

Land Administration Systems and Land Market Efficiency

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SUMMARY

Decision makers, investors, land developers, and users involved in land use issues are looking for consistency, clarity, transparency and accountability in valuation reporting. Theoretically, this can best be achieved through a reliable land valuation system that works within an efficient land administration system (LAS). The LAS is responsible for formulating an efficient land market (LM) which is needed to facilitate worldwide investment opportunities.

There is general agreement (World Bank studies, UN-ECE, 1996, Desoto H., 2000) that a nation's wealth is contained in its real estate markets. Efficient land markets (LM) can be formulated through a formal and efficient land administration system (LAS) (Molen P. and Osterberg T., 1999, pp.21- 22). The LM is supporting social stability and economic sustainable development (PA-LAMP, 2002, P. 87), hence, an efficient LAS is a prerequisite for building an efficient LM.

This can be seen by the following trends that are influencing economic development and social stability:

1. The recognition that sustainable land administration systems serve societies with effective sets of products and services (Enemark S. *et al*, 2009, P. 17). Hence, it is considered vital for resolving land conflicts concerning the ownership and use of the land, land settlement, land survey, and land registration (French N., 2004 p.533).
2. The globalization of real estate markets support the recognition that efficient land administration systems enhance the creation of efficient land markets (Enemark S. *et al*, 2009, P. 17), and facilitate the cross-border investment opportunities (Jones Lang LaSalle, 2006, p.1).

The paper will discuss LAS and its relation to LM. Efficiency in LAS and efficiency in LM will be introduced. It will be concluded with the role of LAS in determining LM efficiency.

How Land Administration Systems Determining Land Market Efficiency

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1. INTRODUCTION

Historically, the relationship between people and land is not stable, rather it is dynamic (Ting and Williamson, 1999) and continues to change as long as human beings live above the land. According to Lin (1979) and before the information revolution in the 1900s, this relationship has been classified into three stages:

- a. Land as a natural resource (primitive stage);
- b. Land as a combination of natural resource and labour (primitive society – agricultural society); and
- c. Land as a combination of natural resources, labour and capital (agricultural society – commercial and industrial society) (Lin, 1979, p.4 cited in WU GENG- DONE, 1988, p. 16).

According to the Western view of the changing humankind to land relationship, Ting and Williamson, 1999, p.2 and Ting, 2002, p. 39 explained that this relationship has been developed through four stages, namely:

- a. The Agricultural stage;
- b. The Industrial Revolution stage;
- c. The Population Boom stage; and
- d. The Information Revolution stage.

For the purpose of this paper, the classification by Ting and Williamson will be adopted.

The first stage, The Agriculture Revolution Stage, was up to the late 1700s.

During this stage the tribal people settled down and lived in agricultural based societies (WU GENG- DONE, 1988, p. 18). This tied them strongly and physically to land (Ian P. Williamson, 2001, p.4) not just because they saw the land as a pure natural resource that freely provided them with their instinctive needs (i.e. food and accommodation), but they also started to see it as the main source of wealth. Therefore, they were starting to use the land skillfully to obtain life supporting products (WU GENG- DONE, 1988, p. 18). At this stage the concept of land was expanded to encompass economic meaning (Johanson and Barlowe, 1954, p.2 cited in WU GENG- DONE, 1988, p. 19) and people started to like owning it.

Consequently the principles that regulate how people held land (land tenure) (Card et al, 1981, pp.461-2 cited in WU GENG- DONE, 1988, p. 19) and the concept of value attached to land emerged (WU GENG- DONE, 1988, p. 19).

The second stage, The Industrial Revolution Stage, was from late 1700s to WWII.

The industrial revolution in the 19th century had a significant impact on the humankind to land relationship, and became one of the main sources of capital (Ting and Williamson, 1999,

p.2). Societies were moving towards being industrially and commercially based (WU GENG- DONE, 1988, p. 21). Consequently, this situation broke the strong physical tie to land and turned it into more of a commodity (Ting and Williamson, 1999, p.2). This era introduced demand for fixed locations for factories followed by the movement of workers locating close to jobs. This environment, mobility of people, the rise of capital and commodification of land (Ian P. Williamson, 2001, p.4), gave breath to land markets.

The third stage, The Population Revolution Stage.

This stage was started after WWII and post war reconstruction (Ting and Williamson, 1999, p.2).

Rapid urbanization in the middle of the 19th century caused by industrialization and an increasing population “The Baby Boom Years”, increased the pressure on infrastructure by the share members of the urban population (Stuedler D., 2004, p.12). With this came the necessity of better control in the use of land – or land use planning.

The fourth stage, The Information Revolution, (The Sustainable Development and the Social Equity Stage), from 1980s onwards.

During the period from the 1950s to the mid 1980s, as described by Williamson and Ting (2000), the role of cadastre and the land information system was not widely understood, thus the concentration was either on the technical aspect of cadastral surveying and mapping or land reform issues. After the mid 1980s there continued to be an active interest in cadastral systems due to its central role in land administration infrastructures, thus the role of cadastral system in the broader context of LA started to be more widely understood. During the first part of the 1990s there has been an increasing focus on the broader role of LA with strong links to land valuation, land use planning and a focus on land market. The latter part of the 1990s saw a growing recognition of the need for LA systems to better address sustainable development priorities (Williamson and Ting, 2000, p.5).

