

Planning For Housing

Planning Strategy for Sustainable Refugee Settlements in the Gaza Strip

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Introduction

Housing is the biggest problem after famine and malnutrition. The perspective on the housing problem, considering humanity, politics, economic and social factors are that there will not be an instant solution in two or five years.

The Architect and Development course given in Lund University, SWEDEN are arranged by Lund Centre of Habitat Studies [LCHS] the objective of the training is to deepen our knowledge and add to our expertise about architect designee.

The participants are coming from different countries, which mean exchange the knowledge with others, with the framework of the course. I have chosen housing project in the refugee camp as case study.

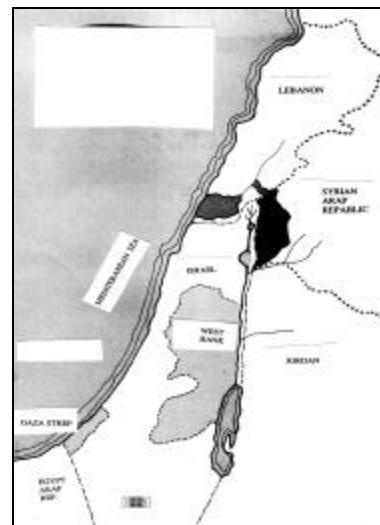
Because those refugees people suffering since 1948 after the Arab-Israel wars, from a very bad living condition, high dense built up area, overcrowding [more than three person per room] very narrow street, no free space and unhealthy and inhuman living condition.

Today after five years of signing peace agreement between Palestinian Liberation Organisation [PLO] and Israel the refugee camp still without solution population still growth and so ... what is the solution for those people who are suffering many years.

Shortage of land in Gaza Strip, the planner must be careful to face the problem. It needs to find the right way, how to make this land available for more housing units without losing more land, and how to put the existing units into legalised form and make them part of well served residential areas, within the regional and local development planning process.

In this paper, the existing situation will be described, and the alternative for existing situation will be proposed.

The paper will also include the experience and new vision of developing and implementing housing delivery programme to facilitate the provision and upgrading of housing for refugee camps in Gaza Strip.



Map 1: Palestine

Background

Palestine, PAL uh STYN, small historic land at the Mediterranean Sea, is one of the world's most historic places, has played a far more important role in history than its small size would suggest. It is called the holy land because it is important to three great religions- Islam, Christianity, and Judaism, located near where Asia and Africa join, it has been the scene of many migrations and invasions.

Under terms of the declaration of principles, signed between the Palestinian Liberation Organisation (PLO) and Israel on 13 September 1993 the status of Gaza Strip and West Bank River became autonomous under the Authority of the Palestinian National Authority (PNA). The PNA is still in the process of setting up its institutional and governmental institutions. The context of the study area is the Palestinian inland region West Bank and coastal region Gaza Strip with actual land area about 6100km², and total population of 3,100,000.

51% of the population is 14 years old, and 21% of population is 4 years old.

Palestine has a Mediterranean climate characterised by long, hot, dry summer and cool, rainy winter.

Jerusalem

Jerusalem district has demographic uniqueness expressed in the total population of the dominant urban city, Jerusalem split between Arab and Jews. The Eastern part of the city of Jerusalem comprises about 150,000 Palestinian Arabs, who constitute about 45 percent of the Arab population of the district.

The demographically and politically split nature of the city of Jerusalem renders its administrative status unique until the occupation of the city in 1967. It was administered by dual municipality structure, Jewish municipality for the Western part of the city. Since 1967 the Arab municipality has been frozen.

West Bank

The term [West Bank] is used to mean these disputed land of Palestine located West of Jordan River between Israel and Jordan. Its area is about 5700km² with population about 2 million and it holds many sites of religious importance

West Bank was a part of British mandate from Palestine from 1923-1948. Jordan annexed it from 1948-1967.

After 1967, Arab – Israel war the area came under Israel control.

The population density in West Bank about 300

person/km².

Gaza Strip

The Gaza Strip is 365km² with total population 1.1 million is located on the south eastern coastal of the Mediterranean Sea, on the east and north Israel borders it, on the south bordered by Egypt and on the west by the Mediterranean Sea. Gaza Strip with its present area and its boards, and delimiting lines, first came into existence years ago in 1948 after the first Arab- Israel war.

The Strip is part of the Palestinian coastal plane in Southwest Palestine where it forms along narrow rectangle. Its length is about 45km, the width 6km in the north, with maximum 12km at south.

The broad population of Gaza is strongly influenced by political development, which have played a significant role in growth and population distribution. A new pattern of settlement evolved with the formation of the eight- [8] refugee camps after 1948. The population of Gaza before 1948 was estimated about 80,000, during the two decades from 1948-1967 the population rose to 454,900.

As result of the unique political situation of Gaza there has been three-administration period.

1. The Egyptian period from 1948-1967
2. The Israel occupation period from 1967-1994
3. The Palestinian Authority from 1994 up to date.

Gaza Strip economic depends mainly on agriculture, fishing, small industries, and labour exchange with Israel.

Urban Areas

Administrative boundaries extent and geographic distribution.

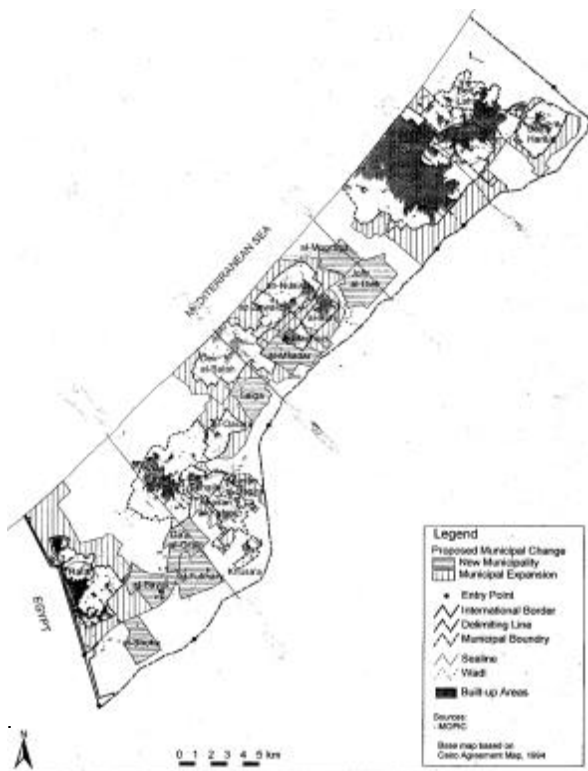
Gaza is divided into three administrative levels - Governorate, municipalities and villages

There are five governorates:

The northern Governorate: the area is 62 km² which represent 17% of Gaza Governorate, the population is 148,900 inhabitants which represents 15.5% of the total population, the built up area is 17% of the total urban area in Gaza Governorate. The camp population is 88,700 inhabitants, which represent 59.8% of total population in the Governorate. The Governorate consists of three main urban centres, Jabalia, Beit Lahya and Beit Hanun all of which have the status of municipality. The majority of lands are in private ownership, however part of the agriculture land is subjected to the government supervision on the south, east, and the north-western side of the Governorate.

