AENSI Journals

Australian Journal of Basic and Applied Sciences

ISSN:1991-8178

Journal home page: www.ajbasweb.com

Sustainability Issues of Illegal Land Subdivision Development in Asian Cities in the Content of the BEQUEST Framework

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ARTICLE INFO

Article history:
Received 2 March 2014
Received in revised form
13 May 2014
Accepted 28 May 2014
Available online 13 June 2014

Keywords:
Illegal land subdivision; legalization; sustainable urban development; sustainability; the BEQUEST framework; official attitude.

ABSTRACT

In spite of providing housing to a large section of city population, illegal land subdivision is a critical issue facing sustainable urban development in Asia. Regularization of the settlements developed through illegal land subdivision, has become a repeated action by authorities, but rarely reached its goals of legalising the existing settlements and preventing more illegal land subdivision. The subdivision is still taking place around Asian cities producing more settlements that lack basic services and amenities and expected to continue in the future. Analysing illegal land subdivision in Asian cities in the content of the BEQUEST framework reveals a wide range of sustainability issues. Natural resources, environmental pollution and land use are the main dimensions of the environmental issues. Economic issues are related to production, building stock, utilities and finance. Access, safety and security and health and wellbeing are the subject of the social issues. Institutional issues are related to ethical system. Most of the issues have long term effect at the city level.

To Cite This Article: Zakaria Alcheikh Mahmoud Awad, Noor Rosly Hanif, Anuar Bin Alias, Aniza Abdul Aziz, Muhammad Azzam Ismail., Sustainability Issues of Illegal Land Subdivision Development in Asian Cities in the Content of the BEQUEST Framework. ***Aust. J. Basic & Appl. Sci.,*** *8(9): 96-106, 2014*

INTRODUCTION

Illegal settlements are one of the main features of urbanisation not only in the developing countries but also in some parts of Europe. They have come into existence as a response to increasing demand for housing in urban areas, particularly by poor people, which could not be met by formal housing channels (UN HABITAT, 2009). A significant portion of urban population resides in illegal housing. It is estimated that 23% of the world's urban population lived in illegal areas in 2003. The residents of illegal housing constituted 78% of the population in Sub-Saharan Africa and 39% in Latin America (Devisari and Andrew, 2010). In Asia, it is estimated that in 2005, illegal settlements in Eastern Asia, Southern Asia, South-Eastern Asia and Western Asia housed 36.5, 42.9, 27.5 and 24 per cent of urban population respectively (UN HABITAT, 2009). Illegal housing development is still going on till today in Asia and other parts of the world. It is expected to continue in the future. According to the Executive Director UN-Habitat, cited in (Wekasa *et al*, 2011), the number of the residents of illegal settlements is likely to triple by the year 2050 if proper and urgent measures are not taken. There are mainly two types of illegal settlements: squatting and illegal land subdivision. While squatting dominated illegal urban development up to the 1980s, illegal land subdivision has gained the dominance since then (A. Mahmoud, 1999).

In illegal land subdivision, land, mainly agriculture, is illegally subdivided into plots for housing with full ignorance of official procedures and regulations. The plots are sold out to customers outside the legal system. The purchasers build up their house without official permission and with no respect to official requirements, standards and by-laws. The illegal features of the settlements developed through illegal land subdivision block the way to direct access to governmental public services and facilities (A. Mahmoud, 1999).

Since the second half of the 1980s, legalisation of the settlements developed through illegal land subdivision has become a repeated action with the same objectives every time by urban authorities in several places in Asia. Preventing the development of new areas through illegal land subdivision and legalizing the existing ones are the declared legalisation objectives. Studies such as (A. Mahmoud, 1999), (A. Mahmoud, 2002), (UN HABITAT, 2009), (Goulden, 2011), (Charlotte & Stéphanie, 2013) and others show that old

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components and practices of legalisation by local urban authorities in Asia have almost not changed overtime. Further, the legalisation rarely reached the declared goals. Legalisation of illegal land subdivision areas could be completed only in a very few cases in Asian cities. This resulted in the existence of settlements that are considered legal while they still lack services and suffer from various critical illegal issues such as land ownership (A. Mahmoud, 2002). In addition, the illegal subdivision is still taking place around Asian cities producing more settlements that lack basic services and amenities and expected to continue in the future (UN HABITAT, 2009). This situation increases the difficulties that are facing local authorities in their growing efforts to make urban development more sustainable.

Better understanding of the present situation is an essential step towards making the development more sustainable (Curwell *et al*, 2005). Analysing sustainable issues of illegal land subdivision development in Asian cities by this paper in the light of the BEQUEST framework contents is meant to help in better understanding of the situation resulted from illegal land subdivision and to contribute to the efforts of dealing with this type of development in a more sustainable manner.

Sustainable Urban Development: The BEQUEST Framework:

Sustainability is a concept that revolves around re-defining the relationship between human development and natural environment in such a way that intergenerational justice is approached. After more than three decades of the appearance of the concept no consensus yet has been reached on the way of redefining this relationship. Therefore, debates still exist on meaning and goals of, and on approaches towards sustainable development (Curwell *et al*, 2012).