'The information revolution has considerable potential to support society's evolving humankind – land relationship by providing information for decision makers that will enable them to make decisions favorable to sustainable development in the context of land administration and management' (Ting, 2002, p. 26).

This evolution of humankind to land relationship has affected the development of LA in general and its core component, the Cadastre, in particular. The next section aims to illustrate this affect, focusing on the cadastre system as the main component of LA system, and how this resulted in the emergence of land markets.

2. LAND ADMINISTRATION SYSTEM (LAS)

As a result of industrialisation, the strong human-land relationship was broken down and land lost its position as the primary asset for local revenue (Ting L., 2002). Farmers lost their jobs

on the land, and migrated to urban areas seeking a suitable chance to earn their living expenses. Urban areas became densely populated and as a result, the need for housing emerged and land demand increased. Hence, the need for exchange of land rights increased fuelling an increase in land prices.

It may be due to a lack of appropriate legal framework, together with adequate methods and techniques to produce acceptable valuations, that uncertainty and inefficiency in land issues, such as property rights (i.e. who owns what?) and land value (i.e. how much it cost?) increased. As a result, the need for institutional arrangements for recording and enforcing land issues emerged to help to reduce these uncertainties and inefficiencies. (Feder G. and Feeny D, 1991). Hence, the need for systems such as land registration, cadastral surveying and mapping, land use planning, land valuation, and land property laws to administer land issues became important (Ting, L. *et al.*, 1999).

It is generally agreed (Steudler D., 2004 p.7; and Larsson G., 1991 cited in Steudler 2004 p.7) that the earliest land records were established principally for tax purposes “*based on the principal that the land belongs to the ruler and those who cultivated his land have to pay taxes in form of rent*” (Dale and McLaughlin 1988 cited in Steudler 2004 p.8). Such records tended to consist of information about the land owner, the land area, the land use, the number of tenants, and the quantity and type of livestock (Steudler D., 2004 p.9).

Larsson G. (1991) pointed out that the Swedish Land Survey in the early 17th century initiated the establishment of maps to enhance the quality of taxation (Larsson G., 1991 cited in Steudler 2004 p.8). In the early 18th century, during the Napoleon period, the location of the land (the map) and its value were introduced to land records to facilitate tax collection (Steudler D., 2004 p.9). Consequently, Theresian Cadastre was introduced to enhance the quality of taxation by adding map information. Theresian Cadastre was the basis of the land registration system in central Europe (Bogaerts et al 2002 cited in Steudler 2004 p.8).

After the French revolution, a new land tax was introduced and was based on the size of properties and the nature of land use, in order to have an equitable land tax as possible (Kain and Baigent, 1992 cited in Steudler 2004 p.9). The French system focused on the land as the basis of all wealth and as property produces a continuous income, the revenue should be derived from taxing that wealth by taxing the land. By using maps all properties can be identified and recorded in a systematic way (Larsson G., 1991 cited in Steudler 2004 p.9). This approach became widely accepted as a model in other European countries (Steudler 2004 p.9).

Under the French model, the cadastre consisted of two main parts:

1. A verbal description (land registry), and
2. A map showing the location and boundaries of all land units.

The unique cadastral number of each land unit served as a link between map and description (Larsson G., 1991 cited in Steudler 2004 p.9). This technical link led to the development that the cadastre and the land registries are closely linked from an organizational side (Larsson G., 1991 cited in Steudler 2004 p.9). Because of the unique definitions, it also has been possible

to introduce systems of title registration with a high degree of security and reliability (Larsson G., 1991 cited in Steudler 2004 p.10).

After WWII, governments needed a system that would enable them to collect fair taxes depending on land as a fixed asset (Williamson I., and Wallace J., 2007). A new comprehensive concept that contained a legal, fiscal, technical, institutional, and land use planning framework called the "Land Administration System" was introduced (The UN-Economic Commission for Europe (UN-ECE), 1996).

UN-ECE introduced officially in 1996 the term 'Land Administration' (LA) to describe land related activities in a broad context and to include the whole cadastral issues (land registration, cadastral surveying and mapping, land use, and land valuation). The UN-ECE, (1996) define LA as "*the process of determining, recording, and disseminating information about the tenure, value and use of land when implementing land management policies. It is considered to include land registration, cadastral surveying and mapping, fiscal, legal and multi-purpose cadastral and land information systems*".

According to the definition, LA is a combination of systems involved in regulating the development and use of land, gathering revenue from land and resolving land conflicts. It involves settlement, surveying, registration, and valuation of land, as well as land use control and management, infrastructure and utilities management. It engages different disciplines such as engineering, economics, political and social sciences, law, and computer technology (Williamson I. *et al.* 2007). This comprehensive view of LA system (LAS) implies a coherent process that aims to determine, record, and disseminate information about the tenure, value and use of land (UN-ECE, 1996). Hence, LAS can be seen as an information system that plays a vital role in supporting social and economic development (Davies K. *et al.*, 2001, p.5) through its main aim in building an efficient land market (Enemark S. and Williamson I. 2003).

Societies became more complex and land became a commodity, hence property transfer rights that aim for profit within individuals and groups from other communities emerged (Gershon Feder, 1999, p. 3), and the need for formal rules, laws, and regulations that facilitate such transactions and govern property rights became urgent.

LAS is a comprehensive land information system (LIS) and was introduced as an acceptable tool for implementing rules, customs, and laws to secure tenure by providing more reliable land related information (e.g. buyer's-seller's land rights, challenges and encumbrances attached to the land, the location of boundaries, etc.) (FAO, 2007, pp. 1-4).

