Learning from Tradition: Land Provision and Population Growth: The Case of Saudi Arabia

Jamel Akbar

*Professor, College of Architecture and Planning,
King Faisal University, Dammam
Saudi Arabia*

Abstract. Professionals in Saudi Arabia and many other Muslim countries are trying to learn from past experiences to resolve contemporary problems. Accepting such societal strategy, this paper will illustrate one example of how history could be used to present an argument to change the attitude of decision makers. The argument is that the population of Saudi Arabia will double in the next few decades, this means that the built up area will double if the society decides to keep the same standard of living, which will cost the society. To minimize such cost, the paper proposes the search for a self-built system to construct infrastructure and the search for self-managed systems of controlling the built environment with the least possible intervention.

Introduction

The population of Saudi Arabia is said to double in the next few decades as the majority of current population (more than 60%) are teenagers and younger. If the Saudi society is to keep the same standard of living, the built up area should double. This is the major concern of this paper. History has never witnessed such population growth. Regardless whether we like such unprecedented growth or not, how should the Saudis prepare themselves for it? The second concern is that all theories and tools of planning, notwithstanding cultural differences, are developed in societies which did not experience such sudden growth of population. If these two concerns are not faced, Saudi Arabia will soon resemble other Third World countries characterized by the spread of squatter settlements, overloaded infrastructures, homeless individuals, corrupted officials, to name only few familiar blights.

The professional attitude is shifting from one planning model to another, from total rejection of users to the acceptance of their participation. However, all those models

share a common convection in most Third World countries, that is intervention is essential for achieving a certain quality of the built environment. Interventions in Third World countries are often carried through both, regulations and constructing infrastructures, roads, etc.

Regarding regulations, they need manpower to be implemented. With the expected future growth of built up areas, Saudi Arabia will need a massive number of civil servants to control the built environment. Although Saudi Arabia might be able to afford such control financially, the question is: is it in the society's interest to invest so much in controlling the built environment? In short, the paper proposes the search for a self-managed system of controlling the built environment. Regarding constructing infrastructure, imagine the needed wealth to construct and maintain an infrastructure equal in size to the existing one in the following few decades. Thus, it might help too to search for a self-built system to construct the infrastructure of the future. Therefore, our effort should focus on two parts: the first is a search for a self-built system to construct infrastructure; the second is the search for self-managed systems of controlling the built environment with the least possible intervention.

Concerning the first, one would observe that there are vast infrastructured areas within Saudi cities that are not yet utilized as they are owned by investors (land speculation), while those in need for them do not have the needed capital to purchase them. This is not only creating two socio-economic classes of people that are not based on merits, but it is also wasting part of the societies' wealth as those infrastructured lands are not utilized. Could we have a method of providing infrastructure which will produce environments where the infrastructured lands are the utilized ones? The latter is actually the case in most traditional Middle Eastern cities where one can picture a compact environment of utilized properties abutting each other.

The next obvious question is: why a piece of land in a town in the middle of the desert has a quite high economic value whereas vacant lands are abundant? Of course, there are many reasons for this such as: the parcel is infrastructured; or the parcel is located in a strategic position to be used for commerce for example; but above all, available surplus lands around cities are owned by the State and thus are not available to the masses of people.[1] To shed light on these questions, let us first review the process of utilizing lands in traditional Muslim towns.

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[1] One might argue against this last reason that the State will ultimately distribute lands to individuals or government agencies who will subdivide them and sell them to users. The question would then be: does the speed of such process satisfy the rate of population growth to avoid land speculation.

Revivification and Allotment

Land appropriation was common, since during the early Islamic period towns were expanding and lands were often vacant. Not unexpectedly, appropriation has been extensively discussed by Muslim jurists and practiced by people. Jurists recognized unclaimed and unused lands as dead-lands (*mawat*) and followed certain principles in utilizing them.

Mawat literally means "dead." With respect to property it means unowned and unutilized land [1, v.6, p.431].[2] Land is considered dead if there is no trace of building or cultivation; if it is not used by the neighboring locality as, for example, a common pasture, burial ground, or as a source of wood or food for cattle [3, p.63]. However, differences among schools of law[3] exist regarding the abutment of unutilized land to urbanized areas. Is it to be considered dead-land or not? All schools of law --to the exception of some jurists from the Hanafi rite-- consider it dead-land.[4]

According to the custom, dead-lands may be revivified and consequently owned by the revivifiers. *'Ihya'* literally means "life-giving." It means that utilizing and using dead-lands brings ownership to the revivifier. There is ample evidence from the Prophet's traditions, rulers' actions and jurists' opinions to support the principle of assuming ownership of dead-land by revivifying it through cultivation or building on it [8, p.71-84].

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[2] Al-Shafi'i (d. 204/819) defines *mawat* as "what is not urbanized or built (*'amir*) and that which belongs to it (pasture land, for example), even if (that land) is abutting urban land" [2, p.177].

[3] The institution of Islam is based on three sources: the Qur'an, the tradition of the Prophet and the teaching of jurists. The first two sources were always referred to by jurists in interpreting the law. This resulted in the development of different schools of law, and gave the Islamic legal system its identity and cohesion. The most authoritative schools of law are the Hanafi school of law founded by 'Abu Hanifah (d. 150/767) which covers India, Pakistan, Bangladesh, Turkey, parts of Syria, Southeast Asia and China; the Maliki school of law of Malik (d. 179/795) which covers North and Central Africa, Upper Egypt, the Sudan and West Africa; the Shafi'i school of law of Imam Shafi'i (d. 204/819) which covers Egypt, the southern and eastern Arabian peninsula, East and Meridional Africa and parts of South-East Asia; the Hanbali school of 'Ahmad b. Hanbal (d. 241/855) which covers the entire Muslim world but does not prevail in any region except the central Arabian peninsula. Any individual can choose any rite as they are considered equally valid or can even change from one school to another. The major differences between these schools are methodological, based on the particular method each founder used to interpret the law such as *qiyas* (analogical reasoning), *ra'y* (opinion) and *'ijma'* (consensus doctorum). For details in English see [4, p. 21, 22].