This concept found its way into various development branches in a relatively short period of time. Sustainability of urban development has emerged as a corner stone for the efforts towards the broader context of sustainability (UN HABITAT, 2009; Lin-Yen *et al*, 2011).

Since 1992, the year of Agenda 21, worldwide extensive efforts have been made to make sustainability of urban development workable. Terms and notions were worked on. Conferences were organized such as U.N. Earth Summit 1992, Habitat Conference 1996, Nanning International Conference on Sustainable Urban Development, China 2005, Green Buildings, Green Cities, green Europe, The Future of Sustainable Urban Development, Brussels 2011. Models were set up, indicators and even criteria to assess the indicators were worked out and working-groups were formed. Ooi (2009) however, finds the definitions of sustainable urban development impractical and do not provide solid background to prepare developmental programs. Curwell *et al* (2005) find that the models whether individual or together do not describe adequately sustainable urban development.

In the mid of 1990s, an international network of experts known as the BEQUEST, (Building Environmental Quality Evaluation for sustainability Through Time) was set up to explore sustainable urban development realization. The network produced what has become known as a tool-kit. The tool-kit contains a vision, framework, directory of assessment methods and set of protocols. The framework provides an analytical tool to those concerned with sustainable urban development to understand the context they work in and consequently to make appropriate sustainability initiatives. It relates urban development activities, sustainability issues (environmental, economic, social and institutional) to their spatial levels and time scales (Fig. 1.). Due to its potentiality of surfacing sustainability issues and identifying gaps in sustainability understanding between stakeholders, the framework was used by other research groups and projects such as the European Green Building Forum and in Construction and city Related Sustainability Indicators project (CRISP) (Curwell *et al*, 2005).

It is clear from Figure 1 that using the BEQUEST framework requires defining the stages/activities of the development. The following section defines the development stages of illegal land subdivision in Asian cities.

Illegal Land Subdivision Development Stages:

Defining the development stages of illegal land subdivision and their main features in Asian cities in this paper is based on analyzing relevant literature on ten Asian Cities. Three are from south East Asia. They are Surabaya from Indonesia, Manila from the Philippines and Bangkok from Thailand. Three are from south Asia. They are Hyderabad from Pakistan, New Delhi and Hyderabad, the two Indian cities. The remaining four are from west Asia. They are Amman from Jordan, Istanbul from Turkey and Damascus and Homs, the two Syrian cities. The analysis shows that the illegal land subdivision in all the cities has almost followed the same scenario and has got very similar general features. There are however, specialties for each area. The development activities of illegal land subdivision in Asian cities can be grouped into four stages: preliminary planning, land subdivision, planning (services provision and legalisation). The main features of these stages are discussed in the following.

