EXCHANGE FOR POLICIES

IMPLEMENTATION OF LAND POLICIES BY USING CADASTRAL DATABASE SOFTWARES FOR MODERNIZATION OF LAND ADMINISTRATION IN VIETNAM

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Abstract:

Technological policies for application of science-technological (S&T) achievements in the sector of cadastral database software for land administration play important roles. It concerns firstly the direct application for S&T management and then provides numerous advantages such as simplified administrative procedures, public transparency of land use rights, land-bound asset possession rights, transparent and clear information for real estate market and legal safety for stakeholders.

Actually, many cadastral database software are used in Vietnam. This practice mobilized capacities of many stakeholders in common efforts for management and operation of cadastral database softwares. It also permits to maximize the use of advantages that the IP rights could provide through the free use of open sources applied for cadastral database softwares in lines with actual practice in Vietnam.

This paper presents the actual status of the policies for use of cadastral database technologies. Certain shortcomings exist because of incompatibility of actually used softwares which might lead to conflicts between cadastral databases applied in different provinces over the whole country. The practice of use demonstrates that it is impossible to cancel any cadastral database which was developed in basis of any existing software source because the cancellation would cause wastes, instabilities and troubles to land administration works.

The paper poses a question for studies: Which policies should be applied for the software technology sector to establish a system of indicators for integration of the existing land databases over the whole country? The work should enhance capacities of access to land information services for all stakeholders on basis of development of a complete system for land administration, and then the system should be based on concepts of a public, exact, complete and in-time provision of land registration service and land information.

Keywords: *Policies for software technologies; Cadastral database.*

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1. Introduction

Policies for cadastral database technologies in land administration services on basis of application of S&T achievements play important roles, first for direct S&T management works and then for simplification of administrative procedures, transparency of land use rights and land-bound asset possession rights. They also contribute to make the real estate market transparent with clear information for assurance of legal safety for stakeholders.

Governments of many countries over the world (particularly, developing countries) pay attentions to policies for software technologies of cadastral databases for land administration services. Some evidences can be listed hereunder for illustration.

First, the study entitled *Application of Geographical Information System (GIS) to support cadastral service in Ghana: Institutional factors and software development* [4] interprets *Institutional factors* as policy factors issued by the Ghana Government for software technologies through *Land Administration Programme (LAP)*. This would support the effective management of land records for permitted construction licenses and provide managers with exact data for urban architecture planning, construction master planning in urban areas and industrialized rural areas. In this study, researchers indicated the lack of *institutional factors* for land administration services which could be interpreted as the absence of policies for software technologies to be applied in administration of the system of cadastral organizations. Also, the links between these organizations are very loosen then require the establishment of a strong institutional system for land administration. As measures to cover these lacks, the study proposed the preparation of *a prototype developed software system* which would not remove the existing softwares (the work being assessed as causing wastes and instabilities in management operation) but integrates softwares *ArcView 3.2* and *Access* to provide an automatized tool to update cadastral databases for land administration services.

Another work is the Master degree study in field of geographical information which is entitled *Design, implementation and assessment of mobile GIS solutions for a project of land registration in Lesotho* [5]. This study presents the necessity of policies for software technologies in land administration services through a popular project in Lesotho, Southern Africa, where GIS solutions were developed mainly as an Android-based application on Linux platform in order to enhance the efficiency of on-site works as well as the integrity of information collected in land administration services in Lesotho. At the same time, for purpose of assessment of effectiveness and benefits from application of Android

technologies and policies for software technologies in land administration services, the study integrated the advantages of GIS with Android technologies which allow to conduct the registration of changing lands, even in context of segmented geographical conditions.

As it is seen, the two examples collected from developing countries show the trends in these countries to issue policies for software technologies which do not intend to remove the existing systems but to integrate them for land administration services.

In case of Vietnam, for purpose to issue and to implement policies for cadastral database technologies in land administration services, we need to study and evaluate the actual status of the existing system of cadastral database technologies, to identify not only advantages but also conflicts between softwares which cause obstacles to administration works. The study also should support the issue of policies for software technologies effectively used in land administration services.

2. Important notions

In this paper, the following notions are used.

a. Policies

There exist many ways to approach the notion *Policies.* First of all, the attention is paid for the approach which is based on *social institutions* where the social institutions are interpreted under sociological concepts.

Fichter J. H. [1] considered that policies are *"parts of culture which are standardized in the living practice of a nation", "the standards of behaviors which obviously or potentially turn to social roles in charge by people and many other connections between people, where the social evolutions take the leading positions among these connections"*. Fichter also added: "*Social connections and social roles together set up the set of main factors of the institutions"*. He confirmed that the institutions are *"a status or combination of standardized behaviors which are accepted by majority of people and meet basic needs of the community"*.

