THREE-DIMENSIONAL DIVISION AND REGISTRATION OF TITLE TO LAND: LEGAL ASPECTS

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ABSTRACT

Several urban planning trends, as well as some political and historic considerations, are presently generating the need for legal recognition of three-dimensional property units. The traditional legal doctrine in all legal systems assumes vertical merger of ownership of all land strata. Nevertheless this should not imply the denial of the option to separate vertically, in legal terms, between ownership of vertically stratified land levels. Indeed, many jurisdictions found various legal models to vertically and three-dimensionally divide ownership: The "Air Rights" model, the "Condominium" or "Strata Title" model and the Lease and Easement model. There is no fundamental contradiction between the notion of Title-Registration and the three-dimensional splitting of property units. Nevertheless, in the absence of practice and legislation regulating three-dimensional surveys and mapping, no such division is feasible. There exists a vital need for the creation of both a doctrinal and practical professional rules for three-dimensional surveys and mapping activities for title-registration purposes

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URBAN PLANNING TRENDS ENCOURAGING THE FORMATION OF THREE-DIMENSIONAL UNITS OF PROPERTY

Several urban planning trends are presently generating, and will continue to generate in the future, the need for legal recognition of three-dimensional property units. The condominium phenomenon creates independent land units (Encyclopedia). The formation of multi-level mega-structures in the urban space and the development of three-dimensional and multi-level traffic and transport patterns, both above and below ground level (Birat), leads to the creation of functional and three-dimensional property units in an unconventional geometric forms. It could be seen in the large cities of the United States since the first decades of the twentieth century (Wright). Both worldwide and in the State of Israel a planning trend towards greater utilization of underground space is taking shape, accompanied by the minimizing of damage to the environment, to the landscape and to the rights of owners of above-ground land, while utilizing the advantages of the underground in terms of protection or isolation against weather conditions (Besner).

POLITICAL AND HISTORICAL CONSIDERATIONS

Vertical three dimensional division of property might have a unique political and historical implication. Vertical separation of Sovereignty has been recently been suggested as a solution to some of the serious disputes between Palestinians and Israelis. It was suggested to divide ownership in the Wailing Wall and the Mosques above it. It was suggested as well to connect the two parts of the Palestinian Authority with an extraterritorial bridge. In a piece of land that has a very old history, important antiquities and modern facilities may often be vertical neighbors.

THE DOCTRINE OF VERTICAL EXPANSION OF OWNERSHIP VERSUS THREE-DIMENSIONAL OWNERSHIP SPLITTING

The traditional legal doctrine in all legal systems assumes vertical merger of ownership of all land strata. The clearest expression of this is in the Latin maxim: Cujus est solum, ejus est usque ad coelum ed ad inferos. This doctrine was adopted by the Common Law (Wright) and is also reflected in Continental law, inter alia, in German (905), Swiss (667), French (552), and Italian (840) codices and, due to European impact, in Louisiana (§ 490, 1998).

Does this doctrine imply that no three-dimensional land units extending vertically one on top of the other can be created? This is not a desirable conclusion. It has a paternalistic strain, which does not coincide with the basic human right to freely exercise the ownership, nor with the freedom of

contracts. Denying the owner's ability to split up his rights in each land strata in accordance with the economic reality, as well as planning and technological capacities, will restrict or even block the owner's ability to perform transactions and encumber its property. Further, public needs, which justify taking the underground alone, would not be satisfied without the concomitant taking of all the land levels. "...in an era marked by increasing urban concentration, the desirability of maximum utilization of available space is obvious..." (Powell)

