

Integration of Land and Housing Information in China: First Analysis of Legal Requirements for LADM Compliance

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SUMMARY

The integration of land and housing law, processes, and data is a significant issue in China. Prior to the design of any integrated information system, the legal requirements of such a system must first be assessed. To date, this has not been fully studied. In this paper, we identify and review the requirements for the integration of land and housing information in China from the legal point of view. Specifically, this paper utilizes the existing land legal system to guide this review process. Seven levels of legislations are studied, and a collection of legal requirements from the Constitution down to land standards is developed. The legislative review covers both land and housing administration domains and specifically includes land related, housing related, and real estate related documents. On the basis of the impacts, these collected legal requirements are then synthesized and categorized under the following headings: registration, maintenance, mortgage, transfer of real estate rights, relevant materials and archives, preliminary notice, etc. The paper concludes by proposing that these legal requirements can be used as one of the foundations for land and housing integration in China. It is the aim of this review that serves as a starting point to develop the integrated data model for land and housing information in China.

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1. INTRODUCTION

So far, in much of China, land and housing are still separately managed by two different governmental institutions. However, given the indivisibility of land and housing, the integrated management of these two entities is an inevitable trend (Hongyu, 2004; Wang, 2006). From the legal perspective, the integrated mechanism for land and housing registration was formally built into laws and regulations, such as the ‘Law of the People's Republic of China on Urban Real Estate Administration’ (hereafter referred to as REAL) in 1994 and the ‘Property Law of the People's Republic of China’ (hereafter referred to as PL) in 2007 (The National People's Congress, 2007; The Standing Committee of the National People's Congress, 2007). Meanwhile, during the 12th National People's Congress of the People's Republic of China, the integration of land and housing registration was a significant issue for discussion: it was recognized as gaining momentum among governments (The 12th National People's Congress, 2013). According to its published plan, one of the clauses is about the integration of government functions, including real estate registration (The State Council, 2013). Thus, the integration of land and housing is imperative. However, the legal needs for the integration of land and housing in China have not yet been fully investigated to date: there have been few, if any, analytical studies on requirements for land and housing integration in China from the legal point of view.

This paper aims to study the relevant laws and regulations dealing with the various aspects of land and housing administration. It then seeks to synthesize these series of requirements. The rest of the paper is organised as follows. Section 2 introduces the current land legal system in China. Based on this system, an outline of legislations on land and housing integration is presented. Then, Section 3 presents a review of relevant legislations collected above. After that, a series of legal requirements are synthesized on the basis of the legislation review in Section 4. Next, in Section 5 we have a discussion about the synthesis results of legal requirements. Lastly, Section 6 concludes the paper and points out the design of the Land Administration Domain Model (LADM) country profile for China.

2. CONCEPTUALIZING THE LEGAL FRAMEWORK RELATING TO LAND, HOUSING, AND REAL ESTATE IN CHINA

This section introduces the current land legal system in China, which is a law and regulation system, aiming at regulating the social relations among land use, development, protection, and land market. The prevailing land legal system is generally established with the ‘Land Administration Law (LAL)’ and ‘Urban Real Estate Administration Law’ which encompass 7

levels (Cai & Ke, 2001): 1) the Constitution is the basis of the land legal system and stipulates the state-owned land ownership in urban areas and collective-owned ownership in rural and suburban areas (The National People's Congress, 2004); 2) Land Laws refer to laws which are enacted by the National People's Congress (NPC) and its Standing Committees, such as the LAL, PL, REAL, etc.; 3) Land Statutes mainly include the land related statutes enacted by the State Council, like the 'Regulations on the Implementation of the Land Administration Law'; 4) Local Land Statutes are enacted by the Local People's Congresses (LPC) and their Standing Committees at the provincial and municipal level; 5) Land Regulations play an important role in the land legal system, which are enacted by the ministries and commissions under the State Council, including 'Measures for Land Registration', 'Measures for Building Registration', and 'Measures for Real Estate Registration'; 6) Local Land Regulations are enacted by the local governments of each province and municipality, autonomous region; and finally 7) Other Land Standards are enacted at the county level, which belong to the seventh level of this legal system.

