The Applied Research Institute – Jerusalem (ARIJ)

Policy Tools towards Sustainable Land Use and Urban Environmental Management under a Transitional Political Context

Bethlehem, Beit Jala and Beit Sahour Municipalities, Palestine

Revised Final Report

Submitted To

Committee for International Cooperation in National Research in Demography (CICRED)

October 25, 2006

Table of Context

1. **Final report**

- Part I: summary description of the research operations conducted from the start of the project: meetings, fieldwork operations, data collection and processing, etc. (no more than 7 pages)

- Part II: presentation of the team with description of their respective responsibilities with addresses and email of all team members (no more than 2 pages)

- Part III: detailed presentation of research findings: this part of the report should only briefly sum up the research proposal as initially submitted (1 or 2 pages, not more). It will cover the research methodology and the main findings of the different research operations conducted within the ambit of PRIPODE programme (clearly specify what was or was not supported by PRIPODE)

2. **A summary report (less than 15 pages) should also be submitted:**

- This summary report will cover only the methodology and the research findings, but will include a selection of the most relevant materials (figures, maps, tables, etc.). It may be based on Part III of the final report (detailed presentation of research findings).

3. **A financial report signed by the head of your institution**

- Statement listing all expenses related to the project by date, distinguishing by major categories: salaries and staff, travel expenditures, equipment, services, etc.

- Bills and other documents related to expenditures incurred during the second year.

- APPENDICES: other documents prepared or collected for the PRIPODE programme such as questionnaires, maps, statistical tables.

PART I

The research operations conducted throughout the project duration included:

- **Collecting Data and information**

The data and information collected were in the following domains:

- Data about the study area

Geopolitical data concerning the location of the study area, size, administrative boundaries, resources, land cover, land use and relation to the surrounding areas were collected from the ARIJ database.

Demographic and Socio-economic data were obtained from the Palestinian Central Bureau of Statistics (PCBS) publications. In 1997, PCBS conducted the first Palestinian Census in the West Bank and Gaza and published the results in 1999. Updated demographic data were obtained from the PCBS website.

- Literature of relevant population dynamics, sustainable land use, environmental management and urban governance policies

Information concerning theories, concepts and best practices of urban environmental management, indicators, policies, population dynamics, sustainability concepts and their application to sustainable management at the local level were collected, (refer to the bibliography to see the sources).

- Palestinian National policies and strategies

The three national plans of development, the Palestinian Development Plan (PDP) and the National Policies for Physical Development were produced by the Ministry of Planning and International Cooperation (MOPIC) in 1998, and the Palestinian Environmental Strategy (PES) was produced by The Ministry of Environmental Affairs (MEnA) in 1999. Each was studied and reviewed (examples can be seen in appendix I).

- Palestinian laws and regulations

The Palestinian local authorities Law, the building and planning codes and regulations, and the environmental protection regulations affective in the Palestinian National Authority (PNA) were collected. The ministerial mandates of different ministries were also collected.

- The municipal plans and strategies

Information about the adopted strategies and plans by the three municipalities were obtained through conducting interviews and roundtable meetings with decision makers at the municipalities.

- **Analyzing the collected data and information**

Once the information and data were obtained, the project team analyzed and synthesized these datasets. Analysis of the geopolitical data was linked with the analysis of the socio-economic data. Population projections were conducted for the study area accompanied by projections for the expected population densities.

The GIS specialist worked on detecting the different land uses in the targeted area through analyzing the IKONOS satellite images (2004) available at ARIJ. Land use/land cover maps were created by the research team; those maps included the Palestinian communities and built-up areas, Israeli colonization activities (settlements and the Segregation Wall), agricultural lands, and open spaces, among other types of land cover.

- **Reviewing the collected literature of relevant population dynamics, sustainable land use, environmental management and urban governance policies**

The collected relevant literatures and publications were reviewed, and related data were highlighted, filtered and categorized. The data were then adapted and localized to suit the special conditions of this region. The synthesized data were used as a base and guideline for the research carried out throughout the project.