Gaza Governorate: the area is 74 km² which represent 20.3% of Gaza Governorate, the population is 354,600 inhabitants, which represent 36.8% of the total population. The built up area is 39.3% of the total urban area in Gaza Governorate. The camp population is 68,300 inhabitants, which represent 19.3% of the population in Gaza City. The populations in rural areas represent 1% of total population in Gaza Governorate.

Deir al Balah Governorate: the area is 56 km², the population is 148,900 inhabitants, which represent 15.5% of the total population in Gaza Governorate. The built up



Map 2: Gaza strip

area is 12.5% of the total urban area in Gaza governorates. The camp population is 104,200 inhabitants, which represents 69.9% of the population in the Governorate. The Governorate consists of Deir al Balah city and al bureij camp, an Nuseirat camp and al Maghazi camp as urban areas all of which have the status of municipalities.

Khan Yunis Governorate: the area is 113 km², the population is 207,600 inhabitants, which represents 21.5% of the total population in Gaza Governorates. The built up area is 19.6% of the total urban area in Gaza governorates. The camp population is 43,700 inhabitants, which represents 21% of the total population of the urban areas in the Governorate and 25.1% of total population. The Governorate consists of Khan Yunis City, Khan Yunis camp and five others urban, rural areas.

Rafah Governorate: represents 10.2% of the total the area is 60 km², the population is 98,100 inhabitants, which consist of Rafah City and Rafah camp as urban areas.

Character of Built up Areas

The urban structure of Gaza varies from one area to another. In the Northern Governorate: the urban structure in Jabalia and Beit Hanun centre is radial. In Jabalia camp and new projects the main structure is the grid. In other areas of new developments the linear structure- along the main roads and its branches- takes place.

In Gaza Governorate: the structure in Gaza City is the cluster development around the centre of the old city. Linear toward the east and grid toward the west.

In Deir al-Balah Governorate: the urban structure in the city is linear. In camps it is the grid.

In Khan Yunis Governorate: the urban structure in old city is clustered, and in the camp it is the grid.

In Rafah Governorate: the urban structure in the camp and the city is grid.

There are three main types of building methods used in Gaza Governorate.

1. Sand block and clay building: this type is mainly found in old city.
2. Cement blocks and concrete buildings: this type is concentrated in the centre of the towns and along the main roads. It is found in Gaza mainly as 1-5 stories building.
3. Asbestos and corrugated sheets roofed and concrete blocks buildings: they are mainly found in the camps.

Settlements

After the war of 1967, the Israelis started to build settlements on Palestinian land. There are 19 settlements in Gaza strip and they occupied about 13% of the total area of Gaza. After Oslo Agreement the Israelis increased the total area to 17% of the total area.

The planning assumption is that the settlement will be handed over to PNA by 2005.

The effect of settlements on the existing situation.

- Preventing development of any recreation or tourist along beach in the southern region
- Directing urban growth away from settlements
- Decreasing the ground water level and denying PNA access to areas of high quality ground water.

- Restricting fishing rights/ possibilities.
- Destruction of conservation areas and migratory species of wildlife.

Housing Needs in Gaza Strip

The total demand for housing until 2015 is estimated at 266,200 housing units. This is distributed according to the increase in population due to natural growth, returnees, camp rehabilitation and renewal of the housing stock. The housing needed for renewal of the housing stock do not need the services required and extra area for transportation.

The number of housing units needed to absorb the increase in population and camp rehabilitation is 237,400, 186,000 for the increase of population and 51,400 for camp rehabilitation. About 29,000 housing units are needed to replace substandard houses. Of a total of 110,600 low cost housing units, 23,920 will be for camp rehabilitation and 86,640 for the population increase.

The total number of required housing represents about 330 neighbourhoods of 5000 inhabitants each, 80 urban districts, 25,000 inhabitants each and also the development needs about 16 city centres of 100,000 inhabitants each.

With increasing population and economic activity the demand for services at different levels will also grow. The present centre structure is underdeveloped and will not in the long term be able to satisfy this rapidly expanding demand in a rational manner.

Refugee Camps

Hundred thousand of Palestinians became refugees during and in the aftermath of the 1948 Arab – Israel war sparked by the creation of the state of Israel.

During the British mandate territory of Palestine, the refugees, mostly small land owner, farm workers and labourers were forced to leave the neighbouring Arab territories, mainly to Trans Jordan, Lebanon, Syria, Egypt, West Bank and Gaza Strip which occupied later on by Israel.

The refugee problem roots, in the creating to Israel in May 1948 and the following catastrophe, the NAKBA when thousands of families around 800,000 people, were forced to flee or thrown out of their lands and homes by Israel. About 120,000 of these refugee remained at that time in Palestine. The majority of them in Gaza region. Nowadays the refugees remaining in Palestine have been about neural 1.3 million, about 785, 551 living in Gaza and 427,840 of them still living in exists eight refugee camps. After 1948 the UNRWA gave shelter for each family, tent as provisional one, as it the return will be very soon, later on UNRWA replaced the tents with mud brick shelters in the early 1950s which in turn replaced in the 1960s with cement block shelters where the refugees family still live in. The shelter was about 30m² built by UNRWA, with small garden in front of it. The time past, no return happened, and after fifty years the families increased to ten times, the families needed more space

and therefore extended their houses on the space of the garden and street.

The result what we face today, high dense built up area, overcrowding (more than three person per room), very narrow street with a size sometimes smaller than one meter, no free space and unhealthy and inhuman living condition.

The number of Palestinian refugees in 1950 was about 940,000 people. In 1993 the number was over 3million living in different countries

Palestinian refugee living in and outside Palestine

Refugees in Jordan	1,487,449
Refugees in Lebanon	367,610
Refugees in Syrian	370,035
Refugees in West Bank	562,737
Refugees in Gaza Strip	785,551
Total	3,573,382

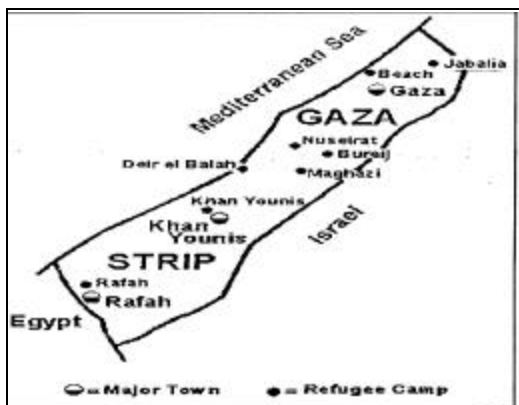
The number of refugees in Palestine about 1.3million living in West Bank and Gaza Strip.