Vu Cao Dam developed a vision which is broader than the above noted concept. In his vision, there exist many ways to approach the notion *Policies* which include political, human, socio-human, psychological, economical, aesthetic, systematic, juridical and synthetic.

In these approaching ways, when talking about a policy, the following aspects are in focus of attention:

- Policies are sets of *measures* issued by entities of power or administration which get institutionized as regulations of *legal values* for purpose to implement the development strategies of the system to achieve the objectives expected by the entities;
- Policies always create *a discrimination* between entities of power or administration and different social groups. In this discrimination, the entities of power or administration get certain privileges over social group(s);
- Privilege measures have to *mobilize the motivating action* of privileged groups which have the key roles in implementation of development objectives of the system in lines with strategies issued by the entities of power or administration;
- Policies always create *social inequalities* while recovering certain existing social inequalities or deepening other existing inequalities. But, the ultimate objectives of policies are to meet the basic needs of the development objectives of the whole (social) system.

The whole set of these measures has to arrive to a result to create a *response* to various situations of the game which may be put the entities of power or administration in disadvantageous positions.

So, summarizing all the above noted approaching ways the following definition can be made: *Policies are the set of institutionized measures issued by certain entities of power or administration where the privileges of one or some social groups are created, then ignite their motivating actions and orient their actions to implementation of certain priority objectives in the development strategies of the social system"* [2].

b. Policies for software technologies

Policies for software technologies are component parts in the system of policies and technology policies of Vietnam. Policies for software technologies are issued to target the objectives of management, development and improvement of the system of software technologies.

c. Database

Database is understood as a set of information which are linked in structured ways and stored according to pre-defined rules. This term, however, is used largely now in information technologies and is better understood as a linked set of data. These data are maintained in form of a set of information stored in data admin systems.

d. Cadastral database

Cadastral database are defined in Circulation No. 09/2007/TT-BTNMT dated 2nd August 2007 by Ministry of Resources and Environment which guides the establishment, adjustment and administration of cadastral files. Cadastral files include cadastral map data and other data of cadastral contents.

3. Surveys of practice of policies for using software technologies to build cadastral databases

3.1. Government controlled projects

- *Vietnam Land Administration Project (VLAP)*. VLAP is a project conducted with capital loans provided by International Development Association (IDA) of World Bank. The project is implemented in 9 cities/provinces, namely: Hanoi, Hung Yen, Thai Binh, Quang Ngai, Binh Dinh, Khanh Hoa, Tien Giang, Ben Tre and Vinh Long. The implementation of VLAP started since September 2008 with the objectives defined as to enhance the access of all stakeholders to land information services through development of a complete land administration system on basis of establishing a system of cadastral databases to provide public, exact, full and in-time service for land registration, land information *(including the set-up of cadastral maps and cadastral files)*, certification of land use rights and land-bound asset possession rights. The system is set up in order to meet needs of State land administration functions, needs of implementation of rights and duties of land users, legal rights of land users and provision of information for communities.
- *Project for the system of cadastral files and land administration databases (2008-2010 periods, 2015 vision)* which is implemented in 54 cities/provinces. The project targets to complete the deliverance of land use certificates and to standardize and to integrate the system of cadastral files over the whole country.

3.2. Study of VLAP

VLAP is considered as the most complete project to build an unified cadastral database of provinces which is attached to the implementation of an unified software system to serve State land administration functions as well as the use of cadastral information for social community services.

VLAP was implemented to build the system for practice of land registration, cadastral files and deliverance of land use certificates in

modern ways. The project also targets the reform of administrative management formalities, and facilitated access to land funds and public land information. The project is hosted by Ministry of Resources and Environment and 9 selected cities/provinces. The project works include: (i) establishment of cadastral maps and cadastral books in form of databases and the accelerated deliverance of land use certificates; (ii) completion of the system of land registration and administrative formalities for land administration services; (iii) enhancement of publicity and transparency in management activities to facilitate the access to land funds on basis of land information services to be provided to all stakeholders. The outcomes of the project are the land database systems which will be established for every province and operated in an unified way from district level to province level. The systems are considered as community benefits provided by the Government and as responsibilities of the Government to operate the sustainable socio-economic development. The transparent land administration system would make contributions to good land administration practice and further enhancement of credibility of populations for land related development activities.

For achievement of the development objectives, the investment for the project is made through the main components, namely:

- *Component 1: Modernization of the land registration system*

The modernization of the land registration system includes *the establishment and the operation of the unified cadastral database system.*

This is the core component which builds up the technical infrastructure of the land administration system in all the 9 selected cities/provinces and the produced outcomes will be escalated for the remaining cities/provinces over the whole country. As result, all the land pieces and land users/owners will be registered in the system and the information will be permanently updated to meet the requirements to provide the most exact and newest information for those who have needs of that.