[4] The Hanbali rite defines *mawat* as "what is not owned by anyone or has no trace of urbanization in it." [5, V.5, p.563]. The Maliki rite defines it as "the land that is not owned by any person and is not useful (because it is not utilized)" [6, v.l, p.307]. Those who disagree with the above definition are 'Abu Yusuf (d. 182/798) and 'Abu Hanifa from the Hanafi school of law. 'Abu Yusuf defines it as, "Any land distanced from the urbanized areas so that if a man calls out loudly from thence (the edge of urbanized area), his voice cannot be heard from there" [7, p.209; 5, v.5, p.567].

The Prophet said, "The people are God's people, the land is God's land, he who revivifies a piece of dead-land will own it, and the unjust root has no right" [9, p.91].[5] A man who had revivified dead-land came to 'Ali (the fourth caliph) and said, "I came across a land that was ruined or its (original) inhabitants had left it, and I dug streams and cultivated it." 'Ali responded, "Eat pleasurably (enjoy it) you are righteous not impious, a revivifier not destroyer." Ibn Qudamah (d. 620 H.) relates that "Revivifying dead-lands is the custom in all regions even if there are differences among jurists regarding its regulation" [9, p.63; 5, p.563].[6]

Allotment is similar to revivification. 'Iqta' literally means the act by the ruler of bestowing or allotting a piece of land to individuals. Allotments are, in general, of two types: the first type is one of allotting fiefs to be owned through revival. The second is that of allotting land with the right of utilization but not ownership.[7] In both types the ruler may give allotments to individuals from dead-lands or lands owned by the State. Allotment was practiced mainly in cases of new towns. Al-Baladhuri (d. 279/892), in his documentary Futuh al-Buldan, has mentioned the word 'iqta' (allotting) more than ninety times. In one of those citations he reported that when the Caliph Ja'far resided (232/847) in Haruni he "built many buildings and made allotments to the people in the back of (the town of) Surrah-man-ra'a. Then he established the town that he called al-Mutwakkiliyyah..." [13, p.134-295].

The concept of demarcation was practiced with revivification and allotment. Demarcating ('ihtijar) a piece of land with stones or the like do not constitute revivification. Whether a person demarcated land or was allotted a fief by the ruler, the limit is three years, then his right lapses.[8]

Principles of Revivification and Allotment

One would think that such attitude of establishing ownership would be charged with disputes among inhabitants. This was not often the case as there were principles used to

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[5]Malik explained, "The unjust root is whatever is taken, or planted without right." He also stated, "(Revivifying) what is (customarily) done in our community" [10, p.528; 11, p.346]. The traditions regarding revivification are ample with some similarities. Every book of law is full of such traditions. To name one, 'Abi 'Ubayd al-Qasim bin Salam (d. 224 H.) documented six traditions in his book Kitab al-'Amwal [12, pp.362-366].

[6]For example 'Umar b. 'Abd al-'Aziz (d. 101/720) wrote to his governor requesting him to recognize the dead-lands of those who revivify them, as ownership [12, p. 369].

[7]The first type is called 'iqta' tamlik, the second is 'iqta' 'istighlal [7, pp. 227-240; 2, pp.190-198; 5, V.5, pp.567-580].

[8]This is based on the Prophet's tradition, "the common (unowned) land belongs to God and his Prophet, then it is yours. He who revivified dead land owns it; and the demarcator has no right after three years." It is reported that 'Umar-- the second Caliph --said "he who revivifies dead land owns it, but the demarcator (muhtajir) has no right after three years." 'Abu Yusuf explained that the reason for 'Umar's proclamation is that people began to occupy dead-lands without utilizing them [3, p. 65].

deal with expected disputes. Moreover, all those principles applied to revivification and allotment provoked and helped people to act in order to own lands. Some of those principles are reviewed next.

Negligence

All schools of law agree that the ownership of a property which is not owned through revivification does not lapse as a result of the owner's negligence.[9] However, a few jurists argue that some small and invaluable objects, because of their nature, can be taken over by others if neglected by the owner for a long period of time. An example of such objects would be building materials which may be picked up, since the person who picks them up makes benefit from them. This principle does not apply if such objects fall from a building without the owner's knowledge.[10] Ziyad proposed rebuilding the governor's building in al-Basrah in order to eradicate the association of his name with the building. He was told that such reconstruction would, to even greater extent, link his name to the building. Thus he abandoned and demolished it. "Thereafter, most of the dwellings around it were built by (using) its deserted mud, bricks, and doors."[11]

Is the ownership of revivified dead-land rescinded because of the revivifier's abandonment? Some of the Hanafi jurists consider long-term negligence as tacit permission for others to use the property and not a relinquishment of ownership. Others argue that ownership lapses with negligence.[12] The prevailing school of law in North Africa considers revivified land that is neglected for a long time to be dead land again, thus it can be revivified by others.[13]

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[9] From the Hanafi rite "whoever owns property whether he is Muslim or Dhimmi (Jews and Christians) whatever the means, his ownership does not lapse because of negligence. Even if he owns a dwelling that is ruined for years or centuries, (the dwelling) still belongs to the owner and will not be considered dead land." Zawabit Al-Fiqh, p.37A [cited in 6, V.1, p.377]. From the Hanbali rite Ibn Qudamah states that property "which is bought or received as a gift cannot be owned (by others) through revival." [5, V.5, p.563].

[10] The principle does not apply if the property belongs to an orphan or waqf. This opinion is mainly based on J. B. 'Abdullah's statement: "The Prophet permitted us (to pick up) sticks, whips, ropes and the like; a man picks it up and benefits from it." See [6, V.1, p.381], for detail see [14, V.4, p.33].