- **Reviewing the collected relevant Palestinian policies and strategies on the national level**

The three national plans of development; the Palestinian Development Plan (PDP), the National Policies for Physical Development and the Palestinian Environmental Strategy (PES) were used as the base of evaluation for municipal performance at the local level. Unfortunately the political environment had changed dramatically since the formation of these plans. After the outbreak of the second Intifada in the year 2000, the geographical contiguity among the different parts of the West Bank has become even more fragmented, while Israeli incursions have become more frequent. Consequently, the implementations of these plans have been hindered.

- **Reviewing the collected relevant Palestinian laws and legislations**

The Palestinian local authorities Law, the building and planning codes and regulations, and environmental protection regulations effective in the Palestinian National Authority (PNA) were reviewed and their relevance to delivering sound sustainable development was assessed (See appendix II). In addition, the structural

organization of the PNA and mechanisms of strategy dissemination from one level of government to another were studied.

- **Conducting training seminars for the project team**

In order to develop the capabilities of the researchers participating in this project, two training seminars were conducted by professional experts. The first seminar consisted of six sessions and aimed at reinforcing the demographic and socio-economics concepts and introducing methodologies of questionnaire development and analysis. The second seminar consisted of six sessions and reinforced the environmental management research capacity for the project team. The gained techniques and methodologies were utilized during the design and analyses of the questionnaires and during the interviews and roundtable meetings.

- **Meeting with representatives in the three municipalities and the Local Government Directorate**

The research team made a first observation tour in the three cities of Bethlehem, Beit Jala, and Beit Sahour, and visited the targeted municipalities at which point the project director introduced the research project and its objectives to the mayors and the municipalities' executive staff. Another visit was made to the local Government Directorate in Bethlehem. This visit was useful for developing a cooperation framework between the research team and the staffs of the municipalities and local Government.

- **Preparing a questionnaire for the decision makers in the three municipalities**

A questionnaire was prepared to be discussed with the municipality executive staff and decision makers in the municipalities of Bethlehem, Beit Sahour and Beit Jala. The questions were formulated to investigate several issues: What are the policy tools that the municipality is adopting? Do these policies comply with the national ones? What are the environmental instruments used at the local level? What are the urban management and urban environmental policies and approaches used? What urban environmental indicators are used? And does the municipality include the public in the process of decision making? What are the hindrances that the municipalities are facing? (The complete questionnaire is shown in Appendix III-A.)

The data collected and reviewed from the three national plans, the Palestinian regulations and codes, together with the international recommended practices in the fields of demography, urban management, sustainability indicators and urban environmental management were used as guidelines for formulating the leaders' questionnaire. All questionnaires were translated into Arabic (the native language in the Palestinian areas) in order for people to better understand the questions and better express their views.

The questions were divided into three parts directed to the different municipality departments; the administrative department, the planning department and the environmental department. The questions to the administrative department were divided into the following sections: general policies, administrative policies,

environmental policies, the structure of the municipality, decision making and public participation. The questions to the engineering and planning department were divided into: administrative policies, environmental policies and the planning tools used by the municipality. The questions to the environmental department included administrative and environmental policies.

- **Preparing a questionnaire for the decision makers in the Local Government Directorate**

Another questionnaire was prepared for the local government directorate in Bethlehem Governorate as they are the monitoring body for the performance of the municipalities and the village councils in the District. The questions aimed to investigate the level of cooperation of the municipalities with the local government, the compliance of the municipalities with the national development policies, the inclusion of the public in the decision making process, the main hindrances to sustainable development, and policies that can be adopted under a changing political condition, among other issues.

- **Performing roundtable meetings with decision makers of the three municipalities**

ARIJ planned for four roundtable meetings; three with the municipalities of Bethlehem, Beit Jala, and Beit Sahour, and one with the directorate of local government in Bethlehem District. Decision makers and executive staff from the administrative, accounting, environmental, engineering and planning departments of each municipality were invited.