Total refugees number in West Bank about 560,000

But 150,000of the refugee still living in 19 camps.

Total refugee numbers in Gaza strip about 780,000 but 450,000 of the refugee still living in 8 camps.

The refugee camps in the STREP are amongst the most densely population areas of the word with up to 21.142 person per km². Palestine refugees living in Gaza account for 22 percent of all UNRWA registered refugees, and they are located in Gaza as following.



Map 3: Location of Camps in Gaza

1. Jabalia camp

Jabalia with 88,700 residents is the largest and most densely populated camp in the Gaza Strip. It is north of Gaza town on 8km² site, adjacent to Jabalia village. Initially, tents housed the original 35,000 refugees who fled from villages in southern Palestine.

Jabalia has 22 UNRWA school (2 single shift, the rest double shift), an UNRWA health centre.

2. Beach camp

Beach camp lies along the Mediterranean coast north of Gaza town. Known locally by its name in Arabic, Shati, the camp was established after the 1948 war to house some 23,000 refugees. Today the camp has 67,341 residents on 5.5km².

Beach camp has 17 UNRWA schools (7 single shift, 10 double), and health centre. UNRWA has also built a

sewage system and is in the process of rehabilitation several shelters.

3. Bureij camp

Bureij is in central of Gaza strip to the east of the main north-south road of Maghazi camp. Before establishment of the camping 1949, some of the 4.5km² site was taken up by British army barracks. Numbers of the original 13,000 refugees in the camp were housed in barracks and the rest housed in tents. UNRWA provided concrete block shelters in the 1950s. The current population is 27,400. Bureij has seven UNRWA schools (single shift), a health centre.

4. Nuseirat camp

Nuseirat camp with 51,700 residents on a 6 -km² site is located in the centre of the Gaza Strip between the main north- south highway running through Gaza and the Mediterranean Sea. Some refugees were housed in an ex-British army prison, others in tents.

Nuseirat has 12 UNRWA schools (4 single shift, 8 double shift), a health centres.

5. Maghazi camp

Located in the centre of the Gaza strip south of bureij, Maghazi is home to 19,400 refugees. It was established in 1949 on 6km² site to shelter 9,000 persons. Maghazi has five UNRWA schools (one single shift, four double shift), and health centre.

6. Deir El Balah

Deir El Balah is the smallest camp with a population of 16,700. It is on the Mediterranean coast in the middle of the Gaza Strip and west of Deir El Balah town (trans. Monastery of the Dates) called this because of the abundant date palm groves in the area. It was established in 1949 to shelter 9,000 refugees.

Eight UNRWA schools (six double shifts, two single shifts) serve the camp, a health centre.

7. Khan Younis camp

Khan Younis camp is about 2 km from the Mediterranean coast north of Rafah. It was established in 1949 to the west of Khan Younis town, a major commercial centre and stopping-off point on the ancient trade route to Egypt. The initial population of 35,000 was housed in tents on 5.5-km² site .The 53,488 residents live in 13 blocks of cement block shelter that replaced tents in late 1950s.

The camp has 19 UNRWA schools [9 single shift, 10 double shift], a health centre

8. Rafah camp

On the Egyptian border, Rafah camp population 77,850 is almost indistinguishable from Rafah. When it was established in 1949, it had 41,000 residents at that time the largest and most concentrated population of refugees in the Gaza Strip. Several thousand residents have left the camp for the housing project adjacent to the camp.

There are 26 schools (8 single shift, 18 double shift), a health centres. The agency has bullet a second clinic to serve Tel Es Sultan and the Swedish village.

After the Israel occupation of the Sinai and Gaza in 1967, extension to the camp was built on former Egyptian territory to house some 2,500 refugees whose shelter were demolished by the Israel authorities to wide roads on

security ground. This area became known as “Canada” camp after the Canadian contingent to UNEF based in the area after 1956. With the redrawing of the international boundary, some 5,000 persons were left in Egypt.

Under an Israel-Egyptian agreement, they were to be repatriated to Gaza but in 17 years, only 203 out of the original 500 households have returned to the Gaza Strip, most living in Tel Es Sultan housing project area.

Another anomaly of Rafah camp is the Swedish village Block R of the camp. The Swedish contingent to UNEF and then established in 1965 had an area of 40,000 square meters. 3,000 square meters reduced this when the international border with Egypt was re-established in 1982. Almost 1,000 persons live in the area. It is about 100 meters from the Mediterranean shore and more than two kilometres from the nearest agency installation. It is isolated from the rest of Rafah by Israel settlements and a military post.

Environmental Health and Water

The existing state of the environment in Gaza is a direct threat to health, resources, and future economic development. Because of this, UNRWA set up a Special Environmental Health Programme (SEHP) in 1992.

Current situation: percentage of homes connected to sewers in the eight refugee camps in Gaza varies from one to another. In Jabalia and Beach camps 100% coverage has been achieved. In D/Balah camp 65%, Rafah camp 52%, Nuseirat camp 4.3%. In Bureij, Maghazi and Khan Younis, no connections have been made.

Outside the camps, the figure is 40% wastewater, very often, flows into pathways and alleys posing direct risk to people especially children. Cross connections between sewage and old water network is not unlikely. Storm water mixed with sewage, causes flooding of areas inside the camps, hence posing a direct risk to health, life and property.

The SEHP continued carrying out the conventional sanitation activities, which have started since UNRWA was created. On the average UNRWA collects 260 cubic meters a day of refuse generated in camps and hauls that to municipal landfills. UNRWA's is operating three wells in Jabalia, one well in Khan Younis and one well in Rafah and operates the water supply system and monitors water quality in the three camps. In the rest, UNRWA's role covers water quality monitoring while the municipalities provide supply.

Education

The overall aim of UNRWA education programme is to provide, within the framework of curricula prescribed by the Host countries.

UNRWA provides 9 years of schooling for school population of 150,860 students in 168 schools for the school year 1997/98. There has been an increase of 10,200 students [7.25%] as compared to 1996/97 school year. This unanticipated increase is due to the population growth and the Palestinian returnees who came back to Gaza as a result of implementation of the peace process. More than 9,400 pupils of returning families have been admitted to UNRWA schools in Gaza since 1994.