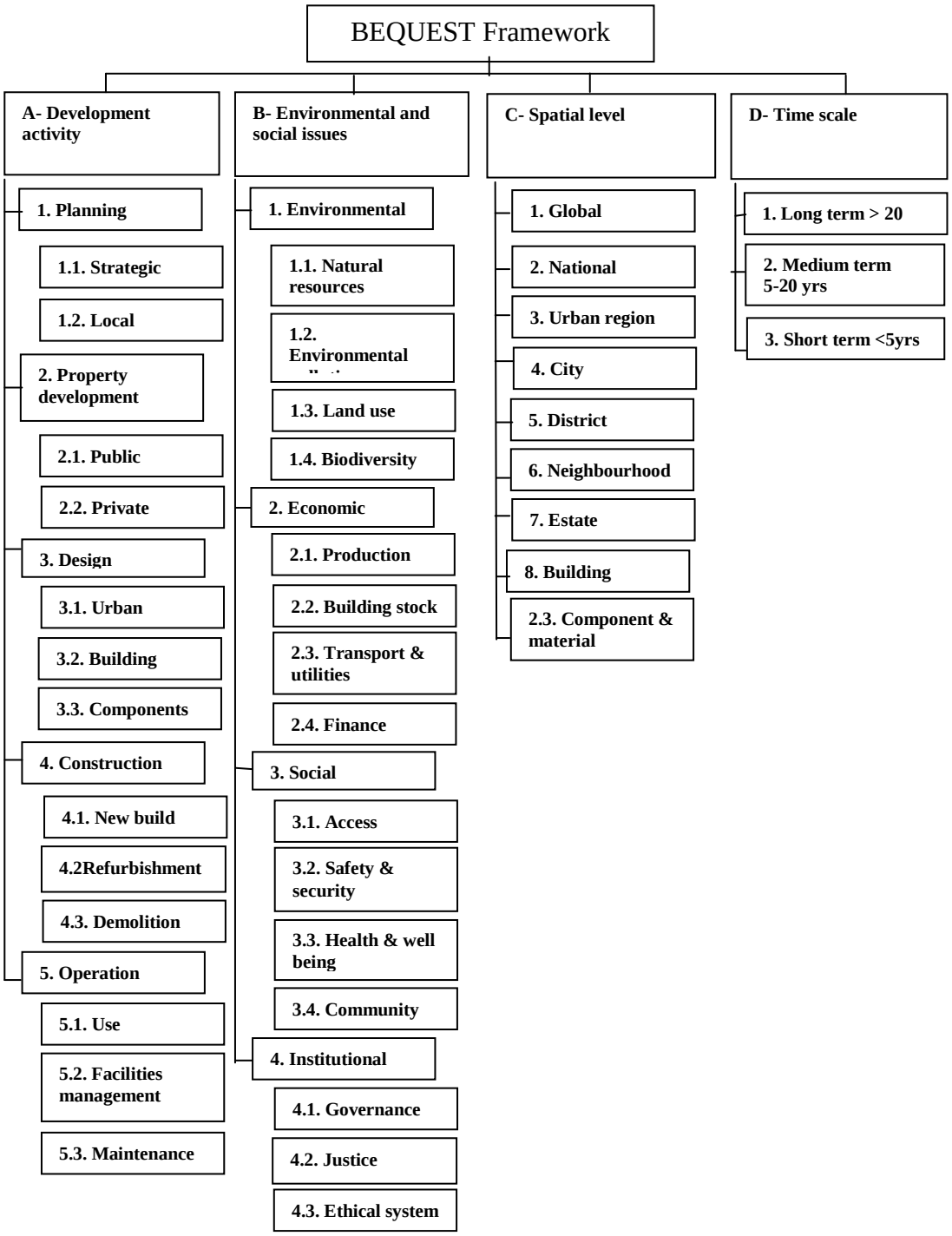

Fig. 1: The BEQUEST framework.
Source: (Curwell *et al*, 2005. p.34.).

Preliminary Planning: Targeted lands are agricultural, vulnerable to natural hazards and sites that are aimed for development:

Illegal land subdivision starts when land owners or sub-dividers put agricultural land, mainly located in the city peripheries, illegally for sale for housing development. In some cases, the illegal subdivision targets land which is not suitable for human habitation. Nayani (1987) reported that many illegal land subdivision schemes in Hyderabad, India, came up on water logged areas and on slopes of hillocks. In Bangkok, this type of development took place on areas that were subjected to annual flood and land near dump sites (Pronchokchai and Thandanit, 1990). Damascus, the Syria city, represents an example where the illegal subdivision of land was, in several cases, carried out on sites near highways and landfill sites and on sites threatened by earthquakes

(Goulden, 2011) and landslides (A. Mahmoud, 1999). In other cases, the illegal subdivision consumed land allocated by local master plans for urban development. Such cases were reported from Homs and Damascus the two Syrian Cities (Goulden, 2011) and from Karachi the Pakistani city (Hassan, 1992; Pervasi *et al*, 2008).

Wide range of seekers:

Rural immigrants to urban areas were, for decades, the main seekers of the illegally subdivided plots. People from formal areas of the cities have joined the land seekers of the illegally subdivided land since 1990s. A. Mahmoud (1999) reported that for various reasons, some residents of formal areas in the two cities of Damascus, Syria and Delhi, India, have become involved in the illegal land subdivision in search for housing. Some left their old houses in the old town and others were newly formed families who could not find housing through the formal housing channels. The illegally subdivided land seekers are not all low income. Wide range of income people have become involved in seeking plots that are produced through the illegal subdivision. This is reported from Damascus (Goulden, 2011) and Homs, Syria (A. Mahmoud, 1999), Karachi, Pakistan (Hassan, 1992) and from Surabaya, Indonesia (Silas, 1990); (Devisari & Andrew, 2010).

Simple activities:

Payne, (1989) in his review on illegal land subdivision in developing countries found that in general, illegal land subdivision schemes in Asian cities and other developing countries do not have pre-prepared plans. The selection of the plot by the buyers in those schemes is done on the site. Planning activities almost limited to defining the main roads. This is supported by evidences from Istanbul (Aise, 2006), Surabaya, Indonesia (Subadyo, 2007) and from Delhi, Damascus and Homs. There are cases however, where the sub-dividers in the last decade or so depend increasingly on professionals for preparing plans for their schemes. Such cases remain limited in number and scale (A. Mahmoud, 1999).

Ignorance of regulations and standards:

Planning regulations and standards are ignored in the illegal land subdivision in Asian cities. No land is allocated for public facilities such as schools, health care and open spaces. These facts found by Payne (1989) in the cities of Asia and other developing countries. They are supported by evidences from Hyderabad, India (Nayani, 1987), Karachi (Hassan, 1992), Amman from Jordan, Homs, Damascus from Syria (A. Mahmoud, 1999) and Istanbul the Turkish city (Aise, 2006).

Land Subdivision:

Quick procedures:

The process of land subdivision is simple and quick. It provides the client with a quick access to a plot of land for which the client is in an urgent need. The size of the plot is defined by the buyer and governed by his affordability. No official permission is sought for the land subdivision and sale. Wide range of plot area from too small plots to large ones is reported from various places in Asian cities (A. Mahmoud, 1999; Payne, 1989).