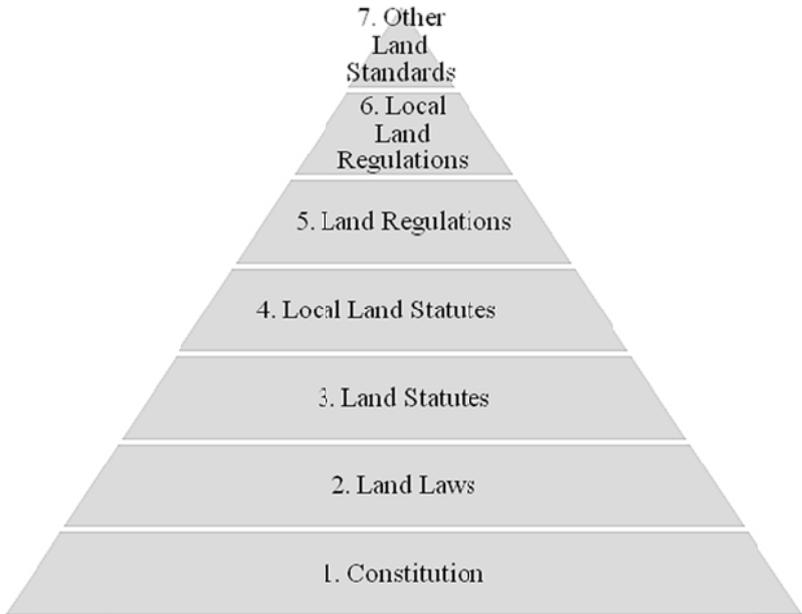


Figure 1. Current Land Legal System in China (Source: Zhuo (2013))

Using the conceptual hierarchy as an analytical tool, the total number of laws and regulations relating land and housing integration in China immediately becomes apparent. As we can see from the land legal system that relevant laws and regulations can be divided into two general parts, which are universal (as the Constitution (level 1), land laws (level 2), land statutes (level 3), and land regulations (level 5)) and local legislations (as local land statutes (level 4), local land regulations (level 6), and other land standards (level 7)). Considering that the aim of this paper is to figure out the universal legal requirements for the land and housing integration, the main collection of related laws and regulations centres on universal levels of the current land legal system (as level 2, 3 and 5) in China. As for these collected laws and regulations, we can further divide (and subsequently regroup) the seven hierarchical levels into three main groups: only land related, only housing related laws and real estate related laws and regulations. For details see Table 1 below.

Table 1. Overview of related laws and regulations (adapted from Zhuo (2013))

	Laws and Regulations	Hierarchy	Articles	Sources
Only Land Related	Land Administration Law of the People's Republic of China	2	Articles 12, 46, 47, 55, 57, 83	The Standing Committee of the National People's Congress (2004)
	Measures for Land Registration	5	Articles 9, 15, 40, 75	Ministry of Land and Resources (2007)
	Regulation on the Implementation of the Land Administration Law of the People's Republic of China	3	Article 6	The State Council (1998)
Only Housing Related	Measures for Building Registration	5	Articles 8, 30, 60, 95	Ministry of Construction (formly Ministry of Housing and Urban-Rural Development) (2008)
Real Estate Related	Property Law of the People's Republic of China	2	Articles 10, 12, 22, 135, 136, 138, 146, 147, 148, 182, 183, 200, 246	The National People's Congress (2007)
	Law of the People's Republic of China on Urban Real Estate Administration	2	Articles 32, 34, 45, 48, 49, 61, 63	The Standing Committee of the National People's Congress (2007)
	Technical Specification of Real Estate Registration	5	Articles 1.0.3, 5.5.7, 6.1.3, 6.1.4	Ministry of Housing and Urban-Rural Development (2012)
	Guaranty Law of the People's Republic of China	2	Articles 34, 36, 42, 55	The Standing Committee of the National People's Congress (1995)

3. REVIEWING THE SPECIFIC LAWS

Analysis of the selected laws and regulations is performed. Relevant articles are identified, and the key words in these articles are picked out as well. For detailed transcriptions refer to Annex 1 in Zhuo (2013). Findings are summarized as follows:

Land Administration Law of the People's Republic of China

The LAL was formulated in accordance with the Constitution to strengthen the administration of land, and to protect land resources, especially cultivated lands (The Standing Committee of the National People's Congress, 2004). The change of land tenure or its content shall be realized through the maintenance of registration (Article 12). In expropriating land, the compensation shall be imposed on the basis of its original use purpose, as is stipulated in

Article 46 and Article 47. Article 55 requires that when using construction land, the land use leasing fees should be paid in advance. As for the temporary use of land, several conditions need to be taken into consideration, like contracts for temporary use of land, its use term, and so on (Article 57).

