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A Survey of Saudi Arabian Urban Problems*

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Abstract. Saudi Arabia has been transformed from a *bedouin* to an urban society in a period of less than half a century. One result of this rapid urbanization is the emergence of a number of serious problems which are associated with this hectic pace of urban development. The objective of this paper is to examine the underlying causes and implications of five of the more serious urban problems: uncontrolled (and probably uncontrollable) urban expansion, the adoption of what can be described as an alien form of urban planning, the problem of providing water to a growing number of urban residents, traffic congestion and an emerging shortage of appropriate housing for the population. These issues will be examined in light of definitions which will be developed with respect to the sustainability of human settlements, the objectives of urban planning and urban policy.

Certain solutions to the problems identified here will be discussed in a companion paper, "Seeking Solutions to Saudi Arabian Urban Problems."

Introduction

Saudi Arabia is one of the most rapidly urbanizing countries in the world. Any time that urbanization occurs at such a rate, problems arise that require solution. The purpose of this paper is to provide an evaluation of this urbanization as it has occurred in the Kingdom of Saudi Arabia, looking particularly at five very obvious areas of difficulty: uncontrolled urban expansion, an approach to urban planning that in many ways was alien to the society, the problem of providing water to cities in the middle of the desert, traffic congestion and housing. In a companion paper, possible solutions to some of these problems are presented.

These observations of urbanization in Saudi Arabia are very personal, based on what the author has seen of this country's urban structure (which admittedly is not all that much) and on what he has read (which is quite extensive). Although the urban development of cities in the Kingdom is quite distinctive in style, that is, Makkah and Medina and even to a lesser extent Jeddah are different from urbanization in Riyadh, urbanization in the capital Riyadh is held up here as the standard for two reasons: First, the author has been based in Riyadh and has had limited personal experience in other cities of the Kingdom. Second, it appears that Riyadh's style of urbanization may well represent the emerging trend in Saudi Arabia, and as a result may spread to the other areas. Therefore, hopefully, the focus on Riyadh experiences will not bias these observations too much.

In addition to this potential geographical bias, there are three sets of planning issues which, again because of personal experience, color these observations. The first of these is the concept of sustainable development, or more accurately, the concept of the sustainability of human settlements. The second is the entire basis and objective of an urban planning system. The third is the author's great interest in the potential gain to be derived from urban

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policy. These must be defined at the outset of this discussion.

The best known definition of sustainability is that given by the World Commission on Environment and Development back in 1987, who stated (World Commission on Environment and Development, 1987: p. 8) that sustainable development is 'meeting the needs of the present without compromising the ability of future generations to meet their own needs'. This is a very appealing definition which is, unfortunately, much more complex than it appears at first sight and not quite as helpful as it first appears, as there is little link with urban settlements, and certainly it is impossible to find anything to really measure in this definition. Still, it provides a sound starting point for sustainability analysis.

A more helpful definition of sustainability is found in Hardoy, Mitlin and Satterthwaite (1992). Although this definition was compiled from other sources, it contained elements that are capable of actually being measured so that one could gauge progress. According to these authors, sustainability '1. involves the minimization in the use of non-renewable resources; 2. the achievement of the sustainable use of renewable resources; 3. staying within the absorptive capacity of local and global waste absorption limits; and 4. meeting basic human needs'. There are still at least two major omissions from such a definition. First, there is nothing unique about the role of human settlements in it. Second, it is strictly a static definition in that it does not allow for rising expectations as progress and development occurs.

These constraining factors can be overcome if human settlements are defined as (Choguill, 1999: p. 136) 'sustainable if they facilitate for residents of towns and cities material progress and improvements in personal welfare, over and above basic human needs, while at the same time minimizing the use of non-renewable resources, the sustainable use of renewable resources, and staying within the absorptive capacity of local and global waste absorption limits so that future urban generations can meet their own needs'. It is this definition that will be applied in these observations on Saudi Arabian cities.

The second set of criteria that must be established at the outset is the role and objectives of urban planning. Hall (1985: p. 6) provides a good starting point in stating that 'planning as a general activity is the making of an orderly sequence of action that will lead to the achievement of a stated goal or goals'. Perhaps surprisingly, there is not all that much urban content in that definition.

To 'urbanize' this concept of planning, the most straightforward approach is to adopt a set of urban planning objectives that have been set out by the World Bank (2002), who state that there are four primary objectives to urban planning:

1. To promote efficient provision of urban infrastructure and allocation of land use, thereby contributing to economic growth.
2. To manage spatial extension while minimizing infrastructure costs.
3. To maintain or improve the quality of the urban environment (including the quality of the housing stock).
4. To preserve the natural environment immediately outside the urban area.

It is difficult to provide better objectives than this list, and thus for the current analysis, they will be adopted.

Finally, with respect to urban policy, a concept that will become particularly important in the companion to this paper where solutions will be considered, the term is defined (Choguill, 2003: p. 261) as 'the set of rules and procedures that urban government personnel follow in managing their territory, raising and spending public money and providing services to residents of the jurisdiction'. The importance of this definition is that it provides the path to achieve the sustainability of human settlements as they have been defined here.

With this rather extensive evaluative framework, attention is now focused on Saudi Arabian cities and some of the problems that have emerged in the last 50 years

The Phenomenal Urban Growth in Saudi Arabia

A good place to start any review of a country's urban situation is to look at the national five-year plans and see what the government itself says about its own urban places. As a result, consider the *Seventh Development Plan*'s (Saudi Arabian Ministry of Planning, 2000), Chapter 14, which is concerned with provincial and urban center development. The first problem highlighted in that chapter is the need for further efforts in regional planning, and in particular for spatial diversification. Four very relevant objectives are given:

- To reduce internal-migration which has adverse impacts on major urban centers.

- To protect the environment, preserve bio-diversity and implement national and international environmental standards.
- To develop, organize and coordinate economic activities at the regional level to ensure optimal utilization of economic resources based on the comparative advantages of each region.
- To enhance the role of the development centers and enable them to contribute to the development of the various regions of the Kingdom.

The true revelation behind the thinking on these objectives is found in the two most important policies prescribed: to enhance 'the efficiency of infrastructure and services in rural areas' as a means of slowing down migration, *and* to encourage Saudis 'to take up employment in rural areas through the provision of rewarding job opportunities, material incentives and appropriate living conditions in these areas'.

Interestingly, there is virtually no discussion at all in the chapter of the *Seventh Development Plan* on the five *amanat* cities other than a short discussion about the need for a long-run housing strategy, an issue that will be considered later in this paper. Yet, these *amanat* cities are the location of much of the urban dynamism of the Kingdom. For the record, give your attention briefly to the growth rates of seven large Saudi cities over the period 1974 to 1992 (Table 1):

Table 1. Population change of seven Saudi cities (1974–1992)

City	Annual Growth Rate (%)	Absolute Change in Population
Riyadh	+7.8	+2,110,256
Jeddah	+7.1	+1,485,147
Makkah	+5.2	+589,896
Medina	+6.1	+410,109
Dammam	+7.2	+453,477
Taif	+2.3	+211,264
Tabuk	+7.4	+217,730

Source: Population Census, cited in Alkhedheiri (2002: p. 82)

As Table 1 reveals, the growth of seven large Saudi cities has been nothing short of phenomenal. Rates of urban growth above the natural rate of population increase, which has been about 2.6% per year, indicates a high level of in-migration in all cities except Taif. The final column, where the absolute change is given, highlights the challenge that this increase in population has given to urban managers, as this represents the demand for housing, social and physical infrastructure, and all of the other ingredients that make up the modern city.

Table 2 focuses on three of these cities over a longer period of time highlighting the extent of the problem. These figures include United Nations projections for future years. From the table it is apparent that the growth has been steady and is still not completely finished, although in the future much of it is likely to be at a lower rate, suggesting the importance of natural increase in the urban population.

Table 2. Past and projected populations (in thousands) of the three largest cities in Saudi Arabia

Year	Riyadh	Jeddah	Makkah
1975	705	584	NA
1980	993	745	NA
1985	1,401	952	550
1990	1,975	1,216	663
1995	2,576	1,468	777
2000	3,324	1,810	919
2005*	3,990	2,139	1,079
2010*	4,587	2,460	1,244
2015*	5,111	2,753	1,399

* Projected

Source: United Nations Center for Human Settlements (1996, 2001).

Finally, just to further emphasize the point, consider the 'urbanization rates' for Saudi Arabia from 2000 along with the projected rates into the future, as given in Table 3. These rates indicate that Saudi Arabia has become almost completely urbanized in a very short period of time.

Table 3. Actual and projected urbanization rates in Saudi Arabia (1975–2020)

1975	2000	2010*	2020*
58.7%	86.2%	90.0%	91.6%

*Projected

Source: United Nations Center for Human Settlements (1996, 2001).

The interesting question, of course, is why this phenomenal urban growth has occurred. There are obviously at least three reasons for this migration.

First, beginning in 1912, King Abdulaziz initiated the *hijar* program aimed at the permanent settling of the Saudi *bedouin* population. Although it may have started primarily as a means of controlling religious militancy, it soon extended into agricultural development and picked up speed as a result. Hence by 1982, there were 4,020 *hijar* settlements in Saudi Arabia (Alkhedheiri, 2002: p. 73).

The second stimulus of migration was the Saudi oil boom which lasted roughly from 1974 to 1986, which literally transformed the Saudi economy, turning this rather poor desert Kingdom into one of

the richest nations in the world. According to Hayes (1980), during this period Riyadh was expanding so quickly as residents of rural areas moved to the city to participate in the new riches that the city was described as 'moving northward' at a rate of 2 miles per year. From 1974 to 1980, car registrations in Saudi Arabia increased by a factor of 10, and the demand for electricity rose at 50% per year.

The third reason for the shift was concerned a change in the Saudi lifestyle that accompanied all of the other impulses for growth. Although there are very few studies of Saudi migration over this period, there is one from 1995 (El-Sakran, 1995) which tries to identify why people actually moved to Riyadh. The findings of this study reflect the results obtained in many other studies from diverse countries around the world, although the figures themselves are rather surprising. In the Saudi case, 17% moved because of lack of job opportunities in the smaller towns from which they came, 5% because of a lack of educational opportunities, 4% because of unfavorable economic conditions, and a massive 75% for 'no specific reason'.

This 'no specific reason' sums up many of the limitations that exist in small towns. Small towns are generally based on something to do with agriculture. Agriculture is hard physical work, and given the potential alternative of pursuing a job that potentially relies more on brain than on brawn, when coupled with the lure of free housing plots from municipalities and no-interest mortgages from the Real Estate Development Fund which were available at the same time, it is hardly surprising that the rate of growth in Riyadh, as well as other Saudi cities, was so great.

Can Saudi Arabian Urban Migration Be Slowed Down?

This somewhat superficial review of past Saudi urbanization trends augers poorly for the objectives of stemming further rural-to-urban migration as stated in the *Seventh Development Plan*. Most of the potential migration has already largely taken place, and when coupled with the extremely high birth rates here in Saudi Arabia, further rises in the urbanization rate seem inevitable. Any hope of, as they say, 'keeping them down on the farm', by building some infrastructure and encouraging the private sector to provide employment opportunities, seems ill-fated.

A similar observation might be made concerning a supporting document, the *National Spatial Strategy* (Saudi Arabian Deputy Ministry of Town Planning, 2001). This well written and theoretically perceptive document may have as many implementation difficulties within this domain as the National Plan.

Restraining migration, or even reducing the flow, is a difficult objective to achieve. Studies of small town development programs as a means of stemming migration in countries such as Malaysia, Tanzania and even in the USA are little more than a waste of money (Choguill, 1989). Only the Chinese and South Africans have succeeded in keeping people in the rural areas and out of the cities, and once the almost draconian laws preventing migration in these two countries were relaxed, in both, rural residents flocked to the cities, even if they knew their lifestyle would be no better, and probably worse, than in the villages.

Work on growth poles (Choguill, 1974; 1977), a popular policy not just in Saudi Arabia but in other countries as well, has revealed that towns with populations of less than 25,000, which of course make up the major source of migration to Saudi Arabia's big cities, have virtually zero chance of capitalizing on employment-creation growth impulses unless they are based on an abundant supply of natural resources or are subsidized over the long-term by a generous government.

Yet, these are really issues for the future, whereas the emphasis in this analysis is with the past. Return to the 1950s and 1960s, but particularly in the 1970s and 1980s, as this was the time that rural Saudi Arabia moved to the city. This leads to a second set of problems: the style of planning adopted by Saudi Arabia in the late 1960s, but one which in a similar form continues today.

Planning in Riyadh

In 1968, the decision was made to invite Constantinos Doxiadis to come to Riyadh and to prepare an urban plan for this city that was about to take off into astronomical growth. Some consider it strange that a modernizer such as Doxiadis would be invited to what must have been rather a traditional, almost sleepy, Arabian small town, to prepare an Ekistics-style master plan (Doxiadis Associates, 1974). Yet, given the poor state of services in Riyadh at that time, and the desire on the part of many decision-makers who were also modernizers to push hard to get Riyadh into the 20th century, the Doxiadis invitation was a rational one within the contemporary

timeframe. In one sense it was unfortunate that the invitation was made in 1968, rather than 1978, as by the latter date, the pattern of growth of the 'new Riyadh' was beginning to take shape. However, 1978 may have been too late to catch up with the planning backlog, and it was certainly too late for poor Mr. Doxiadis, who died in 1975.

Riyadh's first master plan was approved by the Council of Ministers in 1973 (the most extensive analysis of the Doxiadis plan is found in Al-Hathloul (1996), especially Chapters 5 and 6. The plan projected, and hence guaranteed, growth in a northward direction from the existing old city, with expansion constrained on the west by the Wadi Hanifah. The Doxiadis Plan was based on the concept of the superblock, a grid arrangement of 2 x 2 km^2 squares, extending around a linear north-south spine. It has been suggested that the 2 km^2 squares were an effort by the planners to replicate the Arabian village, and that each block would be supplied with a set of shopping, religious and other necessary facilities. The blocks themselves were to be divided by major east-west and north-south arterials that would provide the linkages between the blocks.