Formal LAS serve to reduce the asymmetric information, and this will enhance tenure security and increase land transaction certainty, hence incentives for national and international (cross-border) investments will be improved and this will aggregate the benefits to the society as a whole (Gershon Feder, 1999, p. 1).

The efficient land market is the cornerstone for economic and social development and can be formulated through the LAS (Molen P. and Osterberg T., 1999, pp.21- 22). Therefore, an

effective and reliable LAS is an important contributor to an efficient land market (Gershon Feder, 1999, p. 4) and provides an important element of the infrastructure for an efficient economy (FAO, 2007, p.1).

On the other hand, LAS is responsible for providing money formal lenders / credit markets (e.g. banks, business providing suppliers' credit) with necessary information concerning the borrower situation (e.g. the possessor of rights to transfer) (Gershon Feder, 1999, p. 4). Such information should assist in preventing formal lenders against the risks associated with money lending.

In an attempt to minimise these risks and related costs, lenders are employing various devices such as collateral (Gershon Feder, 1999, p. 4) and land is considered as a very suitable collateral asset for the following reasons:

1. It can not be removed (immovable);
2. Its economic potential (the value) can not be easily tampered; and
3. The lender can be assured that the borrower is the possessor of rights of transfer (Gershon Feder, 1999, p. 4).

It seems to be that the magic word in the collateral process is the value of the asset. If the value of the asset is not accurate, then it will not be reliable. This will put the formal money lenders in a risky situation that may lead to either inflation or deflation in the property market.

Hence, the absence of reliable LAS will have an adverse effect on the efficiency of a land market and consequently the economic and social development (Gershon Feder, 1999, p. 4).

2.1 Cadastre System

Although the original meaning of the term "Cadastre" was not clear for Steudler, he pointed out that the cadastre system was established as the basis for land taxation (Steudler D., 2004 p.8). For Henssen the term 'Cadastre' implies the governmental control of land classification and land valuation (Henssen, 1991). Larsson was not so far from Henssen stating that the term 'Cadastre' is a land record that contains land value and land ownership supported by maps (Larsson, 1991). The International Federation of Surveyors (FIG), (1995) introduced a comprehensive meaning for the term 'Cadastre'. FIG defined cadastre as *"a parcel based, and up-to-date land information system containing a record of interests in land (e.g. rights, restrictions and responsibilities). It usually includes a geometric description of land parcels linked to other records describing the nature of the interests, the ownership or control of those interests, and often the value of the parcel and its improvements. It may be established for fiscal purposes (conveyancing), to assist in the management of land and land use (e.g. for planning and other administrative purposes), and enables sustainable development and environment protection (FIG, 1995)".*

The Cadastre is an official record of information about land parcels, including details of the boundaries, tenure, use and value. It provides information identifying those people who have interests in parcels of land; information about those interests (e.g. nature and duration of

rights, restrictions, and responsibilities); and information about the parcels (e.g. their location, size, improvements, value) (FIG Statement on the Cadastre, 1995, p.2).

Originally, the cadastral system had two main components; land registration and cadastral mapping. They were mainly established to serve two purposes "fiscal" records as the basis for the full and accurate taxation of land for the benefits of the public sector, and "legal" records to serve as registers of ownership and other land rights for the benefit of the private sector (Larsson, 1991, p.15).

Cadastral systems were mainly in the hand of the state (i.e. in Jordan it is under the department of lands and survey which is under the ministry of finance) and some of them (e.g. cadastral surveying) carried by the private sector (i.e. the case of Jordan). Data produced by Cadastral system used to facilitate land management, producing base maps, assessing property value, and land use planning (Kaufmann J. and Steudler D., 1998, p. 4).

Alongside the evolution of the humankind-land relationship, the cadastral role has evolved through the historical stages from serving fiscal purposes to enabling sustainable development. Pre the industrial revolution, the cadastral system's role was to publicly record ownership (Juridical Cadastre) as well as for fiscal purposes (Fiscal Cadastre) (Steudler D., 2004, p.7). During the industrial revolution and as a result of the increase in the mobility of people, the rise of capital, and commodification of land, the role of the cadastral system took a new trend as a tool to support land transfer and land markets (Ting and Williamson, 1999, p.2). Thus institutional and legal responses started to appear in Western Europe (i.e. The Torrens System in the UK in the 19th century) (Ian P. Williamson, 2001, p.4). As a result of the population boom, the emergence of high-density housing, and the increasing pressure on the infrastructure in the urban areas during the post-war reconstruction stage, the application of cadastre as a fiscal tool and land transfer tool was expanded to encompass the land use planning issues (Ting, 2002, p. 42). During the sustainable development stage, and due to the development of societies, real property transaction became important, and the role of the cadastre became greater. Hence, traditional cadastral systems became unable to provide efficient, cost effective, and reliable information about the legal situation of land and services (Kaufmann J. and Steudler D., 1998, p. 36). Thus, LA in general and cadastre systems in particular should take a more integrated role than in the past (Ian P. Williamson, 2001, p.18) to replace the previous isolated traditional structures that supported individual economic or taxation imperatives in the past (Williamson and Ting, 2000, p.5) and to be able to provide efficient and reliable land information to help to build an efficient LM.