According to the discussion above, there are several LADM classes or attributes which can be extracted. In the prevailing LAL, the change of land tenure and use purpose during maintenance, the time limit for compensation registration, the compensation fees for land expropriated, land use right leasing fees for the land expropriated and the restriction for temporary use of land should be included.

Regulations on the Implementation of the Land Administration Law of the People's Republic of China

The regulations were set out in 1999 on the basis of the LAL in general. According to article 6 of this regulation, 'whoever changes the land ownership and use right according to laws as a result of transfer of its appendices (hereinafter refer to the general term of buildings (as bungalows, storied houses, etc.), structures (as water towers, wells, bridges, etc.) and fixed objects (as trees, cables, etc.) on land,) must file an application for change in land registration with the corresponding department which is locally wherein the land is located, the original land registration organ shall effect the change in registration of land ownership and use right' (The State Council, 1998). In other words, the change of appendices shall also bring about the change of corresponding land rights. Furthermore, the change of land use purposes should result in the filing an application of maintenance too.

According to these selected articles, the required LADM classes or attributes can be summarized into changes of both land and its appendices, including application forms, identification materials, certificates of rights of land and its appendices, and other relevant documents referring to the alternation of land and its appendices.

Measures for Land Registration

The Measures for Land Registration is one of the basic land regulations within the land legal system in China, which was deliberated and adopted at the fifth executive meeting of the MLR in 2007. As is mentioned in Article 9 and Article 40 of this measure, the submitted materials for the application of land registration contain land related documents, and its appendices related materials as well. Correspondingly, in the register book, the recorded information would cover both the land part and its appendices part, see Article 15. According to Article 40, the maintenance of land registration requires certificates of land use right, housing ownership and other documents. In addition, in the supplementary articles, it stipulates that the unified registration system of real estate is really imperative in China.

Based on the analysis above, the LADM classes or attributes for land registration include following items: certificates of land and appendices, application form, identification materials, survey documents and taxation documents when filing an application for land registration. Specifically, in the register book, the information about the subject, rights, and object shall be

recorded. Moreover, the maintenance of land use right requires the certificates of both land and housing rights, and documents about alternation of land use right.

Measures for Building Registration

Based on the Property Law and Urban Real estate Administration Law, the Measures for Building Registration were issued. These aim to regulate the conduct of housing registration and to maintain real estate transactions. The key features of this measure include: 1) subject consistency of land use rights and housing ownership (Article 8); 2) submitted materials for registration includes both land related and housing related documents (Article 30, 60, etc.); Moreover, 3) the unified registration of real estate by one department is also mentioned here (Article 95).

In registering housing ownership, subjects for land use right and housing ownership are required and should be consistent based on the principle of subject consistency. When applying for the registration of housing ownership, it is necessary to submit several relevant materials, including an application form, identification materials, certificate of land use right, construction planning permit, document of as-built inspection of building and report of housing surveying and mapping. Furthermore, the mortgage registration requires the contract of mortgage as an essential document for submission.

Property Law of the People's Republic of China

With the development of Chinese market economy, the government now acknowledges their desire for legal protection of private property. In order to answer these demands, Property Law was promulgated in 2007 (Chen, 2012). As a key issue in the PL, registration has attracted more attentions. Article 10 and 246 of this law provide that registration of real estate shall be handled by the registration organ in a uniform way (The National People's Congress, 2007). Meanwhile, the registration organs are responsible for the examination of the ownership certificate and other necessary materials both about land and its attachments. According to Article 22, real estate registration fees shall be charged on pieces. That means the applicant would pay less for the registration of land and its appendices under this article. In addition, if the government wants to take back the construction land before expiration, compensation shall be given to the houses and other realties. The right to use construction land shall be entitled to its appendices by making use of such land. The land use right can be separately created on the surface of or above or under the land too (Article 135 & 136).