VERTICAL STRATA MUTUAL DEPENDENCE VERSUS THREE-DIMENSIONAL SPLITTING

It may be contended that lower units, especially under the ground, cannot be functionally separated from the higher level units. The lower levels support those above them. The underground depends on the mercy of the upper stratum as a means of upward outlet, as well as for ventilation, drainage or passage purposes. Prima facie, the "vertical" association is more complex than that between "horizontal" neighbors. Nevertheless, this should not imply, in my opinion, the denial of the option to separate vertically, in legal terms, between ownership of vertically stratified land levels. First, the market provides, at present and even more so in the future, technical and planning solutions to the constraints imposed by inter-dependence between land stratas. Second, neighboring aboveground parcels are likely to be mutually dependent in terms of support, passage, drainage, landscape or contamination. This fact does not deny from the owners of such parcels the independent nature of their parcels nor erases the borderline between them. The inter-dependence relationship between neighboring parcels can be formalized by means of mutual contracts and easements. The law intervenes to a minor extent only, via laws of torts or laws on party walls. (Megarry & Wade, Nichols, Gale).

THREE-DIMENSIONAL SPLITTING OF LAND INTO "AIR RIGHTS"

Some Western states, particularly where the prevailing system of land registration is a deed recordation system, use the model of "air rights" or "air space rights" to vertically and three-dimensionally divide ownership. This is an "independent" model, as it provides for registration of separate three-dimensional property units, which constitute a separate object for property rights and transactions. The relationship between the units is formed, in accordance with the model of units across ground level, in agreements or pursuant to the general law regarding neighbors relations. At times these agreements take the shape of easements, lease agreements or collateral reciprocal agreements. Well-known projects using "air rights", such as the United Nations Plaza in New York, are to be found in a number

of large cities in the United States (Powell, Wright). Legislation and case law in New Brunswick, Canada (Anger) and Australia (Moore) acknowledge "air rights". A Model Airspace Act was endorsed in 1973 by the American Bar Association (R.P.P. & Trust J.). The model of "air rights" can conceptually also be implemented in the underground (Pedowitz).

THREE-DIMENSIONAL SPLITTING WITHIN THE "SHARING" MODEL OF CONDOMINIUMS

Another recognized model for three-dimensional division of land is that of condominiums or the strata title, within the ambit of which the land is divided into independent three-dimensional land units as "apartments" or "units". In contrast to the "independent" model of "air rights", this is a model of a "sharing" nature, intervening in the parties' ability to shape their property units as they wish, and imposing a certain framework on them, having an inevitable measure of co-ownership (Encyclopedia). The prevalent utilization of this model is for the construction of tall buildings; However, there is no reason why it cannot also be used for underground building or in "linearly" built structures. This model can further be used for division of the utilization of natural physical formations (such as caves), division of marinas, shorelines or bare parcels without construction ("Bare Strata Title"), as is known in Canada, British Columbia, Ontario and Manitoba (Anger, Encyclopedia). Legislation in the United States, Canada, Australia, New Zealand, but not in Western European and Latin American countries (Encyclopedia) rendered more flexible the possibilities of utilizing the sharing model by defining the independent units as "spaces" or "units". See, for instance, the Unit Title Act 1972 in New Zealand (Alston) and the Uniform Condominium Act 1977 in the United States (U.L.A.).

THREE-DIMENSIONAL PARCELLATION OF LAND VIA TITLE REGISTRATION

The independent model of "air rights" is practically not recognized in judicial systems where title-registration exists. In these countries no three-dimensional cadastral survey is carried out and the rules for three-dimensional mapping and surveys for registration purposes have not yet been established. Since the concept of title-registration requires a complete reflection of each right in the registry, in the absence of practice and legislation regulating three-dimensional division mapping, no such division is feasible. Nonetheless, there is no fundamental contradiction between the notion of title-registration and the three-dimensional splitting of property units. If the survey and mapping barriers can be overcome, there should be no legal impediment to implementing three-dimensional division of parcels. Neither is there any justification for the sharing model in general and the

laws on condominiums in particular to have a monopoly over the three dimensional division of land units. In my opinion, it is advisable to allow owners of rights who so wish to split up their rights, at their choice, also using an independent model through which both the three-dimensional borders of the property units and their reciprocal relationship may be freely molded. Indeed, in Oceania, where the title-registration method had been developed, it has already been established that there is no conflict between title-registration and registration of three-dimensional units (Moore, Alston, Clements & R. Hager). Practical solutions for the registration of three-dimensional property units other than as a condominium have also been found in England in Land Registration Rules, Rule 54, 1925 (Ruoff & Roper) and in Norway (Ministry of the Environment).