From here came the widening interest in LA systems and particularly the cadastral component. This interest in cadastre led to the Bogor Meeting to develop, to some extent, a global document setting out the desirable requirements and options for cadastral systems. This meeting resulted in the Bogor Declaration in 1996 which leads to better understanding and describing of the cadastral reform.

Bogor Declaration as a cadastre vision of the future was presented in Bangkok in 1997 successfully and leads to organize a global workshop (Bathurst workshop) to give a broader

view of land administration. This workshop resulted in the Bathurst Declaration that introduces a model to re-engineering land administration systems (LAS).

The Bathurst Declaration led to the FIG report on future cadastral system (Cadastre 2014) in the context of Agenda 21 which determined a broad vision and set of guidelines for sustainable cadastral structures and systems to support land management and LASs to ensure sustainable development and environmental management.

The work of the meeting of MOLA and the resulting LA Guidelines in 1996 (Land Administration Guidelines, UN-ECE, 1996) recognized the shift from cadastral systems to LA systems taking into consideration that any initiatives that were primarily focused on improving the operation of land markets had to take a broader perspective to include land use planning and land valuation. Consequently, LV became a part of LAS that helps to improve the operation of LMs. As a result, MOLA adopted the term "Land Administration" instead of "Cadastre" (Ian P. Williamson, 2001, p.7).

2.2 Cadastre (or LAS) and Land Tenure

"Land tenure is concerned with the (three Rs (RRR) Williamson et al.(2009) rights, restrictions, and responsibilities people have with respect to land" and it is seen as the basis of economic activity (FIG Statement on the Cadastre, 1995, p.5).

The stream of benefits and the degree of certainty associated with any type of investment activity (e.g. farming, residential) are the main incentives of undertaking such investment. Since humankind settled down in society form, they have recognized the importance of reducing the uncertainty concerning these benefits. As a result customs, unwritten rules and legislation (i.e. customary tenure) specifying the allocation of land rights emerged (Gershon Feder, 1999, p. 2).

Communities were less complex, they were cohesive and its institutions and rules were generally accepted as reflecting the interest of the group, therefore, information was certain and quite symmetric. In such a situation property rights' disputes are less likely while each part (individual or organisation) in the society know their rights and responsibilities. Hence, the registration and titling of land was, to some extent, not necessary (Gershon Feder, 1999, p. 2).

As societies became larger and many other groups are introduced into these societies, then it becomes less cohesive and the information becomes uncertain and asymmetric and property right's disputes became more likely. Hence, formal rules and laws (institutions) that regulate LM and govern property rights transfer, provide security of tenure and accurate systems that can introduce uniformity across a large geographical phase, enabling the protection of rights evolved, are needed. LASs - as a tool that focuses on improving the operation of LM and enacted to secure tenure through implementing rules, customs, and laws- was introduced as an acceptable solution. Through implementation, a more formal LAS, *"security of tenure is enhanced, and incentives for investment are improved, allowing a grater productivity of the*

land resource" (Gershon Feder, 1999, p. 3) and this may help land markets operating efficiently.

2.3 Land Market

It is agreed (Ting L. 2002; Steudler D. 2004; Wallace J. 2007; Williamson et al., 2009) that LAS aims to build LM, hence, although, *"the concept of buying and selling land and the use rights over it is an ancient one"* (Ting L., 2002, p.84), LM formulated through LAS. The industrial revolution signing the turning role of land into more of a commodity (Ting L. et al, 1999, p.6; Ting L, 2002, p.18) and gave new birth to land markets (Ting L., 2002, p.39). Hence, LAS is the prerequisite and the basis for the operation of formal LM (ibid, p. 140), therefore, *"Creating and managing dynamic LMs are the most common reasons why governments invest in LAS"* (Williamson et al, 2009, p 137).

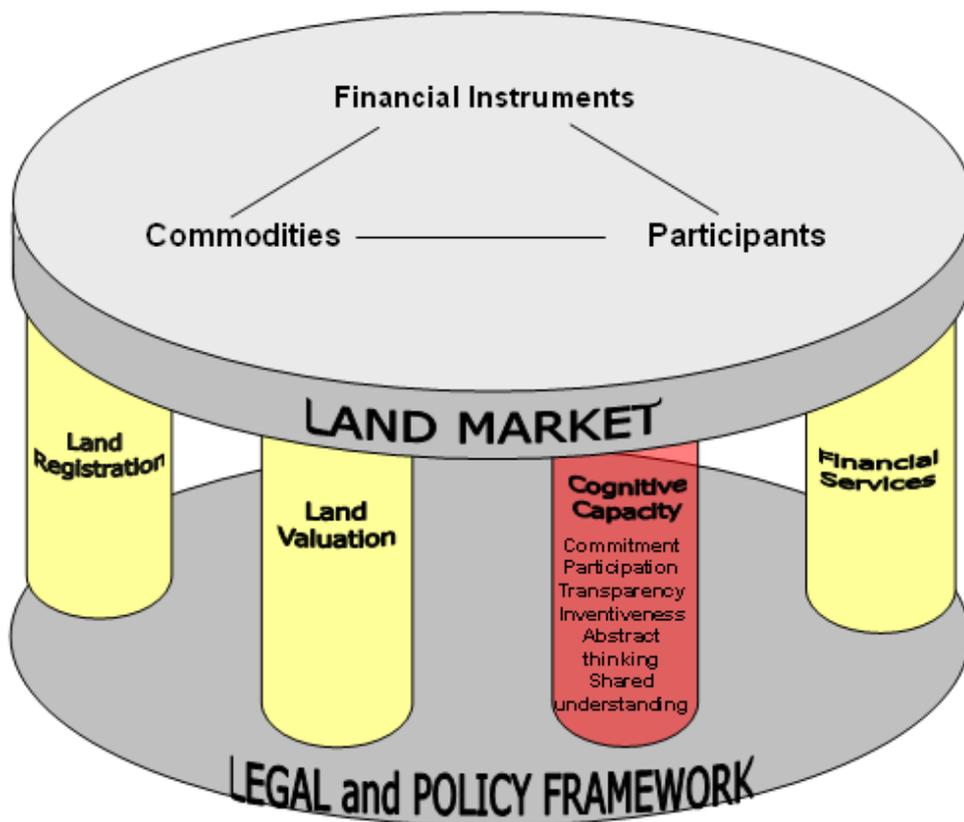
The importance of LMs comes from its role in generating wealthier, more stable economies, more opportunities to members, and, if it operates efficiently, feeding into the delivery of sustainable development. Hence it became a goal of governments in developed and some developing countries and international agencies to have efficient land markets to help in building successful economies (Wallase J. and Williamson I., 2004, p.1). It is obvious that the traditional notion of land markets comes from the economic point of view that treats the land itself as a commodity and focuses on activities such as buying, selling, leasing, developing, using capital, raising credit (mainly the physical aspect).

