

# URBAN SYSTEM OF ALEXANDRIA REGION

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## ABSTRACT

This paper examines the functions of new communities within the regional context, and its degree of providing either job opportunities or suitable accommodations for the urban poor. Applied methods of regional analysis based on location allocation approach, by which focus on issues of access to strength the roles of settlements as marketing and services centres in Egypt. Urban system within Alexandria Region is investigated to assess location -allocation models. It stresses on the relationship between the city of Alexandria, the new established industrial zone of El Ameriyah, New Bourg El Arab city, and the southern corridor industrial zone of the city of Alexandria, as well as, the effectiveness of Kafer El Dawar and El Noubaria cities on Alexandria Region. Also, taking into consideration, the huge development on the northern coast of Alexandria, as a main source of providing the necessary infrastructure for the development of the western part of Alexandria Region.

*Keywords:* New communities, Urban system, Alexandria region, Market areas, Regional development.

## 1. INTRODUCTION

The theory of market areas seems to be the key to future developments. It was, in a sense, the culmination of the theory of the firm. But it was also the beginning of the theory of August Losch (1975), and, in the form of central place theory, it constitutes the principal tool for understanding the empirical regularities that concern Brian Berry (1967), among others.

The theory of market areas is implicit too in the modern theories of regional development such as Losch's growth poles (1979). Thus, in a way as yet unrealised, it may be said to be the fulcrum on which turn the various spokes of understanding of regional structure and development. The theory of the firm has been developed in the context of a market. In recent years, however, concern has turned to national regional development. Increasing the question of the location of a factory is being considered as a "project" by a government agency rather than a profit-making venture by a private corporation (Alonso, W., 1975).

Therefore, this paper examines the Alexandria region through the demand based location allocation approach which evaluates the available resources within the region and the possibilities of various locations in contributing in the development process within the region. It is argued that the government has initiated the development of the region without clear understanding of the needs of the target population, and on the other hand has not succeeded

in linking the existing infrastructure with various locations within the region. An answer is needed to the crucial questions of whether the principal city is too big, of how new growth centers must be enjoy self-sustaining growth and to attract the mass of population, of what type of infrastructure are proper subjects for a policy of the region, and for whom should be built? This paper is divided into three sections; the theoretical basis, the practice section and finally conclusions.

## 2. THE THEORETICAL BASIS

Since the late 1960's regional planners have formulated plans to integrate urban and rural development and promote an efficient spatial distribution of urban functions. These attempts culminated in the functional integration approach to spatial planning. A balanced and integral system is composed of dispersed and interlinked central places, performing specialized and diversified production, distribution, consumption, and exchange functions (Rondinelli and Ruddle, 1979). The approach relies on analyses of functions, linkages, and accessibility of urban systems in order to identify the types of goods and services required at each level of an urban hierarchy (Bendavid, A. 1983, Rondinelli, 1985).

The functionals approach provided a process and a set of easily applied methods that were suited to the

needs of planners in poor rural regions where data were scarce, policymakers were not usually highly educated and certainly not specialized in regional science, and where investment agencies (Rondinelli, 1990).

Rondinelli (1985) gave a clear description of the urban functions approach and described it as a process of analysis and planning involving ten stages, covering; (1) a baseline study of economic and demographic profiles, (2) analysis of human settlement systems, including the hierarchy of central places, (3) description and analysis of linkages among settlements, (4) mapping of service areas of various settlement categories, (5) delineation of rural areas which have weak linkages or no linkages at all with town-based services that are crucial for regional development, (6) comparison of the results of stages 1 through 5 with existing regional development plans, (7) generation of investment proposals to ameliorate major development problems, to strengthen and articulate the spatial structure, and to integrate various levels of settlements, (8) integration of projects into investment packages and the combination of these packages into a priority-ranked investment budget, (9) creation of an evaluation system for monitoring the implementation of projects, and (10) Institutionalization of planning procedures.

