

# Registration of 3<sup>rd</sup> Dimension: the Context of Nepalese Cadastre

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## Abstract

Registration of the ownership of a real estate property in Nepal is gaining its importance day by day. Before launching the Land Reform Program in 2021 by His Majesty's Government of Nepal, the descriptive system of registration system was in use. After launching the Land Reform Program, the registration of real estate property was based on the map of the land unit occupied by it on the ground, i.e. registration of two dimensions. Gradually, the trend of owning a unit of space is increasing in recent days, needing the registration of the space, i.e. the third dimension. Joint Residential Buildings are examples such need. Although some juridical measures have already been formulated for the registration of 3<sup>rd</sup> dimension, the aspect of its' visualization on a map, and some necessary measures are still lacking. The time has come to set necessary guidelines to tackle such shortcomings and face the challenges caused by the registration of third dimension. Based on this assumption, this paper highlights the existing scenarios, finds out the shortcomings and challenges in this regard, and suggests some necessary measures for solving the problems identified.

**Keywords:** *Registration, Real Estate Property, 3D Cadastre,*

## 1 Introduction

The history of land recording system in Nepal begins from the Lichchhabhi Era (450- 800 B.S.). The purpose of keeping land records was to collect revenue. Administration of land got a bit wider scope after the unification of the kingdom in 1825 B.S. Historically, state ownership has been the traditional form of land tenure in Nepal. Until the year 1951 A.D., the rights of an individual over land were virtually non-existent. The landholder of occupier was considered as simply a tenant. The interim constitution promulgated in 1952 protected the citizen's full rights of using and occupying lands. Later, in the 1957 A.D. Land Act, the term "tenant" was replaced by "owner" [1]. After the enactment of the Land Act, interest of a general public on the registration of ownership over land holdings (real estate property) might have considerably grown up, which is gaining its importance day by day.

Until the year 1964, when His Majesty's Government of Nepal launched Land Reform Program, the location of the registered piece of land had been described by text. For example, the piece of land east of the *Dobato* (Junction), west of *Padhero* (water tap), North of *Thulo Bheer* (Big Cliff) and South of *Raniban* (Forest, named *Rani*) belongs to an owner. In the same way every parcel of land was used to be defined at the time of its

registration. This system of registration could be termed as *registration based on description*.

The Land Reform Programme imposed ceilings on land holding and hence the record of every parcel of land with the amount of area occupied by it was required. As a result of which Systematic Cadastral Surveying was conducted throughout the kingdom. As cadastral maps were prepared during the cadastral surveying, it was made one of the essential components for the registration of ownership over individual parcel. Since then, every parcel of land requires its plan to some scale with its dimension to be registered under the ownership of an owner. This system of registration could be termed as *registration based on two-dimension (2D)*. In this system, a parcel is considered as the property unit. A parcel is division of a piece of land in 2D boundaries. Obviously, the right of ownership to a parcel gives the right to use the volume above and below the parcel, unless stated otherwise. As long as there is only one user on a parcel, the existing registration system is sufficient to provide insight into the property situation.

The rate of population growth is increasing day by day and the available space in the earth is fixed. The growth of population is limiting the availability of space for use. Mainly urban or semi urban areas are highly affected by the population growth. For the proper management of available space not only for the present but also for the future generation, it is inevitable to think of the optimal utilization of available space. As a result, multifunctional use of space is becoming more important in recent years. Consequently, use of space below or above a certain land parcel for different purposes is coming into practice. This has caused the possibility of more than one owners of spaces constructed above or below a land parcel. For example, distinct ownership of apartments in a building, stratified property, underground market areas and so on. Registration of distinct ownership in such cases is the challenging issue. The system of the registration of real estate property should be able to reflect the true principle of property rights: property rights always have entitled persons to volumes and not just an area, otherwise the use of land would have been impossible [7]. The existing system based on 2D registration does not reflect the true principle of property right in such cases. Registration of parcel is possible but the registration of space over it, which is represented by height above or below the parcel i.e. the third dimension, is not possible with this system. Some juridical measures have already been formulated to tackle the issues raised due to the registration of the properties, which needs the *registration of 3<sup>rd</sup> dimension*. 3D cadastral registration starts with the possibility to establish 3D property units within the juridical framework. The next step is to provide insight into the 3D property units, e.g. by drawings included in the land registration (Public Register describing interests in land) or, even better, or by integrating the 3D information in the cadastral registration (which links the essential information from documents recorded in the land registration to geometry of real estate objects). In a final phase, regulations could be laid down, which define how to prepare and structure the 3D information that is used to maintain 3D property units in the land registration and/or the cadastral registration [7].

The existing juridical measures in Nepal are not sufficient to cope the registration of 3<sup>rd</sup> dimension of real estate property. This paper tries to provide an overview of the as is situation of the case related to the registration of 3<sup>rd</sup> dimension and suggests some guidelines to meet the challenges of Nepalese cadastre in this regard.

