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Development Planning Alternatives for Assiut Province , Egypt with Reference to Rapid Demographic Projection Model

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Abstract

The emphasis in population studies so far has been almost entirely on the sociological approach. One of the objectives of this paper is to maintain the balance, not by de - emphasizing sociology, but by adding a new perspective from the Demographic Model and planning techniques ,in order to come up with a clear identification of the possible alternatives to absorb the growing population for Assiut province in Egypt . In general, population structure is a concomitant effect of integrated changes in the socio - economic and rural urban issues.

However, population studies play a big role in the process of development. Many important factors of the future situation facing the community which the planner must apply are derived directly from the population trends. In other words, most of the important decisions about the people's needs,land use, social services and technical infrastructure are derived from population estimates.

Hence ,in this paper in order to establish the population projection for the next period of time, we will use the Rapid Demographic Projection Model (computer program) to examine the people's needs (e.g. primary school, housing and basic health planning) in the projection years according to SFDM and RFDM. In conclusion, this study draws up WHO is responsible for WHAT and HOW financial resources about the future capabilities in Assiut province should be..

Key Words : Environmental and natural potentials, Conceptual Framework, Primacy Index, Basic needs, Rapid Demographic projection Model, Planning alternatives, Standard Fertility Decline Method (SFDM), Rapid Fertility Decline Method (RFDM), Special Development Programs (SPEDOP,s), Functional Responsibilities Matrix.

1. Introduction

The ancient Egyptians built Assiut on the River Nile and gave her the name of "Siut" that means "guardman" in their language, gradually the name becomes "Assiut". In the Pharaos age, Assiut was the base of the thirteen regions and the King's assistant lived there. In the Greek age Egypt was divided into the Delta, Upper & Middle Egypt and Assiut was one of these regions (Upper Egypt). In the age of Mohammed Ali (1805 A.D.), Egypt was divided into seven provinces, one of them consisted of Gerga and Assiut.

However, after the Revolution of 1952, Egypt was divided into 24 provinces (nowadays 26 provinces), one of them was Assiut. In 1977, Egypt was divided into eight planning regions. Assiut was the capital of one of them.

Concerning the population analysis, a useful classification of demographic research is given by Davis (1959). Population analysis is seen as consisting of four major areas of work :

- 1) Formal demography (the study of fertility and mortality, age - sex structures of populations and population growth, and the mathematical analyses of interrelationships among these variables).
- 2) Population theory (the study of causes and consequences of population change).
- 3) Population policies ; and
- 4) population characteristics (such as : social, economic, psychological, ethnic and biological characteristics of a population). The issue of population growth is often raised in connection with concern about environmental protection and the quality of life.

The population "Doubling Time" (PDT) of Assiut province is 21 years which means eight years faster than the population "Doubling Time" of the nation. Whereas, the population "doubling Time" of the developed countries (as a comparison) is 128 years. On the other hands, the unorganized migration policy of Assiut province reflects the need for state intervention to organize workers migration to other areas to face the discrepancy between the demand and supply. Assiut province has many potentials, which if utilized efficiently can push the development process towards more progressive achievements, which is one of the main purposes of Assiut province planning. Hence, this study has three main focuses : First, what is behind the environmental and natural potentials of Assiut province.. Second, there are two methods for the demographic projection, SFDM and RFDM. If we apply the second method (RFDM), the total costs concerning the basic needs (e.g. primary school, housing and basic health) in the projection years (1991 - 1996), will decrease by 9,003,900 L.E. (Egyptian Pound). Third, how can the overall picture of population structure and ecological imbalance be brought to the level of individual awareness and transformed into the level of the local community and what do we mean by SPEDOP's technique ?.

2. Study Background

2.1. Natural Environmental Studies:

- Location : Assiut is located about 380 km south of Cairo (Republic's capital).
- Area : The total area of Assiut province is 1553 square kilometers.
- Geography : Assiut province is characterized by a short rainy season. The average temperature is about 19.1°C in winter versus 34.2°C in summer.
- Topography : Assiut province is generally flat. The main water resources is the River Nile which divides the provinces into two parts. The River Nile is the second longest river in the world (6670 km). Nine African countries share the Nile with Egypt. These countries are Zaire, Burundi, Rwanda, Tanzania, Congo, Kenya, Uganda, Ethiopia and Sudan. However, Egypt is protected from droughts through the High Dam (Aswan High

Dam) more than the other African countries.

- Soil : Like most the Egyptian provinces, Assiut settlements are concentrated along the River Nile, where the quality of soil is good, especially for agricultural activities. Far from the River Nile, in the the desert the soil generally consists of sand and rocks and occasionally patches of exposed bedrock.

2.2. Population and Settlements :

The total Population of Assiut province was 2,223,034 inhabitant in the year 1986. The total number of urban population is 618,362 inhabitant (27.8 %), while the rural population of Assiut province is 1,604,672 inhabitant (72.2 %). The total number of the settlements within the province is eleven settlements. The population density of Assiut province is 1431 inhabitant / km².

Figure (1) shows the rank size distribution of Egypt's urban settlements, 1976.

2.3. Identification of the main development potentials :

Assiut province has many potentials, if well utilized can push the development process towards more progressive achievements which is the main objective of Assiut province planning.

However, potentials mean resources available used to develop the deficit areas in order to achieve balanced development.

In short, these potentials are shown as follows :

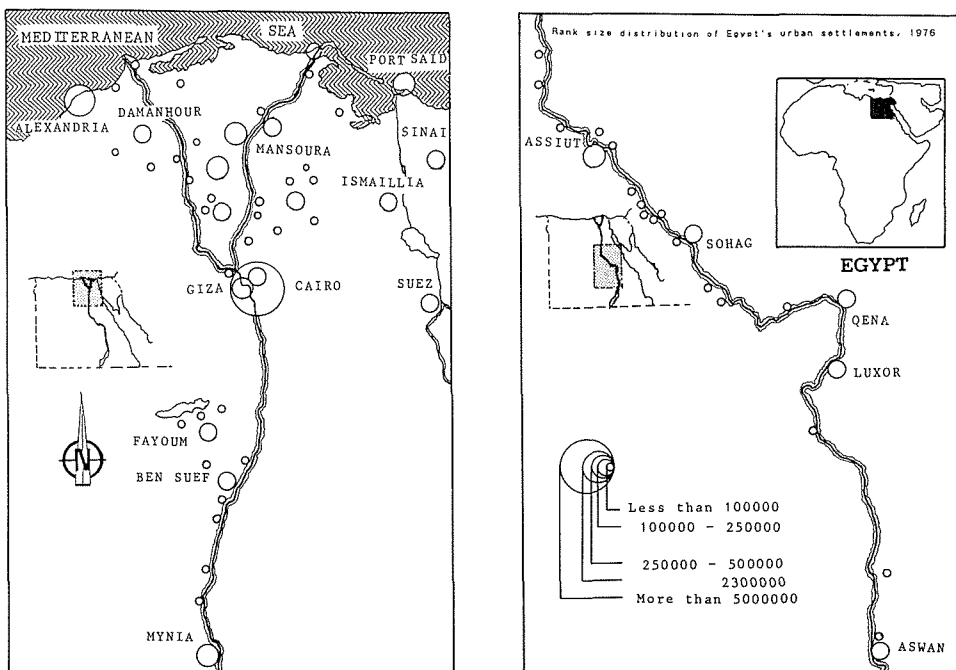


Figure. 1 Rank size distribution of Egypt's Urban Settlements, 1975

2.3.1. Human Resource potentials :

The population is an important resource because the province's development could be based on self - help activities and programs with high labor inputs. Additionally, labor intensive technology creates employment especially in the rural areas. This manpower is a potential for small scale - industries which usually use simple manufacturing processes. The skilled labor is concentrated in Assiut district, Abu - Teg and Abnoub , where the cottage industries, medium and large scale manufacturing enterprises as well as the household industries such as : handicrafts and weaving specific design are located.

In terms of traditional crafts, such as : local carpets , wood related activities, net making and drum making are located in Assiut, Abu - Teg, El - Ghanaim, Dayrout and Manfalut.

2.3.2. Environmental and natural potentials :

- River Nile : The beach of the River Nile and some of the Nile islands are potentials for tourism. For instance, swimming and bathing, angling, boat fishing and water skiing are important for tourism .
- Flora and Fauna : Around Assiut province especially in the eastern and western desert, a lot of flora is located such as : shrubs, bushes, palms, pine - trees, dum - palms and prickly - pears . There are potentials for obtaining woods and food (e.g. dates, pears and doum).
Concerning the fauna, there are many kinds such as : foxes and other fur - bearing animals, snakes and other wild animals, which are potentials for peltry, fur and leather extraction.
- Quarrying & Mining : The province has potentials for lime stone quarries, which can be used in building and other activities.
- Forest : The province has abundant trees, which are located in Abu - Teg, El - Fatah, El - Badary and Sahel - Selim and therefore there are potentials for furniture making, boat making, and various handicrafts, not to mention that the trees are important walls against sand dunes, sand storms and wind storms. Due to the big roles of the forest trees in our environment, we have to take protection regulations into consideration, in order not to destroy this important environmental component.
- Live stock and Bee - keeping : The province has potentials for live stock which includes cattle, sheep, goats and camels and so may be used as resources for meat and milk. whilst the camels also provide leather and poultry is a source of protein.

