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INTEGRATION OF URBAN GROWTH MANAGEMENT AND STRATEGIC ENVIRONMENTAL ASSESSMENT TO ENSURE SUSTAINABLE URBAN DEVELOPMENT: THE CASE OF ARABIAN GULF CITIES

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ABSTRACT

The spate of rapid urban growth and its attendant environmental impacts have been the focus of urban planners and researchers in recent times. The key challenge is to reach a proper balance between urban development and environmental protection. Urban growth management has gained importance as a means of ensuring desirable urban development. Along the same line, strategic environmental assessment (SEA) has been adapted to ensure that plans, programs and policies are environmentally sustainable. This paper explores the link between urban growth management and SEA and proposes a framework for integrating them. In the light of the framework, the paper reviews some growth management strategies in countries in the Arabian Gulf region and elaborates on ways of fostering sustainable urban development in the region.

Keywords: strategic environmental assessment, growth management, urban sustainability, Arabian Gulf cities.

1 INTRODUCTION

The global trend of urban growth and its implications on environmental sustainability has been the focus of urban research in recent times. The key challenge is to reach a proper balance between urban development and environmental protection. Urban researchers have proposed different growth management strategies to tame undesirable urban growth. In most cases, especially in the developing countries, urban growth strategies are developed separately from environmental sustainability frameworks. However, it has been argued [1] that an effective sustainable urban development framework must be based on the integration of urban environmental sustainability and urban growth and development strategies. It is desirable to adopt an integrated approach in urban management to overcome the limitations of conventional practice [2].

In the Arabian Gulf, urban managers have been grappling with the challenges of rapid urbanization and the need to provide infrastructure for the teeming urban population. The rapid urbanization has been greatly influenced by huge government spending, derived from oil wealth, on urban infrastructure in the 1970s and the 1980s. In the late 1980s, due to dwindling oil prices, the governments were confronted with the need to curb expenditure and limit urban expansion. Thus, the governments implemented different planning strategies with the same theme of managing urban growth and providing adequate infrastructure and employment. However, the strategies have not been totally successful because they were developed and implemented in an ad hoc manner. Al-Hathloul [3] noted the inefficiency of the current planning practice and highlighted the need for the Arabian Gulf countries to pursue a more holistic approach to urban planning and management to deal with the challenges.

The paper argues that sustainable urban development can be enhanced by linking urban growth management strategies with urban sustainability through strategic environmental assessment (SEA). The first part examines the trend of urban growth and the challenges posed by rapid urbanization, the second part presents a review of the strategies of urban growth management, the third part examines the link between SEA and urban sustainability, the fourth part presents an integrated approach to

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sustainable urban growth management through SEA and the final part presents a discussion on urban growth management strategies and sustainability in the context of Arabian Gulf.

2 THE TREND OF URBAN GROWTH

2.1 Urbanization

More than 80 million people are added to the world population every year [4]. The urban population contributes greatly to this growth; almost 80% of the world's population growth between 1990 and 2010 will be in urban areas and, most probably, in the developing world (Table 1) [5]. During the last decade, the increase in the rate of urban population was about 50% [6]. The growing population of the world would result in an urban population of about 4.7 billion by the year 2025. Only 14% of the world's population lived in the urban areas in 1920 and the proportion had reached 25% by 1950, and by 1980 stood at 40% [7]. In Europe, the level of urbanization is about 80%, while the urban population increased by 9% from 1980 and 1995 [8]. In the 20th century, the surface of urban land per capita in Europe has increased by 10 times [9]. In fact, urbanization occurs mainly in Africa, Asia and Latin American countries due to the increased opportunities and amenities available in the urban areas. Fifteen years ago, the urban growth rate in these areas was almost four times higher than that of the developed countries [10]. The main driving forces of urbanization in developing countries are the decreased job opportunities in the agricultural sector, relative increase of the rural population, exhaustion of natural resources, land degradation, along with increased opportunities for jobs, education and health care in urban areas [8].

