

## The Feasibility of 3D Cadastre in Thailand



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## INTRODUCTION



The existing cadastral system has been adapted by land and building administration and registered together by definition of 2D as parcel and property.

The land use are added under and above each other, the third dimension or height level as 3D cadastre.

The traditional registration and cadastral system are challenged to the multi-ownerships, consists of 2 parts registration and cadastral map.

The research proposal are to investigate the existing registration in 3D cadastre, condominium.



## CADASTRE REVIEWS



The 2D cadastre represents just the projection surface of earth with individual land parcel in 2D boundaries and is hard to record and display the multi use of land with construction of both upper ground and lower ground.

The 3D cadastral objects are reviewed a cadastral user, a legal parcel object to sufficiently flexible accommodate or support the growing number of complex using and other interests in land.

Examples of 3D cadastre are accessions can be horizontal and vertical ownership of the adjunctive parts, easement method of property unit's need of space in another property unit, right of superficies to allow the holder to own the constructions on under or above someone else's land, Apartment and condominium rights.



## THE 3D SPECIFICATION



ECE(1996) describes land boundary is like an infinitely small thin surface extending from the center of the earth to infinite in the sky, the vertical extension of the land surface parcel has not been limited in legislation and provisions.

### Experience:

In British Columbia, Canada, the air-space parcel is subdivided from the existing land parcel and is registered separately,

In Queensland, Australia, 3D parcel is defined as volumetric parcel with bounded;

Greece, the horizontal ownership of properties in 3D situation is definite by percentage of ownership on the land parcel.

The results are the 3D cadastral object can be classified in 3D object with co ownerships, and with fragmental right, and 3D space.



## THE 3D CADASTRE REVIEWS IN THAILAND



3D cadastre is able to define and manage the related juridical representation satisfactory description and registering, registration system is Torrens title system, only land ownerships must be registered, no Building and other constructions included in the land register, Condominiums code.

Building registration form is described on building type, location, parcel number, building orientation, structure, construction area and building plane, one by one building ownership certificate.



## ANALYSIS IN 3D SITUATION



There is only condominium registration as 3D situation on a parcel with definition boundaries. 3D space parcel represented and registered in the vertical dimension as a legal boundary separated from existing parcel on the land surface on the space.

Thailand has only condominium right, The basic real property object are two-dimensional real property object (land parcel) and three-dimensional real property object above the surface only condominium.

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## Condominium unit title deed

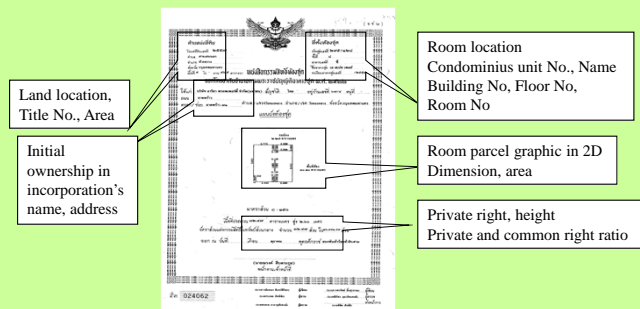


Fig 1. Front of Title of Condominium code

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The existence of 3D objects found on land parcel which are expropriated by the current legal situation as the legal boundaries extend from the surface up to the specific height.



#ข้อมูลประวัติ			
วันที่	เลขที่	ผู้ขาย	ผู้ซื้อ
15/10/2550	100/1	นายสมชาย ใจดี	นางสาวสุวิมล ใจดี
15/10/2551	100/1	นางสาวสุวิมล ใจดี	นายสมชาย ใจดี
15/10/2552	100/1	นายสมชาย ใจดี	นางสาวสุวิมล ใจดี
15/10/2553	100/1	นางสาวสุวิมล ใจดี	นายสมชาย ใจดี
15/10/2554	100/1	นายสมชาย ใจดี	นางสาวสุวิมล ใจดี
15/10/2555	100/1	นางสาวสุวิมล ใจดี	นายสมชาย ใจดี
15/10/2556	100/1	นายสมชาย ใจดี	นางสาวสุวิมล ใจดี
15/10/2557	100/1	นางสาวสุวิมล ใจดี	นายสมชาย ใจดี
15/10/2558	100/1	นายสมชาย ใจดี	นางสาวสุวิมล ใจดี
15/10/2559	100/1	นางสาวสุวิมล ใจดี	นายสมชาย ใจดี
15/10/2560	100/1	นายสมชาย ใจดี	นางสาวสุวิมล ใจดี

Room parcel registration history, in sequential transaction.

Fig 2. Front of Title of Condominium code



For 2D cadastral system, traditional system, in digital map and registration data base can show the title in Torrens system that could be verified in UML and extended to 3D cadastral object.

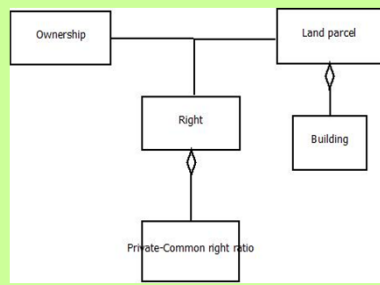


Fig3. UML class diagram of 3D object



## FEASIBILITY FRAMEWORK



Cadastral processes have been established by the registration of existing right on the 2D surface parcel. Another parcels on the surface can be defined the legal status in 3D situation.

The drawing is on the title to clarify a situation provided additional view in dimensional legal boundaries, it is a part of the title.(Fig3) The purpose of 3D situation is to provide legal security concerning only high rise building.

At the moment the accessibility of the registration in 3D situation is poor on technical view. The people may not be aware of a 3D situation

The cadastral in 2D situation system have been sufficient by showing the 3D situation on description on the Torrens System. 3D situation title can review the legal history of the unit on condominium of the land.



## CONCLUSION



The registration of 3D real property is only condominium which must be large building by code.

The legislation processes has been as 2D cadastre without vertical drawing information.

The legal object has to be defined specific code without 3D space object accuracy in spatial data.

The public do not need to view 3 dimension graphic that the cost is not expensive in the system.





THANK YOU.

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