# The Role of Reliable Land Valuation Systems in Land Management and Land Administration Systems Efficiency

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## SUMMARY

The worldwide rapid change in land markets and the massive real estate market development in the Middle East region, specifically in Jordan, make it necessary to introduce reliable and efficient land related systems to support land management and land administration (LM/LA) systems.

The UN-Economic Commission for Europe (UN-ECE) introduced officially in 1996 the term Land Administration. This term includes a range of issues related to land such as regulations, use, conservation, collecting revenues through land sales, leasing, taxation, and property development (Dale and Mclaughlin, 1999).

Land valuation (LV), is one of the main components of LM/LA systems and plays a vital role in supporting these systems. It is the basis of negotiation between buyers and sellers, for land rent, land taxation, compensation, mortgages, secured borrowing, future investment, land use planning, and identifying the value of an organization's assets.

Recession in property markets in different countries around the world (e.g. UK 1980s, Japan 1990s, Germany 1994, and USA 2007) is a clear evidence of the importance of LV systems and show how it may LM\LA systems affect.

As valuers assess the value at a particular time, their assessment must to some extent be subjective; therefore, the assessment's reliability is always open to question (Edge, 2002).
This paper will discuss the meaning of reliability in general and in a land valuation context. It will introduce land valuation as a complete process with inputs and outputs. The importance of land valuation system reliability, the causes of unreliability, the relation of LV systems to LM/LA systems, and the role of the reliable LV systems in LM\LA system efficiency will be discussed.

The paper concludes with a definition of reliability in land valuation in respect to the three main axes that this reliability depends on: the availability and accessibility of accurate data, the availability of qualified and knowledgeable valuers, and the existence of an efficient legal framework to regulate valuation practice.

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## 1. INTRODUCTION

The main aim of the valuation process is to reach a point (value) about which stakeholders feel sufficiently confident to take decisions in uncertain.

Stakeholders, investors, buyers, sellers, land developers and others interested in land issues need to have accurate, reliable, and credible valuations to rely on when making decisions about real estate assets. Edge (2002) argues that investors, regulators, and users of valuations require consistency, clarity, reliability and transparency in valuation reporting worldwide.

In the mid-eighteenth century, agriculture productivity was introduced as a new consideration in formulating a new theory of value. Since agriculture productivity was introduced as the source of wealth instead of gold, land was cited as the fundamental production agent. Concepts were also introduced to determine the value (Gelbtuch *et al*. 1997).

The term value has different meanings depending upon the institutional environment and arrangements and the context of usage. For example in Jordan, valuers deal with valuations whereas appraiser undertake appraisal. The same situation is in the UK, whilst in the US appraisers (Sayce *et al*. 2006) undertake both. However, as the human-land relationship has been changed, value in real estate is commonly perceived as the anticipation of benefits to be obtained in the future. Although value does not equal worth (Mackmin and Emary, 2000; Edge, 2002), value represents the monetary trading value of property, goods, or services, and it changes over time (Edge, 2002).

Property has its importance in the economy as a resource for the business and social community and as a home for investment funds (Sayce *et al*. 2006). Therefore, effective investment strategy needs to estimate the investment value of properties and understand the local pricing method (Downie, 1995).

As valuer assesses the value at a particular time, hence his assessment must be subjective; therefore, its reliability is always in question (Edge, 2002).

This paper aims to identify the meaning of reliability in land valuation. It will explore the meaning of reliability in a general context, and then in the land valuation context. The importance of reliability and the causes of unreliability will be discussed and the relation between reliable land valuation and land administration efficiency will be discussed. The paper will conclude with a definition of reliability in land valuation systems.

## 2. THE MEANING OF RELIABILITY IN GENERAL CONTEXT

In everyday language, the word reliable used to define one characteristic of a machine, a system, a product, and or even a person in the meaning of trustworthy or dependable. The term 'reliability' has a strong connection to the term 'quality' and they cannot exist separately (Robertson, 1971).