Moreover, as is shown in article 182, *'when mortgaging buildings, the right to use construction land within the area of this building shall be mortgaged together. Likewise, all the buildings shall be mortgaged as soon as their related right to use construction land is mortgaged'* (The National People's Congress, 2007). That is to say that land and housing would be treated as a single entity in mortgaging. In relation to the maintenance of registration, the right to use construction land and its appendices shall be taken as a whole too (The National People's Congress, 2007). Article 146 and 147 state that *'whoever changes the right to use construction land or its appendices, the land and its affiliated facilities shall be disposed of at the same time'* (The National People's Congress, 2007). Based on the provision of Article 138, the information of both land and housing should be involved in the contract on

transfer of the right to use construction land, in case the right to use construction land is created through auction, bid invitation or agreement.

In conclusion, the following LADM classes of information or data attributes appear to be required: 1) a registration part: the subjects of land and its appendices rights, the land use right on or above or under the surface of land should be taken into consideration; 2) a mortgage part: the certificates of both land use right and housing ownership are needed; 3) the maintenance part: the land use right and housing ownership should be treated as a whole during the process, and the information about both land and housing should be included, such as the name and address, boundary and area, covered space, use purpose, use term, payment methods and dispute settlement method. In addition, the mode of transfer shall be recorded too. 4) others: the certificates and materials of land and housing should be examined by the registration organs. Moreover, the registration fee of realty will be charged in pieces. And the compensation for real estate will be determined on the basis of prices of both land and housing.

Law of the People's Republic of China on Urban Real Estate Administration

The Law of the People's Republic of China on Urban Real Estate Administration was adopted in 1994 and amended according to the “Decision on Amending the Law of the People's Republic of China on Urban Real Estate Administration” in 2007. According to the review, the requirements acquired are shown as below:

First of all, as is seen from Article 32 and Article 61, the housing ownership and its appurtenant land use right should be transferred or mortgaged at the same time, and it is necessary to file an application with both the land administration department and housing administration department. That means the alternative registration of real estate is required when changes occur to the housing ownership and its appurtenant land use right. Moreover, in Article 34 of this law, it also stipulates that the evaluation price of real estate is normally determined based on the prices of both land and housing. Secondly, the advanced sale of commodity houses must be premised on obtaining the certificates of land use right and other relevant documents. Meanwhile, it should be registered with a land administration department, as well as housing administration department (Article 45). Moreover, Article 48 forces that *‘The title of a housing property plus the right to use the land occupied by the housing property obtained lawfully may be designated as mortgage right. The right to use land obtained through lease may be used as a mortgage too’*. In addition, the registration and certification system for the right to use land and title to the housing property is formally stipulated by articles in this law too. Lastly, this law also sets the unified registration and certification form so as to deal with the situation of separated registration of the housing ownership and its appurtenant use right of the land. Generally, all these discussions above may lead to the same objective, that is, the integration of land and housing.

In summary, apart from these required LADM classes and attributes mentioned above, both land and housing prices should be taken into consideration for the evaluation of real estate price. And the advanced sale of commodity housing should be achieved on condition of certificates of both land use right and housing ownership and other relevant materials.

Moreover, as regards changes in a real estate, the application of maintenance registration should be filed with both the housing and land administration departments above the county level.

Technical Specification of Real Estate Registration

This Technical Specification of Real Estate Registration was chiefly worked out in accordance with the announcement from the Ministry of Housing and Urban-Rural Development (MOHURD) in 2012. The aim of this specification is to specify the business issues of real estate registration and to safeguard the real estate transaction. Specifically, real estate registration should follow the principle of subject consistency, that is, the subject for land use right and housing ownership should be consistent according to laws. Besides these demands, it is required that the departments for real estate registration be merged, and the archives should be managed in a unified way. In this case, accessing to these archives including both land and housing parts through query tool would be easy to realize.

Following on the discussions above, the archives of real estate registration should be uniformly managed, and the mutual query should be realized. In addition, responsible departments for real estate registration and the management of archives should be included, as well as the name of registrar and the date for verification.

Guaranty Law of the People's Republic of China

For the sake of promoting the circulation of capital and commodity, and realizing the protection of property right for movable and immovable objects, the Guaranty Law of the People's Republic of China was adopted at the 14th Session the Standing Committee of the 8th NPC in 1995. Generally, this mortgage part of this law deals with two kinds of objects: movable and immovable. As is presented in Article 34, the mortgaged immovable properties include land use right, housing and other appendices, etc. Article 36 stipulates that '*if the house is to be mortgaged, the corresponding land use right within the scope shall be mortgaged at the same time*' (The Standing Committee of the National People's Congress, 1995). Moreover, the existing separated registration of gage may stimulate the motivation for the integration of land and housing issues. Meanwhile, in Article 55, it presents that the newly-built housing shall not belong to the gage when preceding the mortgage.