[11] It seems the building was known as Ziyad's building [13, p.344]. As-Samhudi reports another incident which may have been political revenge in which the governor of al-Madina, during Hisham B. 'Abd al-Malik's reign (105/724-125/743), constructed the market and leased it. When Hisham died, the inhabitants of Madina demolished the construction. Ibn Shabbah relates that "the people demolished the building, appropriated its doors, the wood and palm-leaf stalks. By the third day (the building) was leveled" [15, V.2, p.753].

[12] Some Hanafi scholars, such as 'Abu al-Qasim A. al-Balkhi, argue that revivification does not lead to ownership, rather it means ownership of the land utilization [6, V.1, p.382].

[13] Malik invokes "such land can be taken because of the Prophet's tradition, "he who revivifies dead land owns it. Since the land was originally available and if it is neglected so that it becomes dead again, then it returns (to its original state) of being available, as when a person takes water from a river and returns it." However, most jurists disagree with Malik's opinion. For example, Ibn-Qudamah contests such opinion. He argues that if a person revivifies dead land and sells it, then the second owner will be permanently the owner of the land, even if he neglects it. Thus Malik's opinion is not valid [5, V.5, p.564].

Demarcation and time limitation

Does demarcating (*'ihtijar*) a piece of land with stones or the like constitute revivification? Regarding demarcation as a first step towards revivification, the Hanafi school of law considers placing stones or other markings around the land merely an action preceding others, giving the revivifier the right not to be harassed.[14] The Shafi'i rite considers that whoever begins revivifying a piece of land by demarcating boundaries, i.e. digging foundations or marking it out or nailing up wood as columns, but cannot continue revivifying, has for three years, by virtue of the demarcation, the right of *ikhtisas* (taking precedence over others) but not ownership. From opinions of jurists and actions of rulers, it is evident that demarcated lands or allotments are not owned and so may not be sold unless they have been revivified.[15]

Overlapping efforts

The principle of revivification, by its nature, invites the overlapping of efforts. A person may revive deliberately or inadvertently land that is owned by others. However, the revivifier's effort is not wasted. The Prophet said, "He who cultivated the land of others without their permission will have his expenses; but not his cultivation" [12, p.364].[16] However, if the owner refuses to compensate the revivifier, then both the owner and the revivifier will share the property as partners. Meanwhile, the revivifier will not be compelled to pay the owner the value of the land [16, p.440].[17] If a person builds on

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[14] In *al-Durar* from the Hanafi rite, "If a person surrounded a piece of land in order to revivify it, but did not do so within three years, then his right lapses. The ruler may take it back from him and give it to others." V.1, p.306 [cited in 6, V.1, p.384].

[15] For example, from the Hanbali rite, 'Abu Ya'la reports, "If the demarcator wishes to sell the demarcated land prior to revivification, he cannot do so as it is unlawful. This is the opinion of 'Ahmad b. Hanbal." [7, p.211]; this is the opinion of the Shafi'i rite too, see al-Mawardi, [2, p.178]. Ibn Qudamah reports that if the allottee did not revivify the allotment "the Sultan should order him either to revivify or leave (the land) so others could do it. Since he is usurping from the people their common right, (the allottee) should be treated as if he were standing in (the middle of) a narrow road, he is not benefiting himself, meanwhile he is not allowing others to benefit" [5, V.5, p.569]. Al-Baladhuri reports that Ziyad used to allow the allotees two years and then he would take the land and give it others [13., p.356]. This principle of taking the allotments from unproductive allottees seems to have been started with the Caliph 'Umar. He took away the land of al-'Aqiq from Bilal b. al-Harith that was given to Bilal by the Prophet and divided it among Muslims. [9, p.93]. Many other incidents similar to this one took place. See [12, p.366-369; 3, pp.61-62].

[16] Cases were brought to the Caliph 'Umar in which people revivified pieces of lands thinking that they were dead lands; and later the original owners of the lands proved to 'Umar their ownership. The original owners were given by 'Umar the right either to compensate the revivifiers for their expenditure and to reclaim their lands, or to accept a price for the lands from the revivifiers and transfer ownership to them. 'Abi 'Ubayd relates that the Umayyad Caliph, 'Umar b. 'Abd al-'Aziz judged in such matters as 'Umar, the second Caliph. Except that he "gave the owner of the unutilised land the right to take back his land by compensating the revivifier for his expenditure, and if he could not (compensate him), the revivifier could pay him the price of land." That is the original owner of the land had to accept the price set by the revivifier, if he could not compensate the revivifier [12, p.367].

[17] Ibn Habib adds, explaining the ratio of ownership, that the land will be evaluated as if it is vacant, the estimated price will be the value of the owner's share. The difference between such estimation and the value of the property after building will be the value of the builder's share [16, p.441].

land owned by others while the owners witnessed but did not react, then the owner must compensate the builder in cases of dispute. But if the owner objected, then the builder must demolish what he has built and has the right to take away what he has built [12, p.369].[18] Finally, "the revivifier is more rightful (in owning the land) than the demarcator," i.e. if a person revivifies land that is demarcated or allotted to others he will own it.[19] In fact, many cases were reported in which overlapping of efforts took place during the early Islamic periods. Those cases were used as guidelines by Muslim jurists in resolving such disputes.[20]

Permission of authorities

Perhaps, this is the most important principle to our subject. All schools of law with the exception of a few jurists from the Hanafi rite agree that, according to the Prophet's tradition, the permission of the State is not needed to revivify dead-lands.[21] They also recommend that the State recognizes the revivifier's right in cases of dispute [17, p.38]. Malik makes a distinction between dead-land abutting urbanized areas and those which are distant from it. He concedes that the former requires permission, but not the latter [2, p.177; 17, p.38].

Incentives to act

In all those principles of allotment and revivification, one fact is evident: land is never sold by the State. Rather it is taken at no cost by those who put in effort to make it usable. This basic concept implies incentive. Individuals are provoked to act in order to own properties. If a person realizes that he can claim property without permission from the authority he will do so, simply because owning property is a desirable accomplishment. If a revivifier knows that he will not only own the land by revivifying it, but will also be rewarded by God on the day of judgment, he will act. If an individual recognizes that if he does not utilize his own revivified land, others may revivify and take

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[18]Ibn 'Adam relates that if a person built on others' lands without their permission, then he has to demolish such building. But if he built with their permission then he will have his expenditure [12, p.99; 16, p.442].