In dictionary, the term "Reliable" has different meanings, such as Credible, dependable, certain, responsible, safe, sure, trusty, stable, etc. (Collins Dictionary & Thesaurus, 2006).
It is widely agreed (Gunes, and Deveci, 2002; Tan, 2003; Kuei and Madu, 2003; and Gamini, 2004; Madu, 2005; Braglia et al, 2007) that reliability is a key to the survival of any organisation, system, and process and its continuity competitiveness. Reliability and quality are strongly connected to the extend that they are *intertwined* (Madu expression); therefore, any unreliable organisation, system and process cannot produce a competitive product with high quality.

In a managerial and technical context, the term reliability used to identify the quality of the product, meaning to what extent it is able to function as is intended under all service conditions. E. Chiodo et al (2004) stated that system reliability is a functional relationship between system components (mechanical, information, and human). In the same way Jacob V. Simons Jr. (2004) argued that each system consists of number of components related to each other and the overall system reliability depends on the reliability of each individual component. A weakness in any of these components will affect the whole system. For the product to be reliable, all individual components must be fully evaluated under all service conditions. Any failure of any one component (e.g. 99% manufactured well and 1% fail) will cause product failure (C.S. Smith, 1969). However, the reliability of the whole system can rely on a very small component. Hence, all components must be 100% reliable and some of them may be duplicated to increase the safety factor for example in Flight Work System.
In this context, Robertson argues that "*reliability depends on teamwork and the combined efforts of specification writers, designers, quality engineers, reliability engineers, production and test departments, and the use*" (A.G. Robertson, 1971, P.138).

In research, the term reliability means consistency of measurement results if it is repeated over and over again. Trochim (2006) argues that we cannot compute reliability because we cannot calculate the variance of the True scores. Therefore, for a perfectly reliable measure reliability will equal 1.0; and for perfect unreliability the reliability will equal 0.0. Trochim differentiates between four different classes of reliability estimates

- − *Inter-Rater or Inter-Observer Reliability*
- − *Used to assess the degree to which different observers give consistent estimates of the same phenomenon.*
- − *Test-Retest Reliability*
- − *Used to assess the consistency of a measure from one time to another.*
- − *Parallel-Forms Reliability*

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- *Used to assess the consistency of the results of two tests constructed in the same way from the same content domain.*
- ***Internal-Consistency Reliability***
- *Used to assess the consistency of results across items within a test*

In statistics, reliability means that every observer should give a consistent estimate of the same phenomenon. In that a measure of the text to which information obtained from the classification process via different data sources, or from similar data sources generated at different points in time, produces consistent results (Peter ELIAS, 1997). This idea supports the first case of Trochim's classification of reliability estimate, the ***Inter-Rater or Inter-Observer Reliability.***

From the previous discussion, it is agreed that reliability is no doubt important for the survival of organisations, systems and processes. Moreover, the product or service to be reliable it should be measurable, repeatable, and consistent during all manufacturing stages, under different conditions, and by different observers. But, what does it mean in land valuation and land valuation system?

## 3. THE MEANING OF RELIABILITY IN LAND VALUATION CONTEXT

Valuation is an economic concept and is the process of estimating the likely market price of a property if it is sold (Issac D. and Steley T., 1999; Johanson T.A. *et al*. 2000). Joslin sees it is as *a snapshot in time* (Joslin A., 2005, p. 269).

Land valuation is a system with several components that depends on different processes. A great deal of literature exists connecting the reliability of valuation (the output) to the certainty of one of three main factors: Firstly the valuer (Boykin J. 2001), valuer behaviour (Havard T. 2000, 2001), and valuer skills and knowledge (Johanson T.A. et al, 2000) as the responsible person for deciding the last value; secondly, data efficiency (Issac D. and Steley T. 1999), data reliability (Jonathan A. *et al*. 2006) and information availability (Joslin A. 2005); and thirdly, valuation methods (Issac D. and Steley T. 1999; Johanson T.A. *et al*. 2000; Sopon, P., 2006; IVSC, 2007).