In a modern context of LMs and as a result of the complex human being to land relationship, land market became a business and forced land administrators to rethink about it in terms of its role in providing sustainable development. Wallace J. (2009) introduces a new idea to land markets *"converting intangible assets (land rights) into tradable commodities"*. This idea *"consists of two main aspects, the tangible aspect (the physical aspect) and the hidden aspect which exist in peoples' mind (the cognitive aspect) (Wallace J., 2009). He argues that "this cognitive aspect is in fact far more important than the tangible aspects of land in any community in that it delivers the capacity to use land to accelerate wealth" while the tangible one "restrict the development of land markets" (Wallace J., 2009, p.2).*

During the 1990s, economists, land administrators, scholars, and researchers found, by controlling the market through different land administration projects world wide, that the technical part (physical or tangible) alone failed to deliver effective land markets and economic development (Williamson I. and Wallace J. 2007, p.5), and *"the 'one size fits to all' approach of titling individual as owners in a registration program was abandoned for more acceptable approaches"* (Deininger K., 2003 cited in Williamson et al, 2009, p. 148) *"Failed titling programs are reported to have: allowed wealthier and more powerful groups to acquire rights at the expense of the poor, displaced or female land occupiers (Bingswagner and others 1993; Lastaria-Cornhiel 1997; Platteau 2000; Toulmin and Quan 2000); increased conflict by imposing simplistic legal systems on complex interrelationships (Fitzpatrick 1997; Toulmin and Quan 2000);and increased insecurity by overlaying formal institutional arrangements with informal arrangements (Bruce 1998a; McAuslan 1998,*

Platteau 1996; Toulmin and others 2002)" (Dalrymple 2006 quoted in Williamson I. and Wallace J. 2007, p. 6). That enhanced the economists' effort to convince that there should be more concentration on the cognitive aspect (Williamson et al, 2009, p.148). As a result of a great deal of effort a new pillar "The Cognitive Capacity" was introduced to The Three Pillar Model of Land Markets that has been developed by Baldwin R. and Dale P. in 2000, Figure below.

Introducing the cognitive concept to LM will expand LM environment from including traditional elements (*"the participants (land owners and tenants); the goods and services (the land and its use); and the financial instruments (mortgages, credit, capital financing, etc)"*) (Baldwin R. and Dale P., 2000, p.6), to include the cognitive aspect which is the participants' way of thinking towards land.



Cognitive capacity in land markets (WALLACE J., 2009, p.14)

Globally, two types of LM are existing: formal and informal. 40 out of 227 world nations run effective LM and 30 of them, the United Kingdom and the United States among them, are members in the Convention on the Organization of Economic Co-operation and Development (OECD) (Williamson and Wallace, 2007, p.2; Williamson et al, 2009, pp.138-139). Although the informal type is the obvious, both types need an administrative system and established rules to deal with it (Williamson et al, 2009, p 138).

In terms of efficiency LMs need to be formal to operate effectively. This requires, in addition to the essential activities needed for operating LM (*"invent diverse land based commodities; perfect capacity to use land as a security; and manage a huge increase in the scale of land trading"* (Williamson et al, 2009, p 157)) either formal or informal, that participants understand that the traded commodities have an intangible nature. As participants understand this idea, and once appropriate LAS framework is established, then *"the capacity to create new commodities out of land is open-ended, limited only by human imagination and capacity to invent appropriate administrative structures"* (ibid, p. 157).

Baldwin and Dale (2000, p.6) pointed out that LM elements (the participants, the goods and services, the financial instruments, and the cognitive) should be functioning efficiently in order for LM to operate smoothly and formally and to provide a dynamic environment but not guaranteeing efficiency for LM. Then what does guarantee efficiency in LMs? Is LAS responsible for guaranteeing this efficiency? If yes, then what is determining this efficiency? The next section will try to answer these questions or at least to shed light upon it.