[19]This statement seems to be well known among jurists. See for example; for the Hanbali rite [7, p.211; 5, V.5, p.569]. For the Shafi'i rite [2, p.178; Hashiyat al-Bajuri, V.2, p.39, cited by 6, V.1, p.385]. For the Hanafi rite [1, V.6, p.433].

[20]An example of this is the book of al-Kharaj which was written by the jurist 'Abu Yusuf to be used during and after the Caliph Harun ar-Rashid's reign (170/786-193/809). For, such disputes see also [9, p. 90-99; 12, p. 362-371]. Ibn ar-Rami's description regarding the resolution of such disputes indicates that these principles were still applied in Tunis during his lifetime (d. 734/1334) [16, p. 439-443].

[21]'Abu Hanifah, followed by some jurists from the Hanafi rite, asserts that the permission of the ruler is needed in order to claim the right of ownership. But this view is opposed by all respected and eminent jurists, e.g. 'Ahmad b. Hanbal, ash-Shafi'i, 'Abu Yusuf, al-Mawardi, Ibn Qudamah, A. Y. Hanbali, etc. They argue that the Prophet, as God's messenger, delineated the principles to be followed. They maintain that "He who revivifies dead land owns it whether with the permission of the Imam or not." For 'Ahmad b. Hanbal's opinion see [12, p.209]; for al-Shafi'i's opinion see [2, p.177]; for Ibn Qudamah's opinion, see [5, V.5, p.563]; for Malik's opinion see [14, V. 3, p.8]; for 'Abu Yusuf's opinion see [3, p.64].

it away, he is apt to act. If the individual that is allotted a fief knows that unless he utilizes the land within three years, he will lose it, he will be provoked to act.

Thus, traditionally, most vacant lands were not sold, but gained through investing effort. On the other hand, in contemporary environments, the land became a commodity. Abolishing traditional principles of ownership created land speculation. Land that once had no value is now the first obstacle for a shelter. Because land now has value, large land owners subdivide their property, increasing population density. Assume for a moment that land, in and of itself, has no value, that its value depends on materials invested in it, such as buildings and crops, it makes no sense to destroy the materials invested in the site in order to sell the land. If the land has no intrinsic value, no one would purchase undeveloped land unless it was strategically located for a specific function, such as commerce.[22] For houses, people will revivify dead-lands, not purchase them. Cities would spread horizontally rather than become overcrowded and this would not tax the existing infrastructure.

The major advantages of the traditional system, however, is that it did not allow the creation of a class of people who would manipulate parcels. Our contemporary system does exactly that: land is given by the government to prominent individuals who will subdivide the land into smaller parcels and sell them to the needy; or land is given to government agencies which will also subdivide it to parcels and give them to their employees or to the small portion of the general public who applied for grants. Few will build on their parcels, while the majority will sell them, thus creating land speculation. Thus, our blight is centered around the State's attitude which abolished revivification.

It is difficult to suggest an average cost for a piece of land as it varies from one location to another depending on endless reasons. However, in Saudi Arabia for example, in most major cities, an infrastructured parcel of approximately 600 sq.m. would cost between 15,000 to 70,000 US $ if it is not in the center of the town (this figure does not include the cost of providing infrastructure which is already paid by the government). The same argument applies to infrastructure: it is difficult to suggest an average cost for the provision of infrastructure to a piece of land as figures vary depending on the site's nature, its proximity from utility resources (electric generators for example) and the qualities of utilities (types of pipes used, method of wiring). However, in the Eastern Region in Saudi Arabia, providing highest quality infrastructure for a piece of land (20 by 30 m.) by ARAMCO Oil Company to its employees does cost 30,000 US $. In other cities, one meter frontage could cost as high as 3,000 US $. These figures include providing all needed utilities (water, sewerage, electricity, telephone, street and side walk paving, traffic signs, etc.). As these figures indicate, the cost of infrastructure

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[22]This concept may not hold these days in cities with land shortages such as Singapore. But most, if not all, Muslim or even Third World countries have unutilised lands claimed by the states. We do not mean desert lands; consider Turkey, Egypt, Jordan, Tunis, Algeria, and Lebanon, for example: they all have unutilised lands owned by the state.

could be lower than the land itself. Thus, if there is a system that would allow the people to pay for providing infrastructure on dead-lands rather than purchasing infrastructured lands owned by land speculators, the government will be relieved from the cost of providing infrastructure, while the people will have cheaper lands to build on.

Before discussing the possibility of implementing these ideas, let us first explain some legal aspects of streets in traditional environments.

Streets

Are streets or public spaces in general the left over areas from revivified lands? To a large extent: yes.[23] Who then owns those public spaces? The consensus among jurists is that public spaces were owned by all Muslims collectively, not by the authority. When 'Ahmad b. Hanbal (d. 241/855) was asked about appropriating part of a wide street, he answered that such action was worse than taking from one's own neighbor, since taking from the neighbor's property is an appropriation from one person, while taking from the street is an appropriation from all Muslims. Ibn Taymiyyah (d. 728/1328) was asked about a man who bought a house that he wanted to extend. He bought part of the street from the public treasurer, since some individuals testified that the land belonged to the public treasury. Ibn Taymiyyah answered that no one has the right to sell any part of the Muslim's road. The public treasurer does not have such a right unless it is proven that the land is owned by the public treasury --if, for example, it was owned by a person who transferred the ownership to the public treasury. He recommended punishment for those who testified that the land was owned by the treasury [18, v.30, p.6-7; see also 18, v.30, p.399-400; 7, p.213].