Based on the description above, a number of LADM classes or attributes would be required, including the rights to land and its appurtenant appendices, responsible departments, construction date of each house, and mortgage date.

To sum up, based on the review above, a number of required LADM classes or attributes are picked out from these related laws and regulations respectively, specifically include: rights to both land and its appurtenant houses; registration date; survey documents (including cadastral & housing survey, parcel map, boundary coordinates); related attributes for both land and housing subject; changes in both land and housing tenure and content; responsible departments (original land registration organ, housing administration department, land administration department); legal documents (including application form, identification materials of the applicant, certificates of land use right and housing ownership, etc.);

identifications for land, housing and real estate; relevant fees (including allotment fee, compensation fee, land transfer fee, etc.); related prices (including standard land price, nominal land price and replacement price), etc.

4. SYNTHESIS OF LEGAL REQUIREMENTS

After the legislative review above, results can be used to synthesize the legal requirements for the integration of land and housing in China. Considering that these legal requirements serves as one of the foundations for the design of LADM country profile for China, which is focusing on the integration of land and housing, it is necessary to go a step further to fit in with the needs of the next design of LADM country profile, which is to extract the detailed information from these legal requirements based on the LADM standard -- ISO 19152.

According to the ISO/TC 211 (2012), the LADM is defined as a reference model covering basic information-related components of land administration. It generally provides an abstract, conceptual model with four packages related to parties (Party Package); basic administrative units, rights, responsibilities, and restrictions (Administrative Package); spatial units (Spatial Unit Package) and spatial sources and spatial representations (Surveying and Representation Subpackage). Accordingly, these collected legal requirements can be categorized into several groups: registration, maintenance, mortgage, transfer of real estate rights, relevant materials and archives, preliminary notice, etc. (See the ‘Requirements & Impacts’ column in Table 2). Moreover, combining with the detailed descriptions and the coincidence with the LADM structure above, a number of classes and attributes can be extracted under each legal requirement, as well as their attached packages. In other words, these synthesis results would be extracted and split into packages, classes and attributes according to the LADM standard in general (See the ‘Required Packages, Classes & Attributes’ column in Table 2).

Table 2. Legal requirements for integration of land and housing databases in China (adapted from Zhuo (2013))

No.	Requirements & Impacts	Required Packages, Classes and Attributes		Sources
		Packages	Classes & Attributes	
01	Initial Registration (The information about land and its accessories should be included in the register)	AP	- Land use right and its appurtenant housing ownership	+ Article 9 & 15 (Ministry of Land and Resources, 2007) + Article 30 (Ministry of Construction (formerly Ministry of Housing and Urban-Rural Development), 2008)

	SC	- Registration date	
	AP	- Located county	
	SC, AP	- Land Legal documents (Application form, identification materials of the applicant, certificates of land use right and housing ownership, alternation of land tenure)	
	SRS	- Survey documents (cadastral & housing survey, parcel map, boundary coordinates)	
	SC, AP	- Tax paid proof and tax reliefs proof	
	PP, SC	- Name and address of land subject	
	AP	- Nature, type, acquired date, term of land tenure	
	AP, PP, SUP, SC	- Changes in land tenure and content	
	SUP, SC, SRS	- Location, boundary, area, identification, use purpose, acquired price of land	
	SC, AP	- Housing legal documents (application form, identification materials of the applicant, Construction planning permit, document of as-built inspection of building)	
02	Maintenance (The land use right and its attached housing ownership will be altered altogether)	AP, PP, SUP, SC	- Changes in land tenure (includes land ownership or use right)
			+ Article 6 (The State Council, 1998)
			+ Article 40 (Ministry of Land and Resources, 2007)
			+ Article 61 (The Standing Committee of the National People's Congress, 2007)