More recently another tool, location-allocation, has been applied in Third world rural development (Rushton, 1984, Ghosh and Rushton, 1987). Location-allocation analysis uses computer algorithms to identify the optimal locations for new service facilities, given model requirements and constraints, so that overall access to demand points or areas is maximized. It is argued (Belsky and Karaska, 1990) that location-allocation analysis has the potential to become the centerpiece of an important new approach to locational planning, especially if built on the demand-driven logic of Christaller's central place theory. Such a demand-based approach provides a clear alternative to the functional integration approach. It differs significantly from the functional integration approach both in terms of its goals and the methods selected to achieve them.

Besky and Karaska (1990) propose the use of location-Allocation models as an alternative. Location allocation models have been developed to handle decision problems with the location of multiple facilities. These models can be used to find the optimal locations of multiple facilities and determine the allocation of demand to those locations (Rushton,

1984, Ghosh and Rushton, 1987, Love and Morris, 1988). Location allocation models have been applied to both public and private sector decision problems ranging from the location of fire stations or hospitals to the location of warehouses of multiplant firms. Location-allocation models typically give rise to nonlinear objective functions which are neither convex nor concave so that multiple local optima may be expected. This property made location allocation models a challenging topic in operations research.

Diagram (1) Illustrates a theoretical foundation for location-allocation approach based on demand logic of Christaller (1966). Belsky and Karaska (1990) indicated the following variables to determine the level and composition of demand for central function at a given Location: (1) the social and cultural characteristics of the population in and around the place; (2) the purchasing power of the population, which is in turn determined by its income level; (3) the number of people willing and able to travel to the function; (4) the pre-existing locations of firms product's that supply it; (5) price, which is in turn determined by the costs, of providing it and by supply and demand. These notions have been refined by a generation of social scientists who have developed methods to determine and measure the variables that provides goods or services (e.g., Beavon 1972; Clark and Rushton 1970; and Davies, 1976).

Information on the present distribution of good or service must be supplemented by a demand analysis that assesses; (1) the price households are willing to pay to obtain the good or service (to estimate that constitutes effective demand); (2) the effective demand surface of target groups (the distribution of effective demand surface of target groups -the distribution of effective demand) ; (3) the spatial behavior of target groups (to estimate range requirements); and (4) the demand requirements of the supplier of the good or service (to estimate threshold requirements). Therefore, location analysis arrives at the optimal solution by matching demand point locations or areas with existing and possible supply point locations, subject to planning constraints. It can evaluate combination of feasible locations for an urban function and select the combination that most closely achieves an objective or set of objectives.