If the street is owned by all Muslims collectively, then ownership, because it is frozen, increases the importance of the claim of control as a determinant of the street's morphology. Certainly, the owners who control --all Muslims-- do not all meet to decide if one individual may plant a tree or remove his bench from the street. There must be a system or principle for such collective control. The principle applying to main through streets is that any individual may act and change elements in the street so long as no damage is caused to the public and no one objects. Absence of objection implies tacit approval of the action. If, however, even one individual objects, then the action may not be allowed depending on the damage caused. The objection of one individual means that all individuals of the controlling party have objected.[24]

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[23]For an answer see Chs. 4,5 and 6 of *Crisis in the Built Environment: The Case of the Muslim City* [8].

[24]As-Sinami states that whoever acts so as to affect the public may be prevented from doing so by any individual. 'Abu Hanifah's (d. 159/767) opinion is that any Muslim has the right to object to and prevent an action before it starts or shortly after it is completed [19, p. 207-208].

Territories

From other similar investigations, we may conclude that shared elements such as forecourts, squares, streets and dead-end streets were collectively owned and controlled by the inhabiting party. The town is a series of adjacent properties controlled by users. This means that the morphology of these towns is the outcome of many small scale decisions made by the users, i.e. the decisions were made from "bottom-up." The users occupied properties that formed lanes and dead-end streets, the streets were formed by the boundaries of the quarters [20]. Each territory contained other smaller territories that held smaller territories, and so on. In Fig. 1, number (1) is the purposely or intuitionly left-over space from several territories (A)s; each (A) contained several (B)s and a shared space (2), while each (B) contained private properties (C)s that share a space (3). All (C)s, each controlled its property and was a member in the controlling party (B) that owns the shared space (3). These occupants along with other (B)s controlled their shared space (2), while spaces of (1) are controlled and owned by the whole group or (A)s.
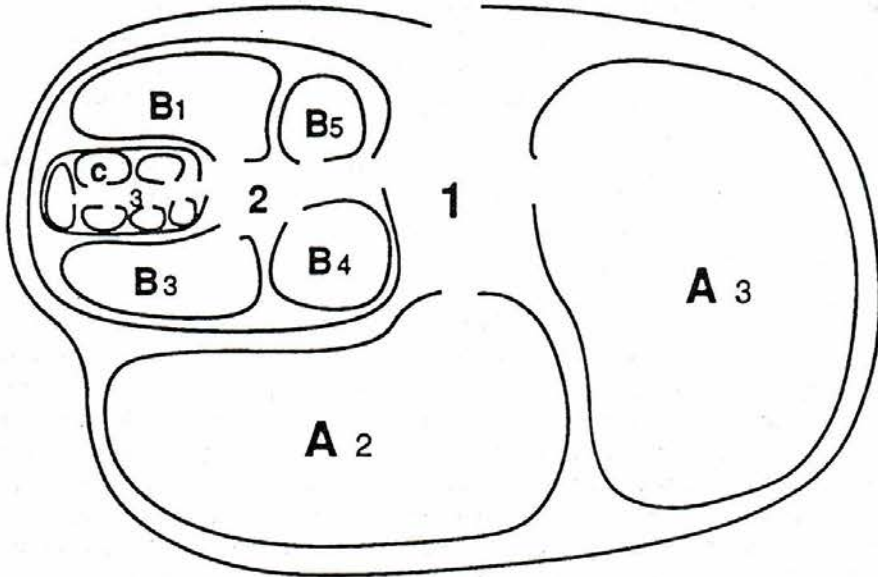

Fig. 1. Letters refer to groups of individuals acting as one party, while numbers refer to spaces: each party A is composed of several Bs, while each party B is composed from Cs.

The major difference between our contemporary cities and traditional towns in terms of territorial structure is that nowadays individuals do not control public spaces directly. External agencies, such as municipalities, do it for them. Any individual has the right to enter any street. To the exception of private properties, territorial boundaries within public spaces in contemporary cities are not well defined and thus professionals

use physical elements to create the hierarchy of spaces such as public, semi-public and semi-private. In Muslim towns, this was done through control. All spaces were private. However, the group of users who were responsible for each space changed depending on the space. In other words, every spot of the city is controlled by a well-defined party that inhabits the site and not like present day municipalities that are remote from the site.

If a traditional environment is composed of autonomous territories, we can expect the **gate** to be a conspicuous element. Gates are, in fact, one of the major characteristics of traditional environments. Because a party controls what goes in and out through its gate, the gate is a very important sign of autonomy between independent territories. If gates prevailed in traditional environments, the authority could not penetrate beyond gates. Consequently, the maintenance and provision of artifacts in those spaces were the responsibility of those residing and using that space, **not** the society as a whole.

Gates were so common in the traditional environment that historians did not document them in detail unless they were unusual. Describing his visit to Isfahan in 444/1052, the traveler Nasiri Khosro states, "I saw the markets of money exchangers in which there were two hundred exchangers; and each market had a wall and a very strong gate" [21, p.102]. Furthermore, the vocabulary of gates was refined, indicating both their importance and prevalence. Ibn Manzur defines "*darb*" as the gate of a dead-end street while "*daraba*" is the gate of a thorough street.[25]