The land-use system proposed called for industrial areas to the southwest of the city, with the upper-income, commercial and administrative activities congregated in the northeast (Al-Mubarak, 2004: p. 580), thus effectively dividing the city into two sections based on income and class.

The grid and the high-speed arterials were obviously the major building block of the Doxiadis system, creating patterns that could be endlessly repeated as the city absorbed more and more population. The Riyadh grid was not a Doxiadis invention. It had been used originally in Aramco workers' settlements in the Eastern Province (Al-Hathloul, 1996: pp. 149-57; Al-Mubarak, 1999) and later in 1953 for housing developments in Al-Malaz that were designed to provide pleasant suburban accommodation for civil servants transferred to Riyadh from Jeddah and Makkah (Al-Hathloul, 1996: pp. 163-7; Al-Mubarak, 2004: pp. 586-7). Still, it was central to the Doxiadis plan not just in Riyadh but in all of the cities for which he provided plans.

A lasting legacy of Doxiadis was the Saudi 'villa'. Although this too can be traced back to the Al-Malaz development, the Doxiadis blocks, square plots, and suggested planning ordinances were ideally suited to further extension of this style of living, something that Saudis took to enthusiastically once the oil boom of the next decade got fully underway (Al-Hathloul, 1996: pp. 167-77).

Another interesting aspect of the Doxiadis planning process was the inclusion of greenbelts to protect and limit the growth of his cities. The green belt in Riyadh never stood a chance, as the northward expansion of the city overran it within a very short time. Riyadh's fashionable Olaya Street running north from the original city transverses what used to be the 'green belt'. How ironic.

The Doxiadis plan was obviously thought of as a sign of modernity being introduced into the urban scene in Saudi Arabia. In many ways, Doxiadis epitomized the western, 'modernist' urban planning model. Without doubt he subscribed to the four objectives of urban planning listed at the beginning of this presentation. There is, however, a problem with the Doxiadis approach or that SCET plan (SCET, 1980) that expanded Doxiadis and provided a basis for implementation. The entire approach was totally foreign to the Saudi culture and mentality, and once it was established in an irrevocable way, many Saudis began to question this non-traditional approach.

If Saudi Arabians were given totally free reign to plan Riyadh, what would it look like? Although it is dangerous to speculate about what might have been, there are a few guides to lead us in such a quest (see, for example, Eben Saleh, 2001, 2004; Soliman, 2002; and Bianca, 2000). Remember, however, that one characteristic of the average Saudi Arabian is a fondness for technology, whether it be in the form of mobile phones equipped with cameras, flat screen television sets designed to download transmission signals from overhead satellites signals or the latest 8 cylinder 400 horsepower motorcar. In other words, there has been from the beginning an inherent contradiction between the strict interpreters of Islam, and sincere desire of many in this country to modernize, whatever that might mean.

Still, one can hypothesize that most Saudis at the time of Doxiadis would have expected the planners to produce a document that is provided for housing units that afforded the privacy and security that Islam demands, a non-geometric design of street layouts that included a hierarchy of streets, alleyways and dead end streets and a land-use pattern focusing on the mosque and other community facilities.

Inherently, these two concepts of urban planning are in conflict. Doxiadis did his thing, conforming to local cultural norms to the extent that he understood them, and the Saudi urban residents then proceeded to

adjust it to meet their own needs, and it is this incompatibility that has led to many of the problems that are plainly apparent to any observer of the Saudi Arabian urban scene.

The Problem of an Expanding City

As an example, consider the spatial expansion of Riyadh about which so much concern has been expressed by planners. In 1950, the city was constrained by its traditional defensive walls, and amounted to only about 1 km^2. Then came the growth phase, and the city currently occupies nearly 2,000 km^2, which is said to be larger than the spatial extent of Los Angeles in the USA.

Now if this figure is correct, and given the dynamic nature of spatial extent, it is unlikely to be all that precise, then the gross density of Riyadh must be about 1,662 persons to the km^2. How does this compare with other cities in the world? Quite favorably actually. Manila, for example, has 46,000 persons per km^2 while Recife, Brazil has 6,230 (United Nations Development Program, 1994). Although these may not be either typical or comparable with Riyadh, they do at least give some idea of general magnitudes.

Planners say that low densities result in a number of undesirable outcomes:

- Infrastructure is more expensive on a per household basis as more pipe or road or wire is needed to hook up the entire city.
- Congestion on the road system is more likely because if residences and workplaces or shopping facilities or social attractions are widely separated, which they are likely to be in low-density situation, more trips will be generated to more places.
- More social infrastructure, such as health and education facilities, are needed because of the limited distances that the sick and the infirm, or young children, can be expected to travel to such establishments.

In order to cope with such problems, urban authorities in Saudi Arabia have gone to great efforts to develop and implement urban growth boundaries on the 100 largest cities and towns in the Kingdom. As Al-Hathloul and Mughal (2004: p. 621) have reported that the objectives of this exercise were '(a) to control urban sprawl by encouraging infill development within the planned area; (b) reduce cost of the provision of infrastructure through better coordination between its provision and urban development plan, and (c) maintain natural environment particularly around the cities through preservation measures'.

Phase I boundaries were imposed to limit growth during the period 1985 to 1995. A larger area was delineated to accommodate growth expected between 1995 and 2005. Finally, the area beyond the 2005 limit was designated as an urban protection zone, reserved for future urban expansion if required.

Has the policy been effective in limiting the growth of the Kingdom's urban areas? Al-Hathloul and Mughal (2004: pp. 620-2) state that the objectives of the exercise have been met, although to varying degrees, while reinforcing their views with virtually no empirical evidence. They do suggest that the enforcement of the boundaries in the three metropolitan cities of Riyadh, Jeddah and Makkah could have been more effective. The most interesting issue that could be readily researched is whether there has been any increase in the utilization of existing infrastructure and whether, as a result, this has led to greater efficiency in terms of lower capital and operating cost per household.

Another sensitive issue in the urban boundary policy is that although restrictions were placed on the supply of government-provided infrastructure prior to certain dates, that did not preclude private developers from providing the infrastructure themselves to their new developments beyond the appropriate boundary.

Al-Hathloul and Mughal appear to conclude that in most places, the policy worked, yet this is hardly unexpected. Of the 100 largest cities in Saudi Arabia, it would be greatly surprising if real urban growth pressure existed in more than 30 of these cities, almost guaranteeing that land in the remainder would not be subject to enormous growth pressure, whether the policy was effective or not. It appears that no comprehensive analysis of this policy has been made, or if it has been carried out, it is not available to the general public.

A major problem with any policy of this sort is that although urban boundaries and restrictions on development sound like a fine idea, too often they come to be seen as minimum boundaries rather than maximum. Hence, when 1995 rolled around, and development was permitted in the Phase II land, still as much as 30% of Phase I land was vacant (Al-Mubarak, 2004: p. 585), but still emphasis shifted to another area rather than concentrating on utilizing areas nearer to the city center.

There is, however, one additional issue associated with the urban growth boundary policy as it was formulated that deserves attention. This refers to the respect for the urban protection zone beyond the 2005 boundary. Recall that one of the primary objectives of urban planning as outlined at the beginning of this paper was to preserve the natural environment immediately outside the urban area, or translated into the context of Riyadh, in the urban protection zone. Unfortunately, many of the raw materials needed to create the modern city come from this so-called urban protection zone. The appetite of villas for natural resources, particularly the high-quality limestone that occurs in the geological formations immediately outside the city of Riyadh, is colossal. As a result, much quarrying has taken place with no restoration upon the completion of mining operations. As a result, much of the countryside around the city has been destroyed, which was hardly the intention when the urban protection zone was established. To anyone who has ventured into these peripheral areas, it is apparent that there has been a very unevenly matched conflict of two forces: environmental preservation and rapid urbanization. In fact, if the urban preservation zone beyond the 2005 boundary is not protected sufficiently, then everything in this zone is going to end up in the walls of someone's villa in Riyadh, and future generations of Saudis will be the losers.

But then, perhaps, here again is evidence of the conflict of Saudi culture and Doxiadis-type plans. If indeed privacy is the prime motivation for moving further and further out of the city, one can hardly then complain about the problems with urban sustainability, using the definition outlined at the beginning of this paper. It is tempting to hypothesize that one motivation for moving out, and thereby expanding greatly the spatial extent of Riyadh, is the quest to find cheaper land. Yet, from what little information is available on this topic (Telmesani, 1995: pp. 192-6), if anything this distant land can be even more expensive than land closer to the city. If so, it seems that the pursuit of privacy overrides other considerations, the Saudi Arabian way of coping with Doxiadis-type plans.

Before leaving the density issue, it is important to note that sustainability and density are intimately linked. At some stage, this issue will have to be addressed if urbanization in the Central Arabian Peninsula is to survive.

The Problem of Water

There is, however, another issue that is perhaps more worrisome even than that of density. That is the availability, or perhaps one should say the lack of availability, of water. Saudi Arabia is famous for this problem and it is indeed a very serious one.

At one stage, given the very limited usage, Saudi Arabia was blessed with abundant underground water resources. Agricultural production has, however, significantly reduced this resource in a relatively short period of time. Consider, for example, the situation in the central province of Qassim, famous for aerial photographs of green circles of wheat and alfalfa that have been irrigated by a sprinkler system. The water for this wheat comes from 'fossil water' from two Ordovician (meaning that the water being used on today's wheat and alfalfa is 500 million years old) aquifers that underlie Qassim, the Saq and the Tabuk. Moving further south, into Riyadh province, farmers exploit the Minjur aquifer from the Triassic (220 million years old). The three aquifers that lie under Central Saudi Arabia have three points in common. First, virtually all of the water being pumped from these aquifers, fully 91%, is used for agriculture. This leads to unexpected results, as in 1992 Saudi Arabia was the sixth largest wheat exporter in the world, selling a product that at that stage cost 4 to 6 times the world price to produce (Shetty, 2001) given that it was based on irrigation water, and was only sustainable if farmers were given the water for free.

The second point is that the recharge rate of the aquifers is far less than the usage. The FAO (2004) estimates that water withdrawal in Saudi Arabia is 955% of renewable water resources. Basically, that means that every year the Kingdom uses from underground sources 10 years of water recharge, obviously a non-sustainable situation.

The third point is that if Saudi Arabian water use remains unchanged, then given the underground water reserves, this author's calculations based on some rather heroic assumptions suggest that the aquifers could be expected to begin to dry up anytime between 2023 and 2034. Obviously, problems will arise in some areas sooner than others, but the conclusion has to be that like petroleum, water is a finite resource.

As a result of high rates of urbanization, the relative shortage of underground water and the high cost of developing what underground water that there

is, Saudi Arabia has necessarily turned to other sources of pure water in recent years. The Saudi Seventh Development Plan (Saudi Arabian Ministry of Planning, 2000) estimated that by last year (2004), the urban water requirement would be 5.5 million m^3 per day, an amount that represents about 10% of the total consumption when agriculture and industry are taken into account. Domestic water is increasingly obtained through the desalination of sea water.

To meet this need, in 1973, Saudi Arabia created the Saline Water Conversion Corporation, which is now one of the largest industries in the country. Saudi Arabia is the largest producer of desalinated water, producing 30% of the world's total, with operations on both the Red Sea and the Arabian Gulf. Because of the multistage flash technology employed, the desalination process produces about 18% of the nation's electricity.

Although the Saline Water Conversion Corporation has proven the existence of significant economies of scale in water purification, with the cost of plants with a capacity of 100,000 m^3 per day costing less that SR 2 per m^3 and plants with a capacity of 1 million m^3 per day expected to lead to costs of SR 1 per m^3, the purified water still has to be transported to inland locations for consumption. This final transport stage is expensive, greatly adding to the cost and making the water more expensive than ground water sources. Eventually, as groundwater becomes more expensive, the downward trend of costs of desalinated water, as a result of bigger plants and better technology, will move closer to the upward trend of groundwater costs due to the need for deeper wells and more difficult extraction. Although it is difficult to put a cost figure on desalinated water compared to groundwater (this depends on the technology and scale of desalination plants, the difficulty of obtaining groundwater but also the cost of purifying it if required), it has been estimated (Murakami, 1995) that the unit water costs of desalination are 5 to 10 times as high as those of conventional water resources development.

Still, Riyadh, for example, according to the Arriyadh Development Authority (2005), gets roughly two-thirds of its water from the desalination plants in Jubail by a 450-km pipeline, and about one-third from a variety of sources here in central Arabia that, as noted above are finite, in that unless a major national policy change occurs soon, the groundwater will run out due to high agricultural use. Riyadh's freshwater sources include dams in Hair, Laban, Namar, Olab and Wadi Hanifa, the 18 wells of the Bowaib Water project, the 62 wells of the Wasei' Water project, the wells and a desalination processor in Salboukh and the 65 wells from the Al-Hunayy Water Project (Saudi Arabian Information Resource, 2005). Some of these, such as Wasei' and Al-Hunayy are over 100 km from Riyadh, suggesting high transport cost.

Riyadh's per capita water consumption is high by international standards, as it currently stands at about 303 liters per person per day, compared to European consumption rates of less than 200 liters per person per day (World Bank, 2005). This may, of course, reflect the climatic differences, but unfortunately probably also reflects the high demands of many palm trees throughout the city that are very thirsty. Still, water consumptions rates are improving, down from 517 liters per person per day just 15 years ago.

When the cost of water is taken into account, the sustainability of the entire water operation is called into question. The cost of water in Saudi Arabia, because of generous subsidies, does not exceed 15 halals (SR 0.15) per m^3 until water usage surpasses 500 liters per day (500 liters is ½ m^3) (World Bank, 2005). As a result, there is little incentive to reduce wasteful water use. The discrepancy between the cost of producing desalinated water (no less than SR 1 per m^3 plus transport) and the sales price is plainly apparent. The apparent subsidy to water consumers in Riyadh is the equivalent to 300% of the desalination cost plus the cost of transport by pipeline from Jubail to Riyadh. How long can any government continue this kind of activity? Yet, any attempt to reduce the subsidy might well result in the same thing that happened after an attempt to remove subsidies from electricity in April 2000: the rate rises were reversed in October of that year after strong public opposition.