3. EFFICIENCY OF LAND ADMINISTRATION SYSTEM

Efficiency is an old expression that is normally used in an industrial context. In different contexts the term "efficient" has several definitions. Generally it means *"productive with minimum waste of effort"*; and efficiency means *"the state or quality of being efficient"* (Oxford Dictionary, 2007). In economic context, efficiency means *"the maximum average output per employee"*. In engineering, the term efficiency means *"the ratio of foot-pounds of work realized to the foot-pounds of energy consumed by a given mechanical system"*. The efficiency of an engine is *"the proportion which the energy permanently transformed to a useful form by it bears to the whole energy communicated to the working substance"*. In competitive conditions, *"the lower the cost per unit of output, without sacrifice of quality, in relation to the value or price of the finished article, the greater the economic efficiency of the productive organisation"* (Oxford Dictionary, 1989, PP. 83-84).

Although the term "efficiency" has several definitions, they are all around the idea of how to produce a high quality product at low cost and in a reasonably short time to meet the customer's satisfaction.

If the main aim of LAS is to build an efficient land market, what does efficiency mean in LAS?

Many authors (Gershon Feder, 1999; Williamson, I.P., 2000; Andrea's Ossko, 2004; Chriss Lunnay, 2005; Paul Van Der Molen, 2006; FAO, 2007; FIG, 2008; Christiaan, 2009; Grover, 2009) have written about efficiency in LAS. They have identified different factors (i.e. standardizing, computerizing, procedures simplifying, institutionalizing, etc.), describing how and what LAS should have to be efficient. They identify some principles (i.e. improving land access, less legal restrictions, educated labour, etc.), that by implementing them, LA and then

land market efficiency can be achieved. According to them, one can impose a long list of measures and standards that lead to efficiency in LAS.

Van Oosterom et al, (2006:3) in their work " ASPECT OF A 4D CADASTRE: A FIRST EXPLORATION" that aims for establishing a strong and sustained basis for efficient and effective cadastral system and to have a common language within involved parties nationally and internationally, pointed out that through standardizing LA services, transaction procedures will be reduced, information will be more accessible, and the illegal transactions can be controlled. FAO (2007:43) agreed with Van and stated that without standardizing LA services, inefficiency can develop and this will create opportunities for corruption. FIG took the initiative to transfer the land administration services into ISO standards. It is very interesting in preparing international standards for LA services. ISO 19152 standards on the Land Administration Domain Model grow out of the FIG/Commission 7 in 2008. These standards will be ready as international standards in June 2011 (Christiaan, L. et al, 2009, p.1).

FAO (2007:22-23) stresses that computerizing LA services will enhance access to land records and reduce the ability of corrupt practices, which this will "improve the quality of services". Deininger, K. (2007:4) pointed out that by automating LA services, such as registration procedures and land valuation system; access to land information will improved, this will result in cuts in time and cost, and reduce the chance for corruption. Tony Burns (2008:12-13) agreed with FAO and Deininger and argues that computerization, as a complementary tool, may help in achieving efficiency in LAS. That will help in keeping the flows of these processes and facilitate public access to information and improve storage and sharing of data.

Chriss L. (2005:11); World Bank Doing Business (2005) (cited in Dorman C., 2006:3 and cited in Molen, P. 2006:6); FAO (2007:47); Deininger (2007:3-4); Grover R. (2009:19) agreed that the way to efficiency in LAS is to simplify the LA procedures. This can be achieved through minimising the number of procedures, the time, and cost that is needed to register property rights.

From another point of view, many authors (Andra's O. 2004:3-4; Keith B. 2006:11; FAO 2007:33-35; Deininger K. 2007:4; Rexford A. 2009:7-9; Grover R. 2009:20) pointed out that LA services, to be efficient, need operators that can take decisions and judgments, therefore, these services must be professionalized. They stated that this can be reached through capacity building to have knowledgeable staff.

Others like UN-ECE (1996:60); Augustinns C. and Deininger K. (2005:7); Deininger (2005:15); Chris L. (2005:8); Greenway I. (2009:4-9); Grover R. (2009:22-23) see that efficient institutional structures support the LA functions and help meet the needs of its efficiency.

Different authors such as Gershon F. (1999:3); Andrea's Ossko (2004:4); Burmanje D. (2005:8); Molen, P. (2006:6); Grover R. (2009:6); Doing Business in 2005 (2005:3); Bell K.

(2006:8); Davies K. et al. (2001:5-6) agreed that without legal and regulatory framework to enable enforcement of rules and regulations that allow the performance of the LA systems (structures and services), efficiency in LAS cannot be reached.

Decentralization of LAS issues is one of the main prerequisites to meet efficiency in LAS, as Augustinns and Deininger 2005; Deininger K. 2007; Chris L. 2005; Molen P. 2006 stated. Transparency as well was another measure of efficiency in LAS as Bell K. 2006; Chriss L. 2005; and Ahene R. 2009 argued.

On the other hand, Ahene R. 2009 saw that for an efficient and corrupt free LAS, rehabilitation and modernization of the existing LAS operations should be taking place.

Grover R, 2009; Deininger K., 2007; Burns T., 2008 agreed that good governance is the magic point that must be achieved to meet efficiency in LAS.

From his point of view Deininger K., 2007:3 saw that decentralized transaction based on secure land rights will restrict the undesirable side effects in LAS and will enhance its efficiency. Deininger put remarks to improve efficiency in LAS as follows:'

- Document land rights at an appropriate level, by recording these rights in an up-to-date records in a cost effective way.
- Increase accessibility and transparency of land administration, by using modern technology (i.e. internet) and partnerships with the private sector.
- Make land administration financially self-sustaining, independent from political pressure, with the ability to charge the customers the amount that they are willing to pay.
- Eliminate institutional fragmentation, which enables effective monitoring of the service delivery to be able to ensure the availability of the needed services and to compare standards of service delivery.
- Invest in capacity building and regulate the role of other actors.'