Illegal land-right transfer:

Property right is in general conveyed to the buyer through power of attorney which takes the form of illegal sale contract. It provides land rights the same way the formal contract does. It has been reported from Hyderabad, India (Nayani, 1987), Delhi (Anthony, J, 1990). Damascus and Homs, Syria (A. Mahmoud, 1999; Goulden, 2011), Istanbul, Turkey (Aise, 1987), Surabaya, Indonesia (Silas, 1990) and Amman, Jordan (Erbach, 1990) that the contracts between buyers and sellers in illegal land subdivision are endorsed by two witnesses and registered in the presence of a notary public. The contract however is not, recognized by financial institutions (A. Mahmoud, 1999; Goulden, 2011; Payne, 1989).

Absence of public utilities:

In general, no public utilities such as electricity, sewerage system and water are provided prior to the illegal subdivision and sale of land. There are however, some cases where the developer provides some services at the initial stage of the subdivision scheme. This is reported by (Pronchokchai and Thandanit, 1990) in their study on Bangkok where the developer was a private company.

Wide range of actors:

In addition to land owners/ sub-dividers and the buyers, there are government officials and local police who overlook the illegal activities instead of combating them. The overlooking comes as a result of illegal payment to the officials. This is specially reported from Karachi, Pakistan (Hassan, 1992; Pervasi *et al*, 2008) Delhi, India, Homs and Damascus, Syria (A. Mahmoud, 1999).

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Housing:

Incremental house construction:

After buying the plot in the illegal land subdivision scheme, the buyer constructs the house without official permission and with no regards to building bylaws. The house construction generally takes place in an incremental manner. A part of the house, usually one room and toilet, is firstly constructed and occupied. More parts such as rooms, kitchen etc. are added to the house whenever the financial conditions of the owner of the plot help. The house completion takes usually long time. The incremental housing development approach in illegal land subdivision was reported from Homs and Damascus and Delhi (A. Mahmoud, 1999) Surabaya and other Indonesian cities (Devisari & Andrew, 2010), Amman, Jordan (Erbach, 1990), Istanbul, Turkey (Aise, 2006), Hyderabad, India (Nayani, 1987) and Hyderabad, Pakistan (Pervasi *et al*, 2008). The incremental type of development enables the settlers to meet their urgent need for shelter in a relatively short period of time. It also distributes the cost of the house over many years.

Hired labourers usually carry out the works. However, family members may contribute to the construction works. Building materials are generally permanent. Official permission for house construction and by-laws are ignored. The design of the house is generally carried out by the residents. As a result, design mistakes such as rooms without ventilation and inappropriate location of bathroom, toilet and kitchen, are usually made. In addition, structural mistakes are common (A. Mahmoud, 1999; Payne, 1989).

Threat of demolition:

The construction works of the shelter are threatened by official reaction which usually takes the form of demolition. The threat however, decreases after occupying the constructed part of the house. There are laws in several places in Asia where the eviction cannot be carried out unless other shelter is provided by the authorities to the evicted family. Settler's strategy to avoid this threat during the house construction is to carry out the construction activities on weekends and public holidays. This leaves them with no other option but to quickly construct that part required for occupying the house. Consequently, the shelter may suffer from some technical structural issues. Other option to avoid demolition is to pay bribe to local police and officials. This is widely reported from different parts of Asia. After occupying the shelter, the main concern of the residents is geared towards improving the house, seeking services to the house and the settlement and obtaining official recognition (A. Mahmoud, 1999).

People's initiatives to service their areas:

The absence of public services such as electricity, water and sewerage, in the settlements which are not considered for legalisation makes the dwellers of the settlements taking their own initiatives to have basic services such as electricity and water supply in their areas. This happens through channels vary within the city and from city to city. There are cases where people illegally connect to the public networks. Homs, Delhi and Damascus are good example (A. Mahmoud, 1999). In other cases people themselves open wells, pave roads, construct septic tanks and open channels to carry houses discharge away from the settlement. This is reported from Hyderabad, India (Nayani, 1987). Karachi, Pakistan (Pervasi *et al*, 2008), Manila, the Philippines city (Nathaniel, 1990). The lack of know-how makes these efforts ineffective. Hassan (1992) Cited in A. Mahmoud (1999) considers such type of projects as a waste of time and money due to their poor quality.

Emergence of the ready-to-use apartments:

With the pass of time, significant changes took place in illegal land subdivision development. Making ready-to-use apartments for sale by private developers is widely found phenomenon. This has been noticed by Aise (2006) in the study on Istanbul and by A. Mahmoud (1999) in the study on Damascus and Delhi.

Planning: Services Provision and Legalisation:

Official attitude: from rejection to legalisation:

Early settlements developed through illegal land subdivision were unwelcome by the city authority in Asia. Demolition of illegal structures was the main tool to combat the undesirable phenomenon. Later, official attitude changed to accepting the existing settlements. The acceptance was accompanied with the official policy of combating new developments and preventing the extension of the existing ones. The acceptance which took the form of partial service instalments, developed later to reach the level of legalisation. The legalisation policy however, maintained the earlier policy of opposing illegal land subdivision and consequent housing development. Similar changes in the official attitude and to the far extent similar policy components are found in Homs and Damascus, Syria (A. Mahmoud, 1999) Hyderabad (Nayani, 1987) and Delhi, India (Alain and Valérie,1996), Istanbul, turkey (Aise, 2006) and Amman, Jordan (Erbach, 1990).