Mallinson (1994) in his response to the general criticism after the property crash in the UK of the late 1980s stresses in his report that effectively regulated framework is necessery for valuers to achieve valuation credibility. He added that reliability depends on the use of appropriate valuation bases (Market Value, Market Rent, Depreciated Replacement Coast, and Value of Plant and Machinary to the business (see French N. 2003)) with supporting evidence and accurate and consistent results (Parland C. *et al*. 2000).

Similar to Mallinson; Pomerleono, M. (2002), Herring, R. and Wachter, S. (2002) argue that quality of valuations is an important factor in banking and financial crises.

Scarrett, Mallinson, Crosby, French, Havard, and Gabrielli are just a few of the authors that agree that differences between valuers' opinions is normal and will arise even if the valuers

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are highly qualified and implement best and well understood valuation methodologies. Moreover, they agreed that any valuation estimate will contain a percentage of uncertainty. However in order to minimise the variability between values, valuation professional bodies, the RICS Red Book; the IVSC; the USPAP; Malaysian Valuation Standards, argue that valuers should have a certain level of qualification and good experience in order to be able to quantify any change in the market circumstances. In addition, the valuer-client relationship must be such Mallinson (1994) that valuer should make sure that his client understands and can benefit from the advice given to him concerning valuation.

After market recession in the USA, Germany, Japan, and the UK, these countries and many others (e.g. the Philippines, Malaysia, and Sweden) have realized that judgments are based on evidence (Millinson, 1994) and accurate and reliable valuations depend upon access to good quality data (Rowley S. *et al*. 1996). Therefore, a land data bank system is needed to obtain accurate comparables, which are the cornerstone of the market valuation, as they are perceived to be the most reliable evidence (Millinson, 1994; Crosby, N. and Matysiak, G., 2002). Consequently, the sales comparison approach is considered to be most reliable way to estimate land value, but the choice of method is based upon what data is available and to what extent it is reliable and useful in producing a value estimate (Ganesh, P. Shivakoti, 2005)?

Issac, D. and Steley, T. (1999) argue that it is not easy to use the traditional valuation methods in properties such as shopping centres, office buildings or over-rented ones as they are inflexible, so alternative approaches are needed. They add that one of the main causes of the German property market collapse in 1994 was the poor of valuation methods. Johnson T.A. et al (2000) to some extend agreed with Issac and Steley and state that to reach an accurate valuation, the selection of valuation methods is important.

In his attempt to draw a road map of valuation infrastructure in developing countries Sopons (2006) asked specific questions to number of international leaders in valuation profession (for the list of leaders see Sopon, P. 2006 Appendix I). Sopons concluded that methodology of valuation is one of the main factors that is needed for a sound infrastructure of valuation profession (Sopon P. 2006).

One of the main resources of the valuation process is the human valuer. The valuer is a human being with his own character traits influenced by culture, behaviour, needs, convictions, precepts, tendencies, and so on, and as there are no two persons have the same way of thinking and of interpreting the available information. Therefore, it is normal that each valuer has his own interpretation of the status subject to be valued. Differences could arise even between professionals using accurate data and implementing modern methodologies.

Although the valuer is one of the most important factors that enhance system reliability, the valuer *"exists as a conduit through which the* available *information can flow"* (Brown 1985a, 1985b cited in Keogh, G. and D'Arcy, E., 1999: p. 2405). Therefore, he must not considered as a superman, but rather he is an interpreter to what is already exists and must not take the whole issue alone on his own shoulders (Joslin, A., 2005).

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If it is possible to see the community as the human body in the meaning that any defect in one of its parts will affect the whole body adversely. Valuation reliability should be considered as an institutional responsibility (subject to formal and informal constraints) that supports the institutional economics which leads to community welfare.