2.2 Implications of rapid urban growth on sustainability

Growing trends of urbanization contribute in worsening a number of problems, such as inadequate housing and urban services (water, sanitation, transport and so on), spiraling land prices and construction costs, proliferation of slums, and pollution and deterioration of the urban environment [2]. Environment, which is an indispensable part of sustainable development, is continually degraded by increased pollutants in the atmosphere, deteriorating land resources, depleted and degrading forests, threatened biodiversity and deteriorating freshwater resources and marine environment. The urban

Table 1: Trends and projections in the urban population in different regions, 1950–2010 [5].

Region	1950	1965	1980	1995	2010
Urban population (millions of inhabitants)					
Africa	33	66	130	251	458
Asia	244	426	706	1192	1816
Latin America and the Caribbean	69	133	233	350	463
Rest of the world	404	559	685	781	849
Percentage of population living in the urban areas					
Africa	14.6	20.7	27.3	34.9	43.6
Asia	17.4	22.4	26.7	34.7	43.6
Latin America and the Caribbean	41.4	53.4	64.9	73.4	78.6
Rest of the world	55.3	64.1	70.5	74.2	78.0

areas are one of the main contributors of those consequences. The urban environmental problems can be synthesized into three main aspects: 'the over-consumption of energy and resources that exceed their production by the nature, the production of degraded energy, wastes and pollution more than the assimilative capacity of the ecosphere, and the lack of the necessary infrastructures to ensure health and well being of all citizens in cities of less developed countries' [8].

The excessive consumption of resources in the urban areas can be better described with the help of the ecological footprint. The ecological footprint of a group of population 'is the area of land and water required to produce the resources consumed, and to assimilate the wastes generated by the population on a continuous basis, wherever on Earth that land is located' [6]. It is calculated that only 1.5 ha of ecologically productive land and about 0.5 ha of truly productive ocean is available for every person on earth [11]. The eco-footprints of average residents of high- income countries range as high as 5 and 6 ha per capita [12, 13], even up to 10 ha per capita, according to other analyses; while people in the less-developed countries have footprints of less than 1 ha [14, 15]. An integrated approach is required to resolve the conflicting interests of multiple stakeholders and achieve equity in order to improve the urban environment [2].

3 URBAN GROWTH MANAGEMENT: A PANACEA?

Hare [16] describes effective growth management as 'a dynamic process for anticipating and accommodating development needs that balances competing community building goals and coordinates local with regional-scale interests'. He outlines five critical components of a growth management strategy:

- a clear vision and commensurate commitments to effective growth management by all the parties;
- a greater level of collaboration and a clear definition of the roles of the key stakeholders;
- innovations in policy frameworks and financial commitments to support growth management;
- the introduction of better tools;
- an enhanced awareness in the broader community.

Growth management has been receiving growing focus in North America since the 1940s. In that era, growth management was perceived as growth control – the slowing or stopping of development. In Canada, provincial policies based on the conservation movement began to emphasize on managing growth. The establishment of the Lower Mainland Regional Planning Board in British Columbia in 1949 and in Metro Toronto in 1953, aimed to approach development problems and manage growth. In the 1960s and 1970s, environmental awareness focused on growth management efforts in order to preserve environmental resources within the limitation of urban development [16]. In the 1980s and 1990s, growth management strategies placed emphasis on a coordinated and financially sustainable development process. The identification of growth boundaries, and reliance on planning policies and a set of strategies to effect comprehensive community building at the local, city and regional level contributed in the evolution of the growth management approach [16]. These strategies deal with open spaces and natural systems, healthy downtown, and balanced movement systems.