In the last two decades, legalisation has become the major channel for services provision. Legalisation usually leads to a significant increase in houses and land prices. When implemented, legalisation is usually preceded by preparing a regulative plan for each of the targeted settlement. It consists mainly of:

- Incorporating the legalised colonies into their respective cities;
- Providing services and public facilities;
- Legalization of occupancy rights;
- Cost recovery from the beneficiaries (A. Mahmoud, 1999).

Legalisation: far behind the target:

Reaching full legalisation of the settlements developed through illegal land subdivision in Asian cities has been rare. In almost all the cases, legalisation did not exceed the prevision of services, some facilities and some physical improvement. Regulative plans could not catch up with the actual changes in the settlements. The plans also face the critical issue of scarcity or non availability of lands left for public facilities such as schools, open spaces and health care facilities. Further, it is noticed that legalisation procedures focus on physical integration of the settlements to the mother city. The integration of the population to the host urban life has not been given appropriate attention. To give some examples, Goulden (2011) reported from Damascus, the capital city of Syria that the services provided by the government to the illegal settlements are of lower quality than those provided to the formal areas. He further noticed that the services were given to keep the illegal settlements out of slums classification. In Amman, Jordan, Abasa (2012) found that after about three decades of up-gradation (legalisation) of illegal settlements there are still areas with inadequate services and facilities. Istanbul illegal settlements also generally suffer from inadequate infrastructure (Aise, 2006).

Illegal Land Subdivision: Sustainable Issues, their Time and Spatial Dimensions:

Analytical framework for illegal urban development has not been developed yet. Using the BEQUEST framework to analyse the illegal land subdivision will face the main issue of the critical differences between the formal and illegal development stages. The stages of illegal land subdivision defined above are different from those of formal development adopted by the framework and shown in Figure (1). Thus, it won't be possible to use the same structure of the framework shown in Figure (1) in analysing the illegal land subdivision. The content of the BEQUEST framework of defining the main stages of the development, the sustainability issues and relating the issues to the stages to the issues time scale and spatial dimension can however, be used as a guidance to analyse the illegal land subdivision. The developmental stages of illegal land subdivision have already been defined above. The issues and their time scale and spatial dimensions are the subject of the following discussion. It is worth mentioning that this paper faced critical shortage of that type of data which help in quantifying the sustainability issues of the developmental stages of the illegal land subdivision. The discussion that follows is mainly descriptive.

Environmental Issues:

Environmental issues mainly appear at the land subdivision and housing stages. At the planning stage which includes service provision and/or legalisation, issues are mainly economic, social and institutional. At that stage quality of urban environment is generally better.

Natural resources:

Targeting agricultural land for illegal land subdivision results in a significant loss of land for food production around the cities. This issue is a long term issue as the loss of the agricultural land cannot be compensated. The entire city will be affected. To give an example, it is estimated that up to 2000, illegal land subdivision in the city of Homs, Syria, consumed more than 1800 hectares of a very good quality agricultural land. The consumed land was producing grain, vegetables and fruits (Baraka & Khzam, 2008).

Environmental pollution:

Houses' discharges which go to the septic tanks leak into the underground and pollute water and soil. Open channels for sewage disposal pollute underground as well as surface soil. Direct contact between the open channels and the air pollutes the air with their smell and bacteria. These channels carry, in some cases, discharges towards city peripheries expanding the spatial impact of the pollution to the city level. The time scale of this impact is short, medium and long. In the short term, people come to direct contact with the discharging channels. In the medium and long term, the channels and the septic tanks pollute the underground soil and water.

Land use:

Targeting non-urban land and land allocated for future city development by illegal land subdivision has two consequences. Firstly it changes the use of the land in the city region. Secondly it withholds the city from land required for its development and consequently affects the future development of the city. The spatial impact of these issues covers the city and its region. Their time scale is of long term. The consumed land, particularly that

land which is allocated for future development of the city, is usually defined by long term master planning which is usually prepared for more than 15 years to the future.

Economic Issues:

Production:

Issues related to production are mainly at land subdivision stage. The size of productive land shrinks as a result of targeting agricultural land for illegal subdivision. This withholds the city economy from economic benefits of the lost production. If we assume that the consumed land in Homs, the Syrian city, mentioned above, were equally planted with grain, potato and fruits, illegal land subdivision withholds the city from the value of 9000 tons of potato, 1080 tons of grain and around 6000 tons of fruits a year.

Consuming land for illegal land subdivision also eliminates the employment of those people who were engaged in producing, transporting and marketing the products. Such impact becomes clearer in the long term with the increase in the subdivided areas. Its impact goes beyond the city to its region as the agricultural land is mainly located in the peripheries.

Building stock:

In the house construction process, by-laws and other official requirements are not followed. Consequently, significant amount of sub-standard houses is produced. This along with the absence of open spaces in the illegal subdivision schemes produce distorted urban form in the settlements produced by illegal land subdivision. As a result, the city urban form is affected. This means that the spatial scale is local and up to the city level. In the light of the scale of the illegal land subdivision and its continuity in Asian cities, it is expected that this impact on the city will continue for a long time.