Health

In the Gaza Strip, UNRWA has 13 main health centres. All provide primary health care plus mother and child care [MCH]. In addition, there are three special MCH Centres in camps. Six health centres have maternity wards for normal deliveries. Because of the great demand on UNRWA health services, each doctor on duty sees an average of 118 patients a day.

Strategy of UNRWA

When the United Nations Relief and Works Agency for Palestine refugees in the Near East (UNRWA) commenced operations in May 1950. Its task was to give emergency assistance to the hundreds of thousands of destitute Palestinians who had been lost their homes and livelihoods as a result of the 1948 Arab-Israel conflict.

Originally envisaged as a temporary relief organisation, UNRWA has over time assumed a pivotal role as the main provider of basic services to the Palestine refugee population and a lifeline of support in times of crisis. The United Nations General Assembly pending resolution of the Palestine refugee problem has repeatedly renewed its mandate.

Today, the United Nations Relief and Works Agency for Refugees in the Near East (UNRWA) provide education, health and relief and social services to more than 3.5 million Palestine refugees living in Jordan, Syrian, Lebanon, West Bank and Gaza Strip to serve their needs.

Relief and Social Services Programme

The MISSION of the relief and social services programme is to support those Palestine refugees who suffer the greatest socio-economic disadvantage, and to facilitate their self-reliance.

The agency's relief services provide direct material and financial assistance to those refugee families without a male adult medically fit to earn an income and without other identifiable means of financial support sufficient to cover food, shelter and other basic needs. In emergencies, this assistance is extended to affected communities, refugee and non-refugee, as a temporary relief measure.

Housing Needs Assessment

The relief services programme is complementary to the social services programmes. Social workers-the programme's key personnel in the community- are guided by the objective of both. Through casework, social workers aim not merely to ensure that those who are unable to meet their own needs for food and shelter are helped, but also address the problems which frequently underlie and compound the family's poverty.

This includes encouraging clients to enrol in developmental social services programmes designed to meet their particular needs.

Land Availability

Land availability is the biggest problem for implementation of the project in the refugees camp. Because most of the families who are living in the camps have no land except the place they living in. For this reason the policy of UNRWA is to implement the project in same places, demolishing the existing site and starting the new project. In some cases when the family number is big and need more land the agency deal with the Ministry of Housing for new land.

Funding

UNRWA's task is to manage its scarce resources in ways, which will produce the best results to improve the living conditions and future prospects of the Palestine refugees the agency serves.

With funds mainly contributed by European Union and its member states.

Institutional Arrangement

The technical department in the agency starts with the project after social worker finished the report about the family. The section of housing design start studying the family file to diced the number of the room [s] needed, it depends about the number of family,

Family no.	Room no.	Cost U.S.\$
1 -3	1r+k+wc	7000
4 -6	2r+k+wc	9500
7 -8	3r+k+wc	11500
9 and over	4r+k+wc	14000

After decision about rooms number start with site survey then design with preparing documents for tendering.

Local contractors apply for tendering, contractors sign the contract with the agency before starting the work and the agency give the contractor a very short time to implement the project not more than eight weeks, because the family during this time living outside the house.

Current Conditions

Land Ownership Structure

The study of land ownership in Gaza Governorate is an essential step towards improving planning and land management in the region. Land ownership structure and the property laws represent a serious problem to the implementation of any plan, since there is no system that deals with the relationship between land ownership, proposed plans, projects or program.

There are four type of land ownership found in Gaza Governorate. Governmental, private, beer El Saba'a and waqf land. Private land cover largest area, about 50.8% followed by Governmental 30.1%, Beer El Saba'a 17%, and El Waqf land 2.1%.

The majority of governmental land is located in important natural resource areas that should be presented.

In the plan future development will be directed towards private ownership land and Beer El-Saba'a land.

Moreover, the division of land into small parcels throughout the municipalities makes it difficult to implement large-scale projects needed to serve the planned urban expansion. Lastly, one of the main problems is the fragmentation of land ownership that often covers wide areas in Gaza. The reason for this is the traditional system of inheritance and percolation of the land to family members for generations.

To conclude, the land ownership structure and property laws represent a serious restriction on the implementation of the regional plan. This is because there is no system that deals with large-scale development and legal system that handle expropriation and re-percolation in relation to development of land. In other words, at the moment there are no regulations to enforce land use Change or to implemented according to the proposed density and guidelines

Institutional Deficiencies

Currently, the planning institutions are immature and they lack some of the essential means necessary to fulfil their planning role satisfactorily. Some of the institutional problem likely to be encountered are lack of central policy directives, weak co-operation between planning institutions at central and local level, underdeveloped control function and the lack of a modern legal framework needed to tackle the present problem.

These problems are felt to be major constraints for the planning process, approval of the plan and then the decision making for the implementation. Subsequently, the plan will yield regional policies that would outline a course of action to be followed by the decision-making system for regional development.

Since Gaza Governorate lacks such managerial and decision-making system and tasks and responsibilities are not yet distributed and established, policy generation and implementation will be difficult.

The magnitude and the complexity of the imminent environmental and developmental problems demand high institutional proficiency and capacity and will require the following institutional reforms:

- Setting up regularly and legal bodies to cover the land use, transportation. Physical consequences of social economic development.
- General transparent structure to facilitate public involvement.
- Definition of the roles, main functions and mandates for the Ministers.
- Division of responsibilities and powers at national, intermediate and local levels.
- Adoption of integrated top-down and bottom-up approach in planning.
- Promotion of the concept of decentralisation to be a goal for institution building.

Employment

In general we can say, that most of the men have experiences in construction and house building from jobs in Israel or through their own activities. These skills can be used and give as payment for land, if used for building infrastructure or service building.

Big effort should be done to use the upgrading process for job creation and qualification development.

To create experts in installation works or tiling, clay, brick laying, plastering and painting.

The “refugees “ might express the willing to use as much self help as possible and to accept it as a value to deal with. Besides that it needs an activity by constructors and companies to support the people to reintegrate into the society. The authorities should lead a campaign to help unskilled labour to qualify and involve the existing small industry, NGOs and Welfare organisation in a low cost-housing program.

The Actors

1. Ministry of Housing: the ministry enables the Authority to provide investors, private, public and co-operatives for land needs for projects.
2. Ministry of Planing and International Cooperation: with responsibility for the development of plans, programs, general policies, norms, standards and guide lines related to physical planning at the national and regional levels.
3. UNRWA: have responsibility for all refugee camps
4. Palestinian housing council: provides housing for low-income groups.
5. Municipality: plays important role. Because the municipality provide the main contribution like utility services and facilities
6. Users: the refugees living in over density area for long time. The average number of family is 7 person and more than one family living in the same place. The cultural attitude to life style must be considered during planning stage for the families.