2.3.3. Materials potentials :

- Medium - Large - scale industries : In Assiut there are presently a number of manufacturing enterprises such as : the El- Thalej (ice) factory, the coca - cola factory, the medical equipment factory, the fertilizer factory, the cement factory and the oil refinery. There are technical treatment methods, which are used in some of these factories in order to protect the environment from their pollution , taking into account that most of the previously mentioned factories are located in the

desert far from the settlements areas.

These are potentials for establishing an industrial economic base for further job opportunities, if it is well developed to absorb the existing unemployment and the future labor force.

- Social and Technical infrastructure : The province has two universities (Al - Azhar and Assiut universities). These are potentials for improving the Know - How, skills and talents of the work force, as well as supporting academic research for the agriculture production and how technology and techniques could develop the desert in addition to the development of the vocational training and technical capabilities. However, there are more than seven specialized hospitals, health centers and other social services, e.g. education, markets, recreation areas, culture centers, religious centers, welfare activities, etc. There are many energy power stations located in Assiut, Abnoub and Abu - Teg. Assiut Dam (880 m·long) is a potential for improving energy power supply and agriculture related activities. There are also potentials for small scale industries for developing waste disposal treatment, especially in Assiut, Manfalut, Abnoub, Sahel - Selim, El - Fatah and Abu - Teg. The outstanding potentials for Assiut province are shown in figure (2).

3. Population Structure

3.1. Population of Egypt's provinces in relation to Assiut Province :

The examination of Egyptian population data has shown that between ancient and medieval times, the population of Egypt did not increase by more than 3.4 million persons. Since that time the Egyptian population continued to increase in a tremendous rate reaching 50 million persons in the year 1986.

It should be noted that the density of Egyptian population was found to be an average of 1250 persons / km² in the year 1986.

However, Egypt is thus one of the most densely populated countries in its occupied areas, in the settlements, concentrated along the Nile Valley.

The urban population of Egypt contributes about 43.9 % of the total population, whilst the rural population contributes about 56.1 %. That means Egypt is still considered as an agrarian country.

On the other hand, the urban population of Assiut province represents 2.6 % of the total urban population of Egypt, while the rural population is 5.9%. That means that the main economic sector of Assiut province deals with agriculture related activities.

3.2. Important indicators about the population structure in Assiut province :

The population growth rate of Assiut province is 3.3 % in the year 1986 . The population of this province will reach about 3,617,853 inhabitants in the year 2001 . The population "Doubling Time" (PDT) of Assiut province is through 21 years in 1986, whereas the PDT of Egypt is 29 years which is eight years faster than the PDT of the nation. It should be noted that the PDT of the developed countries (as