## 2 State of the Art of Registration of 3<sup>rd</sup> Dimension in Nepal

Unlike the several countries in the world, the interest of using space above or below the ground surface is increasing in the urban areas of the Kingdom of Nepal. Constructions of multistory buildings by different Housing Companies, Overhead bridges, under ground market places, etc are such examples. Fragmentation of property within a single building is the other issue that compels the use of overlapping spaces by different owners.

In fact, the need of the registration of 3<sup>rd</sup> dimension in Nepal is recognized only for multistory buildings constructed for Joint Residences and fragmentation of property within a building. Other sectors, needing the registration of third dimension, are still to be recognized. However, as per the need of time, the concept for other areas will certainly come to the front. If we look at the existing juridical framework regarding the registration of distinct ownership to more than one owners within a building, constructed for joint residences or fragmentation of inherited property within a building, some measures have been incorporated in the Land (Survey and Measurement) Act, 2019 and its' regulations, Ownership of Joint Residences Related Act, 2054 and Land Administration Directives, 2058.

## 3 Shortcomings of the Nepalese System

Regarding the registration of 3<sup>rd</sup> Dimension of the real estate property, one should consider the two components of 3D real property:

- a) Survey of 3D component
- b) Registration of 3D component

Shortcomings of the Nepalese System of registration of 3<sup>rd</sup> Dimension should be taken in to account keeping these two aspects in view. However, some other aspects also have been addressed in this section.

### 3.1 Survey of 3D component:

The existing system of registration of 3<sup>rd</sup> dimension does not have any provision to survey the 3<sup>rd</sup> component. Furthermore, the visualization of 3<sup>rd</sup> component is beyond the scope of existing system. However, the measurements of the dimensions of the floors are included in the Register Book and Ownership Certificate.

### 3.2 Registration of 3D Component

The legal framework for the registration of 3<sup>rd</sup> dimension is not sufficient. Only the case of multistory buildings is not taken into account for the registration of 3D component. Registration of 3D component is also not sufficient. Some of the shortcomings in this regard can be pointed out as follows:

- Land Revenue Act, 2034 has not incorporated the registration of 3D component yet, in spite of its major role in the registration business. Land Revenue Offices are guided by the Land Administration Directives, 2058.
- The provision for registration of 3D component in the Land Administration Directive, 2058 does not address the registration of apartments/flats in a floor. The owner of the ground floor can sell a part of his/her property but the directive does not speak any thing about the subdivision of property in the upper floor.
- Although Land (Survey and Measurement) Act, 2019 incorporates the possibility of registration of distinct ownership on the floors or apartments, the

format of Register Book and Ownership Certificate does not have the provision of registering or providing ownership certificate of an apartment/flat. The existing format of Land Register Book and Ownership Certificate indicates that the ownership on the land parcel, on which the building is erected, remains with the owner of the ground floor, but not with the owner(s) of upper floor(s).

- The provisions included in the Land Administration Directive, and Land (Survey and Measurement) Act do not address the registration of distinct ownership in the housing units (apartment/flat) of Joint Residential Buildings.
- The registration system does not incorporate the registration of restriction and responsibility of the individual owner.
- The Ownership of Joint Residence Related Act and its Regulations, although a number of provisions of rights, restriction and responsibilities have been included, do not address the way of their registration.
- The visualisation of the 3<sup>rd</sup> component on the cadastral map, the system of providing unique ID's to the property unit, etc are included nowhere.

### 3.3 Some other aspects that are still to come into the light:

Following are some of the other aspects that are still to come into the light while performing the registration of 3<sup>rd</sup> dimension or implementing 3D Cadastre:

- Existing system does not take into account the other areas like underground parking places, underground market places, overhead bridges, etc where the 3D component plays an important role.
- Registration of ownership on the real estate property, where half of one's property is overridden by others. Such type of case is of common practice in the district of Jumla and Bajura [3].

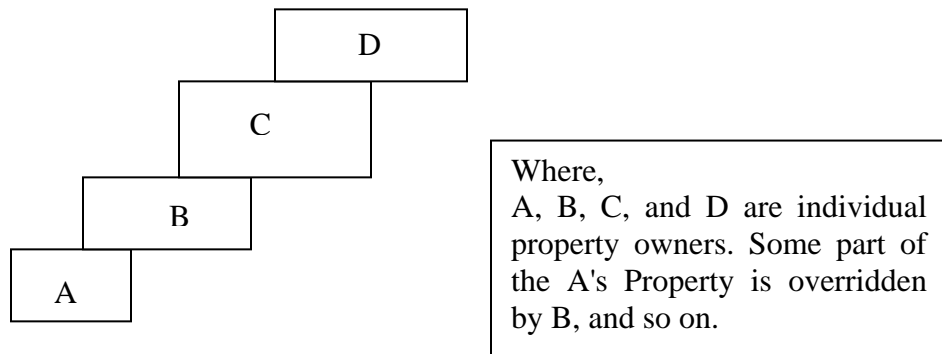


Figure 1: Overlapping Property situation

- Registration of ownership on the buildings, where different floors have different ownership but one overlaps other in a sequential manner. Such type of case is found in the dense areas of Kathmandu Valley.