Participation and Involving People

Within “Refugee” and the regional development plan governmental land use and development plan must be declared, that a maximum of participation should be achieved from the planning until the implementing and evaluating process. Standards, aim and the fields of participation must be described and set. Participation is needed to solve social and economical contradictions and problems from the beginning of the planning process. This saves time and money. The people should be encouraged to form their own body, like low cost housing area co-operative.

- Regional housing needs problem definition and goals for housing and services development

Regional Plan for Gaza Governorate

One of the objectives of the regional plan is to focus on problem solving, merging solution to existing problem with future needs, into a coherent physical development plan for the region. With the constrains of a relatively short time frame, limited resources and a fragmentary and incomplete data base, it is essential to concentrate the planning effort on the most serious and immediate problem facing the region. Through the planning process, physical and environment problem that are considered serious obstacles to the impertinent of existing condition and future development of Gaza, should find their solution.

The following problems are central elements in the regional planning process:

- Shortage of land resources.
- Lacking and inefficient infrastructure.
- Overexploitation of water resources
- Environmental conservation and land use development.
- Institutional problems.

Alternative Regional Development Models

Description of the alternative models

One of the most important concerns of the regional plan is how and where the population growth should be located. Accordingly, several alternatives have been developed based on the planning assumption, which is the foundation for the regional plan. These alternatives give different possibilities for the distribution of population between the regions. The study of these alternatives and their impacts will assist in choosing the most suitable one. This will be the one, which suits the condition of Gaza Strip best, has the highest degree of goal attainment and insures the highest degree of sustainable development. The flowing selected alternatives based on different development assumptions with regard to distribution of population and different urban development patterns adapted to the possibilities in each governorate.

Population distribution

The increase in population in each Governorate till 2015 is mainly effected by three factors: natural growth of the existing population, immigration of returnees settling in the governorate and their natural growth until 2015 and the internal migration between the governorates.

The distribution of returnees to the governorate differs according to the alternatives. In the plan immigration of returnees is programmed according to assumption that in 2005 the Palestinian State will be established with stable political, economic and social conditions. Palestine will be a free nation with control of the whole of Gaza and West Bank. The United Nation Resolution is the basis for solving the refugee problem. This means that all Palestinians will have the right to return to their homeland.

The internal migration differs from one alternative to another as will be shown for each alternative:

Land requirements

The amount of land needed for future development was calculated for each Governorate and alternative separately, assuming a high and low density of respectively 25 and 15 person per dunum (1 dun=1000m²)

However, in the plan the high-density assumption is used because of the limited area of land in the region. The development land needed for residential, roads and transportation, industry, trade, services and recreation areas. Included in the residential land requirements are the needs for land to accommodate camp rehabilitation.

northern	Gaza	Deiral - Balah	Khan Yunis	Rafah	Total
2420	2830	4400	2050	2770	14470

Table 1: Distribution of areas needed for camp rehabilitation in the governorate (dunum) 1996-2015.

The development of land use patterns for each alternative depending on the assumptions.

The tables will show areas needed to absorb the increase of population for each alternative depending on high density distributed in each governorate.

Elimination process

The elimination process based on the alternative ability to achieve the following criteria:

- If it gives a clear structure and an orientation that is feasible at the regional level
- If it uses a lot of land for the housing or leaves some other purposes for future expansion.
- If it offers a variety in living environments, ranging from urban and rural, and with a variety in building densities.
- If it offers possibilities for high level of services within easy reach for the population and the distance between residential areas and centres with a high service level.

Short description for the selected alternatives

The main difference between the five alternatives is the distribution of urban development, population distribution and land requirements to each of the five governorates. The development models are based on the analysis of the existing situation and the predictions for future development needs and the necessity to protect the natural resources of the region.

Alternative 1. No Planning

This alternative assumes that the present situation will continue and Gaza City will remain the main city in the region. The port location and the proposed connection with the West Bank in the north of Gaza will increase the potential of this area leading to further concentration of urban development. An internal population migration towards the north from the southern areas will take place. Population distribution on this alternative, the returnees will be distributed to the five governorates of Gaza as follows: 40% to the Northern, 30% to Gaza, and 30% to Deir al- Balah, Khan Yunis and Rafah, with 10% for each. There will be internal migration from the south to the north.

The populations of the northern area will development rapidly and consequently land needs will exceed the

present municipal boundaries and move into natural resource and agricultural areas.

Item description	Governorates					total
	north	Gaza	Deir al- Balah	Khan Yunis	Rafah	
No. of housing units 1996-2015	50943	71243	21700	24896	18700	187571
Area needed 25 inh./ dun.	14264	19948	6076	6996	5236	52520

Table 2: total number of housing units and area needed for urban development in each governorate.

Alternative 2. Even Distribution

This alternative assumes that the future population will be distributed to each Governorate according to its natural growth, even distribution of returnees and spatial demands. The main criteria adopted to decide the capacity in each Governorate is calculating the available land for future urban development excluding the protected land in addition to the study of the obstacles and limitation [industrial zones, port, air port, etc.] that would limit direction of future development. Protected land is considered according the natural resources protection plan. This alternative dose not has any internal population movement.

In this alternatives the returnees will be distributed to the five governorate as follows: 10% to the Northern, 20% to Gaza, 10% to Deir al- Balah, 40% to Khan Yunis and 20% to Rafah. There will not be any internal migration between the governorate

The assumption is that each governorate will develop according to its capacity. Consequently, the development will be within the municipal boundaries moving very slowly toward natural resources.

Item description	Governorates					total
	North	Gaza	Deir al- Balah	Khan Yunis	Rafah	
No. of housing units 1996-2015	25700	57686	23414	51943	28829	187571
Area needed 25 inh./ dun.	7196	16152	6556	14544	8072	52520

Table 3: Total number of housing units and area needed for urban development in each governorate.

Alternative 3. Two Core Cities

This alternative assumes that the growth potential will be directed toward the southern and northern areas. Khan Yunis City will be the “mother-city” for a large urban expansion including several of the satellite villages in the south. Consequently, Two Core Cities, one in the north Gaza City and the other in the south Khan Yunis City will be the main location for the growing population and returnees. Internal movement towards the Two Core Cities is part of this alternative.

In this alternative, Khan Yunis City will absorb a large proportion of the growth and developed into a more dominant regional centre of the south. Gaza City will not expand as fast as Khan Yunis but will remain the largest regional centre in Gaza Governorates. The two centres will absorb the returnees with 30% to Gaza Governorate and 70% to Khan Yunis Governorate.