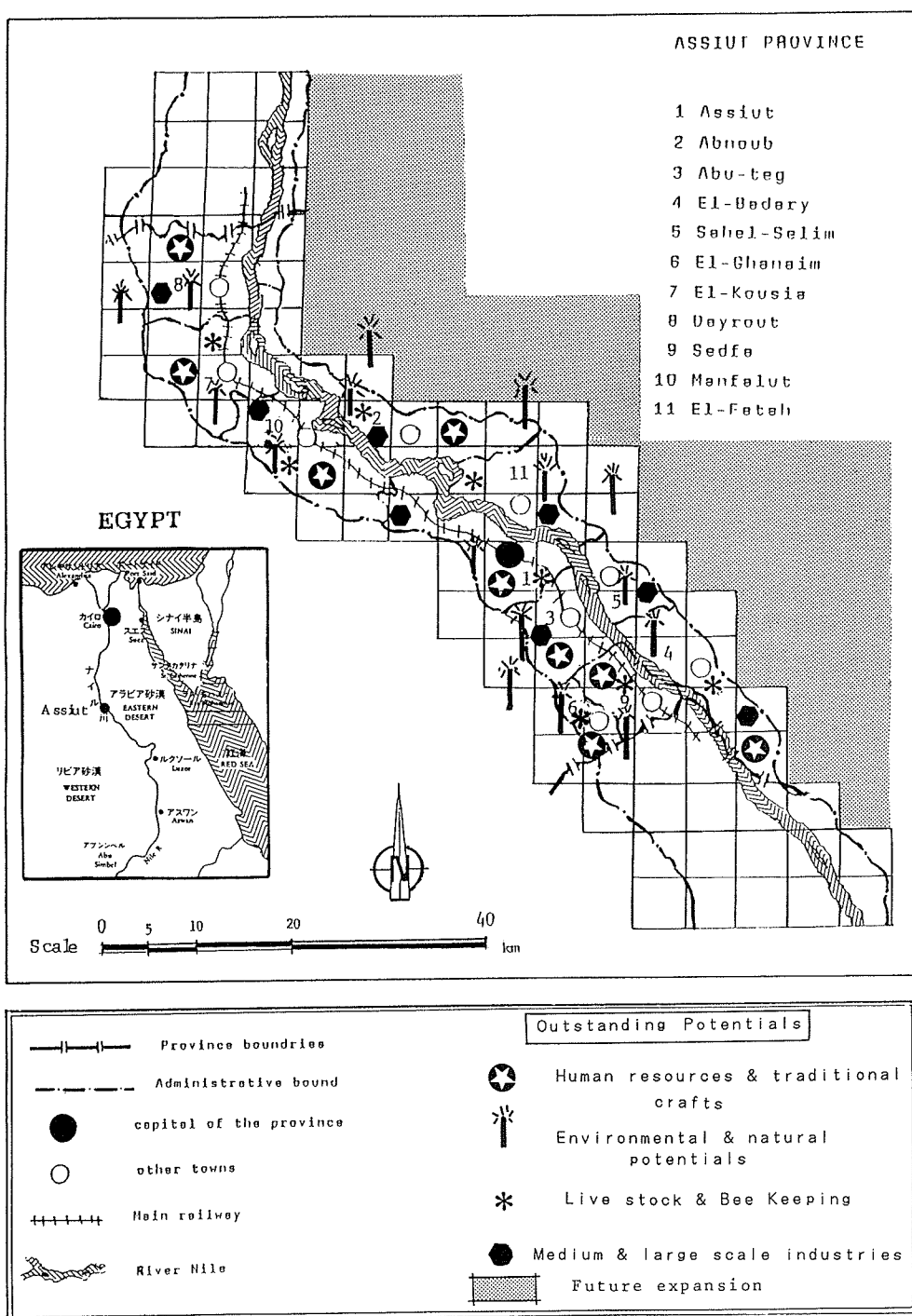


Figure. 2 Outstanding Potentials

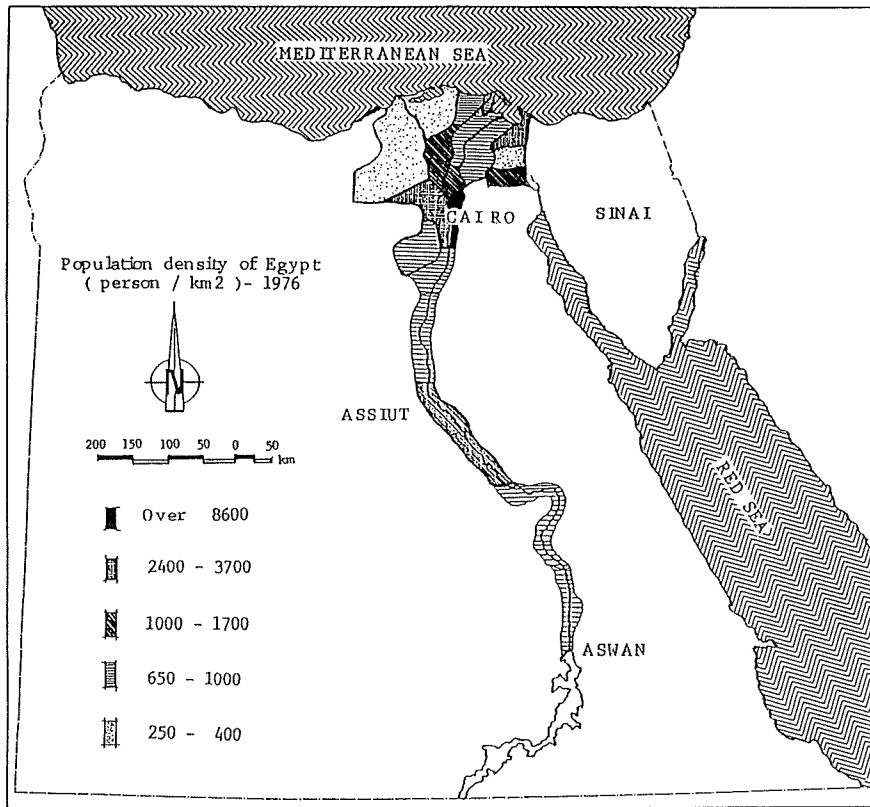


Figure. 3 Population density of Egypt (Person/km²) - 1976

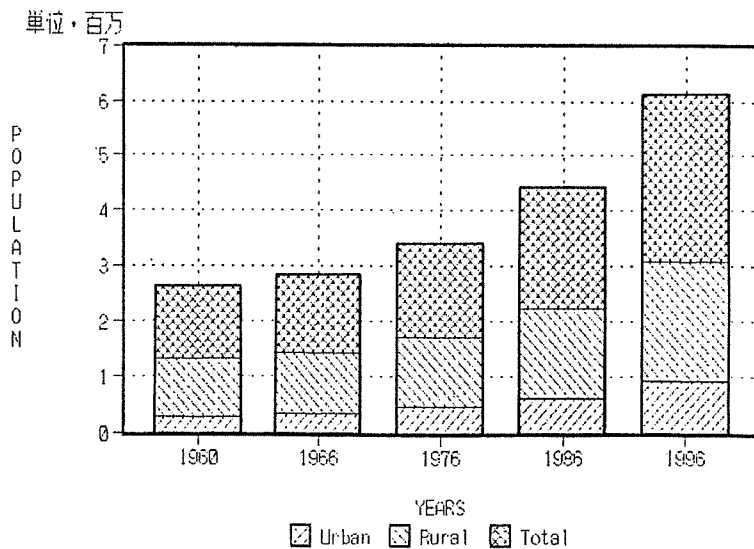


Figure. 4 Population of Assiut Province by residential status 1960 - 1996

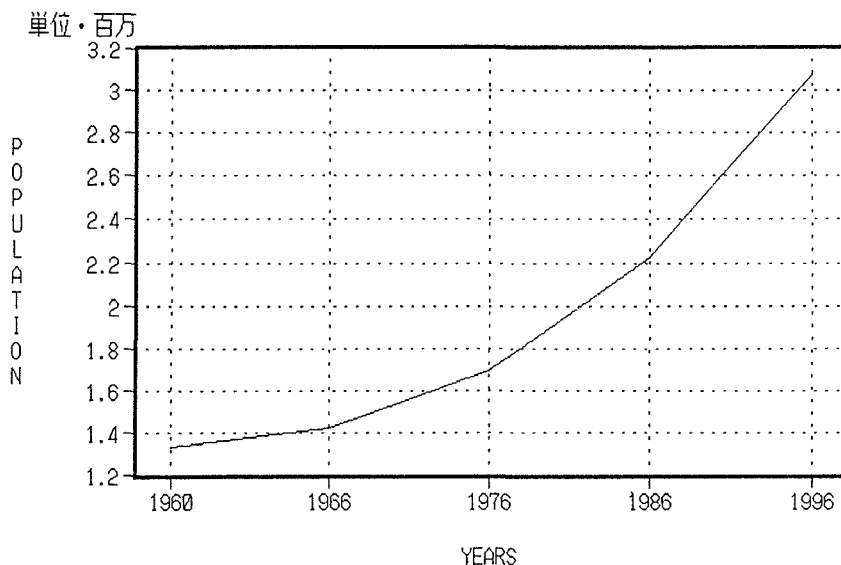


Figure. 4A Population Growth Trend in Assiut

comparison) is 128 years.

As a consequence of the continuing population growth, the population density of Assiut province (1431 inhabitant/km²) will continue to increase adding pressure on scarce agricultural land . Figure (3) shows the population density of Egypt in the year 1976.

3.3. The changes of the population structure of Assiut province in the different periods of time :

Figure (4) shows the sequence of residential status for the period 1960 to 1996, by demonstrating the change of the number of urban and rural population within the province during these years. For instance, in the year 1966 the total rural population was 1,082,232 inhabitant (about 76.3 %) of the total population in this year, while in the year 1986, the total rural population was 1,604,672 inhabitants (about 72.2 %) of the total population in this year. While, figure (4 A) shows the population growth trend in Assiut.

This situation means that the percentage of the rural population within Assiut province decrease, due to the limited arable land.

Additionally , the efforts for reclaiming the desert land for agriculture and therefore, the attraction of the population to settle and develop the land was still very short termed and not effective enough.

3.4. Migration :

Most of the main social, economic and cultural activities are concentrated in the urban

areas.

Figure (5) shows the migration flows from Assiut province to urban centers and big cities especially Cairo and Alexandria. Generally, the predominant motives for migration are economic ones.

On the other hand, the conditions (politics, business, modernization, recreation activities, etc.) are the other reasons for attracting the population from rural areas to urban centers.

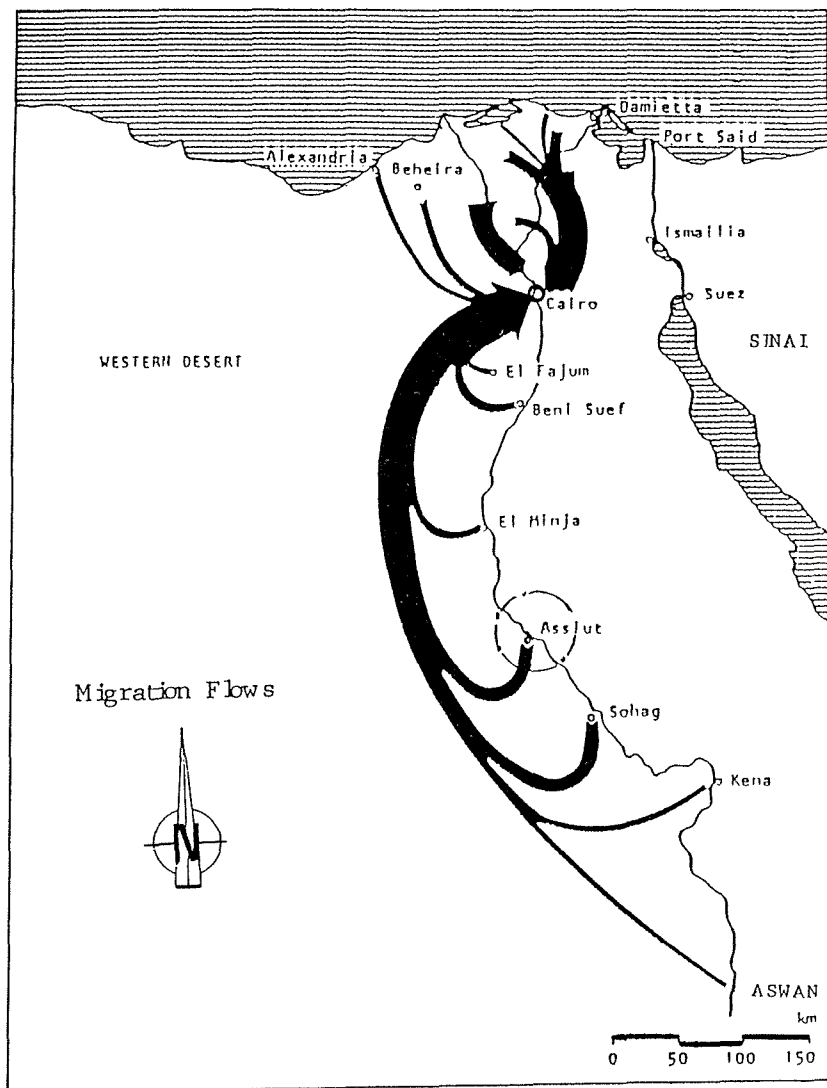


Figure. 5 Migration Flows

3.5. A glance at the social norms & values :

The typical traditional social norms and values are best preserved in Assiut province. The people are still strictly bound to these norms more than in other provinces in Egypt, especially regarding women's role within the society. It is obvious in Assiut province that many women still don't participate enough in the economic and social activities in spite of their being highly educated.

In addition to the previously mentioned issues, this phenomenon occurs due to the high average income per person (yearly about US dollar 1320) compared with the nation (about US dollar 680) and therefore, the self - sufficiency of most of Assiut families, so the women prefer to stay at home to take care of their children. (see table 1).

Table 1 Population structures & other indicators—1986

ITEMS	Egypt	Assiut	Difference
Natural increase %	2.4	3.3	+0.9
PDT Pop. /2001	29 72011853	21 3617853	-8.0 years 5.0 %
Infant mortality aged under 1	94	94	
Total fertility	4.8	4.8	
Pop. under age 15/65+	40/4	40/4	
Life Expectancy	58	58	
Pop. with access to safe water	75 %	75 %	
Per Capita GNP	US \$ 680	US \$ 1320	+US \$ 840
Growth of labour force	2.5 %	2.5 %	

Whereas, if this qualified labor force (about 56.0%) could be optimumly used, it would aid the development process effectively in the province.