Legalising the settlements developed through illegal land subdivision led, in some cases, to incorporate this illegal housing channel into the housing supply system of the city (A. Mahmoud, 1999). Can this step be considered an official recognition of illegality? What are the consequences? These questions still need answers.

Utilities:

When the residents illegally connect to the networks of some of the services such as electricity and water, the networks efficiency is reduced and the residents of the formal areas suffer. This case is mainly found in those settlements which are not serviced or covered under a legalisation programme. Thus, unless the existing official practices are changed, this issue will continue as long as new subdivisions are coming up. It is expected according to UNHABITAT (2009) that this phenomenon will continue in the future. Thus the time scale is short medium and long.

The absence of space for public facilities such as health care and schools in the illegal subdivision schemes hinders the provision of such services at the planning stage. This also leaves the residents of even the legalised settlements with no other option but to seek the facilities in the neighbouring formal areas. This increases the pressure on the facilities in the formal areas and makes them less efficient. If the illegal subdivision is widespread, then the impact of this issue reaches the city level. Such an impact appears in the medium and long term with the increase in the population of illegally developed areas.

The absence of spaces left for open spaces affects the quality of the built environment that is produced after the subdivision. The production of the built environment takes usually long time.

Finance:

Illegal land and housing transactions in illegal land subdivision continues after legalisation as the land ownership generally remains unsolved. This withholds the city economy from significant economic benefits. Trading illegally subdivided plots is an illegal investment that takes place outside the city economy depriving it from the significant benefits. The city financial system loses another source of revenue that could be made available if plot and housing transactions, particularly after legalisation, were carried out through the legal system. In addition, illegal trading of plots helps the involved actors escaping the payment of charges and taxes that are required when the process is carried out within the legal system. Although this can be considered as an advantage to low income people as it reduces their housing financial burden, it however, deprives the financial system of the city from a significant revenue source. The consequences of the finance issue continue as long as the subdivision continues. It is expected that this type of activities will continue in the future (UN HABITAT, 2009). Therefore, it is expected to be of long term impact. The spatial dimension of the issues reaches the city as a whole as the entire city economy is affected.

At the planning stage, although it is reported that the residents usually are required to pay for the services provided to their settlements, servicing and/or legalising the settlements put significant burden on local authorities in terms of manpower and money (A. Mahmoud, 1999). There are cases where there are always ways to escape the payment of the charges (Charlotte & Stéphanie, 2013). This affects the performance of those authorities in urban development. It is evident that local authority's performance regarding urban development

in general and illegal land subdivision in particular is slow (A. Mahmoud, 1999). Therefore, it is expected that time scale of this issue is long.

Social Issues:

Access:

The buyers of the plots are provided with illegal contract. In spite of protecting land rights, this type of contract is not recognised by financial and other institutions in the city. This blocks the way for the buyers to have an access to those institutions for obtaining loans and other possible services and withhold the city institutions such as banks and insurance companies from potential clients. It seems that the situation will continue for many years to come. This continue till the land right is transferred legally to the buyers. If happens, this takes a very long time. Its spatial level, however, covers the buyers of illegally subdivided land as well as the institutions in the city.

Safety and security:

Constructing houses at the weekends and on public holidays produces structures that are not strong enough. Unsafe structures threats people lives in medium and long term. Its impact is local.

Inhabiting flood and land slide areas makes the residents vulnerable to natural hazards. As the settlement takes substantial time to form, time scale of this issue is medium and long. Its spatial level is limited to the hazardous sites.

With the increase in land and houses prices as a result of legalisation, many low income residents can't resist the temptation of the prices. They sell their houses to higher income buyers. The scale of this replacement of low-income people is not known. This replacement increases low-income housing problem as it excludes them even from the illegal market. On the other side, it may increase illegal activities as the displaced people probably move again to another illegal land subdivision (A. Mahmoud, 1999). The impact of these issues will possibly continue as long as the illegal subdivision continues. As the replaced families might leave from one place to another in the city, the spatial impact can be considered as that one reaches the city level.

Health and well being:

The Poor quality of the built environment in the settlements developed through illegal land subdivision, particularly those which are still not legalised, constitutes significant threat to people health. Goulan (2011) reports from Damascus that the population of an illegal area increased from 13000 in 1970 to 500000 people in 2011, but the infrastructure did not change or improve. Wekesa *et al* (2011) found that the environmental conditions of illegal settlements in the developing countries are generally hazardous. Unless serious efforts are made to improve it, this situation will continue for long. Its spatial dimension is local.

Institutional Issues:

Ethical system:

Making deals with local police and local authorities to facilitate illegal house construction and avoid demolition are common practices by the residents and the developers in the illegally subdivided areas in Asia. The impact of these practices is spatially local and its time scale is probably limited. The consequences however, are long as they pave the road for more illegal structures in the city.