The recent development in the urban growth management intends to ensure public and private collaboration that must be responsive to both community goals and market interests. The smart growth movement which started in the USA, enhanced the awareness level of discussion related to urban management and addressed how communities will accommodate inevitable growth in a way that enhances the livability, the environment and the economy [16]. An increasing number of states in the USA have adopted growth-management strategies in order to curb sprawl and landscape fragmentation. In the year 2001, the growth-management states included, at least, Arizona, California,

Florida, Georgia, Maine, Maryland, New Jersey, Oregon, Rhode Island, Tennessee, Vermont and Washington [17, 18]. The implementation of growth-management strategies has been noted to be effective in states with strong consistency requirements and enforcement mechanisms like the case of Oregon [18].

Despite the increasing rate of adoption of the urban growth management strategies, authors [16, 18–20] have indicated the controversies surrounding their effectiveness and the need to improve on the practice of growth management. Current debates on growth management suggest that the growth-management strategies should be collaborative with increased stakeholder participation. There is also the need for better coordination of the growth-management strategies at the different levels (local, regional, state and national) of implementation. The framework of decentralized growth management has not been quite adequate in curbing sprawl, especially at the regional level. Development activities that are restricted in an area always spring up in another area of the region. Growth-management strategies can no longer be implemented as a 'local growth control' measure. The integration of SEA with urban growth-management strategies might lead to an improved growth management by ensuring better coordination and stakeholder participation.

4 STRATEGIC ENVIRONMENTAL ASSESSMENT AND URBAN SUSTAINABILITY

4.1 Environmental impact assessment and urban projects

Although in the 1970s and the 1980s environmental consequences of urban growth were not receiving much attention, during 1990s it has come to the forefront of international attention specifically in developing countries. The urban areas will not be able to generate social, economic, technological and political development by undermining the capacity of the natural environment to sustain them. In developing countries, the urban areas are forced to spend heavily on reactive environmental measures in order to survive from a strictly economic perspective. In urbanizing nations, the urban areas are supposed to plan and guide their operation and growth in a manner that optimizes the consumption of natural resources and minimizes waste and environmental degradation, and create the basis for investment in urgently needed social and economic development initiatives [7]. Sustainable development ensures equitable economic, social, cultural and technological development without polluting the ecosystems and depleting the natural resources. The proper management of natural resources without paying equal attention to the strengthening of human, capital and information resources will not lead to sustainable development [7]. Sustainable development cannot occur without carefully taking into account its human settlements [7]. Newman [21] states that the goal of sustainability in a city is to reduce the use of natural resources and production of wastes, along with the improvement of its livability, which will cause the city to fit within the capacities of the local, regional and global ecosystems.

Environmental assessment (EA) of urban projects had been recognized as a means of achieving urban sustainability. Although little is known about the results of environmental impact assessments (EIAs) applied to urban projects, good EIAs can ensure sound environmental management in urban projects, particularly in developing countries. In the 1990s, EIA was regarded as an important and comprehensive management tool, which helped decision makers to take appropriate actions concerning economic, technical, and social as well as environmental aspects of the projects. Practitioners and decision makers are now more aware of the fact that the project level EIA often takes place too late in the planning and the decision-making process to be effective in avoiding potentially significant negative environmental effects. Thus, environmental concerns must be integrated earlier in the development process, as planning and policy decisions may inherently be responsible for negative

environmental impacts. The environmental assessment of more strategic types of decisions became one of the priority issues for discussion and improvement because of the problems that could not be resolved at the project level.

4.2 Strategic environmental assessment – an approach to sustainability

The concept of SEA contributes in the sustainable-development process by improving on the project-level assessment. Over the last 10 years, SEA has become widely recognized by governments and development stakeholders worldwide as a valuable component of the sustainable development process [22, 23]. Strategic environmental assessment, the EA of the proposed and existing policy, plan and program (PPP) and their alternatives, is gaining widespread recognition as a supporting tool for decision-making towards achieving sustainable development [22, 24]. Numerous authors have recognized the role of SEA in incorporating environmental issues into PPP decision-making processes and thereby contributing to sustainability [25]. 'SEA aims to provide a perspective by which the policy is developed on a much broader set of perspectives ... and all the dimensions of sustainable development' [24]. Therivel and Partidario [26] noted the contribution of SEA to PPP development by allowing sustainability principles to 'trickle down' from policies and plans to individual development projects within a particular program. From an applied perspective, in recent practice, SEA is often related to sustainability goals such that SEA can assist in the selection of more sustainable policies and strategies [25]. The holistic problem-solving and integration characteristics enable SEA to contribute to more sustainable decision-making. Through the consistent and timely application of SEA to PPP proposals, decision-making is enhanced and more informed. There is no internationally accepted consensus on the definition of SEA because of the variation in the decision-making context at the strategic level. However, based on the available definitions of SEA, several common elements can be highlighted. The elements are as follows:

1. Strategic environmental assessment is not site-specific rather it is involved in the strategic level of decision-making.
2. It should have several stages of a formal EA process, which deals with the appraisal of alternatives based on environmental objectives and criteria.
3. It predicts the future environmental impacts resulting from the application of a policy, plan or program.
4. It influences decision-making at the strategic level, which eventually influences even the project-level activities.
5. It provides a written report, which is based on the consideration of a range of environmental components. It also addresses the likely future effects of higher-level decision-making.
6. It does not consider only a specific biotope, rather it emphasizes on the information which results from alternative planning and development options that can ensure sounder environmental outcomes.
7. It provides the necessity to integrate environmental, social and economic considerations into strategic decision-making by stressing the importance of taking account of sustainability considerations.

5 INTEGRATION OF STRATEGIC ENVIRONMENTAL ASSESSMENT AND URBAN GROWTH MANAGEMENT

It is very important that SEA is integrated with the urban growth management in order to take care of environmental concerns in a broader perspective such as the PPP. Linking SEA with urban growth management could be a crucial condition for sound development, and a way of improving

the practice of growth-management strategies. Now, it is established in the literature that project-level EIA is not sufficient to ensure sustainable development, due to its inherent limitations to deal with environmental concerns related to PPP or high-level decision-making. Strategic environmental assessment will expand the physical scale of urban growth management. For example, urban growth management, sometimes, curtails growth or development activities in a particular part of an urban area or a city to promote a livable environment. But the growth might be transferred to another part of the city or in another nearby city. Strategic environmental assessment can ensure a sustainable urban growth management with its contributions in urban growth management starting from its inception to its implementation within a broader perspective, such as the regional level. Any outcome of urban growth management will become sustainable by going through the assessment process of SEA. Strategic environmental assessment will ensure equity among the urban areas by looking at the environmental concerns from a regional level, which will not benefit an individual urban area by encouraging specific sort of activities within that area.

The PPP at each governmental level should be subjected to EA with focus on the urban growth-management strategies at each level. The broad goals and strategies of sustainable urban growth management can be determined at the national level, while the detailed implementation will be carried out at the regional and city level. The framework for the integration of SEA with urban growth management should be hierarchical in line with the hierarchies in decision making (Fig. 1). The framework will engender a collaborative and adaptive growth management rather than generic 'growth control' approaches that are generally implemented in practice. There will be provision for feedback from the lower level of decision making to the higher level culminating in top-down and bottom-up processes. The feedback will offer the opportunity of integrating 'local value' into the urban growth management and the SEA process. Some of the principles of growth management are value-laden and there must be consultation with the local stakeholders to ensure successful implementation. For instance, the issue of appropriate land use density can only be resolved through local participation. Value influences the threshold of the populace perception of overcrowding. The urban growth management cum SEA process will also ensure the adoption of a suitable level of centralization or decentralization of decision making. A tightly centralized decision-making process will debar local participation, while a loose decentralization will not ensure effective implementation of growth-management strategies.