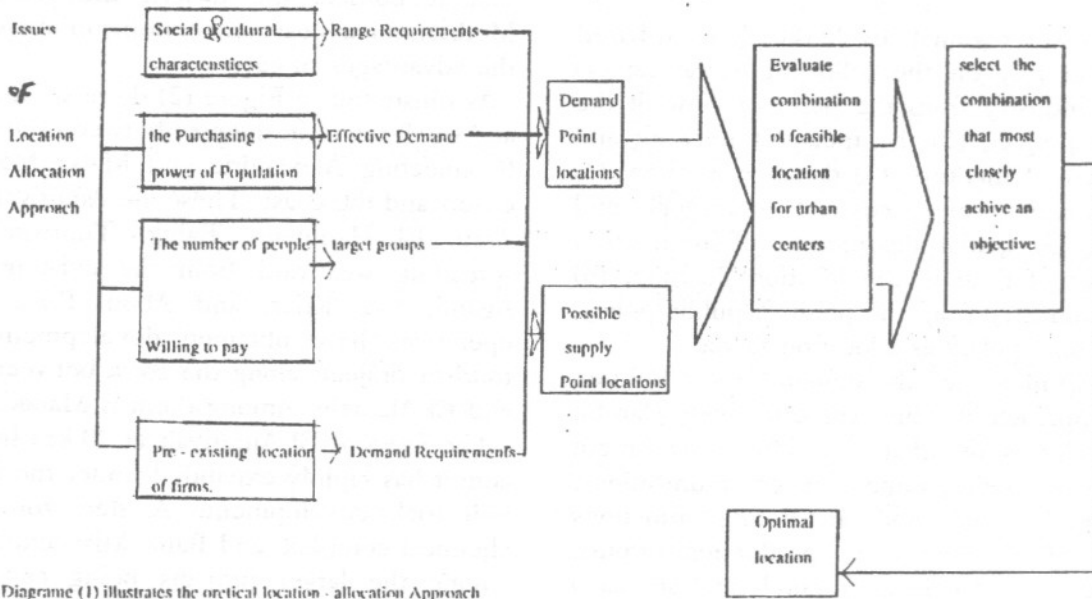


Diagram (1) illustrates the optimal location - allocation Approach

This diagram is drawing by the author based upon the theory of Belsky & Karaska, 1990

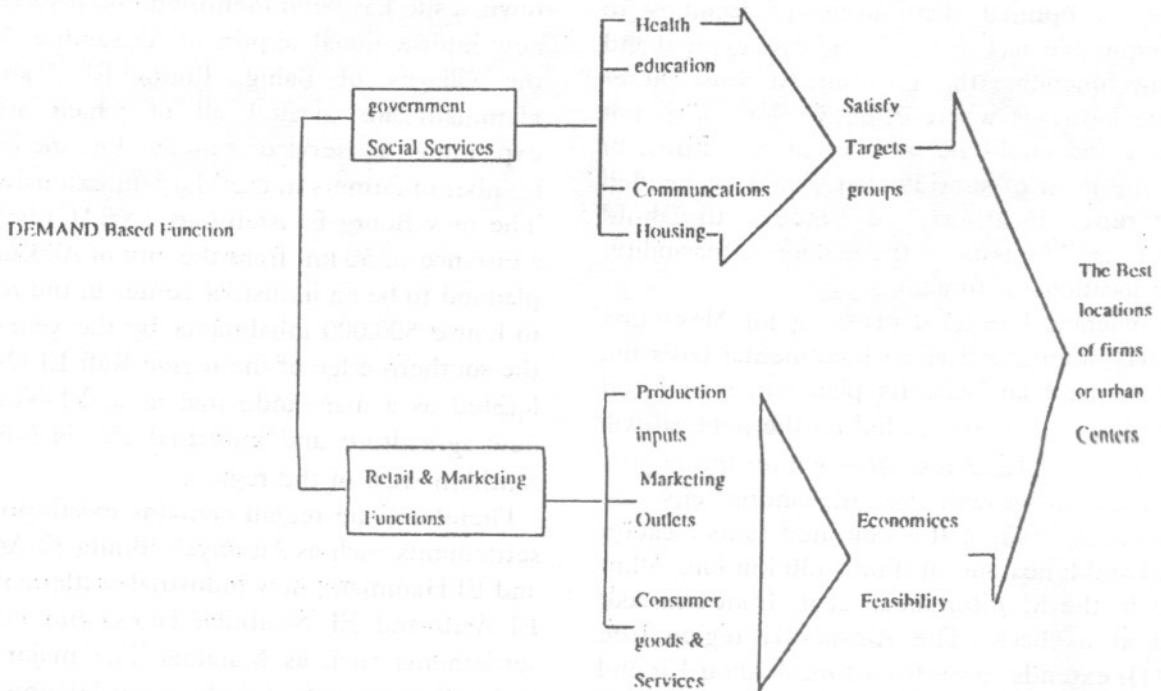


Diagram (2) illustrates Demand - Based Function Approach

(Based Upon Belsky & Karaska, 1990)

### 3. THE APPROACH IN PRACTICE

In the case of regional level, the demand-based approach can rely on the following variables; (1) location of industry from the point of view of the firm or the project, (2) the transport network and concentration of markets, (3) distance as time, (4) personal space preferences of managers and technicians, (5) spatial distribution of information and the cost of time in the location decision, (6) location of industry from the point of public policy, and (7) regional policy as a location factor.