Presumably one result of this pricing system is that in fact most Riyadh homes do not receive water from the municipal system on a regular basis. A Zogby poll (Zogby International, 2001) revealed that only 9% of Riyadh homes receive a continuous flow of municipal water daily. Another 12% receive a continuous flow about every other day, 20% say three days a week, and 7% say once a week. The remainder were either not sure (84% use pressure pumps to make the water flow to overhead storage tanks) or had a different timetable from that presented in the questionnaire.

There would appear to be physical planning implications in the water supply given that one-third

of Riyadh's water supply comes from very finite freshwater supplies, while two-thirds are supplied at a highly subsidized, and hence non-sustainable, rate. Population limitations would seem to be essential unless technological breakthroughs in desalination methodology occur at an unprecedented rate. Alternatively, the national spatial plan should perhaps emphasize even more the importance of the east and west coast development corridors at the expense of the north-south corridor based on Riyadh.

The Problem of Congestion

Another result of the Doxiadis plan for Riyadh is the emphasis on personal transportation by motorcar, and the provision of long, straight roads to make this feasible. As a result of the extent of the city, everyone drives, and it is estimated that 92% of all personal trips take place by car, with the number of car trips made increasing year by year. A few years ago, Arriydh Development Authority (1987; 1996) reported that between 1987 and 1995, vehicular trips rose at a rate of 9% per year. The more recent Seventh Development Plan (Saudi Arabian Ministry of Planning, 2000: p. 7) has predicted that over the five-year planning period from 2000 to 2005, the demand for intra-city transport in major cities and population settlements will rise at an annual rate of 3.3%. The inevitable result of this set of circumstances is congestion.

Again, this is a particularly relevant issue in Riyadh. As Al-Mosaind (1998) has noted, the two major radial freeways, King Fahad Freeway and Makkah Freeway reached their designed capacities of 160,000 per day two years after their completion in 1991. As a result, many segments on these two roads are at a standstill not just during rush hours, but at frequent other times of the day. And, given the likelihood of Saudi drivers to run into each other, scattering parts of their very expensive vehicles and themselves all over the road, thus seriously disrupting the traffic flow, it is not just road capacity that contributes to congestion.

The obvious answer to this problem is investment in public transportation. A few years ago, the public bus company, SAPTCO, did indeed attempt to establish certain set bus routes within the city. The project failed because of low usage. The result was that the routes were left to private minibuses that operate on popular routes, stopping at any time they see a passenger, disrupting traffic flow in the process. These minibuses are not all that different from the 'informal' transport facilities that occur in other parts of the world. Owned entirely by the private sector, they operate under such titles as *dolmuşes* in Turkey, *jeepneys* in the Philippines, *putt-putts* in Thailand and *mammy wagons* in much of Africa, although it is unlikely that Saudi Arabians would like to be placed in this category of nations.

A quick look inside the Riyadh minibuses is enough to give some idea why SAPTCO's effort at public transportation here in Riyadh failed. The only riders of the private minibuses are expatriate men. It seems that Saudi men are so pleased with their cars that when given the choice, they would never utilize public transportation. Although it would seem a natural to let the women take the bus if 'women-only' buses were available, such is not the case, as the average Saudi male would rather pay for a second car and an underutilized driver from Pakistan or the Philippines, thus causing foreign exchange loss to the country, than allow his women to travel alone on public transport and run the risk of having contact by some man other than the husband or guardian. Again, privacy conflicts with planning efficiency.

An interesting recent development is the announcement that work will soon begin on a light rail system which will follow two routes: a north-south line along Olaya and Bat'ha Roads, and an east-west line along King Abdulla ibn Abdulaziz Road. Given that the two lines both during and after construction will further congest these two very important arterials, reducing capacity significantly, and given that under present cultural assumptions the only potential passengers will be expatriate males, and then only if the light rail system can under-price the private minibuses, which seems unlikely, the proposed light rail system appears to be a very expensive white elephant. Surely further investment in buses and bus route infrastructure by SAPTCO, even if not financially remunerative, is at least cheaper than the light rail system. After all, subsidized buses surely cannot be more expensive than subsidized water.

Problems on the Horizon for Housing

The final issue to be considered in this paper is one that might surprise many in Saudi Arabia: housing. Again and again it has been stated that Saudi Arabia is unique among countries in that it does not have a housing problem (for example, see (Al-

Hathloul and Edadan, 1995: p. 158; Al-Hathloul and Mughal, 1991: p. 269)). In fact, it is frequently said that there are empty houses just waiting for someone to move in to. Although this may have been true at one stage, this is likely to become quite a serious problem in the future.

If one reviews the housing development history of Saudi Arabia over the last 30 years or so, it is apparent that there have been some notable achievements. In the early 1970s when migration to the larger cities of the Kingdom really got underway, the government took two very generous steps. First, the government, through the municipalities, gave free land plots to people who needed them to build their houses. Second, with the establishment in 1974 of the Real Estate Development Fund (REDF), loans were granted to people to build houses on these plots. REDF plots were subsidized in two ways: they charged no interest, and early repayment gained the borrower as much as a 30% deduction in the amount due to repay the loan.

There is little doubt that these twin programs were extremely productive in facilitating a housing boom in Saudi Arabia that lasted well into the 1980s. Furthermore, the REDF is thought to have had a significant affect upon the physical shape of cities, such as Riyadh. Telmesani (1995: p. 188) has demonstrated that the effect of REDF loans has been to significantly increase 'housing consumption levels for middle and lower income households in a manner disproportionate to their income level, and hence allowed them to join upper income households in lower density suburban areas, where larger and higher quality single-family units can be built'. The low gross densities which result, contribute to the very low housing densities that exist in Riyadh, estimated at three dwelling units to the hectare (Telmesani, 1995: p. 196). Furthermore, the REDF scheme, to some extent, reinforced the social segregation in Riyadh that we noted earlier, with the poorer families clustered more to the southeast of the city, while the higher income families are found to a large extent in the north of the city.

Unfortunately, as a result of the low rate of payments on the loans made by the REDF, the institution has become increasingly irrelevant with time. At present, it is estimated that the waiting list for a REDF loan something over 10 years. This effectively cuts off many otherwise eligible borrowers from REDF loans, forcing them to obtain funds through the commercial banking system at much higher costs.

In talking with younger people in Riyadh, one hears repeatedly that they feel they cannot afford a house, certainly not one of the spatial extent of their parents. Given the current statistical situation here in Saudi Arabia, it seems inevitable that in the future this situation will intensify. Consider the following:

- According to the UNDP Human Development Report (United Nations Development Program, 2002), GDP per capita in Saudi Arabia has declined by an average of 2.5% per year between 1975 and 2002.
- According to Judith Kipper, writing on behalf of the US Council for Foreign Relations (Kipper, 2002), whereas Saudi per capita income was about $ 16,000 in 1974, it has dropped to only about $ 6,000 today.
- One result of the slowdown in personal incomes while at the same time living in a consumer oriented society is the calculation by Euromonitor International (2002) that between 1998 and 2002, consumer indebtedness in Saudi Arabia has increased 368%.
- The Seventh Development Plan (Saudi Arabian Ministry of Planning, 2000) predicts that by 2020, the population of Saudi Arabia will be 29.7 million, representing nearly a 90% increase over the first two decades of the century.
- Already the Census reveals that half of the Saudi population is 18 and below, while the average number of children per woman is seven, suggesting that there is no foreseeable slowdown in the rise in the Saudi population.

Despite straightened circumstances, there is virtually no discussion about the need to move to smaller villas and higher density apartments. If such an issue is raised, the standard reply is that it is not compatible with the need for privacy in the Saudi society.

Conclusion

In this paper, consideration has been given to five of the most obvious problems that have accompanied the very rapid increase in urban population in Saudi Arabia: uncontrolled (and probably uncontrollable) urban expansion, an approach to urban planning that was in many ways alien to the society, the problem of providing water to cities in the middle of a desert, traffic congestion and future difficulties that are likely to arise in providing housing to all Saudi

Arabians. In many ways, the Kingdom has coped remarkably well with these problems. Although a number have not been solved, they have been at least accommodated, and as a result it has been accepted that the battle will continue to be fought with such issues in the future.

There is, however, a problem with this approach. One reason that such problems have been accepted has been the faith in the international oil markets, or as in the words of observers a few years ago: 'although petroleum may be only $ 10 a barrel today, we know surely that within a couple of years, it will be at least $ 55, and as a result, the future income stream from its exploitation will buy the Kingdom out of whatever difficulties may arise'. It is sometimes difficult to remember that petroleum, like water, is a finite resource. It will not last forever, and when that special store of value that has come in so handy in the past begins to run down, then many very hard decisions are going to have to be made, and almost certainly, certain policies that are at present accepted as part of the ethos of Saudi Arabia may have to be adjusted.

Certainly, much that has been discussed in this paper cannot be thought of as sustainable, at least not in the sense of the definitions presented in the introduction. Renewable resources are being exploited at a far faster rate than they are being replenished by nature. No effort is being made at all to minimize the use of non-renewable resources. Given the delicacy of the local desert environment, local waste absorption limits are being exceeded, and when coupled with the vicarious demands of the building supply industry, the ecological footprint, to use Rees' (1992) term, of Saudi cities is expanding at what is probably an unprecedented rate. Rising expectations lead to increasing levels of consumption, even when personal incomes are in fact declining. Trying to fudge the sustainability criteria by adjusting the definition or ignoring certain unfavorable aspects of urbanization is just not acceptable. Sustainability is like pregnancy, either you are, or you are not.

Similarly, Saudi Arabian planning practice has been seen to be somewhat disappointing, particularly when compared against the four objectives of physical planning listed at the beginning of this paper. The efficient use of infrastructure, because of urban expansion, has fallen short of the ideal. The spatial extension of urban areas has not been contained. Environmental degradation has occurred within Saudi cities despite the heroic efforts of many expatriate laborers. Little or no effort has been made to preserve this natural environment despite its unique qualities.

In the second paper, an effort will be made to introduce certain solutions to some of the most pressing issues that have been faced by Saudi cities. No effort will be made in that paper to offer solutions to all of the problems. Quite frankly, Saudi problems must be solved by Saudis, which must be the truest form of Saudization imaginable. It is possible, however, to suggest certain routes that can be followed in seeking solutions. They have worked in other places, why not in Saudi Arabia?

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مسح ميداني للمشاكل الحضرية في المملكة العربية السعودية

تشارلز إل شوجيل

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المملكة العربية السعودية

(قدم للنشر في ١٤٢٦/٤/١٩هـ؛ وقبل للنشر في ١٤٢٧/٤/٢٤هـ)

ملخص البحث. تحولت المملكة العربية السعودية من مجتمع بدوي إلى مجتمع حضري في فترة أقل من نصف قرن. ونجم عن ذلك التحضر المضطرد ظهور عدد من المشاكل الصعبة المتعلقة في هذا التطور العمراني المذهل. وهدف هذه الورقة هو دراسة المسببات الرئيسة وتطويراتها على خمس مشاكل عمرانية أو أكثر: النمو الحضري (الغير ممكن السيطرة عليه)، وتطبيق ما هو معروف بالشكل الدخيل على التخطيط الحضري، ومشكلة توفير المياه للعدد المتنامي للسكان الحضر.

وسوف تتم دراسة هذه القضايا في ضوء مصطلحات يتم تطويرها من خلال المستوطنات البشرية المستدامة ، إضافة إلى أهداف التخطيط الحضري والسياسات العمرانية. وسوف يتم مناقشة حلول خاصة لهذه المشكلة في ورقة بعنوان "البحث عن حلول للمشاكل الحضرية في المملكة العربية السعودية".

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Seeking Solutions to Saudi Arabian Urban Problems*

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Abstract. The paper provides certain ways of seeking solutions to the urban problems identified in "A Survey of Saudi Arabian Urban Problems". Rather than giving explicit solutions, it is argued that solutions can only come from Saudi Arabia itself. Concentrating on the urban planning field, the paper explores the advantages that can be derived from the decentralization of decision- and plan-making, the benefits (and necessity) of urban policy, and, based on studies from the Philippines, various models of participation by the public in decision-making. The paper then proposes the creation of an Urban Think Tank to carry out basic urban research as a means of solving the Saudi Arabian urban problems. It is suggested that the Urban Think Tank initially compile an urban database, and then carry out various studies within the areas of spatial aspects of urbanization, infrastructure, employment, migration, environment, transportation, housing and local government. A list of possible research projects in each area is included.

Introduction

The purpose of this paper is to suggest certain approaches that can be made in finding solutions to the problem identified in the paper "A Survey of Saudi Arabian Urban Problems". The two papers should be read in conjunction with one another in that they are very closely interlinked. As mentioned in the conclusion of the earlier paper, it is not the intention here to solve the urban problems identified as given their serious nature, this must be done by Saudi Arabians, not a foreigner who has only recently arrived in this country. Although a study of international experience can help in finding solutions, it is the methodology that should be examined, and not the solutions themselves.

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In the course of this discussion, it will be suggested that one of the first alternatives to examine is the potential that can be gained by the decentralization of decision-making, that is, concentrating decision that affect local people as close to them as possible. The analysis will then go further and suggest that in fact the people should be involved in the decision making process itself. Several alternative avenues by which this might be achieved are suggested. If decentralization is to be successful, it is necessary to establish various urban policies to guide local decision-makers not because they cannot decide for themselves what to do, but to guarantee the local citizenry in all parts of the country have access to at least a minimum acceptable level of local government services. In addition, such decentralization has other implications, and it is necessary to at least briefly consider a few of them.