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[25]The terminology regarding gates varied from one region to another, in several ways. First, the same gate for the same space could have different names. For example, Ibn Taymiyyah (d. 728/1328) who lived in Damascus, used the word "*mashra'*" to refer to the gate of a dead-end street, while Ibn ar-Rami used the word "*darb*" to refer to a similar gate in Tunis. Second, the same word was used to describe different gates. Ibn 'Abdin (d. 1252/1836) states that "*al-bawwabah* is known customarily these days as the large gate located on the head (*ra's*, i.e. entrance) of dead-end streets or quarters (*mahallab*)." Third, the same word was used to describe different elements relating to territory or gate. Ibn ar-Rami used *darb* to indicate a gate; al-Wansharisi used it to refer to the frame of the gate--when a dispute took place regarding the gate, the judge ordered the demolition of the door (*al-bab*) and uprooting the frame (*darb*); finally, al-Maqrizi used it to indicate a territory. Al-Maqrizi states, "and I used to live in the *darb* of al-'Atrak." [18, V. 30, p.11; 16, p.336; 1, V. 5, p.446; 23, V. 9, p.7; 24, V. 2, p.37]. Gates of quarters were usually erected by the residents, occasionally at the request of the authorities. In 864/1459 there were so many thefts that a group of wealthy people built gates for the new quarters of Cairo. In 903/1497 the governor of Cairo ordered those who do not have gates in their quarters to build them, and the residents did so. Unlike gates of dead-end streets, the gates of quarters were often built for security reasons, and although sometimes left open during the day, they were usually closed at night. In a festival in al-Fustat in 302/941 where most of the population participated, the streets were exceptionally not closed during that night. Gates used to be closed after *al-'isha'* prayer (usually two hours after sunset), and others were closed just after sunset. During troubled times, however, when thieves, civil war, or invasion threatened, gates were closed for defense purposes. During the civil war in Cairo (791/1389) the gates were guarded and armed. During the political instability in Cairo in 923/1517 the same thing happened. For details see [8, p. 164-173].

Responsibility

As the authority did not own or control public spaces, it did not take care of those spaces, but rather distributed the tasks of building artifacts and maintaining them among the residents of those spaces and thus principles were developed to deal with shared responsibilities among neighbors, i.e. there was a self-built system to construct and maintain infrastructure.

The **first** of these principles was that everyone participated in building and maintaining major public elements of benefit to the entire community. City walls are a good example. In 792/1390 the inhabitants of Aleppo participated --either voluntarily or under compulsion-- in the reconstruction of the city wall. However, when al-'Abdusi was asked who should pay for the renovation of the city wall of Fez, he answered that it should have priority over other renovations from *waqfs* (pious foundation) of the city [25, p.64; 23, v.7, p.303-4].[26] Al-Barzali from Tunis ruled that citizens should participate by paying for the renovations in proportion to their property values, while owners of dwellings that abut the city wall in such way that the city wall is part of the property wall should be compelled to renovate the abutting parts. If they could not, they must sell parts of their property and do the needed repairs [23, v.5, p.150-1].[27]

The **second** principle is that tasks for the general public's interest but not considered crucial, such as lighting the city and fire fighting, were distributed among concerned parties. Lapidus concludes that during the Mamluks' reign, "instead of distributing the tax on the city as a whole, the people most directly concerned were held responsible."[28] In 383/993, each shopkeeper of Cairo was ordered to have ready a water bucket as a precaution against fire. Manuals of inspecting markets (*hisbah*) often ask shop owners to be ready for fires. To illuminate Cairo, al-'Aziz Billah ordered that lantern should be hung out at night by the owners of shops and gates of quarters, dead-end streets and houses [24, p.108; 26, p.29]. It was common practice for shop owners to sweep and water the spaces in front of their shops. The many disputes about overdoing it indicate the prevalence of this practice. For example, if the wetting were more than usual, the shopkeeper would be liable for any cattle that slip and fall [23, v.6, p.420].[29]

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[26]But if no revenues are available, then according to Ibn Marzuq from Miknasah, the people should not be forced to contribute [23, V. 5, pp. 347-348].

[27]As to the mosque, Ibn 'Abi Zayd had the opinion that the people should renovate it, but if they did not, or could not, they should not be compelled to [23, v.5, p. 348].

[28]He relates, "(t)he shopkeepers of the city, for example, were obliged to sweep and wet down the streets and even to clean and repair the part of the public way which passed their property." [25, p. 66].

[29]Until 1246/1830 the shopkeepers and residents of Cairo were compelled to sweep and wet down the spaces in front of their properties, the city officials enforced this custom. This was also one of the muhtasib's responsibilities [27, p.8-9; 26, p.135-136].

The **third** principle is that each individual is responsible for the mess he creates. This attitude places those individuals in critical positions to act. For instance, although shopkeepers were not responsible for mud resulting from rain-water since they did not cause it, still if each shopkeeper swept the mud away from his shop and the mud accumulated in the center of the market, then the shopkeepers were compelled to sweep up the collected mud.[30]

In some cases authorities compelled residents to level or pave streets. The Sultan al-Ghuri in 909/1503 compelled the residents of Cairo to level their streets, and until the 19th century the authority of Cairo used to compel the residents to do the same [27, p.13].[31] Such an attitude is understandable since the authority does not control or own the street. However, legally the authority does not have the right to force residents to solve a problem they did not cause. On this question, the judge 'Ibn Talid states that it is not the residents' responsibility to level streets if they refuse, but rather the responsibility of the public treasury. Ibn ar-Rami relates that there was a road outside Tunis which became impassable when it rains. He asked the judge Ibn 'Abd ar-Rafi' (d. 733/1333) to compel the residents living beyond it to level five hand-spans of its width. The judge refused and asked him to bring him the owner of the majority of the lands involved. The judge then convinced the owner to do the leveling [16, p.432].

The mess resulting from private properties is obviously the responsibility of owners and they should eliminate it. In Kairouan, washing water flowed from some houses to the street through small holes under doors. When informed about it, the judge of Kairouan proclaimed that whoever did not stop the flow of water would be punished. One of the house owners was flogged thirty lashes because his servant did not follow the order. In another case, a person objected that a ruined property abutting him which neighbors used as a dumping place was damaging his walls. It was ruled that it is the responsibility of the owner of the ruined property to remove the dump near his neighbor's wall. However, the owner of the ruined property had the right to compel the neighbors to clean his property. Such cleaning would be distributed among neighbors according to the number of inhabitants per dwelling [16, p.385; 23, v.9, p.36-7].