We could also add that in terms of demographic structure, the family size in Assiut province is about 6.0 persons versus 5.1 persons for the nation. The marriage age for the men is about 25 years versus over 29 years for Egypt, whereas the marriage age for the women in Assiut province is less than 25 years versus over 25 years for the nation.

3.6. Primacy Index :

It shows the heavy concentration of urban population in a single city.

Primacy Index = p_1 / p_u , where :

P_1 = population of the largest city

P_u = total urban population

As A consequence of Primacy Index technique :

IF Primacy Index increases $\longrightarrow$ THEN

Attractiveness of other urban centers decreases

On the contrary,

IF Primacy Index decreases $\longrightarrow$ THEN

Attractiveness of other urban centers increases

Table (2) shows the degree of urbanization of Assiut,s settlements within the province.

Hence, the attractiveness of other urban centers decreases when the Primary Index of one center increases and vice versa. According to the same table, El - Fatah, Sedfa and Sahel - Selim districts demonstrate the most urbanization deficits within the province, (least number of urban population).

Table 2 Assiut's Settlements by Primacy Index in the year 1986

Settlement	Pop. of the largest city/1000	Total urban pop. 1000/inh.	Primacy Index
Assiut	527		
Abnoub		48	10.9
Abu-Teg		48	10.9
El-Badary		34	15.5
Bahelselim		19	27.7
El-Ghanaim		33	15.9
El-Kousia		44	12.5
Dayrout		44	12.5
Sedfa		14	37.6
Manfalut		52	10.1
El-Fatah		6	87.8

4. Development problems and constraints

The Assiut's villages and small rural settlements are suffering from low access to social and technical infrastructure. Woman's participation in Assiut province is not sufficient in the fields of economic activities compared with other provinces. The population growth rate in Assiut was 3.3 per year in 1976. This rate is high when compared with the population growth rate in Egypt (2.4). Whilst, the population growth rate of the developed countries is between 0.5 to 0.75 % per year.

Despite the fact that the main economic sector of Assiut province is agriculture (the percentage of rural population is about 72.2%), the scarcity of agricultural land and water in the eastern and western desert are impeding the extension of agriculture.

However, the main features of these constraints are the scarcity of water, aridity and lack of facilities - utilities and bedrock geology.

Additionally, the misuse of the River Nile in Abnoub, Dayrout, El - Kousia and Sahil Selim by throwing animal wastes in the water which leads to pollution of the River.

On the other hand, the western hill is a remarkable constraint for it's hindering of the development accessibility, due to it's hard rugged, steep and rough soil conditions which impedes the agricultural development and prevents extension of the residential settlements.

Figure (6) shows the development problems & constraints.

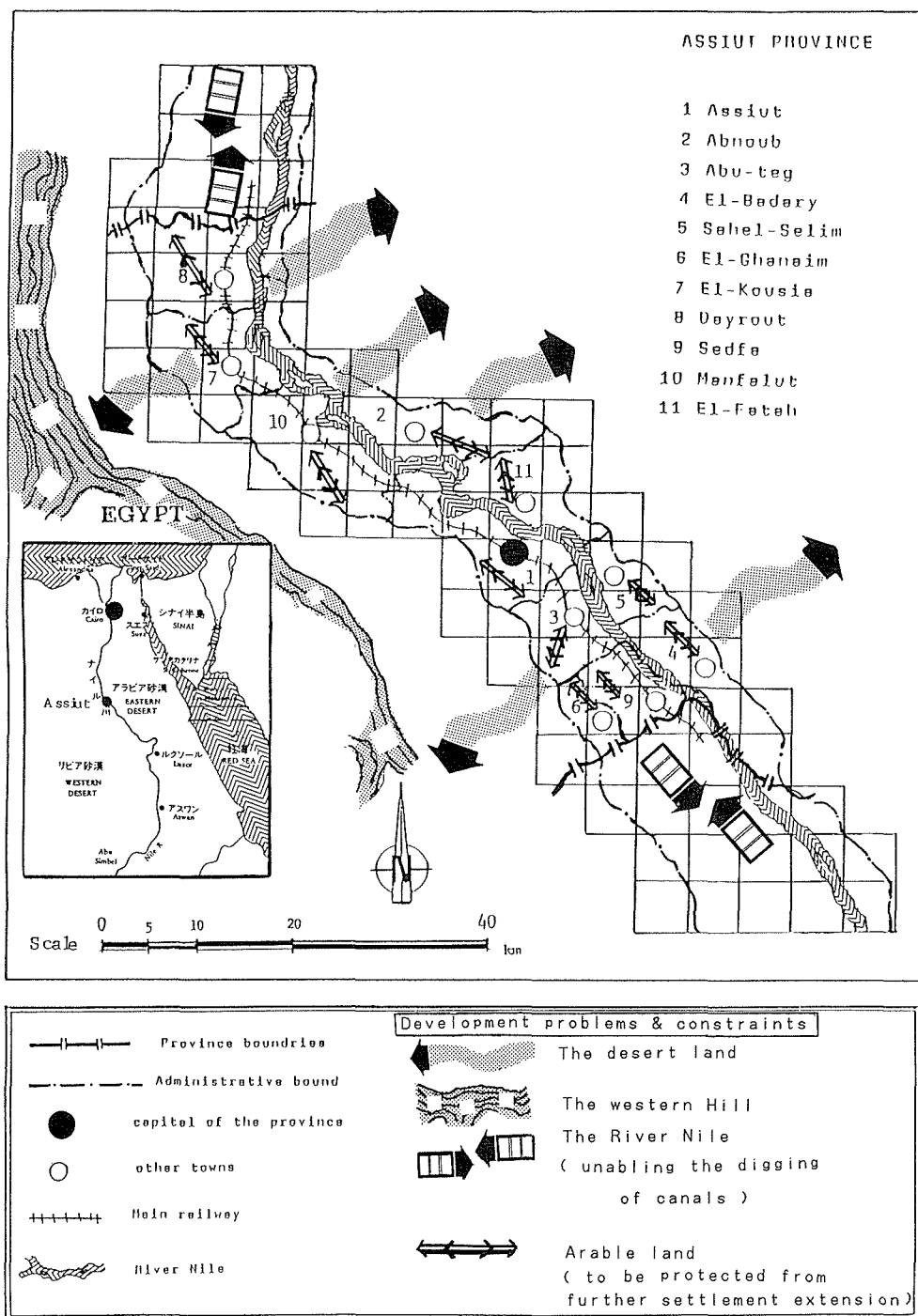


Figure. 6 Development Problems & Constraints

5. Objective of the study

The main purpose of this study is to come up with a clear identification of the possible alternatives to absorb the growing population for Assiut province and to analyze her demographic structure which includes fertility , mortality, migration, urban population, rural population and other factors.

The paper as well focuses on the alternative techniques of demographic projection (SFDM & RFDM) in order to guide and direct the development process of Assiut in terms of provision for and planning of the social services. However, this study shows how to deal with different alternatives of population projection (SFDM & RFDM) in terms of provision of the basic needs such as : primary school, housing and basic health. It also shows how financial resources in Assiut should be utilized.

Furthermore, the paper aims to throw a light on the planning technique proposed (e.g. Special Development Programs SPEDOP,s).

6. Study Concept

The conceptual framework of the study is shown in figure (7).

It is a positive action and interaction loop governing the resources & potentials, Model, basic needs, planning alternatives and Decision making. The conceptualized framework essentially address the situation of Assiut province.

However, the study applies the methodology based on the following main issues :

- The Primary Index Method to determine the degree of urbanization of the different settlements within the Assiut province.
- Selection of Assiut District and determination of its demographic structure in the following 5 to 10 years by using RAPID MODEL (computer program), in order to point out the population needs in the projection years such as : education and other social services and therefore to determine the financing requirements to establish those proposed services .
- Selection the priority POST (Policy Statement) components via Special Development Programs (SPEDOP's) technique in order to achieve our goals within Assiut province.

7. Alternative approach solutions for Assiut

7.1. Demographic projection Model :

The future population numbers must be estimated. Because of the importance of such estimates, many techniques of population projection have been proposed and subjected to experimentation and verification. However, these techniques can be roughly classified as either direct or indirect.

The direct techniques are usually based on current and past data on population numbers and demographic indicators.

The indirect techniques are usually related to other economic, social and political indices.