According to Bell K. 2006:4 non transparency and corruption leads to inefficient LAS. On the other hand, Burmanje D. 2005:9 argues that to enhance efficiency in LAS, land registration and cadastre should function within one single organisation (*i.e. the case of Jordan*). Moreover, she added that to have good LAS the following should be in place:'

- A strong legal framework that can enhance the concept of security land tenure.
- Easy regulations for the land market to facilitate rights' transfer procedures and having as low a cost as possible.
- Appropriate mechanism to protect the rights of the third parties concerning urban and rural land use planning, therefore, knowing who owns what and where is vital.
- A comprehensive land data base that can provide knowledge about taxable persons, taxable objects and land values.

Lunnay C. 2006: 2 saw that efficiency in LAS means the following:

- Simple and cheap regulatory framework.
- Good land recording systems.
- Simple legislation and single regulatory framework.
- Tenure security and public confidence.

- Very limited social disputes over land.
- Sustainable land resource use.
- High level of technology, high skill level of staff, and access to technology.

Enemark, S. *et al.* 2003 stated that there are benefits arising from efficient LAS through their role in guaranteeing ownership, security of tenure and real estate loans (i.e. mortgages); facilitating efficient land transfer and the operation of land markets; supporting management of assets; and providing basic information on the processes of physical planning, land development and environmental control in order to reduce land disputes; facilitate rural land reform; and protect State lands.

According to the above, transferring land rights simply, quickly, securely and at low cost means that the implemented LAS is a successful one and working efficiently (UN-ECE 1996 and Williamson I.P. 2001). Similarly, Steudler argues that LAS efficiency means carrying out the transaction in a reasonable short time and at low costs (Steudler, 2004).

4. LAND MARKET EFFICIENCY (LME)

Both academic and professional research attempts to put an acceptable and clear evaluation of the quality of property market efficiency (Arvanitidis P., 2006, p.2), but it (the property market) still *"lacks many of the characteristics needed for the existence of an efficient market"* (Grover R., 2009, p.1).

Referring to the concerned literature, one can differentiate between two approaches of LME: the conventional approach and the institutional approach. Within the conventional approach there are two distinct perspectives. One focuses on "the allocative or Pareto efficiency" of the market, and the other focuses on "the informational efficiency" or "efficient market hypothesis (EMH)" developed by Fama (1970). Within the institutional approaches there are also two distinct views. One depends on the institutional interpretation of the property market "the bounded efficiency" introduced by Keogh and D'Arcy (1999), and the other is "the property market purpose efficiency" developed by Arvanitidis P. (2006).

Within the conventional approach, the allocative efficiency has the idea of using the resources in a best way to maximize the output. To achieve this, this approach presupposes that there is enough competition and the market is in equilibrium stage, this means that there are: A large number of rational actors; Homogeneous products; Freedom of entry and exit; and Perfect information (Arvanitidis P., 2006, p. 3).

As information is costly, asymmetrically distributed, and is difficult to assess its value, it is imperfect and participants enter the market with a lack of knowledge, therefore, it (information) is considered as the market failure (ibid, p.3; Keogh and D'Arcy, 1999, p.3).

Information is regarded necessary to achieve allocative efficiency (Fama, 1970); hence a new concept of informational efficiency, generally known as efficient market hypothesis (EMH), was developed by Fama (1970) to examine efficiency in financial market (Keogh and D'Arcy, 1999, p.4; Arvanitidis P., 2006, p.3).

Within this approach the emphasis is on the informational – processing efficiency. At the core of it *"lays the proposition that there will be a knowable and determinant price established in an efficient market. This price ... must be 'meaningful' , in terms of value representation, and should serve as an effective measure of value, capturing all relevant information available to the market at a given point in time"*(Keogh and D'Arcy, 1999, p.4). This means that *"the market can be said to be efficient if the price reflects all that is known about a commodity"* (Grover R., 2009, p.4).

The EMH is categorized into three forms: Weak form efficiency existing in markets that have past price information but this information does not enable stakeholders to build a clear vision about future price changes depending on it. Semi-strong efficiency existing in markets that in which stakeholders can build a clear vision about future events depending on the publicly available information. Strong form efficiency existing in markets is where all stakeholders can access all information whether publicly available or not (Keogh and D'Arcy (1999, p.4); Arvanitidis P. (2006, p.3) and Grover R. (2009, pp. 4-5)).

EMH introduced to examine efficiency in financial markets. Keogh and D'Arcy (1999) stressed that because the property market differs from the financial market in terms of high information costs, infrequency in trade, dispersed markets and heterogeneity of product, inefficiency is expected in property market. Hence, they stressed that the EMH is a poor explanation of market outcomes (Keogh and D'Arcy, 1999, p.4), and it is limited to provide efficiency to land market and therefore, suggest that *"a more realistic and grounded model of market efficiency"* is needed (Keogh and D'Arcy, 1999, p.6).