Before going further in discussing reliability in land valuation system, it is worth noticing that Gunes, M. and Deveci, I. (2002); and Gamini, G., (2004), have discussed reliability in the service process in their articles "Reliability of Service Systems and an Application in Student Office" and " Measuring Reliability of Service Systems using failure rates: variations and extensions" respectively. They conclude that although the human factor is important, customer expectations and perception of reliability are more important than service accuracy. It is the service process reliability that must be modified to meet customer performance requirements.

To date the emphasis in the literature has been on the reliability and certainty of some of the process components separately. The reliability of the land valuation system as a whole process (input-process-output) has generally not been discussed.

Land valuation system reliability can be realized by making sure that the inputs, constraints, and resources of the land valuation process are reliable. Hence who have written about land valuation reliability issues have discussed the importance of some of the process components separately without considering the reliability of the valuation process as a whole as institutional concept. None of the previous studies have attempted to define precisely what is it about the reliability of the whole process as one of the main bases of institutional economics. However, that issue is the central to this study.

Land valuation is one part of the whole land administration system that contains the land valuation system, land registration, land use planning, and land information systems (Dale & Mclaughlin, 1999)).

Land valuation system has its own process to approach to the value. This process affected by three main axes, the first is the inputs (legal title (legal rights), legal use, and legal location), the second is the constraints (valuation laws and regulations, valuation measure standards, code of conduct, and methodologies), and the third is the resources (human resources, and information resources) to produce the value.

From the total quality management (TQM) point of view the "*process is the transformation of a set of inputs into outputs that satisfy customer needs and expectations in the form of products, information, or services*" (John S. Oakland, 2004: p.16).

Inputs in valuation process are not as the row materials in the manufacturing process. It is some thing that contributes to adding value. Therefore, in land valuation the process is something that adds value. This process effected by constraints and resources, figure (1)

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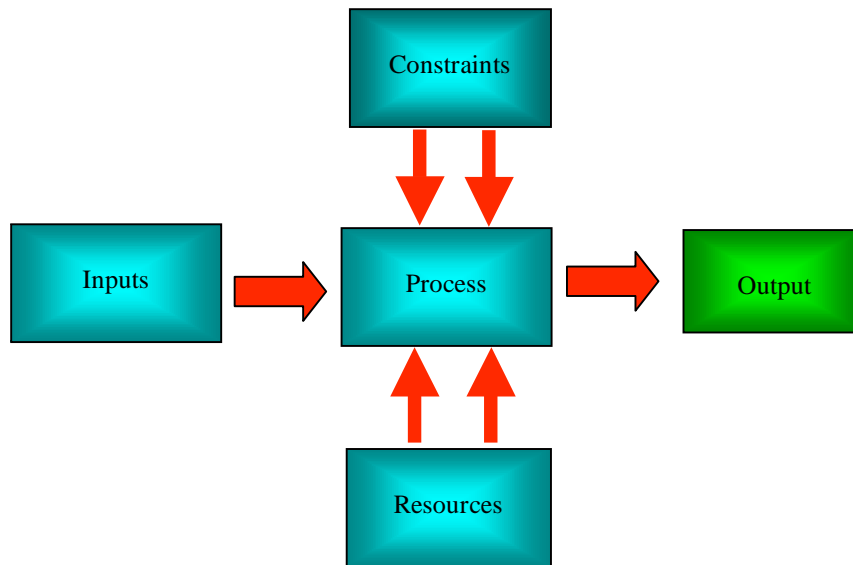Stockholm, Sweden 14-19 June 2008

**Figure 1:** Inputs, constraints, resources and output relation to land valuation process

French argues that to obtain un-risky outputs (valuation), inputs (*the comparable information* (French, N., Gabrielli, L., 2004: p. 485)) should be certain. While these input uncertainties will translate into uncertainty with the output figure, the valuation (ibid).
Thus to obtain reliable and risk-free outputs (valuation), the following should be reliable.