+ *Sub-component 1.1: Updating and completing the cadastral maps*. This sub-component has the contents to complete the unified cadastral maps in all the selected cities/provinces in lines with the required technical standards and rules, and to build up cadastral maps;
+ *Sub-component 1.2: Updating and completing the land registration files*. This sub-component has the contents to complete the unified digital system of cadastral files in the cities/provinces. It must meet the required technical standards and rules, and be integrated into the cadastral databases;

+ *Sub-component 1.3: Continuing the development and implementation of the digital system of cadastral files*. The integrated operation of the cadastral databases at central and local levels would serve the State administration functions and provide data for needs of economic, social and security-defense activities of Vietnam. The system would link cadastral databases between central and local authorities/agencies. The first step would be the linking with other databases in the system of resources-environment databases of the central and local levels. Pilot activities would be conducted to link them with other land-related databases such as the databases of bank, taxation and notary services;

+ *Sub-component 1.4: Conducting studies of policies to support the modernization of the land administration system*. During the project preparation stage, the needs of studies to complete the policies to support the modernization of the unified land administration system should be identified. This move targets the development of the project outcomes.

- *Component 2: Land registration services*

This component has the contents to enhance the provision of services through register offices. The service will be provided on basis of development and application of nationwide unified services. They will provide the access to land information for all land users through traditional and modern internet-based tools. A program will be conducted to enhance the awareness of communities for land registration and land use information and involve all the stakeholders in the process of establishing and updating cadastral files.

This component has 3 sub-components: (i) Upgrading the register offices at province and district levels; (ii) Accessing the land information; and (iii) Conducting the provision of information and communication activities for higher awareness of communities.

+ *Sub-component 2.1: Upgrading the register offices of land use rights*. This sub-component has the contents to enhance capacities of the register offices at province and district levels through the provision of information equipment and cadastral equipment to serve measuring and updating activities of changes of land uses. VLAP will design a standard prototype of register offices at province and district levels which are fully integrated with equipment;

+ *Sub-component 2.2: Accessing land information*. Ministry of Resources and Environment will establish a land information gate

which is connected with provincial cadastral databases. The service will provide organizations, agencies and individual with macro level information, at the same time, has functions to dispatch and share information between ministries and local administrations;

+ *Sub-component 2.3: Conducting activities of information communication and awareness enhancement of communities*. During implementation of the project, communication channels will be developed through mass media to provide information about VLAP, land administration, land registration and land information.

- *Component 3: Supports for project management and implementation*

3.3. Evaluation of implementation of policies for software technologies for application in cadastral databases

Investments were made for the works to build cadastral databases in different time periods. Numerous projects and different fund sources were implemented. The actual works in many localities, however, did not link the cadastral measuring and mapping works, the initial establishment of registration files and the updating of change of lands. As results, many maps which were established with high costs in previous projects now get outdated and then have low use values.

Here, we can see many products, applications and involved developers of databases. The application of technologies to build land databases, however, exhibits certain shortcomings, namely: (i) administration policies are permanently changing and then lead to needs to change softwares while lacking financial resources for updating; (ii) there is no unified technical standards and there exist differences of administration needs for different regions; (iii) there is a lack of technical supports from platform technology suppliers (*foreign suppliers, in majority of cases*) and land information system developers because of lack of human resources and proper financial policies; (iv) there are some troubles in selection of software products for every locality, and some other problems.

Regarding the administration policies, Vietnam is actually in process to improve land administration policies, land administration procedures and processes, form sheets of reports and statistic records, forms of land use certificates and etc. Many of them change in short time periods and then this lead to permanent needs to update softwares to fit new policies. However, the absence of integrated investments and long term strategies leads to very large wastes of finances and efforts since many newly introduced softwares turn out to be outdated or even cannot be used in practical procedures.

3.4. Evaluation of the system of software technologies for application in cadastral databases

3.4.1. Evaluation of the actual status of human resources and equipment

The system of competent agencies which have functions to build up and to administer cadastral databases include the register offices for land use rights. The register offices for land use rights are established in cities/provinces, districts and towns. They, as public tertiary organizations, have functions to organize and to implement the registration and issuance of land use certificates, house possession rights and other land-bound asset possession rights, to record changes of land use, houses and other land-bound asset possession rights, to build up and to administer cadastral files in lines with legal regulations.

The actual status of human resources and equipment of register offices for land use rights at province and district levels over the whole country remain still lacking and weak, and they cannot meet needs of modernization of the land administration sector in Vietnam.

3.4.2. Evaluation of impacts from policies for application of software technologies for cadastral databases

a. Evaluation of positive impacts

The theoretical background for evaluation of positive impacts is the definition proposed by Vu Cao Dam, namely: *"Positive impacts of a policy are those impacts leading to the results which are in lines with the targets of the policy"* [3, p.21].