Diagram (2) illustrates the demand-based location allocation approach by which can effectively plan for two broad classes of urban functions; government social services (health, education, communications, housing) and retail and marketing functions supportive of development (production inputs, market outlets, and consumer goods and services) (Belsky and Karaska, 1990). In the case of social services, the government provides the service or retail function in order to satisfy a target group's needs. Planners are primarily concerned with achieving an optimal distribution of facilities to provide equitable access, but in the case of retail and marketing functions, the government must either determine locations where effective demand is not being met and could be met by private firms, or identify the level of subsidy that would be needed at different locations to meet threshold requirements. The issue is the economic feasibility, and best locations of functions.

In the practice, locational planning for Alexandria Region has determined as an incremental basis not through demand analysis. Its plan was introduced over a period of time depended on the political will regardless the available resources within the region.

The limits to growth for Alexandria city are however clearly visible. It is confined to its location on a sand and limestone in thums (30 km long 3 km wide) with the Mediterranean at its front and lake Maryout at its back. The Alexandria region (see Figure (1)) extends towards east until Abou Kir and is blocked by agricultural lands which must be safe guarded. The western exit has already been occupied by the harbour and industrial development of El Dekhila. The region stretches along the coast, about 60 km from the center of Alexandria. The

most apparent and attractive aspect of this region is that it borders the desert, the Delta and the Mediterranean coast and benefits in many ways from the advantages of each.

As Illustrated in Figure (2) there are many villages and small towns in the area between the desert road (Connecting Alexandria and Marsa Matrouh), the desert and the coast. These are Ameriyah, Bourg El Arab, El Hammam, Bahig. Tourism is rapidly spreading westward from the existing resorts of Agami, Sidi Krier, and Abou Talat. Many co-operatives have obtained development rights for tourism projects along the coast between Sidi Krier and El Alamein. Among them is Marakia.

The town of El Ameriyah at 20 km from the city center has rapidly expanded under the influence of industrial development. A free zone, a petrochemical complex, and Bank Misr textile fabric are among the larger projects being constructed. In addition, a corridor industrial development has been established along sides at the end of the desert road and adjacent to lake Maryout.

Further to the west about 18 km from Ameriyah town, a site has been identified and reserved for the new inter-national airport of Alexandria. West of it the villages of Bahig, Bourg El Arab and El Hammam are located all of which are rapidly expanding as service centers for the increasing number of farmers in the Maryout extension project. The new Bourg El Arab City (NBAC) is located at a distance of 50 km from the city of Alexandria. It is planned to be an industrial center in the region, and to house 500,000 inhabitants by the year 2005. On the southern edge of the region Kafr El Dwar city is located as a main industrial area. El Noubriah, a new agriculture and industrial city is built on the southern west of the region.

Therefore, the region contains existing traditional settlements such as Ameriyah, Bourg El Arab, Bahig and El Hammam, new industrial settlements, Bourg El Arab and El Noubriah cities, and new tourist settlements such as Marakia. The major transport and utility network of the new settlements has been planned and constructed using, in some locations, the recommodation of the NWC regional plan.

The advantages for several growth centers, in addition to the economic potential of the region

would contribute in national strategy, and would coincide with Egypt's industrialisation policy, which has as its target the employment of 30 to 35% of the labour force in the industrial sector.

It is argued that (Abdrabo, M., 1991) the NBAC has failed to achieve the employment projections made in its master plan and are trailing far behind the employment target set for it. The failure can be attributed to a number of reasons: (1) Bureaucratic hurdles and the large number of permissions required, (2) Bottle-necks in the prior provisions of infrastructure and amenities, (3) the town has failed to achieve its planned economic based strategies through failing to promote and facilitate the establishment of the planned industrial structure, and (4) a lack of appropriate communication facilities.