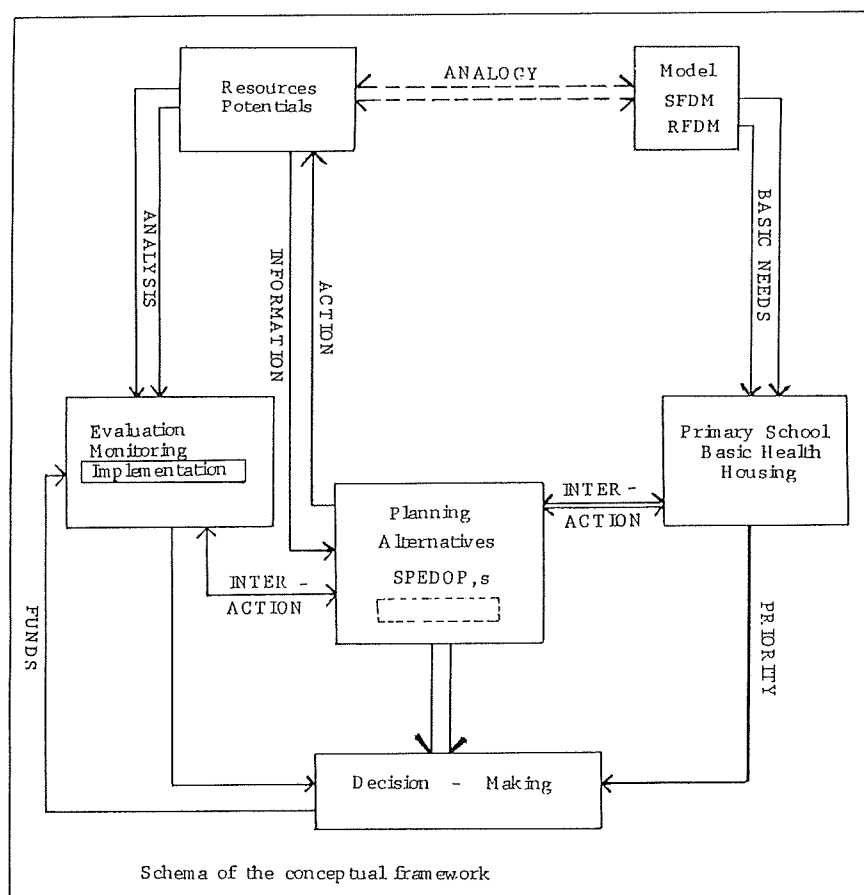


Figure. 7 Schema of the conceptual Framework

Hence, in this study, we shall deal with direct techniques. In general, we will use the Rapid Demographic projection Model (Computer Program) in order to establish the population projection for the next period of time for Assiut District. It should be noted that, the actual population of Assiut District in 1976 (base year) is 213,751 persons and the actual population in 1986 is 249,100 persons whereas, the population projection (as comparison) in 1986 is 249,498 person according to SFDM.

7.1.1. The Standard Fertility Decline Method (SFDM) :

This method is based on giving specific data to the computer such as : the base year for age distribution, the sex ratio at birth, the age specific fertility rate, the life expectancy, and migration. We then obtain a population projection for a fifty years period (in our case the base year is 1976).

Figure (8) shows the total population of Assiut District in the years 1976 - 1996 according to SFDM. Figure (9) points out the Age Pyramid - 1976 (base year), whereas figure (10) shows the Age Pyramid in the year 1996 according to SFDM.

7.1.1.1. The people's needs in the projection year according to the SFDM :

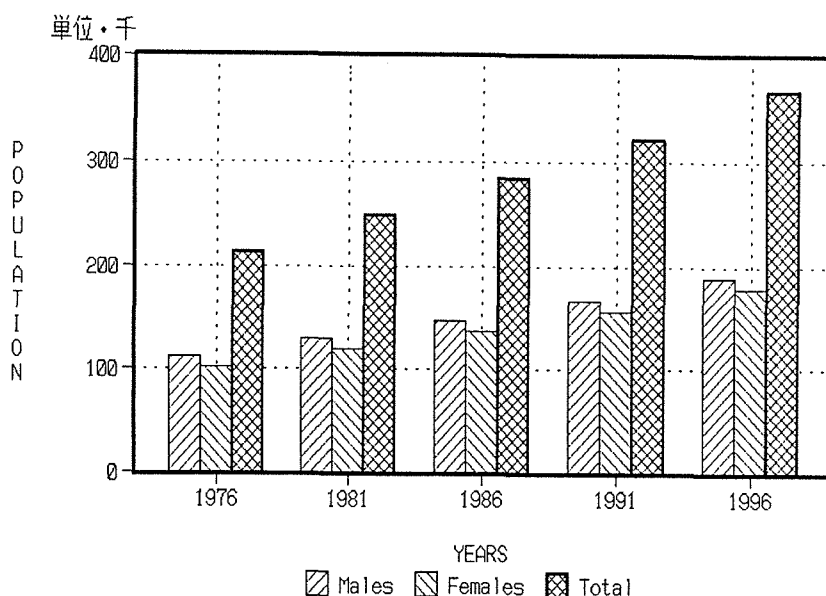


Figure. 8 Total Population of Assiut District according to SFDM in 1976 - 1996

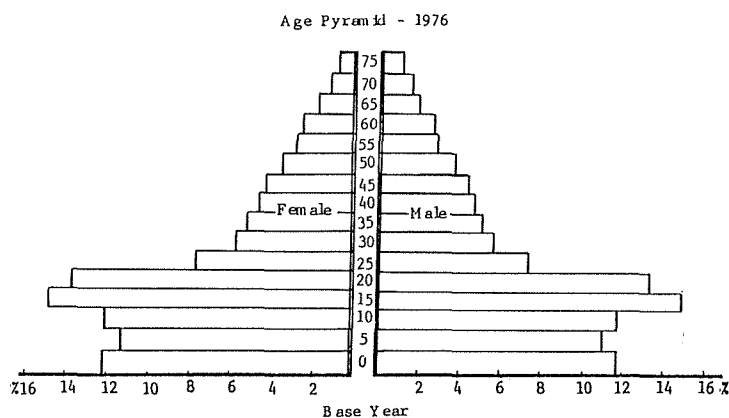


Figure. 9 Age Pyramid - 1976

According to the population increase in Assiut District, we will identify three main basic needs to be satisfied in the following fields : Primary school planning, housing and basic health. In order to establish a pragmatic planning, we identify a five - year period from 1991 to 1996.

7.1.1.2. Primary school planning :

The primary school education in Egypt covers the age from 6 years to 11 years (obligatory for 100 - of the total population). Table (3) shows the increase of the number of children which indicates the number of primary schools needed to be constructed in

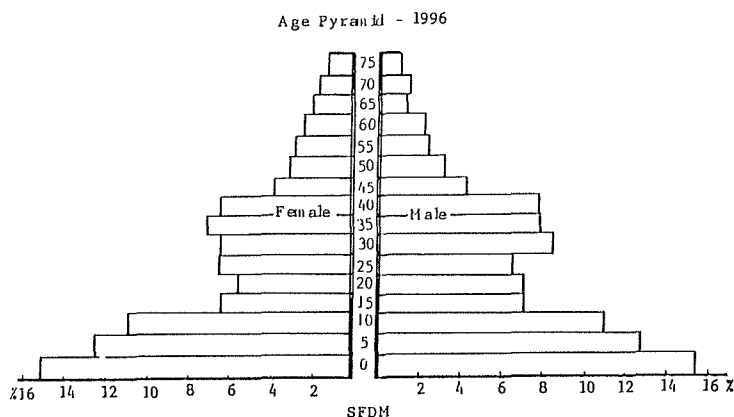


Figure. 10 Age Pyramid - 1996

Table 3 Primary school planning for Assiut in the years 1991/1996

Age Group	years	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96
6-11	Total	49,776	51,670	51,965	52,261	52,559	52,859	53,143
	Increasing	1,894	295	296	298	300	284	

Standard Fertility Decline Method

Age group	years	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96
6-11	Total	47,408	48,375	47,746	47,125	46,512	45,907	45,185
	Increasing	967	-629	-621	-613	-605	-722	

Rapid Fertility Decline Method

the following five years 1991 - 1996. Whilst table (4) demonstrates the number of classrooms needed and the number of primary schools to be constructed from 1991 till 1996 (circa 4 schools with circa 24 classrooms / school).

It is to be noted that,

- The classroom capacity is 35 pupil per class.
- The number of classes for each age group is 4
- The total number of classes primary school is 24 class.
- The number of teachers needed equal 1 teacher / class.
- The number of school to be constructed =

No. of classrooms to be constructed / The capacity of school

According to the price table of 1988, the construction costs of one primary school is 284,710 LE (Egyptian pound). Figure (11) shows a design model (sketch) for a primary school in Egypt.

7.1.1.3. Housing planning :

The housing field in Egypt represents an urgent target action area due to the con-

Table 4 Primary school planning for Assiut in the years 1991/1996

years	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Population	322,319	330,572	338,982	347,816	357,335	367,804
Children school age	51,670	51,965	52,261	52,559	52,859	53,143
Pupils attending	51,670	51,965	52,261	52,559	52,859	53,143
Pupils increasing	1,894	294	296	298	300	284
Complete No. of classrooms	1,476	1,485	1,493	1,502	1,510	1,518
Classrooms to be constructed	54	8	8	9	9	8
Teachers needed	1,476	1,485	1,493	1,502	1,510	1,518
More teachers	54	8	8	9	9	8
Schools needed	62	61	62	63	63	63
Schools to be constructed	2	0.3	0.3	0.4	0.4	0.3

Standard Fertility Decline Method

tinuing population growth. Table (5) shows the total number of buildings to be constructed in the period from 1991 to 1996 (circa 553 building).