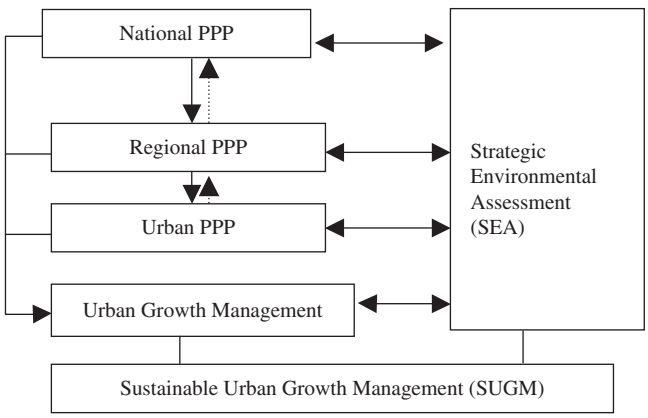

Figure 1: Integration of urban growth management with SEA.

6 THE CONTEXT OF ARABIAN GULF

The Arabian Gulf countries, like most developing countries, have been experiencing an enormous rate of urban growth and the attendant socio-economic and environmental challenges. The challenges have been compounded by the fact that urban dynamics is no longer driven by merely local forces but also by national and international socio-economic forces due to globalization. The urban population in Saudi Arabia, the largest county in the region, is about 88.5%, while Kuwait is 97% and Bahrain and Qatar 92%. The annual urban growth rate of some of the countries is around 3.5%. Some of the major cities in the region are already experiencing suburbanization. Urban growth-management strategies have been adopted by the countries to reduce the impacts of rapid urban growth. In Saudi Arabia, there are three axes of rapid urban growth, Riyadh, Jeddah-Makkah axis and Dammam metropolitan area. The urban population in Riyadh, the largest city, grew from about 46,000 in 1940 to 2.8 million in 1992 and 4.1 million in 2005. The spatial extent of the city has also increased from less than 100 km^2 in the 1960s to a spatial coverage of about 1700 km^2 (Fig. 2). The transformation has been enormous and has resulted in 'dysfunctional' sprawl [27]. It is noteworthy that primacy cannot be alluded to the largest cities at the national level, except at the regional level, whereby a dominant city has a high percentage of regional urban population [28]. In an effort to achieve balanced regional urban development and curb sprawl, the government has adopted urban growth boundary policy and proactive strategic urban management [27, 29]. The national spatial strategy is also developed to ensure balanced regional growth and enhance the role of secondary cities in national development [28].

Urban growth and growth-management strategies in the other Arabian Gulf countries are similar to Saudi Arabia. In Bahrain, the main centers of urban development are the cities of

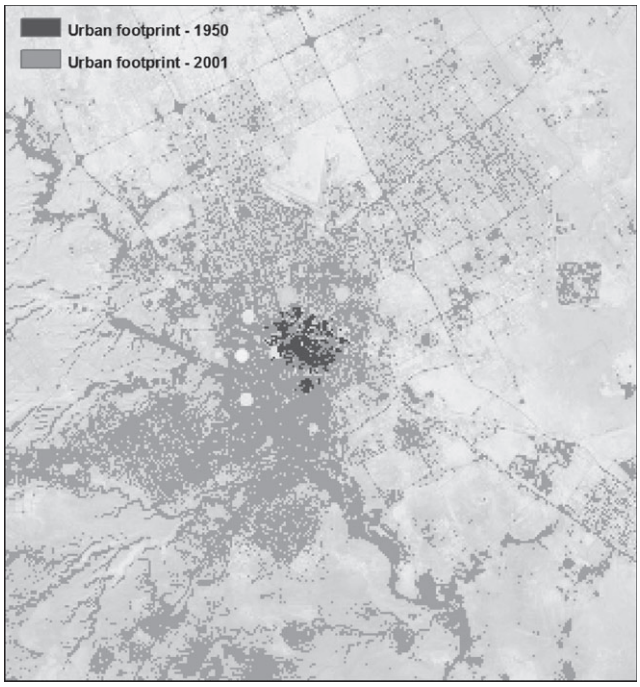

Figure 2: Urban growth in Riyadh, 1950–2001.