1. Juridical;
2. Regulatory; and
3. Information and human.

In this study context juridical means to have:

1. Legal Title. That implies the existence of a confidential land registration system to ensure tenure security and different kinds of related legal rights;
2. Legal Land Use. This implies the existence of town planning strategy in the meaning of obtaining clear investment vision; and
3. Legal Location. Which means the existence of a comprehensive legal boundaries system.

Regulatory are the set of constraints within which the valuation process must operate, that means to have:

**1.** Valuation laws and regulations;
**2.** A comprehensive set of valuation measurement standards;
**3.** highe valuation ethical standards; and
**4.** Clear valuation methodologies.

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Information and Human, which are the main resources in the valuation process, means to have:

1. Information. This implies the existence of a credible land data bank system; and
2. Human (valuer), which means to have a qualified, knowledgeable, honest and integrity, responsible, trustworthy person. This implies the existence of specialised academic body and coherent professional body to produce such a person.

The land valuation system contains multiple data analysis processes, in which the output of one process is the input into the next process, to produce a market value. In the total quality process, the output of one part of the system is the input of another part. Therefore, comparable value as the output of a previous valuation process will be the input of the next valuation process. Unless the previous valuation process was reliable, its output will not be reliable and can not be used to obtain un-risky output as reliable evidence even if it *flows freely* (Mallinson expression).Thus, for valuation to be reliable, the whole valuation system, the set of inputs, constraints, and resources and the transformation of theses inputs, should be reliable.

## 4. THE IMPORTANCE OF VALUATION RELIABILITY

Why is valuation reliability important? And for whom is it important?
In different fields of our life, the concept of reliability has been accepted and used for a long time. In the past, consumers used to rely and trust the brand name. However, with the global information revolution customers became more curious about how reliable these equipments are.

Electronical, mechanical, structural designs (streets, bridges), different kind of engines, frames (airframes, ship frames), military equipments, space technology, civil aviation, economic strategies, and many other different kinds of products must be reliability agreed to be acceptable in the modern global competitive market to fit to the never ending customer needs change and satisfaction.

With the semi globalization of real estate markets and its related techniques, both national and international stakeholders seek transparent, accountable, efficient, certain, reliable and sufficient land administration systems to facilitate *cross-border investment opportunities* (Jones Lang LaSalle, 2006: p.1).

John A.Edge (2002) indicates that real estate as an asset can contribute to wealth if a trusted opinion (reliable) of value, as one of the prerequisites, is in place. With the same meaning Gorver, R. argues that owning real estate property is an indicator of wealth and /or income, therefore many governments depends on it as an attractive fixed source of tax revenue (Grover R. 2008).

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The sales comparison approach is considered as the most reliable way to estimate land value. For this estimation to be accurate and reliable depends upon access to good quality data (Steven Rowley et al, 1996). Therefore, the existence of land data bank system that consists of reliable land valuation database is a necessity to obtain accurate comparables, which are the cornerstone of the market valuation (Mallinson, 1994; Crosby, N. and Matysiak, G., 2002).

In real estate practices "*land and real property can be mortgaged according to its estimated market value and can create new capital that can be further invested either for housing and real property improvement purposes or for any other activities both for the benefit of the owner and for the general economic development of society*" (Chryssy A. Potsiou, 2006: p. 119). The valuer bases his estimate of value upon basic economic principals (e.g. Substitution, Supply and Demand, anticipation, and conformity) and many other contributing factors (e.g. physical, legal, social, and economical) that are considered as the foundation of valuation process (Ted Gwartney *et al.* 1999). This implies that land valuation system reliability will enhance land administration efficiency.

Moreover, it is obvious that reliable land valuation system will contribute to reducing risk in financial decisions. Investors, bankers, land use planners, land developers, decision makers, long-term and short-term strategy planners need to rely on reliable land valuation.

Although setting up reliability standards is very costly and there are running costs (repairing, maintaining, training, auditing, etc.) as well, which can be reduced by spending money on reliability studies during the design, development, and quality control stages (A.G. Robertson, 1971), the overall benefits for society, economic development, and human welfare exceed these costs.