There will be net internal migration from the three other Governorates to the two regional centres. The population will be directed toward the south, where development of Khan Yunis and Rafah will happen

quickly, and Khan Yunis will be the centre of the south. In the north Gaza City will have a slower growth but will remain the main regional centre of the Governorates. Consequently, the area needed for the increase of population will be large, especially in Khan Yunis, exceeding the municipal boundaries spilling over into agricultural land.

Item description	Governorates					
	north	Gaza	Deir al-Balah	Khan Yunis	Rafah	Total
No. of housing units 1996-2015	15571	58829	49800	53086	10286	187571
Area needed 25 inh./ dun.	4360	16472	13944	14864	2880	52520

Table 4: Total number of housing units and area needed for urban development in each governorate.

Alternative 4. Linear Distribution

This alternative assumes that the middle area of Gaza Governorate will develop into a more or less continuous linear urban area along road from Gaza City in the north towards Khan Yunis in the south. Gaza City will develop to the south toward the middle areas and Khan Yunis City will develop towards the east and the north. Accordingly, a majority of the population will be concentrated within; Gaza City, the Middle areas, and Khan Yunis City. The internal population distribution towards these areas is taken into consideration, resulting in a reduced growth rate in the other areas.

In this alternative, the returnees will be distributed to the five governorates of Gaza as follows: 20% to Gaza, 40% to Deir al-Balah, 40% to Khan Yunis and 0% to Rafah. There will be internal migration from the other Governorates toward the middle area.

Development of the three central governorates will be dominant. Consequently, large amounts of high-grade agricultural lands will be destroyed completely by the urban growth in this part of the region.

Item description	Governorates					
	north	Gaza	Deir al-Balah	Khan Yunis	Rafah	Total
No. of housing units 1996-2015	25700	57686	23414	51943	28829	187571
Area needed 25 inh./ dun.	11993	26920	10927	24240	13453	87533

Table 5: total number of housing units and area needed for urban development in each governorate.

Alternative 5. Even distribution with low Density

In this alternative the assumption for population distribution is the same as in alternative 2. However, the density of the proposed housing areas is assumed to be much lower approximately the same as today's density. On one hand, people will have more private space. On the other hand, a larger proportion of the remaining land will be consumed, at the cost of much valuable agricultural land, without showing any distinctive urban structure. There will be little variety in living environments, and in addition, the level of services will be lower and the public transport and road construction will be more expensive.

The assumption for population distribution will be the same as the second alternative. However the area needed for the increasing of population will be higher because of the lower density assumed for this alternative.

Consequently very large areas of important natural resources and valuable agricultural land will consume.

Item description	Governorates					
	north	Gaza	Deir al-Balah	Khan Yunis	Rafah	total
No. of housing units 1996-2015	50943	71243	21700	24896	18700	187571
Area needed 25 inh./ dun.	14264	19948	6076	6996	5236	52520

Table 6: Total number of housing units and area needed for urban development in each governorate.

Urban Development Evaluation

All different alternative will provide the required land needed for urban development. They also will provide sufficient housing and public services with appropriate standards throughout the region. However, the different alternatives have varying degrees of conflicts or compatibility with regards to the goals of the plan.

The following goals are taken into consideration to evaluate different alternative for urban development, these goals have indicators for evaluation.

1. Provide sufficient housing and public services with appropriate standards throughout the region
2. Provide the required services for residential, commercial, recreational, green structure, public services and private services development.
3. Provide regional hierarchy of settlements according to economic and functional roles.
4. Location of future urban development should take place on land of marginal values in terms of natural resources and environmental protection.
5. Ensure the opportunities for recreation within future built up areas and beaches in the urban area.

Goals 1 and 2 alternatives 1 through 4 will achieve these two goals equally well, because they have almost the same densities and spatial requirements. But regarding alternative 5, it will be in conflict with other functions, especially in the south with industrial area and the airport also Alternative 5 will have an adverse effect on the future supply of development land because of its low density and use of large amounts of land.

Goal 3 this goal deals with the distribution of population. Alternative 1 and 5 will achieve this goal for different reasons. The concentration of population in the north will lead to a centralisation of services, functionally and economically. Alternative 5 with low-density development will not satisfy the concentration of the population needed to support a functional centre structure at the local level. Alternative 2 and 4 are not developed with a specific structure in mind but rather by the accommodation of natural growth and is therefore not likely to establish a clear hierarchy of settlements. Alternative 3 has been given population and employment distribution and the centre structure necessary to achieve this goal.

Goal 4 there are few and limited conflicts in this regard with alternative 3. There is hardly any conflicts, neither with the natural resources - agriculture, landscape and water catchment areas, nor with other functions near the proposed for development. On the other hand, the other alternative has definite conflicts with both natural resources areas and the proposed functions.

Goal 5 the different alternatives have the same potential for the accessibility to the beach, which is, considered the main regional recreational area. But alternative 3 is considered the most suitable for achieving this goal for the following reasons:

1. Will lead to a relative reduction of the load on the beach in the north area.
2. There is less conflict with the best landscape protection areas in alternative 3. These areas are important for recreation.

From the evaluation, it can be concluded that alternative 3 is more suitable than the other alternatives with many advantages as to the socio-economic and environmental respects. The evaluation results indicate the advantages and disadvantages of the different alternatives. An important governing factor in selecting the most suitable alternative is the provision of a protection of a functional regional hierarchy of settlement. In addition, the alternative is not conflict with the protection of natural resources and the graded landscape areas, which are also important factor to be taken into account selecting the best alternative.

Returnees and Camps Rehabilitation

450,000 Palestinians will return to Gaza Governorates between 2005 and 2015. Through natural growth the returnees will increase to 589,000 inhabitants by 2015. It is assumed that 70% of the camp population will be rehabilitated within the planning period. The total number of families to be housed in addition to those generated by natural growth is 135,600.

The area needed for returnees will be 23,600 dunums, and for camp rehabilitation 14,400 dunums, a total of 38,000 dunums which is 56% of the total housing area. The built-up area in Gaza Governorates was 56,000 dunums, which represented 15% of the total area. Development of the urban areas in the planning period will consume 67,000 dunums, distributed between: 14,400 for camp rehabilitation, 23,600 for returnees and 28,900 for the increase of population due to natural growth. The total area for development represents 18,7% of Gaza area.

In 2015 the existing and planned urban areas in Gaza will represent 33% of the total area. This percentage includes the existing built up areas 15% and the proposed areas for development for natural growth 8.2%, resettling of returnee's 6.5% and camp rehabilitation 4%. The area needed for resettling of the returnees and camp rehabilitation is 38,000 dunums, and this represents 10.5% of Gaza area.