It is to be noted that,

- The built up area = 2 / 3 of the total area.
- The number of apartments per floor = 4
- The number of floors per building = 4
- The built up area = 648 sq.m.
- The gross area of each apartment is 162.50 sq.m.
- The net area of each apartment = 133.10 sq.m.
- The total number of all the apartments per building = 16

7.1.1.4. Basic health planning :

Another important issue which represents a basic need for the population of Egypt is the field of health.

Table (6) shows the number of doctors needed in the period from 1991 to 1996. The total number of additional doctors & necessary personnel needed for medical treatment are 26. It is to be noted that one doctor treats from 2,000 to 2,500 persons.

However, the total costs in the three previous mentioned action areas (primary school,

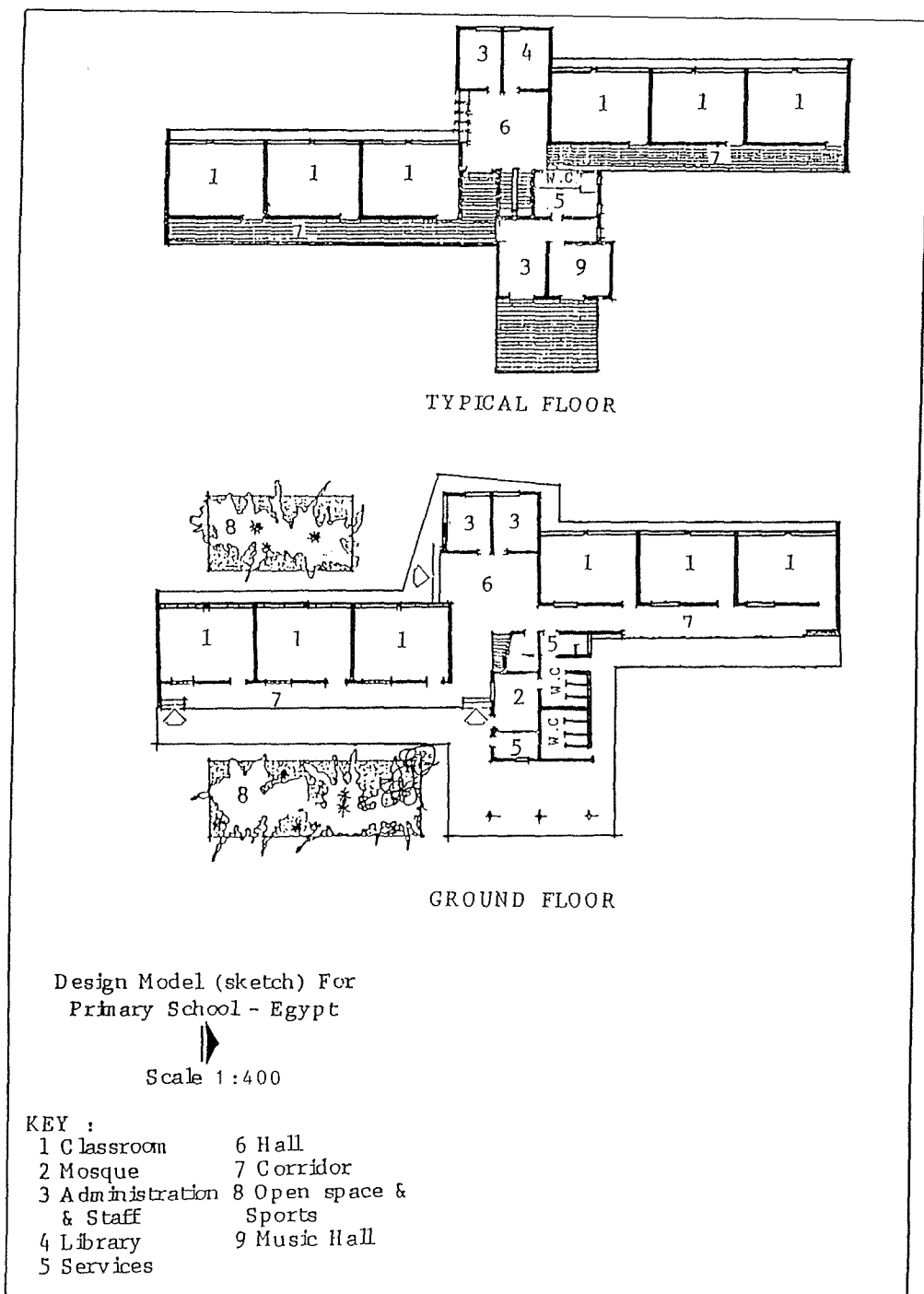


Figure. 11 Design Model (sketch) for Primary school - Egypt

Table 5 Housing planning for Assiut in the years 1991–1996

years	1991	1992	1993	1994	1995	1996	Total
Total pop.	322,319	330,572	338,982	347,816	357,335	367,804	
Increasing	7,983	8,253	8,440	8,834	9,519	10,469	
Family size	6	6	6 6	6	6	6	
Apartments to be constructed	1,264	1,376	1,407	1,472	1,587	1,745	
Buildings to be constructed	79 7	86	88	92	99	109	
Total of buildings	79	86	88	92	99	109	553

Standard Fertility Decline Method

Table 6 Basic health planning for Assiut in the years 1991–1996

years	1991	1992	1993	1994	1995	1996	Total
Total pop.	322,319	330,572	338,982	347,816	357,335	367,804	
Increasing	7,983	8,253	8,440	8,834	9,519	10,469	
Additional doctors needed	4	4	4	4	5	5	26

Standard Fertility Decline Method

years	1991	1992	1993	1994	1995	1996	Total
Total pop.	310,543	316,904	323,365	330,022	336,972	344,312	
Increasing	6,168	6,361	6,461	6,657	6,950	7,340	
additional doctors needed	3	3	3	3	3	4	19

Rapid Fertility Decline Method

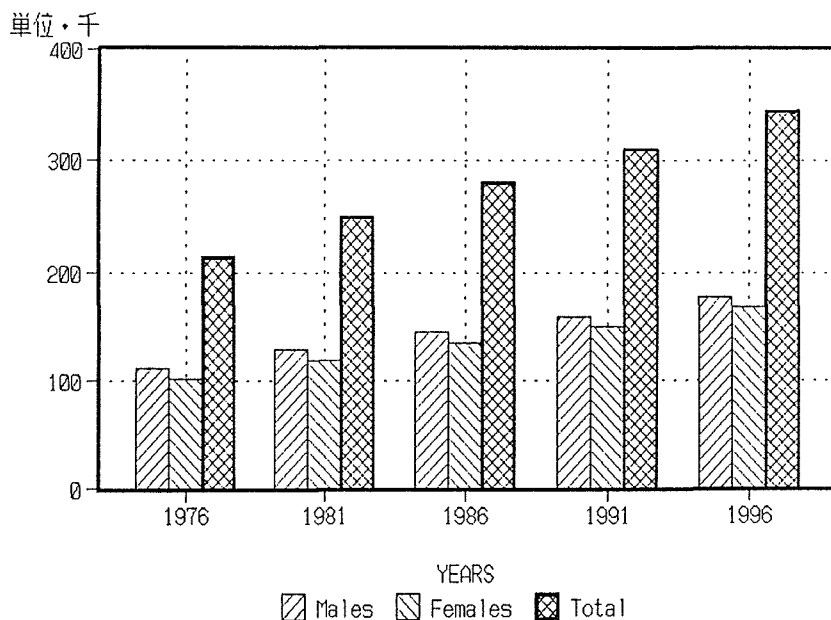


Figure. 12 Total Population of Assiut District according to RFD in 1976 - 1996

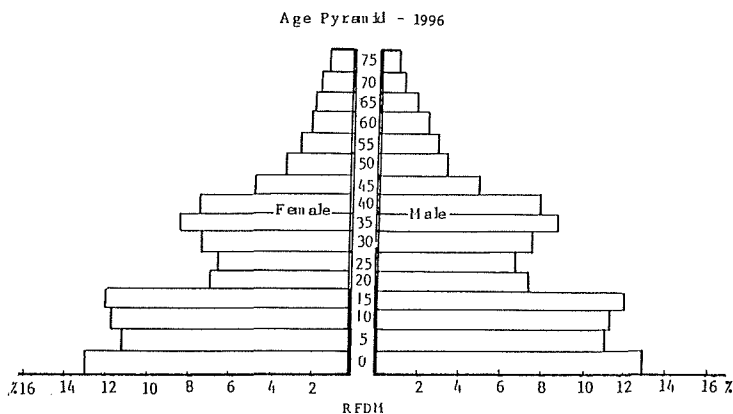


Figure. 10 A Age Pyramid - 1996

housing and basic health planning) are as follows :

- 1,053,400 LE for the primary schools needed,
- 66,997,000 LE for the buildings to be constructed and
- 442,000 LE for the provision with medical treatment personnel in the years 1991 till 1996.