The analysis will then move on to how an intense urban research effort might help in finding solutions to the Saudi Arabian urban problems, and try to suggest some areas where fruitful enquiry might be

carried out. In addition, suggestions will be made concerning the necessary institutional support of this research to insure effectiveness.

Decentralization

When one looks at the municipal structure of Saudi Arabia's urban areas, one sees basically five cities where at least some of the decisions affecting the local population can be made, the so-called *amanat* cities of Riyadh, Jeddah, Makkah, Medina and Dammam. In these major cities, the mayors are directly responsible to the Minister of Municipal and Rural Affairs.

Beyond these famous five, there are many other smaller places where there is total dependence upon the Ministry of Municipal and Rural Affairs for virtually all decisions concerning their municipal affairs. The ministry, through its regional office, is responsible for their administration, including the urban planning, the development of roads and basic infrastructure and the management and maintenance of services. The central Ministry of Finance makes a direct grant of specific funds to these municipalities to carry out these activities.

One of the more surprising aspects of these smaller places is that each of them has a current structure plan to guide physical development. This is somewhat surprising in the sense that in the United Kingdom, where the structure plan was invented as part of the 1968 Town and Country Planning Act (updated in 1971), such approaches to planning were seen as covering counties, which in the British context were relatively wide areas of the country, and were always linked to local plans. Whereas structure plans set out and justified broad land use policies for urban and traffic management and measures for the improvements of the physical environment, the local plans were designed to relate proposals in the structure plan to precise areas of land and to provide a detailed basis for development control. Attempting to use the structure plan concept on limited sized cities, many might suggest, is problematic. Still, it is a flexible planning tool, far superior to the application of master planning, as anyone who has had experience with both will testify.

Yet, the interesting point is that for the non-*amanat* cities, the structure plans are initiated based on suggestions and even drawings made by local municipal personnel following the formula guides devised by the Ministry of Municipal and Rural Affairs. These local government formulations are vetted at various stages by central ministry officials. Once completed, they are approved by both the provincial councils and finally by the Minister of Municipal and Rural Affairs. There is no consultation with local residents at any stage. If proper decentralization could be implemented, could not the plans have been drawn as part of a municipal exercise as an expression of local desires? The argument frequently given against this approach is that the public has little interest in urban planning activity and that there are not enough planners in the country to carry out the work in this way.

This is unconvincing in three points. First, it is hard to believe that any local resident, if given the chance, is indifferent about the appearance and development of his or her local community. Second, there are a number of universities in Saudi Arabia that have large urban planning programs that are capable of meeting the needs of municipalities. Third, it does not take all that many planners to construct a structure plan in consultation with the local community, and then when it is completed, to implement it.

Here in Saudi Arabia, the implementation aspects of a land use plan seem to be relatively straightforward. Five steps are involved in the process: the meeting of planning standards (building height, plot ratios, density, floor space, parking space, land subdivision); being compatible with zoning ordinances; eligibility for a building permit (which of course acts as a check on planning as well as construction standards); meeting regulations on land subdivision; and, conforming to existing urban growth boundary policy.

The big planning challenge, if this activity were to be decentralized and carried out at local level, would be the construction of local, or action plans that would fit into the structure plan. It should be possible for two or three planners to make up a local plan, something that every student of planning has had considerable practice in doing during their education. There are certainly more resources to do the job here than there are in many local planning offices that have these responsibilities in Africa and South Asia.

Obviously, there is more to local administration than land-use planning alone, although this must surely be the most complex of local activities in a decentralized administrative environment. Most of the remaining responsibilities would indeed fall into the managerial category, and this group of activities could readily be guided, and controlled if desired, by

the formulation of a national urban policy. In the paper dealing with urban problems ("A Survey of Saudi Arabian Urban Problems"), urban policy was defined as 'the set of rules and procedures that urban government personnel follow in managing their territory, raising and spending public money and providing services to residents of the jurisdiction' (this definition was originally presented in Choguill (2003: p. 261)). Certainly in a decentralized urban system, rules are needed to guide officials.

One of the most interesting sets of guidelines that exists is from the Philippines: the Local Government Code of 1991 (Nodello, 1998). For every level of government, this massive volume spells out the powers and responsibilities of each classification of local government official at village, municipal and provincial level. And if some local official should violate the public's trust, the Code also spells out the penalties that will be imposed. The Philippine system is extremely decentralized, yet done so in a controlled and orderly way, thanks largely to the Local Government Code and the oversight provided by the Ministry of Interior and Local Government.

Recall that the definition of urban policy includes the mention of raising and spending of money. Of course, here in Saudi Arabia, local governments are not faced with the problem of raising money from local sources, although some municipalities, especially the larger ones, have limited funds available from such things as rentals of municipal real estate, fees on street advertising and issuance of permits. By 2025, it is planned that municipalities will, through their own revenue-raising activity, be able to cover more of their own spending. Yet for now, and the next 20 years, the money will continue to trickle down from the Ministry of Finance with pre-determined budget headings, thus alleviating the need of local officials even to determine how much to spend on which activities. As a result, one of the biggest complaints of local mayors is that, with very minor exceptions, they do not have the money to do anything that is not pre-determined at the higher level. Even if they manage to accomplish one of these pre-determined goals and have money for that activity left over at the end of the budgetary year, rather than being able to spend it on other activities the next year, it is transferred by the Ministry of Finance to other municipalities where shortfalls have occurred in that particular activity. One result is that mayors feel they are unable to spend on certain projects that could transform their towns into better places for their residents. This seems to suggest the advisability of a block grant from the Ministry of Finance to local municipalities, allowing local municipal councils to determine how the money might be divided upon among competing needs.

Yet with this suggestion, the comment will inevitably arise: 'Oh my goodness, how will you keep local officials honest? Won't they spend the money on prestige projects to glorify themselves?' This need not necessarily occur. In fact, there is a better solution than coercion in this case, and that is to include the public, the local citizenry, into the decision-making process on how local policy, spending plans, and project proposals, are formulated. It is to this issue of public participation in the decision-making process that attention is now directed. And, in keeping with this tone of this analysis, the emphasis of this examination will remain in the field of urban planning.

Participation of the Public in Decision Making

One of the major problems with urban planning in Saudi Arabia, and in fact with most countries of the Middle East, is that it is viewed by government planners as a top-down exercise. Planners, because of the professional qualification and the esteemed title of 'engineer' before their name, feel justified to carryout the action of planning for people. Planners feel, or appear to feel, that they know what is good for people, and on the basis of this, they prepare their plans, schemes and designs.

Saudi Arabian planners are not unique in this regard. Even in Europe where planning has been firmly established as a profession for decades, the involvement of the public in the processes of planning is or relatively recent origin. In the 1970s, for example, very senior British planners still felt that the blackest day in planning history was when legislation in the United Kingdom required planners to consult urban residents about their views on plans and planning policies.

As it turned out in the United Kingdom, the legal requirements were not that onerous at that time. Planners were expected to consult with local residents at the time of preparation of a plan, to take local ideas and objections into account at an early stage. Finally, once the plan was completed, it was opened to the public for comment. This was in fact quite a formal operation, as the plan and supporting documents were opened to the public, usually in the town hall, and

written comments of various aspects were invited, and once received, considered.

In fact, this consultation in plan-making was little more than the thin end of the wedge, and since then, much more of this type of local government operation has been opened up to the public, frequently at the insistence of planners themselves. Planners discovered early on that people actually had ideas, and in many cases, good ideas. Incorporating them not only made the plans more popular with the target population, but ensured that the amount of criticism traditionally directed at planners in fact was reduced. Criticizing a plan that has been reviewed and commented upon by the public is the equivalent of criticizing your neighbors, rather than the faceless planner at the town hall.

And since the 1970s, the British public have become involved in many other aspects of urban planning activity. They have been welcomed into the process, even though it requires a somewhat different type of planner to achieve success in this new world. Gone are the days of a planning expert dictating the terms of a plan. Nothing gets the backs of the British public up faster than being talked down to by some young planner.

Would such an approach work in Saudi Arabia? Why not? With the new initiative of electing at least a proportion of the members of the municipal councils, it seems that there is an active move to incorporate the opinions of the public into the way things happen, at least at the local, municipal level. The consultation of the people in planning exercises is merely the next step on this road.

Consider if you will know the way this occurs in other countries, and in particular in the Philippines where this author has carried out a number of consultancies over the last five years in which consultation with the public was basic. The involvement of the public in decision-making has been an integral part of government operations since the fall of Ferdinand Marcos in the 1980s. It is possible that a modified form of the Philippine models might be acceptable here in Saudi Arabia and that the country would gain from the effort.

Give your attention to a few details from three participative experiences. As will be seen, each is rather different in terms of the degree of involvement of the public in the exercise, ranging from a limited degree of consultation in the first example, relying instead largely on consultation with representatives of various government departments, although with a very explicit purpose, to almost an open-ended approach to participation in the third case where the study was totally dependent upon the inputs of the general public as a basis for the final report and recommendations.

Models of Participation in the Philippines

The first example is drawn from the preparation of the Philippine National Urban Development and Housing Framework in 1999. In effect, this was the Philippine national urban policy, prepared for the Housing and Urban Development Coordinating Council, which was headed by the President of the Philippines. Emphasis here will be on the involvement of the public, and particularly government representatives and non-government organization personnel in the writing of this policy. (Details on the content of this study can be found in Choguill 2001a, 2001b and 2003).

The underlying rationale for involving non-governmental organization representatives and government personnel in the preparation of the NUDHF was that the NGO members were involved to provide ideas while the government people were seen as implementers of the policy. In one sense, this understates the role of the government people, as the NUDHF was timed to coincide with the release in 1999 of the Philippine Mid-term Development Plan. Thus, the urban framework plan had to be compatible with the national economic plan.

The public consultation was planned to take place at three levels. First, there were four technical working groups, the membership of which was appointed by departmental ministers, composed of government technocrats, private sector representatives and representatives from civil society. The second level of participation was extensive, as the plan was presented at review meetings in each of the 12 administrative regions of the Philippines. The major participants in these meetings were the regional representatives of various governmental ministries. The third level of participation was provided by a blue ribbon panel composing a National Steering Committee, the members of which were appointed by the President.

Over the 24-week period of the exercise, meetings with these various groups were held on average once per week. After each consultation, an effort was made to update the plan in view of the comments. This approach tended to be particularly effective in terms

of providing major directions, although it was relatively weak on detail. Thus, the plan took the unusual direction of poverty alleviation, but the actual detailed policies to be included largely came from the consultancy team.

Would this approach of simultaneous consultation with government agencies and the public work in Saudi Arabia? Had this been done when the Urban Growth Boundary Policy was being designed and implemented, there would very likely have been coordination and cooperation among the various ministries involved, as well as between the government agencies and the general public, especially developers. Thus, if consultation had been employed, the policy might have avoided the pitfalls that it encounters and been more effective.

The second experience in Philippine consultation was in the preparation of a set of performance indicators and standards for development administration in a project sponsored by the Australian Agency for International Development for the Philippine Development Academy. The purpose of the project was to determine a set of generally agreed indicators for development administration to assist the Philippines in assessing progress toward 'good development'. Although the participation model in this project was the simplest of the three, the input of the public was essential in defining the output.

Three sets of consultations were held in the three major island groups of the Philippines. Their primary purpose was to define the prevailing local norms in local development administration and to establish a preliminary list of indicators which could measure progress toward meeting these norms. In the process, participants, mostly from NGOs although with an inclusion of some government personnel, discussed their interpretation of what development administration was and how it could be measured, then after proposing a large preliminary list of indicators, carried out a selection game: voting for those indicators that they felt most accurately reflected local and national development administration needs. The approach used was an adaptation of that used by the United Nations Human Settlements Indicators Program (Flood, 1997).

Would this approach of requesting members of civil society to help establish priorities of a government program have worked in Saudi Arabia? Had it been used to determine the local priorities to be included in, say, one of the many urban structure plans that have been created here in Saudi Arabia, the public's involvement and interest in the plan would be significantly higher. In addition, with higher interest and external recognition, it has been frequently seen that implementation difficulties are sometimes reduced, thus justifying the effort.

The third experience in participation of the public was in another Australian-sponsored project, this time for the Philippine Department of Interior and Local Government. The Philippine Local Government Code specifies that Local Development Councils (LDC) are to be organized at village, municipal and provincial level to undertake an advisory role on government priorities. The central government wanted a project carried out to determine whether it was feasible to transfer additional powers to these bodies and what the implications of such a change might be (details are found in Choguill *et al.*, 2001).

In order to get the information needed for such a study, 26 local consultations were held with local development council members, local government officials, and other non-governmental organization representatives throughout the Philippines.

The format of this series of meetings, which were held over two months, was a variation upon the US Agency for International Development's 'Technology for Participation'. This approach is based on four sets of questions, or the ORID, a word which means nothing in English, nor in any other language. The O calls for questions to elicit 'objective' information (Can you cite your involvement in the LDC or LDC-related activities?), the R for 'reflective' answers (How did you feel as a result of this involvement?), the I for 'interpretive' information (How do you see yourself in future LDC or LDC-related activities?), and the D for 'decisional' response (What improvement do you want to see in the LDC?). This formula was repeated in variations over the course of each one-day seminar, and led to a relatively complete understanding of both the capability of local residents, but also their wishes with respect to the activities of local development councils.

Would this approach to policy design by consulting the public have worked in Saudi Arabia? Such an approach might have been very interesting as a means of planning and decision-making process establishing the elections of a part of the municipal councils. Certainly if at some stage, an augmentation of their powers is envisaged, consultations using this model would be very enlightening.

Although highly relevant to the Philippines, none of these models would be appropriate for application

here in Saudi Arabia in an unadjusted form. Approaches to problem solving in one country are very rarely appropriate for problem solving in any other. They are presented just to give you ideas about the kinds of approaches that have proven useful in other countries. Perhaps the format of the candidates' meetings for the recent municipal elections can provide a clue as to how participation might be geared to meet Saudi needs. Although to the non-Saudi, these meetings appeared to be overly formal, perhaps that is the approach that appeals to local civil society. The important point is that if participation can be integrated into the planning process, by whatever model seems appropriate, then the quality of planning can be improved and the plans suggested by local planners will very likely be more successfully implemented and followed than plans which are simply done in some remote ministry office.