Also the failure can be attributed to the spreading of industrial locations at two main location: at the

end of the desert road adjacent to Lake Maryout, and El Ameriyah Traditional settlement. These two locations have been rapidly developed for variety of reasons: (1) the absence of bureaucratic hurdles where the investors can act freely away from the complicated official procedures in obtaining vacant land plots, (2) the closeness of these two locations to Alexandria city, and their location on the main road facilitate the commuting and connection between their locations and the city, (3) the availability of a cheap labour force who are living close to or within the two locations, (4) the availability of social amenities either in El Ameriyah settlement or in El Dekhila area, and (5) the availability of sheap housing units in the traditional settlement and the free market of housing system within or close to the two locations.

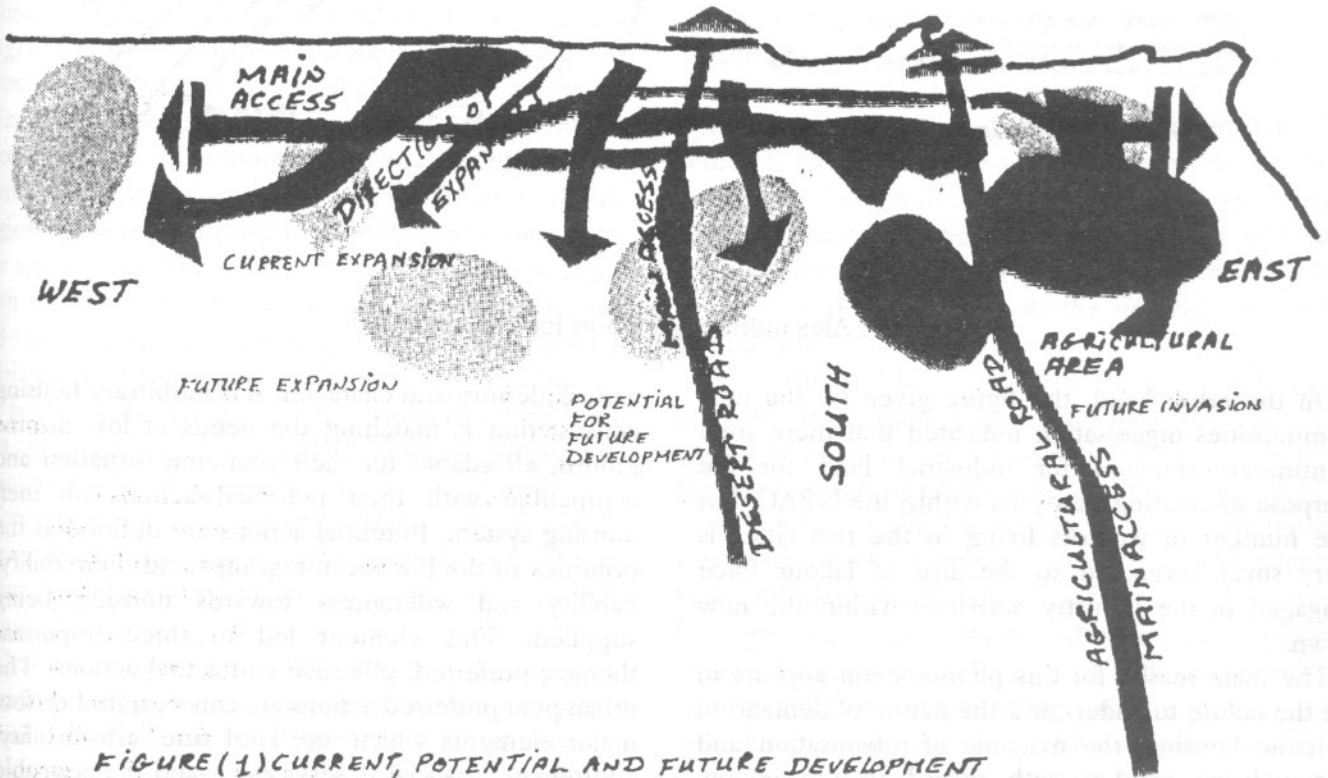


FIGURE (1) CURRENT, POTENTIAL AND FUTURE DEVELOPMENT ACCESSSES IN ALEXANDRIA REGION

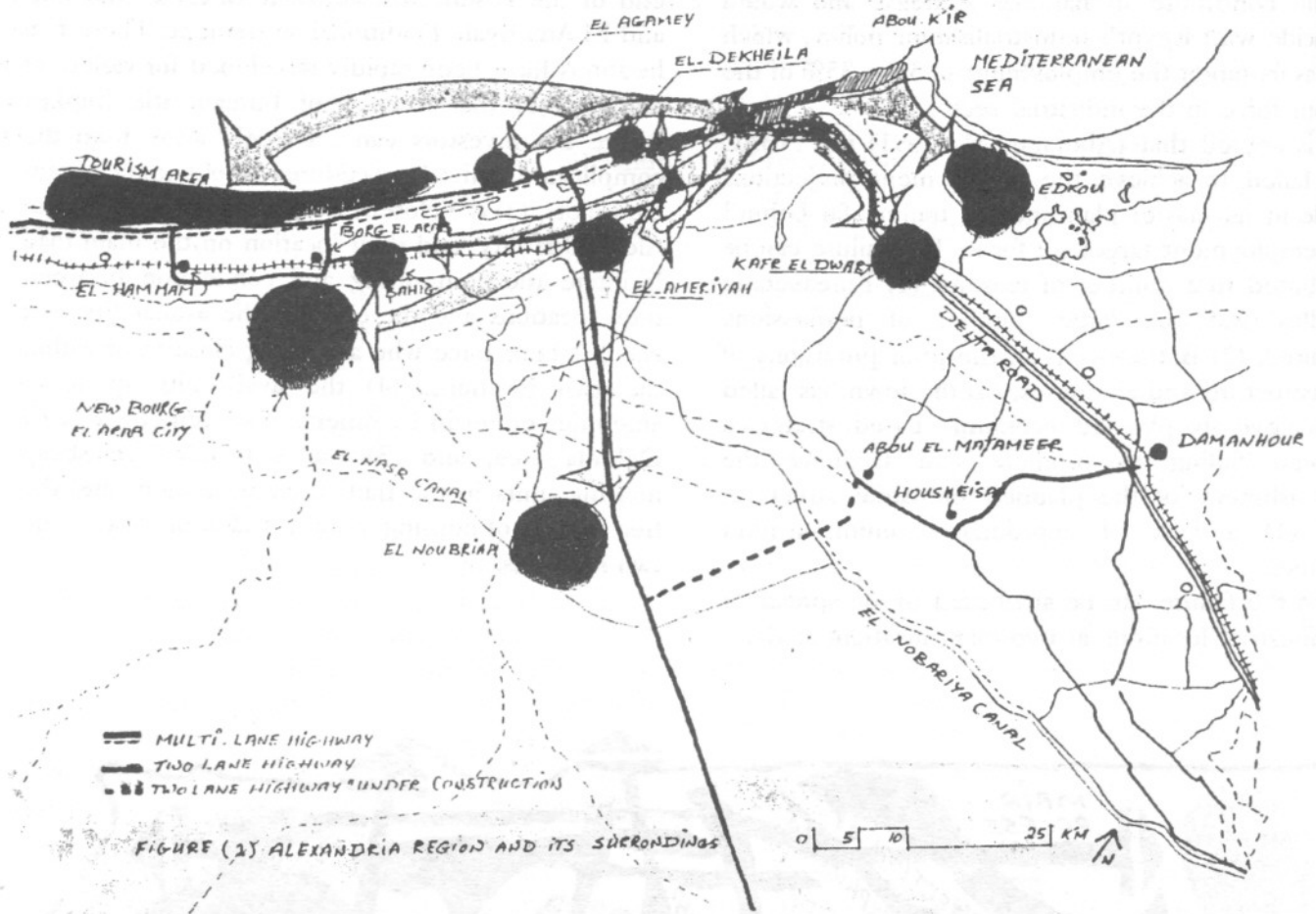


Figure 2. Alexandria region and its surroundings.