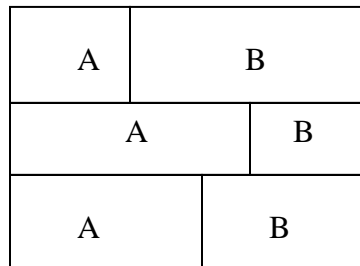


Figure 2: Owner A is overriding Owner B and subsequently Owner B is overriding Owner A

- Measurement of height is not taken into account. Adjudication of property unit is not documented in the legal framework.
- Co-ordination among the organisations involving in the registration of 3D component is lacking. For example, the Land (Survey and Measurement) Act, 2019 realised the need of registration of stratified property in its Fourth Amendment, i.e. in 2035 B.S. but the Land Revenue Act still does not have realized it. Similarly, the rights, restrictions and responsibility of an apartment/flat owner are mentioned in the Ownership of Joint Residence Related Act but their registration is not considered yet.

## **4 Some Suggestions Regarding the Registration of 3<sup>rd</sup> Dimension in Nepal**

Some of the shortcomings of the registration system of 3<sup>rd</sup> dimension in Nepal are illustrated in the previous section. As the interest in using the space under and above the earth space is increasing and being a must in many cases, registration of the property in 3<sup>rd</sup> dimension should be made effective and the owners should be made to feel full security of their property. In this regard, some suggestion, keeping the shortcomings of the existing system in view, have been outlined as follows:

### **4.1 Amendment of Existing Laws**

Existing legal framework for the registration of 3<sup>rd</sup> dimension does not address the registration of 3D property situation in every possible cases. Even the registration of apartment/flat is not incorporated in the existing laws. The provisions incorporated in Land (Survey and Measurement) Act, 2019 and its Regulations, and Land Administration Directive, 2058 should be amended to include the registration of every 3D property situations. Right, restriction and responsibilities of the owner of individual property unit as described in Ownership of Joint Residence Related Act, 2054 should be included in the registration of the property unit. Furthermore, following points should be considered during the amendment of existing laws to cover the registration of every possible 3D property situation:

- Identification of the sectors, where the registration of 3D situation may arise
- Smallest property unit that is transferable
- Ownership of open spaces, such as the ownership above the roof of a building
- Construction up to the height under ones ownership
- Including the lending of property in leasehold within the legal framework
- Rights, restrictions and responsibilities of the owner
- etc.

### **4.2 Co-ordination Among Different Agencies**

Following organisations are found to have major role in the registration of 3D situation in Nepal:

- Survey Department
- Department of Land Reform and Management
- Department of Urban Development and Building Construction
- Local Authorities (Municipalities/VDCs)
- Housing Companies

At present, the coordination regarding the registration of 3<sup>rd</sup> dimension is found lacking. A number of Housing Companies are involving in the construction of Joint Residential Housings. Municipalities may have to think for the construction of underground parking places, market places, overhead bridges, etc. Similarly, other agencies may have interest in the registration of 3<sup>rd</sup> dimension.

Proper coordination among these organisations would enhance the effectiveness of the registration of 3D situation. Before formulating any laws/acts/directives, the coordination among these organisations would come up with fruitful outcomes. Hence, the coordination is strongly recommended.

#### **4.3 Survey of 3<sup>rd</sup> Component**

Survey of 3<sup>rd</sup> component is an important aspect for the registration of 3D situation. Subdivision of property has to be carried out horizontally, so accurate height information is required. Height of every property unit from the ground surface and its own height should be measured accurately.

#### **4.4 Visualization of 3<sup>rd</sup> Dimension**

Visualisation of 3<sup>rd</sup> dimension on a cadastral plan is not possible. In the digital environment, the model of 3<sup>rd</sup> dimension could be possible. Perfect solution for the visualisation of 3<sup>rd</sup> dimension in digital environment for cadastral purpose is yet to be found out. Research in this area is continued. In the context of Nepalese cadastre, this modeling is not possible at the moment as it is lacking the cadastral data in digital form. Parcel based cadastral information system would optimize the visualisation of 3<sup>rd</sup> dimension.

## **5 Conclusion**

The trend of using overlapping spaces in Nepal is increasing considerably in the urban and semi urban areas. Many of the Housing Companies are involving in the construction of multistory building to sell the apartments. The owners of the apartments are unable to register the ownership and mortgage the properties. The general public is not assured of his property situation in the as is condition. So, appropriate measures should be immediately adopted to resolve such problems by the concerned authorities. The registration system should address the right over the 3<sup>rd</sup> dimension adequately. Furthermore, effort should be made for the visualisation of 3<sup>rd</sup> dimension.

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