Innovations in Urban Policy Research

Urban problems in Saudi Arabia (and elsewhere) can only be solved if they are understood. The understanding of these issues is constrained by a lack of past research into these fascinating areas. Although the Kingdom has an extremely high proportion of Ph.D. holders in its population, including many in the urban fields, much past Ph.D. research has not been on the kinds of issues that will lead to improvements in the lives of Saudi Arabians, whether they live in urban or rural areas. Furthermore, once the fresh Ph.D.s return to the Kingdom, they find that the opportunities to apply their newly developed skills into Saudi Arabian issues is severely limited. As a result, many of the best and brightest launch off into consultancy, or even government, rather than trying to make a career of teaching and research in a university. This is unfortunate, especially since it was universities that primarily nominated these scholars to undertake Ph.D. studies initially.

And as a result, since the Saudi Arabian Ph.D.s go off into areas other than teaching and research, the shortfall in teaching resources is filled with expatriates. Now, many expatriates are serious about their teaching and do their best to succeed in these circumstances. There are, however, two characteristics that severely limit the effectiveness of expatriates in Saudi Arabian universities:

- First, they find it difficult because of cultural constraints to undertake research, and therefore tend to continue past work on their own countries. Such research may help people in their own countries, but has limited positive impact upon Saudi Arabia. Certainly this kind of research does not inform teaching that is relevant to Saudi Arabian students.
- Second, no matter how dedicated they are to the Saudi university in which they are teaching, at some stage, they are going to quit and go home. Thus, their dedication to the long-run development of Saudi research capability and development progress must surely be viewed as limited.

It is suggested that many of the Saudi Arabian Ph.D. holders in planning and architecture migrate into consultancy and government service primarily because of a lack of opportunity to carry out research and the facilities to support it. It actually takes quite a strange sort of person to undertake and persevere through Ph.D. studies. In the process, the survivors prove that they have an interest in this particularly peculiar set of skills.

Therefore, within the urban field, it is suggested that Saudi Arabia should create an Urban Think Tank, an urban research organization made up of the brightest of Ph.D.s, who should be freed from university teaching duties and forbidden from diverting their attention to private or governmental consultancies. Obviously to achieve this aim, the Think Tank must have a career structure and pay people what they are worth.

They must also be supplied with the library materials and computational equipment that they need to make an impact. Money for surveys should be available, as well as for hiring younger Saudis as research assistants. No money should be available for hiring foreign consultants, as the purpose of this Urban Think Tank is to use Saudi brainpower to solve Saudi urban problems, not to tender them out to some foreign organization who could care less about whether the traffic gets snarled on King Fahad Freeway or whether the sewage backs up in Jeddah as long as they get paid.

Now, what should this Urban Think Tank do? Much of their initial work will have to be in the form of pure research, the building up of the knowledge base that has been neglected here for far too long. Once this exists, however, one would expect their priority areas to switch largely to policy issues, the devising of avenues that the government could follow to solve urban problems that exist here in the Kingdom. The researchers in the Urban Think Tank will not hire their services out to government

ministries and agencies, as the government is already paying them and supporting their work. Therefore, they are truly involved in trying to solve Saudi problems for the good of all in the Kingdom.

Perhaps the first task the Urban Think Tank should pursue is the establishment of an urban databank. This is actually quite an interesting research project in itself, and one that the author has been involved in on behalf of the British Overseas Development Administration who wanted a feasibility study for an urban databank that they could use to support their field workers, while at the same time defining the state of the art in urban research and policy initiatives (Choguill and Silva-Roberts, 1992; Choguill, Silva-Roberts and Wood, 1992). The usefulness of a databank dedicated exclusively to Saudi Arabia urban areas cannot be underestimated, and would be expected to provide the necessary input data for many varied research undertakings.

The information in the databank should not just be available to Think Tank researchers, but should be displayed on a dedicated website that would be accessible to researchers everywhere, not just in Saudi Arabia and the Middle East, but worldwide, as an effort to develop a fraternity (and sorority) of investigators and urban analysts who can share ideas and insights with one another over the Internet.

It is suggested that the urban databank should be a repository of, at the very minimum, the following data time series, where information collection should begin with the largest cities, and work down from there, with the support of GIS technology:

- Urban land in hectares (by land use: residential, commercial, industrial, open space, other; vacant serviced land; vacant un-serviced land) all by GPS location capable of being aggregated into geographical sector.
- Building permits issued by type and by geographical location.
- Quantity and value of construction by geographic location.
- Monitoring of housing construction by type, value and location within city.
- Industrial and commercial investment by geographic section of city.
- Infrastructure: water consumption by section of city, leakage data, service reliability.
- Infrastructure: coverage and efficiency of sewerage disposal system by section of city.
- Infrastructure: solid waste management efficiency by section of city.
- Infrastructure: electricity billing information, number of customers, KWH consumed by type of user to allow the construction of an activity index based on electricity consumption and value added.
- Infrastructure: roads by type by the section of the city.
- Social infrastructure: health facilities by type, area, location within the city.
- Social infrastructure: education facilities by type, area, location within the city.
- Social infrastructure: community facilities by geographic location.
- Car registrations by section of city.
- Air pollution data by location within city.

Once the databank is available at a single location, much interesting and relevant policy research is potentially possible. Below is a list of a number possible research projects. They are only a sample of what is possible, and any Saudi urban specialist could double or even triple the number with a few minutes thought. These subjects are, however, related to the problems identified in the paper on the survey of Saudi Arabian urban problems, although some additional topics have been suggested which sound relevant and potentially interesting. These candidate research project topics have been clustered into eight groupings, covering what are probably the major policy areas that need to be addressed by urban managers everywhere.

Spatial aspects of urbanization

This should include a series of studies:

- To determine the effectiveness and efficiency of the urban boundary limit policy, focusing upon its effect in utilizing central land before moving to the periphery;
- To assess the effectiveness and efficiency of the land-use planning system in operation in Saudi Arabia, focusing upon alternative approaches, such as the British 'planning permission'; and
- To develop measures to evaluate the implementation of the National Spatial Strategy 1422 H – 2001 AD.

Infrastructure

This should include a series of studies:

- To assess the relationship of residential density and the cost of the water distribution system, the sewerage disposal system and the road system; and
- To carry out an investigation on the potential role of the private sector, highlighting in particular areas

where costs of urban services can be cut and where service levels can be improved.

Employment

This should include a series of studies:

- To evaluate the economic bases and competitive advantages of various cities in the Kingdom to assist planners and the Saudi Arabian Investment Authority in licensing various kinds of productive activities in various provinces and cities;
- To carry out a study to determine why so many potential Saudi investors are taking their money elsewhere and to suggest policies to alleviate this situation; and
- To carry out a study of the costs and benefits of Saudization in various economic sectors.

Migration and change of residence studies

This should include a series of studies:

- To determine the shape of the current migration within the Kingdom, quantifying the split between inter-urban migration and rural-to-urban migration;
- To carry out and evaluate surveys in various cities detailing the tendency to move from central to peripheral locations, and suggesting policies that might reduce such movement; and
- To make an assessment of the potential of small towns in Saudi Arabia to retain existing populations in terms of an identification of the facilities (education, health, commercial and employment) that would be required to achieve this aim.

Environment

This should include a series of studies:

- To develop environmental impact analytical techniques that could readily be applied in various Saudi Arabian regions to assess the effects of various kinds of investments: commercial, residential and industrial;
- To assess the ecologic and environmental impacts of the physical growth of cities on reserved areas on the urban periphery, and areas further out which are subject to degradation by the building materials supply industry; and
- To assess the reduction of biodiversity that has resulted from urban expansion.

Traffic and transportation

This should include a series of studies:

- To assess the potential of traffic management as against capital investment as a means of increasing the capacity of Saudi Arabian urban roads, and suggesting policies to implement such measures;
- To assess the traffic accident situation in urban areas of Saudi Arabian cities and suggest policy measures to reduce the accident, injury and death rates;
- To carry out and analyze surveys dealing with public transportation, determining what policy measures would be required to promote such transport modes; and
- To carry out a series of urban transportation demand studies in various cities which might feed into the City Databank.

Housing

This should include a series of studies:

- To analyze and evaluate the potential savings that could be gained by moving to higher density, more compact housing arrangements, and suggesting policies that could be used to achieve this aim;
- To evaluate the costs and benefits of the current low density housing demands of urban Saudi Arabians;
- To evaluate the size, extent and cost to the national economy of subsidies in the Saudi housing market; and
- To carry out studies of the residential construction industry with the objective of reducing housing construction costs.

Local government

This should include a series of studies:

- To propose quantifiable indicators concerning the effectiveness and efficiency of Saudi Arabian local government;
- To evaluate the costs and benefits of the current local government financial arrangements; and
- To define in Saudi Arabian terms, governance and transparency issues, and to suggest policies that would make local government more accessible to local urban residents.

Conclusion

The purpose of this two-part presentation is to identify the most important urban problems facing Saudi Arabia and then to suggest certain approaches that can be followed for finding solutions to them. The most important point to gain here is the need to devise solutions acceptable to Saudi Arabians to the

problems identified. This probably means that resort to international best practice and foreign consultants is unlikely to provide the kinds of solutions that Saudis desire. Much can be learned from the study of what has been done in other countries, but at the end of the day, the most important solution is the one that is not only effective, but also acceptable to the local population. As a result, the obligation to find solutions falls squarely upon Saudi Arabian planners.

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البحث عن حلول للمشاكل الحضرية في المملكة العربية السعودية

تشارلز إل شوجيل

قسم التخطيط العمراني، كلية العمارة والتخطيط،

جامعة الملك سعود، الرياض،

المملكة العربية السعودية

(قدم للنشر في ١٤٢٦/٤/١٩هـ؛ وقبل للنشر في ١٤٢٧/٤/٢٤هـ)

ملخص البحث. توفر هذه الورقة طرق عديدة في البحث عن حلول للمشاكل الحضرية التي تم تحديدها في الورقة بعنوان "مسح ميداني للمشاكل الحضرية في المملكة العربية السعودية". فبدلاً من طرح حلول ظاهرة عامة، فإنه من الأفضل لهذه الحلول أن تأتي من نفس المملكة العربية السعودية. فبالتركيز على مجال التخطيط الحضري، تستكشف هذه الورقة المزايا التي يمكن التوصل لها من خلال لا مركزية القرار ووضع الخطة، والفوائد (والضرورة) للسياسة الحضرية، وبالاعتماد على دراسات من دولة الفلبين، تم استعراض نماذج متعددة للمشاركة الشعبية في عملية صنع القرار.

وتقترح الورقة استحداث ما يعرف بخزان الأفكار الحضرية لتتيح القيام بالبحث الحضري كوسيلة لحل المشاكل الحضرية في المملكة العربية السعودية ويقترح أن يتم ربط هذا الخزان بقاعدة معلومات حضرية ، ومن ثمَ القيام في دراسات متنوعة في مفاهيم التحضر المكانية، والبنية التحتية، وتوظيف، وهجرة، وبيئة، ونقل، وإسكان، وحكومة محلية. وتتضمن قائمة لمشاريع بحثية ممكنة في كل من هذه المجالات.

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Practical Training in Architectural Education: The Case of King Saud University

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Abstract. Many experts consider practical training as an integral part of architectural professional qualification. In many parts of the world, including the United States of America, training is required in two distinct stages of young architects' professional qualification. Students are required to participate in a short training period during the academic program, and they take part in a second longer period of training after graduation and before professional qualification. These required training periods are set by professional organizations such as the National Architectural Accreditation Board (NAAB) in the US and the Royal Institute of Architects (RIBA) in the UK.

Since most of the five architectural programs in Saudi Arabia were initially created in the western traditions of architectural education, the practical training requirements follow these traditions, but they only adopted the short training period in school training model (lasting from 8 to 16 weeks) and did not require the longer training period required before qualification by international professional organizations. Saudi architectural schools usually set out three main objectives for the practical training requirements; namely, the student is offered valuable field experience, he/she learns how to apply theoretical knowledge to practical problems, and the student is introduced to a diverse building industry where he/she can choose and be chosen by the institution or office with which he/she is most compatible. However, most of the studies, which have assessed architectural education programs in Saudi Arabia, describe the application of the practical training requirements as being inadequate and do not achieve the original objectives. Three main reasons are pointed out for the practical training requirement shortcomings namely, the duration of time is not sufficient, the guidelines for training are not clear, and supervision of the students is almost non-existent.

This paper discusses the historical background behind the practical training requirements in Saudi architecture schools. It highlights difficulties in current practices and then it presents a comparative analysis with other international practices. A field study was carried out at the College of Architecture and Planning at King Saud University (the oldest and largest architectural program in the country). The field study assessed the current requirements from the point of view of students, faculty members, and building industry practitioners, and it discusses and suggests methods for improving the current programs.

Introduction

The role of practical training in architectural education

Architecture is not a commodity measured by the result of a functioning product and taught by a task-oriented educational system with no time for liberal informative general courses. It simultaneously functions on several levels. It should be a response to the needs and aspirations of the student while providing for the contextual, emotional and symbolic needs of society. It should be an instrument of training and socializing new professionals, and it should provide new modes of education that correspond to market and development demands (Crinson, 1999; Knult, 2005).

According to Mennier (1993), there are at least three stages to students' response to new information. These stages are awareness, accommodation and application. Education, or the awareness and accommodation stage, is the activity that suggests developing new responses in composing variations on the standard patterns, while training, the application stage, is the activity that suggests normative responses to standard patterns composed of an agreed and discreet set of phenomena. Society usually

emphasizes training in some fields and education in others according to the nature of the profession and its relationship to the public. For instance, societies prefer to emphasize training for police officers and fire fighters because they want to ensure the health, safety and welfare of its citizen; they prefer systematic reactions and cannot afford inappropriate actions in these fields.