Manama and Muharraq. The cities have extended beyond the old city walls and new suburban areas have developed. The difference in density of land use between the old city of Muharraq and the new extensions illustrates the trend of suburbanization. The density of the old city is about 250 persons per hectare while the density of the new extensions is 50 persons per hectare and the dwellings per hectare is 50 for the old city and 10 for the new [30]. In Kuwait, most of the urban population lives in Kuwait city or in the suburb such as Hawalli. The government has responded to the problem of suburbanization and the imbalance in urban development by adopting strategic plans that will create new city centers and ensure proper urban management [31]. The trend of rapid urban growth fueled by an oil-based economy also applies to the United Arab Emirate (UAE) and Oman. For instance, the population of Dubai (UAE) increased from about 60,000 in 1970 to 961,000 in 2002. The spatial extent of the city has expanded from 3.2 km^2 in 1955 to 605 km^2 in 2004. The annual urban growth is about 3.9% and the challenges related to the provision of housing, transportation, infrastructure and public facilities have increased. The government has inaugurated the Dubai Strategic Plan to manage the urban growth. The plan represents 'an effort to provide an explicit spatial framework for urban growth' [32].

The rapid urban growth and transformation occurring in the Gulf countries poses a great challenge to urban and spatial planning in the region. It has been noted by Choguill [33] that the city of Riyadh, Saudi Arabia has made impressive progress on the social aspect of sustainability, but with notable weakness in the other aspects. Choguill [33] highlights that the ecological footprint of Riyadh (about 121, 185 km^2) is remarkable. The city requires an area of about 68 times its size to maintain the present lifestyle. There is need for the reappraisal of government policies to make the city more sustainable [33]. Unfortunately, the current practice in most of the Gulf countries does not ensure the assessment of policies and programs because the environmental assessment frameworks are limited to project-level assessments. Sustainability principles are not well integrated with the planning and decision-making process [34, 35] and urban growth strategies are not linked with sustainability appraisal, especially at the policy and plan level.

The ability to surmount the urban growth challenge will depend on the planning context. The spatial planning context in the region is highly centralized and public participation is limited [35]. Land allocation and urban infrastructure are mainly government domains. These contextual factors have created a unique urban management scenario that requires more comprehensive and inclusive strategies than the current practice. The implementation and integration of SEA in the region might aid in improving the current situation. SEA will ensure that urban growth challenges are addressed in a proactive and collaborative manner. The hierarchical framework of SEA is compatible with the spatial scales of urban management and can be integrated with decision-making at the early stage. Alshuwaikhat and Aina [36, 37] note in their study on Saudi Arabia that environmental assessment has not been adequately integrated with spatial planning and they argue for better implementation of environmental assessment to foster sustainable cities.

7 CONCLUDING REMARKS

Urban growth-management strategies and SEA have complementary roles to play in ensuring urban sustainability. The current practice of implementing them, as two 'separate' frameworks, especially in the developing countries, might not be effective. Integrating urban growth-management strategies with SEA could reduce the shortcomings in the practice of growth management. It will ensure early and hierarchical consideration of the impacts of growth control mechanisms, thereby leading to more collaborative and inclusive planning. It can be argued that the practice of SEA is not yet formalized in most countries and integrating SEA with growth management might not be entirely successful. There are indications that SEA is adaptive to local context and it is becoming widely acceptable.

The integration of SEA and urban growth management will be synergistic by exploring the merits of the two in pursuing sustainability.

Urban growth and transformation in the Arabian Gulf countries has proceeded in an unprecedented manner and the present urban management regime has not been able to meet the challenges in an effective way. There is the need for more public participation, decentralization of decision-making, proactive and collaborative strategies and better political will to ensure sustainability. Most of these issues can be addressed by the implementation of SEA within the framework of urban growth management. The municipalities, that is, local governments have to play more roles in developing urban management strategies. The decentralization of decision-making should not be at the expense of integrated urban management. The collaboration between the different levels of decision-making will ensure that urban growth strategies are consistent with the national development plan and regional issues are adequately considered.

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