Violating the law and the regulations in the development process of illegal land subdivision affects the commitment of the society's members towards laws and regulations. There are persons who saw their parents violating the law by illegally constructing their houses and have illegal connections to services network. Those persons themselves become later involved in the same illegal practices (A. Mahmoud, 1999). This transfer of the behaviour of law violation from one generation to another requires further analysis. Illegal land subdivision and the following stages of development make people familiar with breaking the law. Servicing and regularising the illegally developed areas may be interpreted by the urban citizens as a reward for illegality. Social consequences need investigation. Its spatial impact and time scale can be decided only after investigation but, for the time being, it seems spatially wide and of long term time scale.

Conclusion:

Illegal land subdivision follows almost the same scenario in Asian cities. It starts with preliminary planning followed by illegal land subdivision into plots. Then, house construction takes place mainly in an incremental way. Government intervention usually comes at the latest stage of the settlements development through illegal land subdivision. It takes the form of providing services and/ or legalisation.

Analysing illegal land subdivision in Asian cities in the content of the BEQUEST framework reveals that the subdivision has a wide range of critical sustainability issues.

Natural resources, environmental pollution and land use are the main dimensions of the environmental issues. Economic issues are related to production, building stock, utilities and finance. Access, safety and

security and health and wellbeing are the subject of the social issues. Institutional issues are related to ethical system. Most of the issues have long term effect and their impacts reach the city and its region level (Table 1).

Sustainability issues of illegal land subdivision increases significantly the difficulties that are facing urban authorities in Asia to make urban development more sustainable. Their spatial scale covers in most of the cases the entire city. Their time scale is mostly of a long. This strongly suggests that handling illegal land subdivision should be an integral part of the city development as a whole. The present practices ignore somehow this requirement.

This paper is an attempt to analyse an illegal phenomenon using a scientific tool. Further attempts are required to understand more about the common issues as well as the local issues. This might lead to developing a special framework for the illegal urban development.

Table 1: Illegal land subdivision sustainability issues, their time scale and spatial dimensions in Asian cities.

Sustainability issue		Main features of the issues	Subdivision stages				Time scale	Spatial dimension
			1	2	3	4		
Environmental	Natural resources	- Loss of land for food production	*				- Long	City
	Pollution	- Air, surface soil, underground water and soil pollution		*	*		Short, medium and long	- Local - City region
		- Unhygienic environment for the residents		*	*		Short, medium and long	- Local - City region
	Land use	- Land use changes	*				- Long	- City region
		- Limitations on orderly city development	*				- Long	- City
		- Hindrance to proper land use management	*				- Long	- City
Economic	Production	- Reduction of productive land	*				- Long	- City region
		- Reduction of agricultural products	*				- Long	- City region
	Building stock	- Production of substandard housing stock		*	*	*	- Long	-Neighbourhood and City
		- Distorting city form		*	*	*	- Long	-Neighbourhood and City
	Utilities	- Pressure on the city utilities networks		*	*	*	- Short, medium and long	- City
		- Pressure on the city public services and facilities		*	*	*	- Medium, long - Long	- City
		- Impacts on built environment quality		*	*	*	- Medium, long - Long	- City
	Finance	- Depriving the Government from a revenue source		*			- Long	- City
		- withholding the city economy from the benefits of the illegal investments and deals			*	*	- Long	- City
		- Increasing the burden on urban development authorities				*	- Long	- City
Social	Access	- No access to financial institutions		*	*	*	- Long	- Locality, city
		- No direct access to public utilities and facilities		*	*		- Short, medium	- Locality, city
	Safety and security	- Vulnerability to natural hazards		*	*	*	- Medium and long	- Locality
		- Threat of house demolition					- Medium and long	- Locality
		- Low-income vulnerability to displacement					- Long	- Locality, city
	Health and well being	- Poor urban environment quality (threat to people's health)		*	*	*	Short, medium and long	Locality
Institutional	Ethical system	- Laws violation	*	*	*	*	Short, medium and long	Locality
		- Acceptance of illegal practices	*	*	*	*	Long	Local, City

Notes: 1- Preliminary planning, 2- Land subdivision , 3- Housing, 4-Planning (servicing and legalisation)

REFERENCES

Mahmoud, Z., 1999. Cross National Comparison of Strategies to Deal with Unauthorised Colonies in Selected Asian Cities, Doctoral dissertation , School of Planning and Architecture, New Delhi, India.

Mahmoud, Z., 2000. Deep Analysis of Unauthorized Housing Extension, the Case of Damascus Syria. Paper presented at the International Symposium on Public Awareness of Environmental Protection from Urban

Extension and its Consequences October 15, The UNSECO Chair for Environment protection 1996-2000; Al-Baath University; Homs Syria.

Mahmoud, Z., 2002. Asian Countries Experience in Dealing with Unauthorized Housing. Paper presented at the International Symposium on Unauthorized Housing - its Reasons and Impacts , Damascus University, Syria, March 23.

Absa Maryam, 2012. The Evolution of Upgrading Policies in Amman. Paper presented at the Second International Conference on Sustainable Architecture and Urban Development, July 12-14, Amman, Jordan.

Aise, Yonder, 1987. Informal land and housing markets: the case study of Istanbul Turkey, Journal of American Planning Association, 53: 213-219.