The question is then which direction should be emphasized in the preparation of architects, is it training or education? Many argue that architects are also responsible in some aspects for the health, safety and welfare of society and therefore their preparation should emphasize training. They argue that professional programs should produce well-trained architects who are reliable and can act responsibly within the profession and its interaction with the rest of society (Gutman, 1988).

While Saudi practitioners and public officials' value university based education, and they want students to be creative, and intellectually rigorous, what they really demand through hiring practices are graduates with a narrowly defined vocational role. They expect schools to train students with a degree of dedication and confidence for an informed practice that will allow them to join the workforce without any further training. Most of the complaints voiced by practitioners center around training in pragmatic commercially specific areas such as the use of CAAD, project document production, knowledge of materials, construction management, client relations and marketing (Al-Marzoqi, 1999).

On the other hand, educators strive for informed, imaginative, critical and socially responsible students of architecture. They want to graduate individuals with the following skills and characteristics: a deep understanding of the entire human experience, tolerance of other cultures, ability to express themselves clearly, apply knowledge critically, driven to continually learn and understand crucial ethical and moral standards and the ability to live by them, and producers of architecture that is more than a functional commodity wrapped in pleasant facades. They want individuals concerned with providing creative responsible architecture rather than with the production of buildings; as well as, critical students that can distinguish irrelevant or undesirable practice, and who are able to experiment and contribute to the knowledge base in the field (Clarke, 2004; Dutton, 1992).

This dichotomy between architectural education and practice is evident in many parts of the world, but it is especially noticeable in Saudi Arabia. This can be attributed mainly to an emphasis on academic education by the higher education authorities and inadequate practical training in the field.

When developing higher education strategies, developing countries sometimes fall into a trap where they stress certain objectives and overlook others. For instance in the early 1970's, India succeeded in its objective to reduce illiteracy drastically and to increase higher education graduates, but it failed to specify and to steer students to specializations needed by the country and the international markets. India later changed strategies from theoretical programs and concentrated on vocational ones. It became one of the leading nations in exporting people with expertise, and many companies started to relocate to India to take advantage of the available specialized manpower market. The Indian experience has proven the importance of matching higher education objectives with international market needs. Hence, higher education should not be isolated from the needs of society. It should not just fulfill the hopes of individuals, but rather make them productive components of society (King, 2003; Lewis, 1994).

Higher education in the developing world is usually used as a tool for social, cultural, and economic change. However, in Saudi Arabia, the higher education system has been criticized as being ineffective in providing a workforce with appropriate education for the country's development objectives. Local development advocates argue for a clear strategy that specifies the country's needs in project design and construction and their sub fields, and to match these needs with a strategy in assessing and developing local architecture programs, their curriculum, and the number of students they should accept and graduate (Wagner, 2005).

Since the main objectives of architectural programs are to graduate adequate professionals who strive for society's interest, and who can take overall charge of the built environment and lead the building project team, this cannot be achieved except through a justified balance between academic tasks and practical training activities. To prepare effective graduates, architectural programs need to lead the profession while justifying their expenses by being sensitive to the present and future needs of society. These programs must develop, change and respond to the society's stage of development, as well as individual and personal needs of their students (Aylin, 2002).

Background

The role of practical training in architectural education in the developed world

In western societies, architecture professionals did not create an established route of qualification for the profession and they did not define their role among building craftsman until the 19th century, and they did not lead the building project team until late in that century. Before that time, their preparation was mostly apprenticeship training. Architectural education was initially started in two different spectrums, one in the traditions of vocational training and the other in fine arts. In Europe, the first schools teaching architecture as a discipline were started in the late 18th century both in Russia and in France. The Ecole des Beaux-Arts in France consisted of theoretical course work and design studio. It also required a period of practical training at the end of the program (Pfmatter, 2004; Quinn, 2003).

In the U.K. after the establishment of the Royal Institute of Architects (RIBA) in 1834, several architectural programs were started, but it was not until 1882 that formal professional education was mandatory for license qualification. In the mid 20th century, the present system of three plus one plus two was passed by RIBA whereby students were given a year out in the middle of the program to spend on practical training in the field.

In the U.S., architectural education started in the 19th century, and it took the fine arts route. It was not until 1938 when modernism offered a new vision of public service in the field and the application of technology to human benefits. Early in that century, education policies changed from an even handed balance between beaux-arts and modernist tendencies to a firm commitment to modernism. They controlled the entry into the profession by making full time college based education a must, and by abolishing courses for professional qualification through pupilage or apprenticeship; thereby excluding the tradition of inherited bodies of knowledge and practice and perfecting academic and university level programs. They defined education parameters for the profession, and concentrated on design and included in their curriculum the knowledge of building materials, structure and management which meant longer more comprehensive education (Pfammatter, 2004).

Later on, in the 1960's, the American Institute of Architects (AIA), a national association organizing the architectural profession in the US, initiated a mandatory two-year professional internship program. The program's primary objectives were to prepare students for entry into the profession. The student can enroll in the program after finishing his/her second year of a professional degree. Each intern has to be exposed to at least 14 main activities in a pre-specified time frame. Intern logbooks and reports are the tools for review and evaluation (AIA, 2003).

The professional association for British architects (RIBA) requires a similar practical training period before qualifying for professional certification. The training takes place at two intervals, in the middle of the academic program and after its completion. The training program mandates participation in specific training activities similar to those specified by the AIA, and it requires mentors in the training organizations, and specific supervision and follow up procedures. Evaluations are done through the review of the trainee's logbook and reports (RIBA, 1999).

The Association of International Architects (UIA), based in Switzerland, is an association that represents the interests of international architects and protects it through international treaties and organizations such as the World Trade Organization. Its members drafted and approved a document specifying the international standards for architectural professional practice in the late 1990's. The document requires a two-year training period during or after graduation with similar requirements to the earlier mentioned professional associations, mainly mandatory exposure to specific activities, and documentation of experience through logbook, and reports that determine performance and professional certification (UIA, 1998).

The role of practical training in architectural education in the developing world

Even though the aesthetics and language of design in the U.S. and Europe are appropriate to the levels of technology, climate, heritage and identity of these western countries, many of the architectural programs in the developing world are based on similar principles. Saudi architectural programs are not different. They are either based on similar programs in the west or were developed by western consultants.

There is an ongoing debate in architectural education between those who favor a broad liberal education and those who argue for a specific systematic design approach that stress practical and technical issues. Saudi national authorities lean

towards the latter approach. They stress the development and nationalization of local expertise, as well as the preparation of students to be ready for the workforce right after graduation. These goals usually specify the number of students in each field for each stage of development, and they try to direct the program curriculum to serve development goals (Ministry of Planning, 2005).

In the past four decades, higher education goals in Saudi Arabia have been targeting the needs of the public sector. However, with the recent saturation of public sector jobs and the opening of the markets to global competition, there is a real need to shift policy to correspond to the private sector and international markets needs (Alnamee, 2001).

In the developing world, including Saudi Arabia, academic education is not a substitute for actual work experience. In fact, training might be the facet of education that needs to be stressed further and integrated into academic education to accomplish development goals. Training local expertise in the design and the building construction industries is essential to developing nations such as Saudi Arabia to relieve the national economy from relying on expatriate expertise and to utilize essential local resources for an independent stable local economy.

The qualification requirements for practicing architecture in the west usually require a minimum of five-year professional degree and two to three years of practical work experience followed by a qualifying exam. In the developing world, the requirements are substantially diverse. Practical training is usually tied to the level of protection reached by the country's architectural professional association. For instance, in Morocco the practical training period is two years after the successful completion of a six-year academic program. During the two years, the trainee is required to accomplish a program of predetermined activities at a pre-specified work environment, and with strict guidelines for follow up and supervision. Failing trainees are usually given another chance for qualifying after a third year of training.

In India, the academic qualification for the title of architect is three years of education followed by six months of practical training and then two years of education with a final qualifying exam. There isn't a specific program of activities to be followed during the training period. The only requirement is for the training to be carried out under the supervision of a pre-specified qualified training organization. In Egypt, the title of architect is not protected. The academic requirement for architects is a five-year degree with no training period requirements (Alsuwayeh, 1985; Fathi, 1988).

Practical training in Saudi architectural programs

In the early 20th century, construction in the Arabian Peninsula depended on master builders who prepared for their craft through a ranking system of craftsmen specialties and apprenticeship programs. In the middle of the century, expatriates and Saudi architects educated abroad started to practice in the country. However, it was not until four decades ago that architectural education took roots in the kingdom, and it did not take very long to spread to five public universities covering most of the Arabian Peninsula with a variety of sub-specialties.

The first program was initiated at King Saud University, with the help of UNESCO, as part of the Engineering School, and later as an independent college. The initial program was modeled after the US system of architectural professional education that was influenced greatly by the German architect Walter Gropius of the Bauhaus school. The professional degree offered by the program requires five years of academic preparation with the design courses as the backbone of the curriculum. The program tries to tie the design courses with all the other theoretical, technical, management and professional courses.

Although the KSU program recently went through a self-assessment and development review, the practical training program was not given much weight in the development objectives. The program currently requires 60 days of practical training at a training organization that meets a preset criterion. Trainees are required to document all activities engaged in during the training period. Even though the program sets high value for the training, it provides little guidelines or incentives for its management (KSU, 2005).

Four other Saudi universities followed the King Saud University (KSU) lead by establishing architectural programs in their institutions of higher learning. The first to follow suit in 1974 was King Faisal University in the city of Dammam. It adopted a similar program to the one offered at KSU. The program was then evaluated and developed by a visiting team from Rice University in Houston, Texas. One of the program objectives was to train and prepare students and arm them with practical field skills and the ability to apply theoretical knowledge

and to participate in professional practice through a minimum of eight-week practical training period.

King Abdulaziz University in Jeddah was next in establishing an architectural program in 1975. The program was developed by Harvard University as a six-year professional degree with less stress on the design studio and more on environmental and ecological issues. As was the case with the earlier programs, the King Abdulaziz University program stresses the importance of practical training, and it allocates the 16-week training period at two eight-week intervals during the program.

The program at King Fahad University for Petroleum and Minerals was established in 1979 under the guidelines of the U.S. National Architectural Accreditation Board (NAAB). The program allocates eight weeks for practical training, and it differs from earlier programs by assigning one credit hour for this activity. The credit hour acts as an incentive for the training coordination team. It allows them time to select appropriate organizations, conduct field visits, and assess the trainees' performance, as well as evaluation and assessment and modification of the program assigned tasks.

The last architectural program established in the Kingdom was in Um Al-Qura University in the holy city of Makkah in 1982. A group of local Saudi experts developed this program. Although it resembles the other programs established earlier, it stresses Islamic values, culture and principles as it relates to architectural education. The program focuses on the ideals of Islamic craftsmanship with eight weeks assigned to the practical training task.

The previous review indicates that all five Saudi architectural schools give high value to practical training in their mission statement and general objectives, but only assign 8 to 16 weeks to such an important activity. In addition, most of these programs do not set clear structure to the activities to be performed during the training period.

With the introduction of the local architectural university bachelor degree in Saudi Arabia, some professional protection was introduced. However, these protections were weak and did not offer a healthy environment for practice. Currently, the only qualification requirement for practicing architecture in Saudi Arabia is a bachelor degree in architecture (usually five- to six-year programs), and the Ministry of Commerce is the governing body who usually issues the practicing license. To deal with the globalization issue, the Saudi authorities initiated a new Saudi architectural and engineering organization (The Saudi Engineering Organization). The new organization proposes new qualification requirements involving the licensing of architects and engineers through several requirements including a mandatory after graduation practical training period. However, these requirements have not been specified nor adopted as of now.

Currently, the only practical training activity experienced by new Saudi architects is an eight- to 16-week period required after the completion of the third year of the bachelors' degree. The requirements for this period vary according to the university program and its management. A few of the programs established clear requirements and strict guidelines and supervision. Other programs have very loose requirements and follow up procedures (Al-Marzoqi, 1999; Akbar, 1986).

Most of the goals set by the five Saudi architectural programs for the practical training period are vague and cannot be measured directly. These objectives can be summarized as follows:

- To gain practical professional experience, learn new practical skills, and gain experience and self confidence through exposure to the work environment.
- To apply theoretical knowledge to practical field situations and to document and record work experience through report writing.
- To gain the understanding of the architect's role after graduation, and to match students skills and aspirations with the right line of work and organization.

The activities to participate in and the skills to be gained during the training period for the five schools can be outlined as follows, the trainee should:

- Participate in the discussion and assessment of actual projects.
- Participate in the design process at all different stages.
- Prepare presentation drawings.
- Participate in the office and project management.
- Prepare specifications schedules and bills of quantity for actual projects.
- Supervise and participate in the construction process.

The few studies that have reviewed local training programs have concluded that the current objectives and outlined activities are insufficient. These studies called for the adoption of international professional organization activities list. They also suggested the

increased alignment of local training program goals with national development objectives and local market needs (Evin, 1986).

Problem Statement

Since the establishment of the first architectural school in Saudi Arabia four decades ago, practical training remains an integral part of the architectural curriculum. However, little research has been conducted to assess its value and effectiveness. The few local studies that touched upon this area confirmed the importance of training in professional preparation and raise important concerns. These concerns include the duration of time allocated to the program, the type of activities engaged in during training, the type of documentation required, the supervision and follow up procedures offered, and the evaluation and development of the program (and how it fits within the overall curriculum).

Several recent studies evaluating the contributions and readiness of the local Saudi architectural programs graduates have indicated a widening gap between the goals of architectural programs and the needs of the local work environment. This gap is due to either the educational institutions or the practice organizations. The main reasons behind the gap on the education side can be attributed to differences in the perception of educational pedagogies. On the practice side, the reasons behind the gap can be attributed to inadequate involvement by practitioners in local architectural education, little professional protection, and archaic laws discouraging faculty members from practice.