		SC	- Changes in use purposes	+ Article 12 (The Standing Committee of the National People's Congress, 2004)
		AP, PP	- Changes in housing ownership	
		PP	- Responsible departments (original land registration organ, housing administration department, land administration department)	
		SC, AP	- Legal documents about alternation (Application form, approval documents,)	
		SC, AP	- Certificates of land use right and housing ownership (original & new)	
03	Mortgage (Both land and its accessories will be tackled altogether too, just as the alternative registration)	SC, AP	- Legal documents (Application form (housing mortgage registration), identification materials of the applicant, mortgage contract, Master obligatory right contract, Certificate of land use right and housing ownership, Construction planning permit)	+ Article 60 (Ministry of Construction (formerly Ministry of Housing and Urban-Rural Development), 2008) + Article 182, 183, 200 (The National People's Congress, 2007)
		SUP	- Built date	+ Article 32, 48, 49 (The Standing Committee of the National People's Congress, 2007)
		AP	- Mortgage date, loan, gage, priority	
		PP	- Name of mortgagor and mortgagee	
		PP	- Responsible departments (land administration department, housing administration department)	+ Article 34, 36, 42, 55 (The Standing Committee of the National People's Congress, 1995)
04	Subject Consistency (Real estate registration should follow the principle of subject consistency)	PP	- Subject of land use right	+ Article 8 (Ministry of Construction (formerly Ministry of Housing and Urban-Rural Development), 2008)
		PP	- Subject of housing ownership	+ Article 1.0.3 (Ministry of Housing and Urban-Rural Development, 2012)
05	Unified Registration (Real estate registration issues should be managed)	SC	- Submission date	+ Article 63 (The Standing Committee of the National People's Congress, 2007)
		PP	- Responsible department	
		AP	- Real estate registration identification	

	by one unified department)	SUP	- Located administrative division	+ Article 1.0.3, 4.5.5, 5.1.3, 5.1.5 (Ministry of Housing and Urban-Rural Development, 2012)
		SC, AP	- Certificate of real estate	+ Article 10, 246 (The National People's Congress, 2007)
		SC, AP	- Verification and changes in the housing ownership and land use right	+ Article 75 (Ministry of Land and Resources, 2007)
		PP	- Name of Registrar	+ Article 95 (Ministry of Construction (formerly Ministry of Housing and Urban-Rural Development), 2008)
		AP	- Record identification on the register book	
06	Registration Fee (The fee of registration will be charged based on pieces)	AP	- Piece number of real estate object	+ Article 22 (The National People's Congress, 2007)
07	Material Verification (It is necessary to check the certificates of land use right and housing ownership, and other related materials)	SC	- Legal documents (Certificates of land use right and housing ownership, other materials provided by the applicant)	+ Article 12 (The National People's Congress, 2007)
		PP	- Name of registrar	+ Article 1.0.3 (Ministry of Housing and Urban-Rural Development, 2012)
08	Land Use and Land Use Right (The scope of land use right can be extend to from the above space to the underground space)	AP	- Right type (e.g. temporary land use right)	+ Article 57 (The Standing Committee of the National People's Congress, 2004)
		AP	- Term of land use right (e.g. temporary land use right: ≤ 2 years, commencement date and expiry date)	+ Article 135, 136 (The National People's Congress, 2007)
		SUP	- Payment to use of construction land	
		AP, SC	- Space right to land use (surface, above, or under the land)	
		PP	- Subject of land use right	
		AP	- Restriction to land use right	
09	Transfer of Real Estate Rights (The information about land and its accessories should	SUP	- Land use right leasing fee	+ Article 55 (The Standing Committee of the National People's Congress, 2004)
		SUP	- Other fees and expresses	
		AP	- Term of rights to use construction land (commencement date, expiry date)	+ Article 138, 146, 147

be included in the register)	AP - Disposal method PP - Name, address of land subject SC, SRS - Boundary, area of the land SUP - Covered space of appendices SC - Use purpose SUP - Allotment fees and other fees AP, SC - Disposal date of land use right AP, SC - Disposal date of housing ownership	(The National People's Congress, 2007) + Article 32 (The Standing Committee of the National People's Congress, 2007)
10 Compensation of Land Acquisition (The compensation of land acquisition will be determined by prices of land and its accessories)	PP - Subject of expropriated land AP, SC - Time limit for the announcement SC, AP, SUP - Compensation registration time for expropriated land PP - Responsible department AP - Certificate of land use right SC - Use purpose (original & changed) SUP - Compensation fee (land, and appendices) AP - Term of expropriated land use right AP - Expropriated date SUP - Land transfer fee SUP - Purpose of public interest	+ Article 46, 47 (The Standing Committee of the National People's Congress, 2004) + Article 148 (The National People's Congress, 2007)
11 Real Estate Price Evaluation (Real estate price will be determined by the standard land price, nominal land price, and appraised price of housing)	SUP - Standard land price SUP - Nominal land price SUP - Replacement price	+ Article 34 (The Standing Committee of the National People's Congress, 2007)
12 Advanced Sale of Commodity Housing, and Preliminary Notice	SUP - Land use right leasing fee AP - Certificate of land use right AP - Construction project planning permit AP - Funds put for construction, total budgetary investment (and per cent) AP - Construction schedule	+ Article 45 (The Standing Committee of the National People's Congress, 2007)