Investment cost for resettlement and rehabilitation of refugee camp inhabitants includes construction and cost of land. About 51,400 housing units and 14,400 dunum are needed for resettlement. In other words, the housing units will be divided into different housing categories: 24,000- 18,400- 9,000 housing units for low, medium and high income groups respectively. The total construction cost of the previous housing figures is estimated to 1.3 billion U.S.\$ and the cost of land to 1.08 billion U.S.\$, a total of 2.4 billion U.S. \$.

What will Gaza look like in the future without considering the returnees and rehabilitation? If there will be neither camp rehabilitation nor returnees resettlement.

The land needed for resettlement can absorb the natural growth for an extra 11.5 years after 2015.

The urban areas will only be 23.2% of Gaza at 2015, which means that the rest of the proposed development area can be reserved for future developments.

According to available natural resources and population needs, it is impossible to reach absolute sustainability in Gaza. However, the aim should be to work towards sustainability.

Different suggestion might be proposed. Since the area of Gaza Governorates is not large enough to accommodate sustainable future development, the area might be expanded to the east to provide a natural hinterland.

Other option may be is to move some of the population to the West Bank, or to increase the density in order to decrease the area needed for development. The latter solution will only contribute to solve the demand for land, but may negative impacts on the existing built environment and the social situation.

Strategy Development

Sustainability in Gaza Strip

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainable development means improving the quality of life while living within the carrying capacity of supporting ecosystem.

The general definition of sustainable developments is development that delivers basic environmental, social and economic services to all residents of the community without threatening the viability of the natural, built and social system upon which the delivery of these services depends.

The particular circumstances of Gaza a small, over population and relatively resource deficient and isolated area- make most definitions of " sustainable development and the methods for assessing their attainment, seem almost irrelevant. In our present to be almost impossible to achieve sustainable development within a limited area such as Gaza Governorates.

At the present time, Gaza governorates gross density about 2,800 persons/km². According to the population forecast density is predicted to reach 6,100 persons/km² in 2015. Will this be possible or sustainable?

Historically, there was a large increase in the population during 1948 and later, because of the influx of refugees. The population was 65,000 inhabitants in 1945 and due to the war and the immigration of refugees, the population more than doubled by 1948 and by 1996 it was 16 times that of 1945. If the increase of population had depended on the natural growth only, it would be another question, and sustainable development might have been a more realistic goal.

Finally, one conclusion is that, according to available natural resources and population needs, it is impossible to

reach absolute sustainability in Gaza. However, the aim should be to work towards sustainability.

The Need for Development and Protection

Because of the area of Gaza and the high growth rates, there already exist and will continue to be conflict between urban development, natural resources and preservation areas especially with regard to random urban development.

From human points, the demand for open space emerges from the need for breathing spaces in the increasingly identified urban communities. It is urgent to achieve a pure environment, healthy mentality, for reason of public health, both mental and physical and in order to satisfy social and recreational needs. From a cultural point, protection of the environment will contribute to the preservation of our country's distinctive identity, represents part of our history, and will be of increasing importance for education purposes. Economic points, clean environmental, protected landscape and nature areas as well as cultural heritage sites attract and encourages tourism. Protection of agriculture land is important because of the employment it generates the large proportion of food it provides and the potential for construction of a future agricultural industry.

It would be in the common good of Palestinian people to preserve areas, vegetation, agricultural land, landscape and recreational land. Due to high natural growth rate of population, returnees and camp rehabilitation, there is a large demand for land for development, to meet the need for housing, employment, and public services.

Land needed from 1998-2015 will be: (in dunum)

- Recreational, open space, sports areas 4,200
- Urban development 67,000
- Tourism 12,800
- Regional public services 1600
- Industrial and commercial 7,500
- Transportation 7,700
- Infrastructure 6,700

As result of protection of agriculture, it is important to find solution quickly to accommodate the high growth rates, which otherwise will destroy the natural environment as well as urban structure of Gaza Strip if it is not planned properly. If population growth continue according to the forecasts, then the estimated population will reach 2,3million inhabitants by 2015. These will make the overall density in the region about 6050 person/km², which is very high density by international standard. This of course will lead to a reduction of agricultural and nature preservation lands, which are already, considered scarce resources in Gaza.

The following initiatives should be suggested to solve or alleviate the problem:

1. Increase the area of Gaza Strip to the east
2. Transfer some of the population growths to the West Bank to an extent were the balance between protected and urban development areas can be reaches.

3. Using improving technology in agriculture to increase production.
4. Increase the residential density especially in existing built up areas to meet housing needs without attacking protected or natural reserve areas.
5. Transfer some of returnees to the West Bank.

The impact of High and Low Densities

The area needed for urban development on planning period (1998-2015) according to the proposed density is about 67,000 dunums, for the region as a whole. In order to achieve the proposed densities at different levels of development, the regulatory system of land ownership and the planning law needs to be changed. The argument is that about 50% of the land in Gaza are private land. In this context it could be difficult to implement the proposed density without providing revised legal mechanisms. Revised laws should take into consideration the demand of land for development, changing land use, the land value and its relationship to urban development as well fair compensation for expropriation.

Changes in density will affect the land needed for development. If density decreases, land needs will increase and this will happen at the cost of agricultural land and other natural resources. The area needed for urban development on planning period if existing density is maintained at 2 houses/dun, will be about 111.5 km², the area needed for development due to the proposed density is about 67 km². The total area available for development exclusive of protection areas is about 140 km² while the total need for urban and regional development. Continued low-density development by 2015 have reduced the future reserves of land dramatically and in the process and consumed large areas of valuable resources and natural protection areas.

The proposed density should be the basis for the plan development. The necessary steps should be taken to change the land ownership structure, the planning law and other necessary legal and administrative means needed to achieve this.

Effects of Returnees and Camp Rehabilitation

What will Gaza look like in the future without considering the returnees and rehabilitation? If there will be neither camp rehabilitation nor returnees resettlement. The land needs for resettlement can absorb the natural growth for an extra 11.5 years after 2015.

The urban areas will only be 23.2% of Gaza at 2015, which means that the rest of the proposed development area can be reserved for future developments.

On the other hand, we should look for the resettlement of refugee camps as a strategic social goal, in order to raise the standard of living in the camps to the same standards as the other urban areas. The number of Palestinian returnees to Gaza area is a highly sensitive political issue and the number used in the plan was chosen to illustrate the impact on land use and the total housing needs.

In this case if we consider that urban development would consume too much land because of large number of returnees and camp rehabilitation, there might be other

solutions for development. We may increase the over all density to reduce the area needed for development, or we could promote movement of people to the West Bank.

The West Bank has more employment opportunities and larger areas for development. Even if developments are made at moderate densities, it can absorb a lot of Gaza people without effecting their natural resources adversely.