These studies have indicated that the gap between education and professional practice is negatively affecting the local economy and the overall objectives of national development especially when it comes to developing local expertise and in relying on Saudi organizations for local projects (Aljasser, 2002).

Research Problem

This research tries to determine the value of practical training in local Saudi architectural programs through a case study of the King Saud University (KSU) program. It tried to assess the skills and experiences gained by trainees and the process in which the program is being run. The research approached the issue from the perspective of the principle program stakeholders, namely; students, educators and training organizations partners.

The research problem lies in documenting the current practical training program, comparing it to similar international programs, and in suggesting ways for improving the program to achieve its objectives

Research Questions

The study strives to answer the following questions:

- What is the current role of practical training in preparing new graduates for local practice? And, what are the actual skills and experiences gained by the trainees during this period?
- What are the objectives of the practical training period and how are these objectives and programs applied and administered in reality?
- Is the training period sufficient for the program objectives and activities?
- Does the current training program compliment the current academic program? How can the current program be more reactive to the changing academic and professional needs?
- What are some of the proven international training programs that can be applied to local experiences and which tools can improve local performance?

Research Objectives

The research aims to do the following:

- Document KSU practical architectural training program guidelines, standards, and the way it is being run and managed.
- Identify critical issues curtailing the achievement of the program objectives.
- Suggest tools and methods to improve and modify the program.

Research Parameters

Although there are differences in the five local Saudi architectural programs, they are similarities in terms of their objectives and curriculum, this research will only document and analyze the practical training program in the architecture and building sciences department at King Saud University, and therefore its findings can only be applied to the program.

Research Design

To achieve the research objectives, data will be

collected through four main sources:

- Data from previous research: especially ones that focused on local architectural training programs such as the research carried by Aljasser (2002), and Al-Marzoqi (19[illegible]).
- Data from students: including data collected through students' final practical training reports, general questionnaire from the total population of students involved in the current program and in-depth interviews with selected trainees.
- Data from educators: in-depth interviews with concerned faculty members and the administrative team running the program, as well as data collected from internal administrative reports.
- Data collected from employers and organizations involved in students training mainly through in-depth interviews and employers' trainee evaluations.

After the data was collected, a database was established and the data was organized to be entered either quantitatively to facilitate systematic analysis or qualitatively to facilitate thematic analysis.

Data Analysis

Approximately two years were spent collecting the relevant data. The archival search provided important contextual and policy data which relates to comparisons with other practical training programs and administrative records. The main instrument of the research or the questionnaire covered the total population of students involved in the training program at KSU (147 trainees). Special care was given to the design and packaging of the questionnaire to make it appealing and personal. Participants were asked to take part in the survey voluntarily during the design studio time.

The questionnaire design took into account the three critical issues of rapport, conditioning and fatigue. Before the survey was applied, a pilot study was administered to 25 students and consequently several modifications were made, especially changes relating to the sequential ordering of questions, wording of questions and grouping of topics.

To gain a deeper understanding of the participants' assessment of the program, a sub sample of the survey participants selected by random sampling (27 trainees) agreed to participate in an in-depth interview. Interviews were also conducted with faculty members (11 faculty members), the program administrative team (three members), and training organization officials (23 training organization officials). The interviews were unstructured, informal, and they covered a wide range of issues. The interview method for all four categories of participants was non-systematic, and it produced important supplementary and complementary data to the survey.

Following the completion of the survey, close-ended questions were coded into a standardized format and entered into a data file. Measures were evaluated using univariate analysis. Cross-tabulation was also used to determine the relevance of each measure. Data collected from open-ended questions were assigned mutually exclusive categories, and the in-depth interviews were categorized and redefined as individual themes preserving as much of the original detail as possible.

Research Results

Overall, the survey participants (7.4 out of 10) rated the KSU training program as positive. They indicated that they were somewhat satisfied with the overall program.

There was no correlation found between overall satisfaction with training program and the trainees' personal characteristics or background. However, there was a strong correlation between the overall satisfaction and the type of organization trained in. Trainees who trained in pre-qualified private organizations were more satisfied with the experience and skills gained than ones who trained with public organizations and especially with municipalities.

The survey participants indicated that the most helpful part of the current practical training period, where most of the new skills were gained, were the activities relating to the design process and project technical drawing production, especially the development of design concept, development of preliminary design, and production and review of working drawings. The trainees either rated their participation negatively or did not participate in activities relating to fieldwork and construction sites management and work supervision as well as professional skills such as office management, client relations, and preparation of contract documents.

When trainees were asked to rank issues relating to their training experience, they ranked the relationships established with colleagues and employers as the most satisfying experience (8.2 out of 10). When asked about employment organization

training qualification, and the clarity of goals and requirements, their assessment was not decisive. They gave neutral rating to these issues. However, they were very decisive in their answers when asked about their assessment of the program managment. They gave this issue a clear negative rating and ranked as the least pleasing issue in their training experience list (3.8 out of 10).

Open-ended questions results

Participants' assessments of the training program in open-ended questions can be divided into three main categories, namely, training program advantages, its shortcomings and survey participants recommendations for improvement.

Training program advantages

Trainees mentioned that the program allowed them to gain the following skills:

- The flexibility to select the training organization.
- Gain insight on ways of building and maintaining professional relationships and familiarity with potential employers.
- Gain new professional and site experience.
- Familiarity with organization rules and procedures.
- Familiarity with construction process, tools, methods and management.
- Application of theoretical knowledge to real time field situations, especially in the preparation of the following activities: concept development, design development, project management; and the preparation of working drawings, project specifications, and bill of quantities.
- Gaining exposure to sub-fields and carrier options and specifying professional objectives.

Training program shortcomings

Trainees mentioned the following program shortcomings:

- The training program objectives and requirements are not clear and unachievable within the set time frame.
- The summer season is not the best season for training (major training organization figures are unavailable and students are not used to working during summer).
- Training organizations are not qualified to train.
- Trainees' technical language skills especially in English are not up to standards.
- The program coordinators do not have an orientation program for trainees and training organizations.
- The program management does not have any incentives to follow up on trainees and develop the program.
- The training organization does not take the program seriously (trainees attendance is not followed, and trainees are not given serious professional work).
- The training program is not given any credit or grade. Hence, students and coordinating staff are not rewarded for a work well done.

Trainees' recommendations for program improvements

Trainees mentioned the following suggestions for improving the program:

- Increase training period.
- Clarify the program objectives and requirements.
- Introduce the program to students and training organizations through an orientation program.
- Assign the program credit hours and a grade.
- Help students select organizations with positive training records.
- Reward the program management team for maintaining, assessing and improving the program.

Of course, these advantages, disadvantages and recommendations only represent the perspective of the trainees. The in-depth interviews as well as other sources of data were used to verify these views and test for any discrepancy between the trainees, training organization officials, training coordinators and faculty members.

Qualitative Analysis Findings

Following the preliminary quantitative analysis of the archival and survey data, a qualitative analysis was conducted. Data from survey open-ended questions and responses from in-depth interviews were categorized, redefined, summarized and presented in thematic format as follows:

The current state of local architectural schools practical training programs

The survey results indicate that the majority of trainees rated the clearness of program objective unfavorably (4.5 out of 10). They mentioned that the program objectives were unclear. They indicated that the practical training program did not achieve its

main objective of preparing trainees for professional practice. Trainees stated that the least of the program objectives to be achieved were those relating to documenting and recording experiences through report writing, and those relating to applying theoretical knowledge to actual field situations. The survey results also indicated that training administrative coordinators assessed the training program as more effective than trainees and employers. As to the type of training organization, survey participants clearly indicated that public organizations, especially local municipalities, were the least to achieve the training program objectives. When it comes to the program administration, the survey data shows weakness in the qualification of training organizations, follow up, and evaluation procedures, as well as in the guidelines and scheduling of program pre-specified skills and activities.

The role of practical training in preparing students for professional practice

Survey participants especially training partners (employers) mentioned that the KSU architectural program does not prepare students well for practice, especially in the areas of marketing, office management and site works. Furthermore, the majority of faculty members and practitioners gave a much higher value to the role of practical training in the preparation of young architects then the value given to this role by students. When interviewed, both faculty members and practitioners mentioned serious concerns regarding the program placement procedures, length of training period, the lack of follow up and supervision by program coordinators, and the unclear guidelines and documentation procedures (logbook or report requirements).

The missing site skills

Practitioners recommended developing the practical training program in a way that stresses the learning or exposure to specific skills in a detailed pre-scheduled program. They wanted to measure the success of the program and of trainees through the degree of learning or exposure to these skills.

Trainees reported only minimal exposure to site skills such as: the ability to read and understand project documents and specifications, their ability to review jobs completely and assess them by comparing them to original documents, and to direct project contractors by written reports on problems and shortcomings. On the other hand, trainees reported that they were not exposed to other site skills required by international professional organizations dealing with project management such as preparing financial statements, managing contract issues, reviewing project materials and components, sampling and testing materials, reviewing test results and acting on them. Although trainees need considerable time to gain familiarity and efficiency with these activities, practitioners consider them critical for the preparation of the local architect, even if he/she chooses career options that are preformed far from the construction site (Scarpa, 1999).

The role of part-time professional faculty members

Survey participants revealed that one of the important factors affecting students preparedness for practice was the amount of contact spent with professional practitioners while at school. Their argument is supported by an unpublished report (prepared recently by the author and others) that documented the statistics of well-known western architectural programs. These statistics show a significant percentage of part-time professional practitioners among their staff ranging from 20-60% of the total faculty members. Current faculty members at KSU architecture program are qualified academicians and researchers, but most do not have the practical experience needed to teach in a professional program that relies on teaching students the needs and secrets of the craft for the local market. The current program only allows for a small percentage of staff with professional background. The importance of the right mix between permanent academic faculty members, part-time professional instructors, and visiting practitioners (who can raise important practical issues and help students gain applied knowledge) is critical to the success of professional degrees such as architecture. However, these part-time professionals should not be expected to perform these essential tasks without a clear strategy and good management that involve defining clear mission and objectives, the right placement, monitoring and supervision, and ongoing teaching skills assessment and improvements through continuous education (Al-Dakheel and Albuttihi, 2002; Roberts, 1990).

With the knowledge gained from visiting guest speakers, and part-time practicing instructors, as well as programmed field trips to construction sites,

students can mesh well with potential work experiences and have more confidence to deal with potential employers' practices and procedures.

Obstacles hindering recent graduates' entry into the private sector

Argument presented by practitioners who participated in this study support earlier findings by the 2001 Alnamee study. They gave three main reasons for KSU architectural program graduates delayed entry into the workforce. First, local employers blame local programs for not providing students with enough practical skills that translate into costly retraining after their employment. Second, the gap in pay scale between local and expatriate architects is widening and further complicated by an ongoing reduction in professional services fees. Third, some employers still hold the perception of graduates who lack discipline and the ability to follow instructions or orders from others.

Insufficient training period

Survey participants were almost unanimous in their assessment of the current program duration. Most of the participants (8.2 out of 10) agreed that the objectives and scheduled skills could not be achieved within the current time frame. To remedy the problem, some advocate longer university programs with longer practical training. Others shift the training responsibility to the profession and professional organizations (Al-Marzoqi, 1999). Faculty members suggested several alternatives to deal with this issue such as the mentored cooperative option, or the teaching office option, as follows:

The co-operative option

International accreditation boards define cooperative education programs as the ones with at least 12 months of continuous supervised work experience (with alternating periods of work and school), evaluation of work experience by formal faculty, and no reduction in minimum course requirements (Bringham, 1993).

The cooperative experience allows the students the chance to define their goals and career interests, and it gives employers a chance to assess the student's qualifications and fit within the organization. The long 12-month continuous placement allows trainees the chance to be treated as normal employees and to gain in-depth knowledge of the way the business is run.

The literature indicates that cooperative programs should be based on educational objectives and that the principle stakeholders are students, employers and coordinators. The educational value of the program and its success is measured by the skills the students gain, the level of mentoring and follows-up procedures, and the type of training environment (Fisher, 1994).

The goals of the practical training period cannot be achieved during the current two-month duration. Some survey participants, especially faculty members, have argued that both the current two-month option and the formal cooperative 12-month option are not acceptable. They have suggested that a six-month training period is ideal since it strikes a balance between the benefits of the cooperative program and being away from school for too long period of time and the economic benefits of completing the professional program in a reasonable amount of time.

Employers or partners in the cooperative program team should be considered co-educators and they should be rewarded through some form of recognition or involvement in the academic program. Their involvement should not be exclusive for training purposes, but it should extend to the programs curriculum development, recruitment and research.

The advantages of cooperative mentored programs

Some survey participants (3.1 out of 5) stress the importance of training organizations and the amount of work they invest in structuring such programs. Currently, there are many good examples of local organizations that take students practical training seriously. One of these organizations that have a long history of social and cultural investment in the country and its citizens is ARAMCO, the only local oil company. It has a good record of developing local expertise through specific standardized training and continuing education programs that it partners with all its suppliers and subcontractors. The company's methods are a good example to follow.

The company established training and placement programs to domesticate local expertise in many fields including the architecture and building sciences fields. The programs combine formal education with one-to-one relationship between the trainee and the field specialist. It also monitors each trainee's program through a board of specialists and managers to make sure that the candidates training is focused on

a specific future need. Each trainee along with a mentor prepares an individual development plan that includes milestones such as fieldwork, educational programs, training program assignment, and special problem solving situations. Trainees are encouraged to enrol in professional development courses and to join professional societies. A training board usually reviews each candidate's progress through monthly reports.

Mentoring is the most important aspect of the program. The candidate is matched with a mentor who is a specialist in the field to provide one-to-one coaching. A mentor not only shares experiences, expertise and wisdom, but he/she is also a coach, a confident, a sounding board, and a counsellor ready to discus personal issues. He/she serves as a teacher, sponsor, guide, model and counsellor who facilitate his/her protégé's aspirations. To deal with obstacles, the mentor provides a safe haven in a casual environment where a trainee feels free to ask questions, and make mistakes without feeling judged; an environment where a trainee feels free to explore issues and reflect on experiences in full honesty (Bong, 2003).