7.1.2. The Rapid Fertility Decline Method (RFDH) :

This method is based on giving the same specific data to the computer as the SFDM

Table 7 Total coat of housing & basic health planning for Assiut in the years 1991–1996

years	Housing			Health		
	Building needed	Cost in 1000 LF	Total cost in 1000 LF	Doctors needed	Salaries in 1000 LF	Total in 1000 LF
1991	64	120.5	7,712	3	17	51
1992	66	- do -	7,953	3	- do -	51
1993	67	- do -	8,073.5	3	- do -	51
1994	69	- do -	8,314.5	3	- do -	51
1995	72	- do -	8,676	3	- do -	51
1996	153	- do -	18,436.5	4	- do -	68
Total			59,165.5			323

Rapid Fertility Decline Method

concerning the base year for age distribution, the sex ratio at birth, the age specific fertility rate and the migration, while assuming that the total fertility rate decreases and the life expectancy increases.

Figure (12) shows the total population of Assiut Districts in the years 1976 – 1996 according to RFDM.

On the other hand, figure (10 A) shows the age pyramid in the year 1996 according to RFDM.

By using RFDM, the population increase rate of Assiut District decreases by 4 % compared with the SFDM.

Additionally, in terms of comparison the children rate (less than five years) decreases by 2.6 % for the males and 2.6 % for the females in the years 1996, while the age of over 15 years represents a rate increase of 0.4 % for both sexes (males & females), which means that the percentage of dependency will decrease and the labor force rate will increase.

7.1.2.1. The people's needs in the projection year according to the Rapid Fertility Decline Method RFDM :

7.1.2.2. Primary school planning :

The total number of the population in the year 1996 decreases by 23,492 inhabitant compared with the SFDM, which means that there will be less demand for the population basic need services.

The number of males and females for the age group 6 – 11 years decreases from 1991 to 1996 by 3,190 children. That means we don't need to construct more primary schools according to this method and therefore Assiut District Budget will save 1,053,400 LE compared with SFDM.

7.1.2.3. Housing planning :

Table (7) shows the total number of additional buildings to be constructed in the period of 1991 till 1996 (491 buildings), which means that we will save 62 buildings by using RFDM compared with SFDM and therefore , Assiut District Budget will save 7,471,000 LE (62 buildings × 120 500 LE).

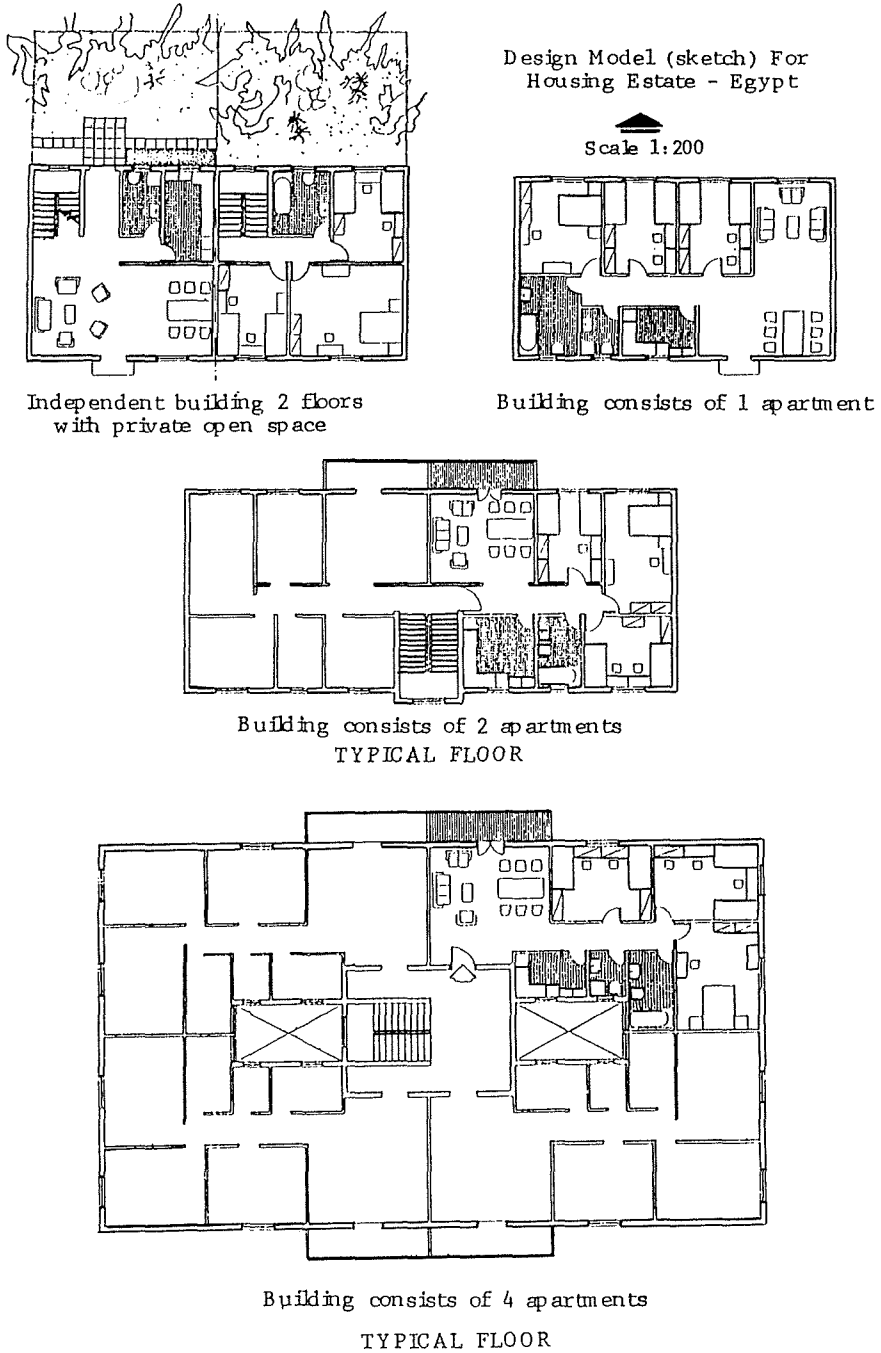


Figure. 13 Design Model (sketch) for Housing Estate - Egypt

Figure (13) shows a design model (sketch) for a housing estate in Egypt.

7.1.2.4. Basic health planning :

According to table (7), the number of additional doctors needed in the period of 1991 to 1996 is 19 doctors (one doctor treats from 2,000 to 2,500 persons) that means there will be 7 less doctors needed than according to the SFDM and therefore Assiut District Budget will save 119,000 LE (7 doctors $\times$ 1 700 LE).

7.2. Establishment of Special Development Programs (SPEDOP's)

7.2.1. Notion about policies :

Each society is divided into such sectors as : education, health, agriculture, housing, culture, finance, organization & management, industry, energy, water, tourism and so on.

These sectors are considered as Standard Development Activities (SDA,s).

The main policies are generally formulated and coordinated at the national level and then efficiently implemented locally. Sometimes, the local implementation of a national level policy adjusts the general policy to the actual development already sanctioned by the municipal decisions.

The notion that often a policy is neither formulated nor implemented by only public authorities but also by local authorities, which is the case in Egypt, makes the planner to understand how decisions are actually made and therefore to develop questions of accountability and accordingly to deal with suitable solutions.

Hence, the capacity of the development planning and management (DPM) can not cope with the whole government's policy, certain intervention areas are to be identified in order to make it easier to deal with this approach.

In our point of view, it is more practical and effective to select the priority POST components in order to achieve our objectives within the province.

7.2.2. The priority POST components (Program Ideas):

The following criteria have been used to select the priority POST components :

- A) Degree of innovation involved in planning and implementation.
- B) Elimination of major bottlenecks.
- C) Utilization of local resources and potentials.
- D) Local political climate.

By applying the previous criteria on the government's policy for Assiut province, we could identify the following nine priority POST components as Programs Ideas :

- 1) Promotion of birth control programs.
- 2) Giving the overall information through the different media (TV, radio, etc.).
- 3) Establishing legal & community actions to improve the general status of women.
- 4) Forming of women's parties, assemblies, societies and unions to incorporate the women's decision making.
- 5) Provision of information programs about the negative effects of some of the social customs and behavior.
- 6) Construction of buildings for basic need.

7) Provision of primary schools.

8) Implementation of small - scale irrigation projects especially in the rural areas.

9) Improvement of the accessibility to the service areas.

7.2.3. Cross - Referring of the Programs Ideas with the Sectors Plan :

Matrix (1) shows the Cross - Referring of the Programs Ideas with the Sectors Plan.