On the other hand, the figure given by the new communities organisation indicated that there are a continuous demand for industrial land for the purpose of creating new jobs within the NBAC, but the number of workers living in the two cities is very small compared to the size of labour force engaged in the industry activities within the new town.

The main reason for this phenomenon appears to be the failure to understand the nature of demand of suitable housing, the dynamic of urbanisation and the policies needed with regard to the region. Consequently, the village pockets and marginal areas were the only neutral cushion to absorb the migrant industrial or other workers who rapidly lost their

earlier identity and character. This arbitrary housing construction is matching the needs of low income groups, affordable for their economic situation and compatible with their potential actions on their housing system. Potential actions are defined as the priorities of the low income groups and their ability, liability and willingness towards housing being supplied. This element led to three important themes; preferred, effective and actual actions. The urban poor preferred actions are concentrated on four major elements which are; land title, affordability, appropriate social services, and reasonable infrastructure. The low income groups actual action consists of three important aspects; acting freely outside the official legislation, the available range of

options, and piecemeal growth in constructing their houses. Effective action is concentrated on the settlers autonomy in their environment and the principle of participation among the settlers.

In the recent past, it was apparent that the character of the main road connected the NBAC and the traditional settlements within the region had changed. This process of spontaneous growth was not clearly studied, or taken into account, when the regional plan was set-up, hence, the government would face a new feature of uncontrolled urbanisation within the territory of the region.

#### 4. LOOKING BACKWARD AND LOOKING FORWARD

The main idea of this paper can be summarised by comparison with the ideas of the demand based location allocation approach within the context of the Alexandria region. The new town and tourist settlements within the region were forecast with considerable accuracy substantial improvements and upgrading in the transport infrastructure. despite the government efforts to enhance the transport infrastructure, but it did not reach the level to accelerate the development of the region and to connect urban centers with the settlements of the region. The inadequity of railway connection with the sphere of influence (access to new town jobs), or with main business centers to help creating jobs, has led to relying on traveling by private/ public vehicles. Unconstrained growth of travel by motor car is beginning to be seen as a problem rather than as a celebration of the growth of disposable incomes.

Another aspect has been the start of the information technology revolution with dramatic advances in telecommunications which support the provision of services which can substitute for some forms of travel.

The main argument of this paper is that the Alexandria region, and the development of new towns and satellite settlements within the region could be used to explore ways of bringing together a variety of planning policies which would provide alternatives to suitable locations by town planning design. This would encourage the adaptation of the

use of the existing transport infrastructure and use other means of transport, by planning of the city region in ways which reduce the need for commuting journeys by car, and by fostering the growth of telecommunications services which might reduce the demand for travel for journeys to work and other types of journey.

Third, the government has succeed, to a certain extent, in providing retail and marketing functions supportive of development in the light of: (1) establishment of the tourist settlements in the north coast, (2) introducing industrial locations in the western sector of the region, (3) enhancing the roads connecting the city with the tourist settlements and (4) constructing new canals for accelerating the development within the region. On the other hand, the government failed to (1) provide the proper services to facilitate market outlets of the region's production, (2) inadequate social services for the target population who mostly living below poverty line, or whom seeking jobs opportunities in new established premises within the region, (3) inappropriate housing construction for the target populations.

The region neither creates an environment in which it could meet the affordability of households to obtain the goods or services nor provides the spatial behavior of the target groups. This is quite clear in the low level of population who are now living in NBAC compare to the original projected population.

The Alexandria region neither co-ordinates between the available resources and the mass of people to be attracted to settle within the region, nor has met the national policy of creating new economic base away from the Delta area. A more systematic treatment of the conflicting objectives, establishing new communities-attacking housing problem for low income groups, enhancing the infrastructure, invasion of desert areas,...etc.-inherent to regional planning and a better understanding of the effects of infrastructure on regional economy both would be valuable in strengthening the functions and opening the opportunity for accessible accommodation for the urban poor.

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