In their attempt to provide a *"more realistic and grounded model"* for assessing market efficiency, an institutional concept that takes into account the process through which the market operates, Keogh and D'Arcy introduced in 1994, 1996 the notion of "bounded efficiency". This notion depends on the idea of having a theoretical form of feasible institutional and organizational constraints, and then the market efficiency can be measured in terms of the divergence from what is theoretically possible (Keogh and D'Arcy, 1999, p.8; Arvanitidis P., 2006, p.5).

In 1999, Keogh and D'Arcy introduced the notion of "adaptive efficiency" as a modification of the "bounded efficiency" concept. The notion of "adaptive efficiency", which is initially developed by North (1990), is concerned with the efficiency of the process of institutional change. This means that the market can be seen efficient if because of the institutional change, the market became able to eliminate transaction costs and provide an environment of economic growth (Keogh and D'Arcy, 1999, p.8; Arvanitidis P., 2006, p.6). Arvanitidis P. (2006) pointed out that this notion is depending on North's idea of achieving economic efficiency over time, hence, he argues that this is a general concept which remains largely underdeveloped and presents operational difficulties (Arvanitidis P., 2006, p.6).

Paschalis A. Arvanitidis (2006) criticizes the notion of "bounded efficiency". He argues that although this succeeded in elaborating the idea of institutional environment with all the constraints that it imposes on the efficient of the market, but it (bounded efficiency):

- *"Failed to give specific methodological directions to show the empirical forms that such an institutionalised judgment of market efficiency would take;*
- *It is merged between economic terms (efficiency) and constraining attributes of market operation (social, cultural and political institutions);*
- *It asserts that, instead of seeking a judgment on whether the 'property market' as an entity is efficient, the assessment of market efficiency should be constructed with reference to 'efficiency for a purpose', or 'efficiency for a person'. However an explicit value, welfare or focus criterion to support this judgment is missing from the approach" (Arvanitidis P., 2006, p.5).*

Alongside the institutional notion in assessing market efficiency, Van der Krabben (1995) introduced the concepts of "allocative" and "productive" efficiency (ibid, p.5). As Arvanitidis P. (2006) explained, the "allocative" one deals with the outcomes of the development process, and based on the value criterion set up by the public policy to reflect social considerations, this notion stress that efficiency (optimality) attained when

- there is sufficient supply at relatively stable property prices, and
- property rights are socially acceptable and equally distributed.

The "productive" notion is concerned with the way these outcomes are provided (the process). This notion is based on the profitability of the property producers. LM efficiency can be attained depending on issues of their organisational structure, behaviour and strategies. According to Arvanitidis P. (2006), the conventional measures of efficiency in the property market have different deficiencies. Pareto efficiency is ambiguous because of its multiple optimality. The EMH is inconclusive because it focuses on informational efficiency and excludes the treatment of the operational and allocative aspects. Moreover, it doesn't take into consideration the transaction cost and information deficiencies. Any test of EMH is a joint test with market equilibrium. This creates a number of problems in terms of interpretation of the results and the inability to provide definite measures of the degree of market efficiency, even in the context of financial markets (Arvanitidis P., 2006, p.4).

Moreover he argues that *"these notions (the institutional notions) remain too close to the traditional perception of efficiency and they are basically static in nature and practically neglect the institutional character of the property market"* (Arvanitidis P., 2006, p.5).

According to Paschalis A. Arvanitidis (2006), although *"the concept of property market efficiency is poorly developed and inadequately theorized"* institutionalist *"have provided useful insight"* (ibid, p.6). The institutional notion has the idea of "instead of studying the property market efficiency as a whole" the efficiency assessment should be "for a purpose" or "for a person". Depending on this, Arvanitidis P. (2006) introduced the notion of "property market purpose efficiency" (Arvanitidis P., 2006, p.1). The notion implies that the property market should be serviceability, credible commitment to generate economic development and to promote sufficient competitiveness by providing those property outcomes that the economy requires. Therefore, an efficient property market is expected to deliver a sufficient supply of property to meet requirements at the prevailing price level by allocating the optimal resources to institutionalized variety given the level of uncertainty which the wider institutional environment carries (ibid, p.6). In that sense, *"time-lags in property*

development; erratic market behaviour; and lack of necessary information" are indicators of purpose inefficiency (ibid, p.7).

The notion of purpose efficiency, as Arvanitidis P. (2006) explained it, depending on the idea that macroeconomic arises from variety and diversity at the micro level. Referring to this, two theoretical devices have been developed: institutional uncertainty and institutionalized variety. Institutional uncertainty resembles macroeconomic and deals with the wider institutional arrangements. It reflects how effectively the socioeconomy adapts to the external pressures ("*the effects on a third party*" (Grover R. 2009, p. 17)); resolves internal conflicts, and provides a secure economic environment.

Institutionalized variety resembles microeconomic and evaluates particular institutions. It deals with diversity and plurality in institutions, organizations, and products. If the market is able to match institutionalized variety to the level of institutional uncertainty exhibited by the wider institutional environment, then the property market is purposely efficient. This situation, according to Arvanitidis P. (2006), will provide the market with the necessary "*flexibility, diversity, and manoeuvrability without compromising the overall institutional certainty and stability*" (ibid, p.19).

5. CONCLUSION

According to the above discussion and to answer the question of what is guaranteeing efficiency in LMs, and if LAS is responsible in guaranteeing LM efficiency, it is obvious that efficiency is not a static concept that can be put in a receipt form; it remains for some time, an area of challenging debate. However, efficiency in LM is heavily dependent on information which is the main product of LAS. This means that LAS may have a direct responsibility on LME.

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