you may base your estimation alternatively on the number of people occupying these forms of land parcels.

2.6 For **RURAL areas**, please, estimate the **distribution between the smallest uniquely identified land units, often called "land parcels"** (i) that are legally registered and surveyed, (ii) that are legally occupied but not registered or surveyed, and (iii) that are informally occupied without any legal title (this may include illegal occupation or squatting).

legally registered and surveyed:	...75... %
legally occupied, but not registered or surveyed:	...20... %
informally occupied without legal title:	...5... %
<hr/>	
total:	...100... %

If the estimation is too difficult or complex using land parcels, you may base your estimation alternatively on the number of people occupying these forms of land parcels.

Number of professionals

Please estimate the total number of *academic professionals* that are active within the cadastral system and the proportion of the time that they actually commit for cadastral matters (as opposed to work outside of the cadastral system) ?

2.7	Total number of professional land surveyors , such as licensed surveyors active within the cadastral system:	12,800
2.8	Proportion of the time that these land surveyors commit for cadastral matters:	5%
2.9	Total number of lawyers/solicitors or equivalent active within the cadastral system or land market:	2,000
2.10	Proportion of time that these lawyers/solicitors commit for cadastral matters or land market:	35%

Remarks and Comments

Please, identify the best aspect of this questionnaire ?

Foreign terminologies are further explained.

Please, suggest the area in the questionnaire that could be improved ?

Some forms have different meaning vis-à-vis the terms used in our country. There should be an initiative of FIG to reconcile surveying terminologies for us to understand each other better. Some data needed are not readily available. A considerable time is needed in order to answer all questions accurately after a thorough research.