	AP	- Date of completion of the project	
	AP	- Permit of advanced sale of commodity houses	
	AP	- Legal documents for preliminary notice (application form, identification materials of the applicant, permit of advanced sale)	
	PP	- Advanced seller, advanced buyer	
	PP, AP	- Department, term of preliminary notice	
13 Registration Archive (The registration archives of real estate will be managed by one department)	SC	- Submission date	+ Article 15 (Ministry of Land and Resources, 2007)
	PP	- Name and address of land subject	
	AP	- Nature, type, acquired date, term of land tenure	+ Article 1.0.3, 5.1.3, 5.1.5 (Ministry of Housing and Urban-Rural Development, 2012)
	AP, PP, SUP, SC	- Changes in land tenure and content	
	SUP, SC, SRS	- Location, boundary, area, identification, use purpose, acquired price of land	
	PP	- Responsible department of register management	
	AP	- Identification for query	

Note: For the Package Subcolumn: Special Classes (SC), Party Package (PP), Administrative Package (AP), Spatial Unit Package (SUP), and Surveying and Representation Subpackage (SRS).

5. DISCUSSION

As mentioned, the collection of legal requirements is generally focusing at national level. These laws and regulations mainly belong to universal levels of the current land legal system in China. Specifically (see the ‘Hierarchy’ column Table 1) we can see that all of these picked legislations are on universal level, which are level 2, 3, and 5.

On the basis of these legislations, a number of legal requirements are developed. As is seen in Table 2, we have categorized these collected legal requirements into 13 groups, including initial registration, maintenance, mortgage, subject consistency, unified registration, registration fee, material verification, land use and land use right, transfer of real estate rights, compensation of land acquisition, real estate price evaluation, advanced sale of commodity housing, and preliminary notice, registration archive. As for their impacts, they range from

registration, maintenance, mortgage, and subject consistency to the management of registration archives in general.

We know that these legal requirements serve as one of the basis for the design of LADM country profile for China. Thus, in order to be adaptable for the next design phase, an extraction from these legal requirements is arranged then, and it primarily takes the LADM standard – ISO 19152 as a reference.

As we learned from the LADM standard, the general structure for LADM is composed of packages, classes and attributes from top to bottom. Therefore, results of this extraction can be picked out and segmented into 4 (sub) packages accordingly: party package, administrative package, spatial unit package, surveying and representation subpackage (See “Packages” column in Table 2).

Therefore, under each item of these requirements, a number of classes and attributes can be extracted by referring the LADM standard in general. Results have been shown in “Classes and Attributes” column in Table 2.

For the outputs in Table 2 above, we can see that most of these legal requirements belong to party package, administrative package, spatial unit package and special classes, account for about 96 percent of the total. However, for the surveying and representation subpackage, it has been paid insufficient attentions. There are only 4 items of legal requirements aiming at this subpackage.

6. CONCLUSION

In this paper the legal requirements relating to the intended integration of housing and land information in China have been reviewed and analysed for information management purposes.

Seven levels of land and housing related laws and regulations were conceptualized, identified, and analysed. Based on this analysis, 13 categories of legal requirements emerged, which including registration, maintenance, mortgage, transfer of real estate rights, relevant materials and archives, preliminary notice, etc.

Observe that this paper is limited to the legal requirements for the integration issue and relevant legislations covered both land and housing administration domain are not exhaustive and can be extended to more complete data sources, like governmental documents, literatures, etc. Meanwhile, in order to be adapted for local levels, some local laws and regulations relating to land and housing integration could be reviewed in the next research.

Finally, these collected legal requirements can be utilized as the foundation for land and housing integration issue in China. In the meantime, it is the aim of this review that serves as a starting point for the development of land and housing integrated data model.

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