The conflicts and gaps occurring are considered as the SPEDOP's while all the corresponding relations are considered as SDA,s.

priority POST components \ Sectors	Education	Agric.	Industry	Finance	Health	Transport	Housing	Culture	Women	Energy	Tourism	Water	score
Promotion of birth control program	P	C	C	C	C	C	C	F	F	C	C	C	3
Giving the overall information through the different media	C	C	C	C	C	C	C	C	C	C	C	C	-
Establishing legal & community actions	C	C	C	C	C	C	C	C	C	C	C	C	-
Forming of women parties & unions	P	C	C	C	C	C	C	P	F	C	C	C	3
Provision of primary schools for people need	C	C	C	C	C	C	C	C	C	C	C	C	-
Implementation of small scale irrigation	C	C	C	P	C	C	P	C	C	C	C	P	3
Construction of buildings for people need	C	C	C	P	C	C	P	C	C	C	C	C	2
Provision of information Programs about the negative effects of customs	F	C	C	C	C	C	C	F	C	C	C	C	2
Improvement accessibility to the service areas	C	P	C	F	P	C	P	C	C	C	C	C	4

KEY :

Corresponding = C

Conflict = F

Gap = P

Matrix 1 Cross - Referring of the Programs ideas with the Sectors Plan

Hence, the SPEDOP's which have been identified according to the conflict - gap score and which indicate the actions needed to be taken, are as follows :

- Birth control programs.
- Forming of women's parties, assemblies and unions.
- Implementation of small - scale irrigation projects.
- Improvement of the accessibility to the service areas.

It is to be noted that, in our study, accessibility means isochrone and transport performance.

Isochrone is a line delineating zones of equal time from a given point. Therefore, the isochrone is an outline showing accessibility of a particular area.

On the other hand, transport performance shows an effort (cost & time) needed to transfer a certain number of people from one point to another.

Sectors SPEDOP, s	Education	Agric	Industry	Finance	Health	Transport	Housing	Culture	Women	Energy	Tourism	Water
Promotion of birth control program	●			●	●			●	●			
Forming of women parties & unions	●			●				●	●			
Implementation of small scale irrigation		●	●	●		●						●
Improvement accessibility to the service areas	●	●		●	●	●						●



WHO is responsible
for WHAT
and HOW

See: 7.2.4 ,
7.2.5 , 7.2.6

Matrix 2 Functional Responsibilities Matrix

7.2.4. Design of Program - Organization :

We intend to deal with Assiut District Administration and therefore, we will apply the programs, organization to the given administrative structure of this district.

7.2.5. WHO is responsible for WHAT :

The Cross Referring of the Program Ideas with the sectors plan has identified four main SPEDOP's components:

After we have selected the SPEDOP,s components it is important to determine, WHO is responsible for WHAT and HOW. In principle, each development head and technical specialist should be a members of the committee.

However, the development heads are identified as follows :

- 1) Promotion of birth control programs :
 - District planner & secretary of the committee.
 - Representative from the department of education, culture, women, finance, and health.
- 2) Forming of women's parties, assemblies, and unions :
 - District planner & secretary of the committee.
 - Representative from the department of education, culture, women and finance.
- 3) Implementation of small -scale irrigation projects :
 - District planner & secretary of the committee .
 - Representative from the department of agriculture, industry, finance, transport and water.

4) Improvement of the accessibility to the service areas :

- District planner & secretary of the committee.
- Representative from the department of education, agriculture, finance, transport, health and water.

7.2.6. Functional Responsibilities (HOW) :

Matrix (2) shows the function responsibilities for the different sectors in Assiut province concerning WHO is responsible for WHAT and HOW.

1) Promotion of birth control programs :

- Education : Special education & information programs for women, especially for housewives.
- Culture : Using of van libraries with access to the whole province.
- Women : Formation of women's unions and assemblies in the rural areas.
- Finance : Financing the projects through affordable credits and encouraging formation of cooperatives.
- Health : Provision of special medical treatment for pregnancy.

2) Forming of women's parties, assemblies and unions :

- Education : Provision of qualified staff.
- Culture : Provision of necessary information materials (i.e. micro films, video, projector, slides ,etc.).
- Women : Establishment of training and participation programs for housewives and the women of the rural areas.
- Finance : Provision of easy accessibility to affordable credits and cooperatives.

3) Implementation of small - scale irrigation projects :

- Education : Provision of special training programs on appropriate technology and Know - How technique.
- Industry : Provision of simple equipment needed (tools, simple machine and so on).
- Finance : Provision of easy accessibility to affordable credits and cooperatives.
- Transport : Establishment of rural and feeder roads in the deficit areas.
- Water : Construction of small earth dams and necessary overall water survey maps.

4) Improvement of the accessibility to the service areas :

- Education : Flexible information provision (trips, documents, booklets , etc.) for the urbanization of deficit areas.
- Agriculture : Improvement of marketing in terms of demand and supply.
- Finance : Provision of easy accessibility to the affordable credits and cooperatives.
- Transport : Establishment of rural and feeder roads in the deficit areas.
- Health : Improvement of the different post health units through sufficient medical staff and ambulance supply.
- Water : An adequate water supply and sanitation programs in the rural areas.

7.3. Financial sources to establish these proposed services :

The following items identify the forecasting of specific budgets needed by the

proposed programs and projects :

7.3.1. Specific grants for investments are given by :

- The national government.
- Regional governments.
- Private funding organizations.
- Self - help cooperatives.

7.3.2. Collection of charges and levies for betterment and development.

In the case of a deficit occurring in the budgeting program, the District Council and the District Administration Office are obliged to adjust the affordable budget according to the urgent projects.

For example, a deficit may result in : - Decreasing of the percentage of one project's funding in favor of another urgent project.

- Suggestion of special methods to collect the necessary funds by self - help programs in order to cope with the occurring budget deficit.

8. Conclusion of the study

In conclusion, our study deals mainly with the Development Planning Alternatives For Assiut. We want to emphasize the following general points :

- 1) In spite of the rapid population growth being a problem it could be turned into an asset, if used appropriately.
- 2) Assiut province has a numbers of environmental and natural potentials which could help to realize our development goals.
- 3) The dominant activity in Assiut province is agriculture (the rural population represents 72.2 % of the total population).
- 4) There are two methods for the demographic projection (Computer Program) by using :
 - The Standard Fertility Decline Method (SFDM), and
 - The Rapid Fertility Decline Method (RFDM).

Accordingly, if we follow the RFDM, the total costs concerning the basic needs (primary school, housing, and basic health planning) will decrease.

- 5) By using the SFDM, the total costs to cover primary schools, housing, and basic health needed within five years (1991 - 1996) are 68,492,400 LE (Egyptian pounds) whereas, by applying the RFDM the total costs for the same social services within the same years are 59,488,500 LE, that means 9,003,900 LE less.
- 6) The Special Development Programs SPEDOP's which have been identified according to the analysis methods (e.g. conflict - gap score, cross - referring of the program ideas with the sectors plan) and which indicate the actions needed to be taken are as follows :
 - Birth control programs.
 - Forming of women's parties, assemblies and unions.
 - Implementation of small - scale irrigation projects.
 - Improvement of the accessibility to the service areas.

- 7) In order to realize our mentioned alternatives, we suggest different financing sources and adequate budgeting management.

References

1. Census reports of Egypt, 1976 - CAMP & S .
2. World bank, (1975) : "Housing, sector paper" U.S.A.
3. Volker kreibich, (1987) : "Demography and social infrastructure", West Germany.
4. Howard D. Mehlinger, (1981) : "UNESCO Hand book for the teaching of social services" U.S.A.
5. Alam, A.K., (1982) : "city planning" Cairo, Egypt.
6. Arman, I., (1982) 2 Manpower & Employment of Egypt", Cairo, Egypt.
7. Walter Isard, (1960) : "Methods of regional analysis" U.S.A.
8. James J. Fawcett, (1970) : "Psychology and population" New York , U.S.A.
9. Kingsly Davis, (1971) "World urbanization 1950 - 1970", U.S.A.
10. Willim J. Serow, (1981): "Population and other policy", U.S.A.
11. Leuchter, (1987) : "Organization and Management" Dortmund, West Germany.
12. Lai Yin shem. Etsuo Yamamura, (1982): "A study on land development policies in planned migration and population distribution", Environmental Science , Hokkaido, Vol.5 No.2 PP 151 - 196, Sapporo, Japan.
13. Edwin S. Mills and Byung - Nak Song, (1979) : "Urbanization and urban problems" England.
14. Peter R. Cox and John Peel, (1972) : "Population and pollution", Great Britain.
15. Charles Gore, (1984) : "Regions in Question, space, development theory and regional policy" U.S.A.
16. Ahmed A. Mokhtar, (1977) : "Housing projects for low - income groups in Egypt" Cairo, Egypt.
17. Abdul Majeed I. Daghistani, (1984) : "Urban planning" Riyadh, Saudi Arabia.