The **final** principle is that any element used by a specific group of people should be maintained by them. Differences between users were not about who should do the repairs, but how they should be done. For example, as-Sa'igh was asked about a small dam that had been demolished. How should those who benefit from the dam share the cost of repairs? Should it be according to the property's area or value or the amount of benefit the properties gained from the dam? [23, v.5, p.350]. A dead-end street is a good example of shared responsibility among beneficiaries. Whether they all agreed or some

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[30]Al-Lakhmi (d. 478/1085) was asked about the mud near waste water; he answered that each group of people should remove the mud in front of their space [23, V. 6, p. 420-421; V. 9, p. 69].

[31]In 1233/1817 the *muhtasib* Mustafa 'Agha was given the job of enforcing state orders to level streets.

were compelled to agree, how should they share the responsibility if, say, they want to build a gate? In one case it was decided that the cost would be shared according to the resident's wealth, since the poor do not have valuables to guard from thieves. Another opinion was that the cost should be considered according to property, since an improvement in the space would increase the value of even poor peoples' property.[32]

We would argue that the above principles of distributing responsibilities produced the best possible result, given the constraints of the time and place. However, others may argue that the traditional open canals, for example, were unsanitary. Let us not forget that this was not a matter of responsibility, but rather of technology. Those canals were the best that could be done at that time, given the residents' poverty and low technical ability. The population of the walled city of Lahore increased from 50,000 in 1850 to 449,000 in 1982 and the city of Fez from 81,000 in 1926 to 449,000 in 1982.[33] This growth adversely affected the traditional quarters. Obviously, if we judge an infrastructure built to accommodate 1/10 of its existing population, as in the case of Lahore, the judgment will not be positive. In the Muslim world, cities were flooded with low-income migrants, authorities could not cope, and residents, who initiated improvements in the past, no longer had the power to control their environments. The result left the traditional quarters in a sad state. Professionals are using modern criteria to judge the situation and therefore draw mistaken conclusions.

Thus, the quality of the traditional environment was well controlled by the residing individuals. The infrastructure was owned and controlled by the residents who used them. A newcomer would need such services, but in order to connect his property with existing infrastructure he had to get the consent of the residents who controlled. There were **conventions** giving users the power to disallow others to use their infrastructure, which ultimately controlled the population of the environment. To give one example: a new house may only be connected to the waste-water canal if the owner of the new house pays the owners of the canal his share of the cost if the canal runs through any house, then he must also get the consent of that house owner. Obviously, the owners of the canal will not give permission unless their canal is capable of serving a new house, because it is their responsibility to keep the canal in good working order. There were also conventions regarding maintenance: the convention regarding repair of the canal in Tunis, for example, was that the resident of the first house should repair what is in or in

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[32]Ibn ar-Rami relates that the residents of a dead end street wanted to repair (*'aradu 'islah*) things in their space, and asked him to decide for them their shares of responsibility and to put pressure on the few who refused to participate. Ibn ar-Rami asked the judge Ibn 'Abd ar-Rafi' about pressuring those who refused to participate. The judge answered that since they are partners in the space, those who refused should not be compelled. Ibn ar-Rami comments that this was common among the residents of a dead-end street. Ibn 'Itab used to compel those who refused to participate if the majority agreed [16, p. 337]. For the opinion of 'Ibn 'Itab see [23, V. 9, p. 11].

[33]The given examples are the most common cases. For other extreme cases of over population in the Third World countries see, [28, p. 176-185]. For Lahore see [29, V. 4, p. 107].

front of his house and participate with the resident of the second house in repairing the part in front of the second house. Both of them share the responsibility of helping the owner of the third house repair his section, and so on. Anyone who refused was compelled to cooperate. The responsibility of sweeping the canal was shared among the residents. Ibn ar-Rami gives a detailed answer to all the possible cases depending on the slope of the street, the direction of the flow of waste-water and the number of inhabitants of each dwelling, since a large family would produce more waste.[34]

If traditional principles of maintaining the environment were applied today, providing infrastructure would be the residents' responsibility, because they are the ones who need it. Its maintenance would also be their responsibility because they are the ones who cause the mess. Lighting and planting public streets and spaces would be the users' responsibility because it is a distributable task. Thus the authority's only responsibility would be taking care of things that are not crucial and that the residents did not cause, such as, for instance, leveling minor streets. This is assuming that streets are not owned by the residents; if they are, then the authority can advise or compel the residents to pave or level the streets but should not perform that task itself. Paving major streets for traffic and providing highways would be the residents' responsibility since it is a necessity, just as the traditional city wall was. Everyone must share its cost or participate by labor. In this scenario infrastructure is owned by the residents.

Previously, we were searching for a system that would allow people to pay for the provision of infrastructure on dead-lands rather than purchasing infrastructured lands owned by land speculators. We saw that the cost of building infrastructure on dead-lands could be cheaper than purchasing infrastructured lands from land speculators. We also argued that within such a system, the government will be relieved from the cost of providing infrastructure, while the people could find cheaper lands to build on as they are only paying for the cost of needed infrastructure. How much would this system save the society financially?

Infrastructures in contemporary Muslim environments are owned and controlled by governmental agencies. The network of infrastructure is not **territorial**, but rather **linear**. It is ironic that pipes for water and sewage run parallel, often in two different trenches, yet are controlled by different agencies simply because they are viewed as two different disciplines requiring two different skills! Each agency has its own interests; each wants more employees and funds. When an agency does its job, it finds the simplest, cheapest and most durable solution, not necessarily the best solution for the user. For example, when water flow-meters were installed in al-Khobar city (in Saudi Arabia), to save labor, two meters for two properties were installed simultaneously because the water connections of the two properties were initially adjacent to each other. Thus the meters were adjacent, regardless of the location of wet cells (bathrooms and kitchens) within the

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[34]For detailed information see [16, p. 366-378].

properties. As a result, users have to make long connections. The agency controlling the water mains in the city has saved a few hours of labor, but the users have to pay for and maintain longer pipes forever.