Aise, Yonder, 2006. Informal settlements in Istanbul, Turkey: from shakes to high rise, paper presented at the SCUPAD Conference in Salzburg, Austria, May 11-14. Available at http://www.scupad.org/web/userfiles/download/2006_yonder.pdf, (Accessed 13 December, 2012).

Alain Durand-Lasserve, Valérie Clerc, 1996. Regularisation and integration of irregular settlements: lessons from experience, working paper 6, UNDP/UNCHS (Habitat)/World Bank. Available at http://ww2.unhabitat.org/programmes/ump/documents/wp6.pdf (accessed 14 December, 2012).

Anthony, J., 1990. Pattern and process of illegal land subdivision, case study Delhi, unpublished master's thesis report, School of Planning and Architecture, New Delhi, India, 1990.

Bai, X., B. Roberts, 2010. Chen Jing, Urban Sustainability Experiments in Asia: Pattern and Pathways, Environmental Science & Policy, 13: 312-325.

Barakat, H., A. Khzam, 2008. Evaluation of Homs Master plan Report (Municipality of Homs, Syria).

Charlotte Lemanski, Stéphanie Tawa Lama-Rewal, 2013. The missing middle": class and urban governance in Delhi's unauthorized colonies, Transactions of the Institute of British Geographers, 38: 1 91-105.

Curwell, S., M. Deakin and P. Lombardo, 2005. The BEQUEST framework: a vision and methodology, in: Crwell S., Deakin M. and Lombardo P. (Eds.), Sustainable Urban Development, 1: 19-42 (Routledge, New York).

Devisari, T. and P. Andrew, 2010. The Self-help housing in Indonesia: the only option for the poor? Journal of Habitat International, 34: 315-322.

Erbach, G., 1990. Land Tenure in Jordan: Illegal Markets and Resolution of Problems, Office of Housing Programmes, Regularising the Illegal Land Development Process, Volume 2 (US Agency for International Development, Washington D.C.).

Goulden Robert, 2011. Housing inequality and economic change in Syria, British Journal of Middle Eastern Studies, August, 38: 187-202.

Hassan Arif, (1992. Seven Reports on Housing (National Printers, Karachi).

Hurley, J., R. Horn, 2012. Review and analysis of tools for the implementation and assessment of sustainable urban development. Paper presented at The 2006 Environmental Institute of Australian and New Zealand Conference, Adelaide, 17-20 September 2006. Avaialble at http://www.academia.edu/1134979/Review_and_analysis_of_tools_for_the_implementation_and_assessment_of_sustainable_urban_de, (accessed 20 December, 2012).

Lin-Yen Shen, Ochaoa Jorge J., Zhang Xialong, 2011. The Application of urban sustainability indicators – a comparison between various practices, Journal of Habitat International, 3: 17-29.

Nathaniel V. Einsiedel, 1990. Case Study in Metro Manila, the Philippines, in: UNSCAP, Case Studies on Metropolitan Fringe Development with Focus on Informal Land Subdivision, summary, New York.

Nayani, P., 1987. Process of Illegal Subdivision of Land and Housing Consolidation – Study of Hyderabad Municipal Corporation Area; Master's Thesis report, School of Planning and Architecture, New Delhi.

Ooi Ling Giok, 2009. Challenges of sustainability for Asian urbanization, Current Opinion in Environmental Sustainability, 1: 187-191.

Payne, G., 1989. Illegal Housing and Land Subdivision in Third World Cities: A Review of Literature (CENDEP at Oxford Polytechnic, UK).

Pervasi, Arif, Rahman, Perween with Hassan, Arif, 2012. Lessons from Karachi: The Role of Demonstration, Documentation, Mapping and Relationship Building in Advocacy for Improved Urban Sanitation and Water Services, Human Settlements Programme, Human settlements discussion paper Series theme Water- 6, International Institute for Environment and Development (IIED), London, UK, 2008. Available at http://www.oppinstitutions.org/Publication/Electronic%20link%20IIED%20report.pdf(accessed 14 December 2012).

Pronchokchai and Thandanit, 1990. Case study in Bangkok, Thailand, in: UNESCAP, Case Studies on Metropolitan Fringe Development with Focus on Illegal Land Subdivision, Summary, New York.

Silas, Johan, 1990. Case study in Surabaya, Indonesia, in: UNESCAP, Case Studies on Metropolitan Fringe Development with Focus on Illegal Land Subdivision, Summary, New York.

Subadyo, Tutu, A., 2007. Pathway corridor as a place for informal settlements, in: Santosa, H., Erika Sri, Y. Astuti (Eds.), Informal Settlements and affordable Housing , CIB Report Publication 314, 2007, pp. 130-135 . Available at http://cibworld.xs4all.nl/dl/publications/Pub314.pdf (accessed March 20,2013).

UN HABITAT, 2009. Planning Sustainable Cities, a Global Report on Human Settlements (Earthscan, London).

Wekasa, W.B., A. Steyn and C.F. Otieno, A review of physical and socio-economic characteristics and intervention approaches of illegal settlements. Journal of Habitat International, 35: 238-245.