Low cost Housing

The number of housing units needed for development from 1998 until 2015 is 266,200, not including the existing housing deficit. The distribution of housing units is based on the population income classification gives 46.6%, 35.8% and 17.6% for low income, medium and high income groups respectively at 1993. At the present, income is decreasing for several reasons. The low -income group is increasing and may reach 60% of the population. Since this figure is not yet officially confirmed, the mentioned figures were used.

Its clear that the high percentage of population, approximately half, belong to the low income group, since this group can hardly provide food for their families, it is virtually impossible for them to pay for suitable shelter because of high housing cost.

During the development process it should assumed that the Palestinian National Authority (PNA) will provide adequate shelter for low income groups. Investment cost for the construction of low-income housing is estimated at 1.7 billion U.S.\$. This cost is only for the construction. The average number of housing units that should be produced each year is 10,420. At least 4,900 units should be low cost units.

Urban development

The plan can not fully satisfy the goals because there are conflicts between some of the overall and sector goals. But among the alternative urban development models evaluated the Two Core Cities alternatives have the highest rate of goal achievement. The regional plan proposal is therefore based on this alternative, which in plan form has been modified for practical adaptation to local conditions and prepared through the application of a set of development criteria. The land needed must have particular location criteria in terms of availability and sustainability. The determination of the availability of land for future development, or redevelopment and its suitability for various land use requirements depends on:

1. Proximity to transportation.
2. In/out of municipal boundary.
3. In/out proposed conservation, natural resources areas
4. Proximity to major town services and environmental concerns.

As a result, future urbanisation should be located within the municipal boundaries, in areas as close to existing urban areas as possible or out side the municipal boundaries, where development is not in conflict with important protection interests. It means that, the feature of development in Gaza will confirm with structures of alternative 3- Two Core Cities. This means that a second regional centre will be developed in the south.

The plan tries to balance the need for urban development on one side and protection of natural resources and agricultural land on the other. In addition, the Two Core Cities concept will provide a regional hierarchy of settlements according to economic and functional rolls. Population, functions and inter-linkages will be distributed in a concentrated manner strengthening the potential for improving public and private service throughout the recreational, green structure, public services and development based on an economical use of resources.

The Two Core Cities will create a pattern of development that will take place on land of marginal values in terms of natural resources and environmental protection. The plan shows a compact pattern of development considers the most efficient pattern in terms of land use and future natural resources protection. The compactness of the development pattern relates to the proposed density used in the plan. This will provide the necessary urban amenities and unspoilt open areas without endangering the natural and cultural environment. Hopefully the plan may enhance the needs of the population and lead to an improved quality of life in the future. Moreover, the plans will proved sufficient housing and public services with appropriate standard throughout the region.

The Main Characteristics of Two Core Cities

- It will give a clear structure, since the orientation is possible at the regional level.
- It will be efficient in term of land use, and will therefore provide land for future expansion due to the use of high-density development.
- It will offer a variety in living environmental ranging from high rise urban to smaller village communities with potential to develop many different types of housing.
- A high concentration of people- 65% of population in two cities, in contrast to the large number smaller urban areas in the region.
- It will offer possibilities for setting up an efficient public transport system, consequently it will reduce the travel distance and the amount of travel needed to reach the desired services.
- It will offer possibilities for a high level of services and employment within reach of the whole population, will depending on the density and the distance between residential areas and centres with a high service level.

Conclusion

Long Term Proposal

The proposed plan period is very long, about 18 years, which means that during this period many unexpected events can take place. The main reason for this is the unsettled political situation, which throws a shadow or veil over the future and making it very difficult to predict. Therefore, the proposed plan must be interpreted in high of these uncertainties. It will only be relevant as a

planning tool for regional land use development, if the assumptions are correct and the implementing bodies are willing to follow the proposed recommendations and regulations. Accordingly, there will be economic development, but the level of this development is very uncertain, whether it will be high or low. In addition, there will be impacts on the social aspects, which can influence on family size, one of the important factors determining among other things the demand for housing and land for development.

Moreover, the population growth will have a strong impact on the available resources in the future if it grows continuously as assumed in the plan. With the small amount of land available in Gaza its impact will underline the conflict between the needs for the protection of the important natural resources and the need for development to satisfy the needs of the growing population.

Consequently, the implementation of the proposed density is an important issue since it will be the base for providing the land needed for development. In other word, if we are not able to increase the density of future development the land available for future generations will be seriously affected.

Urban Development and Housing

The proposed plan, is the step towards a comprehensive national strategy for urban development natural resources protection. The implications of the proposed rehabilitation of refugee camps and housing of returnees need further planning with regard to camp resettlement, location and upgrading of existing camp areas. Also planning of the rural areas should be addressed in order to prepare plans that deals with the conflict between development and protection of agricultural land or other important natural resources.

The proposed plan addressed the housing needs until 2015. Further and more refined studies at the national and local level are needed to develop housing strategies and programs in accordance with the regional goals and guidelines. Housing strategies should be developed in co-operation with Ministry of Housing (MOH). Location studies for large housing projects and public service facilities of regional importance should be an important task involving Ministry of Housing, Ministry of local Government, Ministry of Planning and International Co-operation.

Also, there should be monitoring of the local land use plans, through a system of plan approval in order to make sure that these plans are in accordance with the intentions of the regional plan.

Land Ownership Structure

The land ownership structure and property laws represent a serious restriction on the implementation of the regional plan. This is because there is no system that deals with large-scale development and legal system that handle expropriation and re-parcellation in relation to development of land. In other words, at the moment there are no regulations to enforce land use change or to implement development according to the proposed density and guidelines of the plan.

As a result there should be further studies that deal with different issues related to the land ownership structure such as, land value related to urban growth, land consolidation and land use management. This should be organised in a legal framework closely related to the new planning laws.

The situation in Gaza Governorates will be changed dramatically after 2015. Hopefully environmental awareness will be strong and people will have knowledge and understanding of the importance of reaching a balance between protection of their natural resources, wildlife protection and their need for physical development. To achieve this there must be both political will and an economic base for government and other entities to effectively deal with this important issue.

Reference

1. Gaza Environmental Profile (GEP) July, 1995
2. FAFO Report, Palestine Society, 1993
3. Ministry of Planning and International Co-operation, Coastal Zone Plan, 1996
4. UNRWA feasibility studies, 1994
5. European Sustainability Cities, 1995
6. Ministry of Housing Walt Naj, Slum Areas Report 1996
7. Grabuwsky and poort (BV) consulting Eng., 1996
8. Habitat agenda the united nation conference on human settlements Istanbul, 1996
9. Architect and Development Course LUND UN. SWEDEN, 1999