The mentor is rewarded by loyalty and effort from the trainee, and by organizational credit from the company. The trainee's performance reflects the mentor's contribution to the program. Without honesty and commitment, mentoring cannot take place. Mentoring is most effective when there is enough mutual respect and communication to permit sharing and honesty and mutual commitment. Thus, defining, addressing and matching mentor to trainee is a critical factor for the program success.

The role of the mentor changes over time. As the trainee progresses, the mentor changes from trainer to advisor. He allows the trainee to grow and to take more responsibility and to become more independent until he becomes self-sufficient. When the trainee reaches this stage, he usually asks for confirmation and not for advice and that is usually the ideal time for the program to allow for a relationship to split between the mentor and the trainee. Students from the KSU architectural program can benefit from such a model. The program can encourage and support other local organizations to develop similar mentoring programs to reach the goals outlined above.

The in-house training center (the teaching office model)

Internship programs prepare young professionals best for only a few aspects of the profession, while serious omissions in the practice experience are evident. Firms usually delegate the most time-consuming aspects of project work to interns, "a ready and cheap source of manpower". Without a balance of practice-related tasks undertaken in a sequential and planned term, interns may have little opportunity to perfect their skills in some critical areas of the profession, thus prolonging the apprenticeship process needlessly (Beach, 2002; Crosbie, 1995). Some KSU faculty members advocate an in-house training center and cite as a similar example the existing medical training model where the KSU medical school carries its own in-house training in 'the university medical center'. They support the establishment of a collective architectural firm practicing within the KSU architectural school that allows for faculty members to practice and for students to train. In such a center, students' practical training is a continuous process. It is not limited by time and location constraints. Students can study and train concurrently, and they can apply academic knowledge directly to practical situations. Several international programs have a history of experiences with such an approach. They have set clear guidelines and time schedules that link practical skills to the academic program and the students' level of expertise. One such innovative program is the one set up by faculty members of the University of Cincinnati namely, Apostolides and Looye. Their model, as in other models, is built on a true partnership between schools and the industry. It starts with a year of academic basics, and then the student is required to enroll in a cooperative training program for a period of four to eight quarters during his/her enrollment in the program. Hence, students spend more than a third of their time in training activities. The first two quarters of cooperative training have specific objectives and requirements that collaborate with the students' level in the academic program, and they concentrate on the basics of professional training and the development of basic design and drawing skills. The next four cooperative training quarters concentrate on concept development, presentation drawings, working drawings, project specifications, and construction management. In the last two quarters, the student is treated as an architect under training and he/she is exposed to all the activities mentioned before in addition to other site and contractual activities. The student's performance and evaluation is mainly done through group discussions and reviews of a logbook and reports (Apostolides and Looye, 1998).

Improving the practice setting in Saudi Arabia

Some survey participants from the industry demanded graduates who are ready to assume immediate job responsibilities. They argued that expatriates are unfair competitors to Saudi architects not because they perform better than new Saudi architects do, but rather because they accept lower wages and require less on-job training.

In order to improve practice in general, the survey participants agreed that there is a real need to organize the architectural practice in Saudi Arabia. Recent statistics are alarming; they indicate that only one out of six people working in local private architectural firms are Saudis and only one in 12 are graduates of Saudi architectural schools (Alnamee, 2001).

The imbalance in the pay scale between Saudi architects and expatriate architects, and the markets' undervaluation of professional architectural services supported by the authorities' reluctance to regulate the industry has discouraged trainees and Saudi graduates from entering the consultation end of the profession and increased their interest in the public sector. Even trainees and graduates, who join private firms, do so mainly because of the lack of jobs in the public sector, and they jump ship as soon as a public opportunity arrives.

Recent national development plans focus on domesticating expertise in many fields including the design and building industry. To reach such goals, several measures should take place. These measures include the establishment of an independent body that protects the profession, organizes practice, localizes professional expertise, and reviews and assesses local architectural programs. This professional organization should set clear and precise licensing criteria, and it should be solely responsible for the licensing of individual architects and consultants in the country. It can bridge the education-practice gap. Regulating practice, licensing standards and enforcing continuing professional education can make real changes in how the profession is practiced and can benefit society as a whole through a better building industry (Aljasser, 2003).

Like all other work environments, local architectural practices have their own sub-cultural internal code. This unofficial code sets and organizes the hierarchy of relationships between colleagues within the organization and guides their conduct. When developing curriculum, the faculty of the KSU architecture program, for the most part, ignore practice as a cultural setting and create a real gap between the graduates and the market in which they will serve. The KSU program should prepare students by informing them about organizational sub-cultural setting and the best approaches to deal with it.

The value of professional ethics

Some employers who participated in the study alluded to some of the obstacles hindering KSU trainees and new Saudi architects' entry into the profession. Six out of 10 mentioned a social factor that plays a part in the exclusion problem. They complain that some KSU trainees do not follow the chain of command and are reluctant about taking orders from expatriate superiors. Furthermore, they complain that some trainees are less disciplined, non-conforming and unpunctual.

Five out of 10 practitioners also mentioned that instilling valid work ethics and professional values are critical to developing local expertise and beneficial to national development, but no one claims responsibility for instilling these values into new architects. Is it the responsibility of the general education, architectural programs, professional societies, or work organizations?

Survey participants argued that it is the responsibility of all the stakeholders. They mentioned that general education should instill general work ethics. Architectural programs should teach professional values and stress their application during the training program. Work organizations should adopt mentoring programs that apply these values in their organizations with trainees and recent graduates.

Conclusions

Some academicians and intellectuals are convinced that universities are not in the business of vocational training, but rather should strive to produce new knowledge. They argue that if architecture is considered a purely practical profession, then it is not necessary for students to spend five years in a full-time higher education institution, when most of the skills can be gained from direct office and site training. On the other hand, some professionals and government officials argue that the current local architectural education programs stress academic achievements and research, and do not allow professional practical preparations sufficient time.

This paper does not advocate the abandonment of a strong liberal education or sound research for new knowledge through higher education, but rather achieving a changing balance that corresponds to the goals of each stage of national development and the needs of local practice. This balance is achieved through several changes including a review of the current practical training systems efficiency in order to utilize the resources for more socio-cultural and academic justifiable ends; and to make interval evaluations of the market and national development plans needs and incorporate them into an ever evolving curriculum. Such a curriculum should provide some aspects of vocational training while still offering a constant dose of liberal arts that allows for social, critical, creative and enlightened development.

The rapid changes accompanying the globalization phenomenon have made it essential for institutions of higher learning to improve the quality of their programs and the performance of their graduates to compete in a borderless world with minimal protections or regulations. To reach the level of global competition, the KSU architectural programs have to go through a rigorous evaluation and development process founded on sound theoretical base. The program should adopt the standards of global architectural education and professional licensing procedures while corresponding to local development plans needs and aiming to preserve local culture and identity.

The programs development should include practical training which is a partnership between institutions of higher learning, professional organizations and training organizations, in which every partner has a major and important part to contribute. Without the realization of the importance of their role and the complete participation of all partners involved, the results will not be sufficient and the gap will widen.

Practical training helps in the establishment of the student's character and self-confidence. It shows them tools for working within groups, ways of collecting relevant data, balancing issues, making decisions and creating strategies. Increasing the training period duration usually increases the trainee's chances of getting employment in the same training organization especially if the trainee is talented, and has professional skills and leadership abilities. Hence, the most critical steps in developing practical training programs are imbedded in their planning and continuous assessment.

This study has shown that stakeholders in the current KSU architectural practical training program are somewhat satisfied with the overall program. Participants were satisfied with the programs flexibility, the skills gained in some activities, and the relationships established within training organizations. On the other hand, participants were dissatisfied with several aspects of the program. They complained of the programs' lack of clear objectives, guidelines, placement and scheduling criteria, and follow up and management procedures.

Data analysis indicated that trainee's who trained in pre-qualified private organizations were more satisfied than ones who trained with public organizations especially municipalities.

To remedy the current program shortcomings, faculty members and practitioners who participated in the survey suggested the adoption of one of two models, namely a mentored cooperative program or an in-house teaching office. Participants stated that in order for these models to succeed, they needed clear measurable goals and guidelines in a structured well-managed format. In addition, participants pointed out that these models have to link practical skills to the academic program, to instil professional values, and inform trainees of organizational subculture.

Training coordinators need to develop an evolving evaluation mechanism that qualify, filter and reward serious training organization. They should direct the program to give trainees exposure to sub-fields and career options and allow them familiarity with organization rules and procedures.

Efficiently designed cooperative programs or in-house teaching office with clear measurable objectives, placement and management procedures, and sufficient time frame that relay on serious training organizations with mentoring programs can be effective tools for improving the current state of practical training.

Recommendations

Recommendations can be divided into several categories, as follows:

Recommendations relating to the improvement of the overall program:

- Program mission and objectives should be worded in a way that is measurable and achievable as follows:
  - Prepare local expertise that can achieve national development objectives and meet local market demands.

- To apply theoretical knowledge to practical problems and situations.
- To understand and be able to assess project documents, and contractual and ethical aspects of the practice.
- To discover the different sub-specialities in the field, and to be able to match these specialities with personal interests and talents.
- To be able to choose and be chosen by organizations which are compatible with the trainee's skills and interests.

Other recommendations relating to the overall program include:

- Increase training period duration to match training objectives and to be sufficient for training activities.
- Create six-month well structured and managed cooperative programs with mentoring components or an in-house teaching office and pre-test their effectiveness on a small group of trainees.
- Teach professional values and stress their application during the training program.
- Remove obstacles and encourage faculty members' involvement in local practice, and recognize and reward their professional accomplishments.
- Schedule numerous field trip visits by students to work environments, both in construction sites and office settings, during each phase of the academic program.

Recommendations relating to the improvement of the current program structure:

- Stress the program requirements in technical language, marketing, management and site skills.
- Define training skills and schedule them in a specific detailed way, based on the UIA official activities list, and create a proactive program that responds to the needs and changes in the local work environments and that corresponds with the stage of national development.
- Mandate the keeping of training logbook where all activities and new learned skills are documented.
- Assign a grade and credit hours to the program.
- Introduce the program to students, faculty and training organizations through an orientation campaign that reveal the important role of training in qualifying competent graduates with abilities to develop the profession and domesticate expertise.

Recommendations relating to the improvement of the current program relationship with professional practice:

- Develop a program that responds to local culture while learning from the experience of other developed and developing nations, especially from professional organizations such as NAAB, RIBA and UIA.
- Prepare students by informing them about practice cultural setting in their curriculum.
- Increase the involvement of part-time professional practitioners and visiting practitioners in the academic program.
- Involve serious training partners in the building industry in the planning, assessment and development of the academic and training programs.

Recommendations relating to the improvement of the current program management:

- Create a placement and follow-up center to insure proper placement, to check on trainee's progress, and to supervise and monitor training.
- Retrain and pre-qualify program coordinators and staff.
- Establish clear guidelines for qualifying training organizations and start a list of training partners according to their qualifications and their training record with an incentive and reward system.
- Through the collaboration of practitioners, intellectuals, students and faculty members, establish an in-house training center that serves in bringing together the needs and aspirations of the industry and the nation's development plans with the realities of the KSU architectural academic program. The center can narrow the gap between education and practice through many activities including the evaluation and development of curriculum and in providing an evolving mechanism that concentrates on the development of students' practical skills.
- Reward training program participants as well as management team for maintaining, assessing and improving it through initiating alternative funding methods to reward program management team, outstanding trainees and training partners.

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دور التدريب المهني في التعليم المعماري:
حالة دراسية بكلية العمارة والتخطيط بجامعة الملك سعود

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ملخص البحث. الملاحظ أن الفجوة بين مخرجات التعليم المعماري وبين احتياجات سوق العمل ومتطلبات التنمية في المملكة العربية السعودية تزداد عمقاً وذلك لعدة أسباب أحدها تجاهل برامج العمارة في المملكة للدور المهم الذي يلعبه التدريب المهني في الخطط الدراسية ولتأهيل الطلاب للانضمام لسوق العمل بشكل مباشر. ومع التقييم والتطوير التي حظيت به معظم هذه البرامج في الفترة الأخيرة إلا أن التدريب المهني لم يُعطى حقه من الدراسة والتطوير.

تتفق برامج التعليم المعماري المحلية على أهداف عامة للتدريب المهني تشمل إعطاء الطالب الفرصة للاطلاع على طبيعة العمل المهني، وتطبيق المعلومات النظرية في واقع عملي، والتعرف على المجالات المهنية المختلفة حيث يختار الطالب المجال المناسب لقدراته ومواهبه وفي نفس الوقت تتعرف الجهات المهنية على نوعية الطلاب وإمكانياتهم.

وتتفق معظم الدراسات السابقة التي قيمت برامج العمارة المحلية على أن التدريب المهني الحالي لا يحقق الأهداف الأساسية للتعليم المعماري، ولا يتواكب مع متطلبات سوق العمل وخطط التنمية. وضحت الدراسات السابقة ثلاثة أسباب رئيسية خلف القصور في أداء برامج التدريب المهني المحلية هي: الوقت المخصص للتدريب غير كافي، وأهداف ومتطلبات التدريب غير واضحة، ووسائل الإشراف والمتابعة غير مجدية.

يناقش هذا البحث الخلفية التاريخية لبرامج التدريب المهني في برامج التعليم المعماري المحلية ويقارنها بالبرامج والمتطلبات العالمية. ويرصد ويقيم أهداف ومتطلبات التدريب المهني في كلية العمارة والتخطيط بجامعة الملك سعود كحالة دراسية من وجهة نظر الأطراف المعنية وهم الطلاب، وأعضاء هيئة التدريس، وجهات التدريب. ومن ثم تقدم الدراسة بعض التوصيات لتطوير البرنامج الحالي.