If they are given the chance, users will find ways to solve their immediate problems. For example, the residents of some communities have to wait months for the authority to connect them to the water network. The authority distrusts the residents' ability to make their own connections. One may ask, however, who will try to get a better connection and avoid future problems, the resident or the authority's employee? The resident may hire others to do the connection, but he will make sure that it is done well. Some residents went ahead and made the connections themselves. Fearing that the infrastructure would be overloaded, the authority proclaimed that whoever does so will have his water disconnected for two months and be fined.[35] But the State cannot guard the infrastructure like the residing individuals can.

Centralization was introduced to Muslim and Third World countries along with new technology. Unfortunately, this new technology was not tested under the traditional principles of distributing responsibilities. Had it been so tested, principles could have been developed to place infrastructure under the control and ownership of the residents. Consider, for instance, that the sewerage system is owned and controlled by the residents, in such cases all connections inside a property are the owner's responsibility, while the collector pipe in the street, the manhole etc., are the responsibility of all the residents sharing it. They have to coordinate their pipes' connections with other larger pipe-collector owners, and so on. Because users are responsible, this may lead to the development of, for example, gadgets to control or count the maximum amount of waste and its type per dwelling, dead-end street and/or community. For example, in order not to damage their sewerage, people will be careful not to throw grease down kitchen sinks. Moreover, the boundaries between territories, or the location of gates, will have the potential of being the points of connections, manholes, gadgets, etc. Any new addition of floors by a property owner will be challenged by neighbors, since this could overload their shared sewerage system. In other words, the residents, unlike governmental utility agencies, guarantee that the system will be constantly guarded. This is an example for what I called "self-managed system of controlling the built environment."

The above scenario has been created by accepting the contemporary situation in which waste of a city has to be collected for treatment. Why does the waste from one house have to tour the city from one pipe to another in order to be processed or treated somewhere else? Controlling infrastructure by the residents will result in a different organization of industries. The residents may decide to treat their waste on site rather than paying for its journey through the city's pipes. A group of neighbors may decide to

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[35]This case took place in Riyadh. *Al-Jazeerah* daily newspaper, issue no. 3974, August 16, 1983 (8/11/1403).

generate electricity[36] and handle waste disposal in their quarter, thus leading to the development of all kinds and sizes of waste disposal apparatus, such as digesters. To name one example, a British company has lately manufactured Sewage Treatment Systems that costs £ 500-800 to serve 30-40 individuals.[37] This argument does not apply only on sewers, but on all utilities.

Conclusion

It is hoped that readers will not think that we are suggesting the wholesale application of the traditional process, but rather we are searching for methods to learn from history which could be a useful tool in such societal conditions as the ones in Saudi Arabia. But if the above argument is not convincing, let us assume that the sewage of the city has to be collected in one place, and residents have neither the necessary skills nor the time to do it. Small companies or industries will develop to build and maintain the necessary infrastructures if the residents, not the authority, have responsibility, i.e. the **private sector** will take over. A group of neighbors will hire a company to build their infrastructure. They will try to get the best quality for the lowest cost, and they will supervise their infrastructure's implementation as they do with their own houses. They may ask companies to install most services in one trench to save labor. This will push industries to develop the technology needed to accomplish such goals. Prospective residents will try to build within infrastructured areas, spreading the cost among more users. Thus, the system will generate a compact built environment which is economical to the society. Or even, if doors of revivification are opened to the private sector, companies will develop to provide infrastructure and then sell the parcels to the public. The market economy through competition among the many companies operating at different sites will bring the cost of infrastructured lands to a reasonable price.

Tons of books and reports were written about the innovative and efficient approaches of the private sector over State's bureaucratic rigidity. Even when "natural monopoly" as in the case of water supply or "economies of scale" as in the case of electricity are there, it is found that the private sector is much more efficient if regulated. We would ask: can we stand the present system of land speculation which will create squatter settlements in the future or should we open the door of revivification or other similar mechanisms. A revivifier may decide not to have piped water supply as it is costly, he will depend on vending nonpiped water (the sale of water by carriers). This will push him to consume less water where it makes then no sense to build sewers in some communities, but rather use digesters. For that revivifier, electricity is the cheapest of all utilities to connect to, while new technologies of telecommunications made mobile (wireless) telephones available. If he is in a desperate need for a telephone, he will get it even if he revivified a parcel in a remote site. This method would cost him much less

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[36]For an example of a self-management power generator, see [30].

[37]The company's name is Conder Hardware Ltd. Winchester, UK.

than owning a parcel nowadays. Thus, rather than being a homeless or squatter settler, he at least has a shelter. But let us not forget that this situation will not be reached as companies will be developed to provide all needed utilities with costs lower than the existing land price. Moreover, innovative approaches will appear. The people may decide not to have street lighting poles which is quite costly. They could easily agree to light the street by installing lamps on the walls of their front facades, and so on. In other words, diverse packages of infrastructures will appear to replace the standard infrastructure used by the authorities that is difficult for some users to jump up to.

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الاعتبار من التراث: وفرة الأراضي والنمو السكاني،
نازلة المملكة العربية السعودية

جميل عبد القادر أكبر

أستاذ، كلية العمارة والتخطيط،
جامعة الملك فيصل، الدمام، المملكة العربية السعودية

ملخص البحث. إن المهنيين في المملكة العربية السعودية وكثير من الدول الإسلامية يحاولون الاعتبار مــن التــراث الإسلامي لإيجاد حلول معاصرة. بقبول هذا المنطق، يحاول هذا البحث إقناع متخذي القرار بالطرح التالي: إن سكان المملكة العربية السعودية سيتضاعفون خلال العقود القادمة، وهذا يعني أن الرقعــة العمرانيــة ستتضاعف لا محالة إن نحن حاولنا المحافظة على ذات المستوى من الخدمات والمرافق الحالية، وهذا بالطبع ســـيكلف الكثير. ولتقليل هذه التكلفة فإن هذا البحث يقترح حلولا مستقاة من التراث تتميز بذاتيتها في التشــــييد والإدارة والصيانة، وذلك بتقليل تدخل الدولة قدر المستطاع.