By contrast, unreliability increases costs, wasted time, level of risk, mistrust and disputes between actors which will affect the national security and sustainable development.

## 5. CAUSES OF UNRELIABILITY

Generally speaking, the absence of integrated land policy that contains efficient land administration system (land registration system, land use planning, land information, and land valuation system) which depend upon an accurate land information system, is the main cause of unreliability.

Lack of transparency in the real estate market is another factor. Jones Lang LaSalle, (2006) identifies transparency in real estate market as follows:

- − "*Any open and clearly organized real estate market;*
- − *Operating in a legal and regulatory framework;*
- − *Characterized by a consistent approach of the enforcement of rules and regulations;*
- − *Respects private property rights;*

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- *Implementing the ethical and professional standards of private sector advisors, agents, and brokers who are licensed to conduct business* (real estate) *in each country*" (Jones Lang LaSalle, 2006: p. 3).

In addition, it is widely agreed (Mallinson 1994, Carsberg 2002, French, N. 2003, Gilbertson, B. and Preston D., 2005) that the absence of academic training to produce qualified, knowledgeable, and responsible, values able to act independently and objectively is another important factor.

## 6. THE RELATION OF RELIABILITY IN LAND VALUATION SYSTEM TO LAND ADMINISTRATION SYSTEM EFFICIENCY

The basic unit of land valuation system is the land parcel. To determine a land valuation, different factors (legal, physical, social, economical, environmental, etc.) must be considered and it is found (FIG congress, 2006) that the choice of these factors affects the reliability of the value.

Land valuation systems provide control on land administration systems. Good land use planning, productive land development strategies, beneficial housing strategies, sustained economic strategies, good environmental planning, etc. depend upon the existence of reliable land valuation system. Therefore, land administration systems should contain a wide range of accurate data and information to enhance achieving effective and consistent decision-making process in land management issues to maintain sustainable development (Chryssy A. Potsiou, 2006).

In fact, a reliable land valuation can support decision makers, in the private and public sectors, in all kinds of land reforms. It provides more transparency in the valuation decision; reduced public expenditures (e.g. expropriation for public works), reduced land disputes in general (between private actors themselves, between the state and other land market participants), facilitate land market developments, reduced corruption, increased land related investments that lead to sustainable national economic development.

## 7. CONCLUSIONS AND DEFINITION

What needs to be done is the responsibility of society, private and public sectors. An aggregate institutional change is needed.

It is not only the valuer who needs to be responsible and possessing of high standards of ethics and morality when dealing with the customer. As the valuer is an interpreter of data that already exists, the supplier, the customer and the market are also responsible to provide the valuer with accurate information and not to ask the valuer to change the reality for their own benefits.

The private sector is to some extent playing the role of agent between the customer and the public sector. The private sector is sharing with the public sector the burden of introducing the

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infrastructure of economic development and community welfare. Accurate and comprehensive high professional standards, higher ethical standards, a strong educational system and a reliable data bank system should be provided and maintained in a consistent manner by the private sector.

The public sector is the more responsible one. A comprehensive institutional framework should exist. The public sector has the power of enforcement of rules and regulations, therefore, are responsible for setting strong legal and regulatory frameworks that is needed for administering and monitoring the real estate market. Financial performance, real estate tax procedures, building and zoning codes, land use planning, land registration systems, title records, access and availability of land information are needed to enhance the existence of objective market evidence.

It is clear that "*in market valuations the greater the proportion of the figure which derives from objective market evidence and the smaller the proportion from the valuer's own judgement the greater will be the accuracy of the valuation*" (Fraser, 1984, cited in S. Rowley *et al*. 1998).

Depending on the previous discussion, a reliable land valuation system can be defined as a *system that is based on certain land information used by professionally honest, qualified and skilled persons who have appropriate experience and knowledge of the property market and are operating within an effective regulated framework to give accurate and consistent information*.

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