THE NEED TO PREPARE AN INFRASTRUCTURE FOR THREE-DIMENSIONAL SURVEY AND MAPPING

There exists a vital need for the creation of both a doctrinal and practical professional rules for three-dimensional surveys and mapping activities for title-registration purposes. It will be necessary to further deploy a sufficiently dense network of vertical control points, to design the nature of the three-dimensional map for the purpose of registration, and to select methods for marking the "third dimension" (Nichols). Statutory regulation of the three-dimensional surveying and mapping processes and their control will also be required. Surveyors generally will have to take the new practices on board. It will further be necessary to adapt the old two-dimensional infrastructure to the new digital methods. It will be necessary to decide whether it should be allowed to register division of underground only in accordance with what has actually been built and utilized or whether there is room to allow registration of three-dimensional imaginary space (a "polyhedron" as defined by New Zealand Judge O'Regan) (Alston).

SHOULD A COMPREHENSIVE THREE-DIMENSIONAL CADASTRAL SURVEY BE CONDUCTED?

The traditional doctrine assumes that the underground border between parcels is delimited by diagonal lines extended in a cone from each point on earth to the center of the earth (Wright). This imaginary conical border has never been marked nor surveyed. If it becomes feasible to register parcels three-dimensionally, it will also become necessary to determine, via a process of Land Title Settlement (Sandberg), exactly where to draw the vertical borderlines of each three-dimensional parcel. Adequate opportunity should be offered to anyone liable to be injured by the drawing of a three-dimensional border, to claim his arguments to a body with judicial powers.

THREE-DIMENSIONAL DIVISION OF LAND VIA LEASES AND EASEMENTS

One of the ways in which three-dimensional division takes place also in systems of title-registration is by means of leasing agreements (Wright). Leasing is preferable for a lessor who does not wish to waive ownership of his assets. Nevertheless, the use of the lease model as a substitute for splitting ownership into independent three-dimensional units will encumber both parties against their will. This is also true for the utilization of subsurface easements model for the purpose of registering subsurface passage rights, for purposes of transportation, piping or other needs (Nichols). The possibility of purchasing an easement is not appropriate for projects where there is an intention to take possession and not only to "use" an easement. The use of the instrument of easement will limit the freedom of sub-splitting the three-dimensional unit and will burden the freedom to freely designate the reciprocal relationship between the owners of the vertical independent and separated units. The use of a lease or easement would make it necessary to subject the boundaries of vertical three-dimensional units to the original borders of the two-dimensional aboveground parcel. Moreover, lease and easement agreements may be drawn in non-standard patterns which may render imprecise and vague the Numerus Clausus patterns of property rights which can be registered in a title-registration system (Rudden).

SHOULD LAND OWNERSHIP HAVE A FIXED DOWNWARD LIMITATION?

There are two models for initial entitlement of the title to land. The title may be generally declared as State Domain or may be initially acquired by individuals by way of possession or prescription. Most of underground land spaces has not yet been used. Nevertheless its ownership is located neither in State nor in its possessor. Traditional doctrine implies that the underground spaces belong to the owner of the upper ground itself, notwithstanding the fact that he could not actually possess the deep underground space. Some state officials may recommend to declare all this "abandoned" underground space as State Domain, in the same manner that many states expropriated the soil of these spaces. A general expropriation of underground title may involve constitutional problems as well as practical and professional difficulty to determine the exact level in which the expropriation will not harm the original upper level owner. A similar problem aroused many years ago when the writers of Model Airspace Law in USA wanted to draw a fixed upward limitation to land title due to the development of aviation. As some commentators remark their conclusion was that "...it is not possible to determine the eventual upward extent of reasonable use and the necessary buffer zone to prevent interference with

such reasonable use" (Rohan & Reskin). Serious problems may appear as well in calculating and budgeting compensation for the taking of all underground spaces.

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