Actually there exist many software technology systems for cadastral databases which were produced by various software developers. Some of them can be listed here:

- Software ViLIS designed and introduced to use by *Land Administration Agency*;
- Software ELIS designed and introduced to use by *Information Technology Department*, Ministry of Resources and Environment;
- Software TVM.LIS designed and introduced to use by *Vietnam Resources and Environment General Company*, Ministry of Resources and Environment,

GIS platform technologies which were used for development of these software products come from various sources such as ArGIS (of ESRI, USA), MapInfo, AutoCAD and some others. These database administration systems use Oracle, SQL Server, Access and etc… Actually some studies

were conducted for application of other open sources to build LIS which permit to save investment costs for platform technologies.

So, the policies to diversify the application of software technology systems for cadastral databases lead to mobilization of capacities of many organizations which participate in administration and operation of cadastral databases. This allows to get the maximal benefits from intellectual property rights regulations which permit the charge free use of open sources to build cadastral databases in conformity with practical conditions in Vietnam

b. Evaluation of negative impacts

The theoretical background for evaluation of negative impacts is the definition proposed by Vu Cao Dam, namely: *"Negative impacts of a policy are those impacts leading to the results which are not in lines with the targets of the policy"* [3, p.25].

The actual policies for application of software technology systems for cadastral databases exhibit some shortcomings. VLAP provides some evidences for this remark. In fact, VLAP is conducted as a pilot project in 9 cities/provinces and will be finished by June 2015. Some particular points of VLAP can be noted as follows:

- Appointment mechanism was applied to select participants for implementation of the project. So, the socialization mechanism which would offer equal participation opportunities for all competent software developers is not fully respected;
- VLAP uses only one existing software, namely ViLIS. This naturally excludes *Information Technology Department* and *Vietnam Resources and Environment General Company* from participation in the project. So, the full socialization of software technologies was not possible as required by the terms and conditions for World Bank supports.

In this situation, only 9 cities/provinces which participate in VLAP use the ViLIS software while all the remaining cities/provinces use the above noted 3 softwares. This gap obviously leads to the non-compatibility of cadastral databases of the 9 pilot cities/provinces and the remaining cities/provinces over the whole country.

From another side, there exist actually numerous softwares designed and operated by different agencies. The most important particularity is their non-compatibility[1] which may lead to conflicts of cadastral databases between local agencies.

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[1] For further reference, see: Doan Van Khoa. (2013) *Propose some solutions for policy of development of united, compatible software technology to serve establishing a cadatral database for modernization.* Journal Science and Technology Policies and Management, Vol. 1, No. 4, 2012, p. 101.

3.5. Conclusion

The survey and the evaluation of policies for software technologies of cadastral databases can provide the following remarks.

- Actual policies for application of software technologies for cadastral databases can meet partial requirements of diversification;
- No policies exist for building a system of indicators which would unify the existing cadastral databases.

The analysis of foreign experience and local practice shows that it is impossible to cancel the use of any software among the 3 softwares noted in Section 3.4.2. The cancellation, from one side, would lead to heavy wastes and disturb the land administration activities, and, from another side, would not allow the diversification and then lead to the monopoly situation in development of softwares.

Therefore the answer is highly expected for the question: "Which kind of policies is required for building a suitable system of indicators which would integrate the land data over the whole country?" The system would enhance the access of all the stakeholders to the land information service on basis of development of a complete system for land administration services which is capable of providing public, exact, full and in-time land information as well as to facilitate the land registration practice.

This is the problem put on the agenda for scientists and administration agencies.

REFERENCES

Vietnamese language:

1. Fichter J.H. (1974) *Sociology*. Translation by Tran Van Dinh. Second edition. Sai Gon: Hien dai Publishing House.
2. Vu Cao Dam. (2011) *Lectures of Science of Policies*. Hanoi: Hanoi National University Publishing House.
3. Vu Cao Dam (Chief Editor). (2011) *Skills of policy analysis and planning*. The document was edited upon the order by Legislature Research Institute, National Assembly Standing Committee. Hanoi: The gioi Publishing House.

English language:

4. Karikari I. B., Stillwell J., Carver S. (2002) *Geographic Information Systems Application to Support Land Administration Services in Ghana: Institutional Factors and Software Developments*. School of Geography, University of Leeds.
5. Bronder, Axel; Persson, Erik. (2013) *Design, Implementation and Evaluation of a Mobile GIS Solution for a Land Registration Project in Lesotho*. Master of Science Thesis in Geoinformatics, TRITA GIT EX 13-005, School of Architecture and the Built Environment, Royal Institute of Technology, Stockholm, Sweden.