Ten days prior to each roundtable meeting and as a first step, the designed open ended questionnaires were given to the municipalities' mayors and distributed to the related staff for study and preparation of possible answers, because most of the questions were technical and required special attention. The second step was to invite the executive stuff (who were mainly the directors of the aforementioned departments) to ARIJ for an intensive one day roundtable meeting for each municipality. The roundtable meeting aimed at discussing the issues tackled in the questionnaire and to derive the policies and strategies adopted by each municipality.

The first meeting was held at ARIJ between the project team and the executive staff of Beit Sahour municipality. The meeting was very successful, many related discussions took place and all questions and inquiries were answered as required.

The second meeting was held at Bethlehem Municipality between ARIJ's project team and Bethlehem municipality personnel. The meeting was successful and the research team was able to discuss and gather all the required information.

The third meeting was supposed to be held at ARIJ office, and an invitation was sent to the Mayor of Beit Jala and the municipality personnel. The invitation was accepted but on the roundtable meeting day, neither the Mayor nor the municipal staff arrived for the meeting. Upon inquiry, it appeared that the Mayor had retracted his willingness to cooperate in the project.

However, after the second phase of the PRIPODE project resumed, the project scientific coordinator at ARIJ made a second attempt to explain the importance of the project to the Mayor of Beit Jala, who eventually agreed to reenroll in the project. So a third roundtable meeting was held at Beit Jala municipality where its senior staff participated in a constructive discussion concerning the issues tackled by the questionnaire.

- **Carrying out a roundtable meeting with the directorate of local government in Bethlehem Governorate**

A roundtable meeting was conducted between ARIJ research team and executives at the Ministry of Local Government (MOLG) - Bethlehem District Directorate. The meeting took place at the directorate offices and was headed by Mr. Shukri Radaydeh, the director of the Local Government Directorate in Bethlehem and Dr. Nael Salman from ARIJ.

During the meeting the following issues were discussed:

- The demographic composition and main demographic challenges in Bethlehem Governorate
- The urban environmental problems in Bethlehem District
- The urban land use and environmental policies adopted at the regional and local levels and their implementation mechanisms
- The institutional structure and mandates in Bethlehem district
- The flow of information from the national to the local level and vice versa
- The rules and regulations related to land use and the urban environment
- The management of the urban environment

- **Formulating a questionnaire for the citizens in the three municipalities**

In the initially submitted project proposal, a population participation workshop was scheduled in order to assess the citizens' perception of the municipality policies and their knowledge of issues related to sustainable development, urban environmental management among other issues. But after a discussion with the consultants, especially the socio-economist, a new approach was undertaken to complete this activity. The suggested approach was to design a citizen questionnaire to investigate as a first step the public opinion, knowledge and awareness of the population with regard to certain issues related to the study such as the urban environmental problems, laws and regulations and the flow of information between different governmental bodies, etc. The citizen questionnaire was designed by the research team with the help of the socio-economist. 97 persons in the study area from various disciplines contributed in answering the questionnaire. The citizen questionnaire is shown in appendix III-B.

- **Conducting meetings with professionals**

Professionals from the West Bank working in domains related to the ones tackled in the research (mainly demography, urban governance, environmental protection and legal issues) were interviewed to collect more information or to clarify certain issues. Among these interviews, one was conducted with the head of the engineering association in Bethlehem Governorate, in which he talked about the suitability of the building and planning codes and presented criticism of some of its articles.

- **Entering and analyzing data and information**

The data collected was entered in an electronic format in an appropriate program. Statistical data (demographic and socio-economic data) from PCBS were entered in an excel file and diagrams were generated. The data was then analyzed by the research team. The citizen questionnaire was translated from Arabic to English language and entered in the Statistical Package for the Social Sciences (SPSS) program. Figures and diagrams were generated and the results were analyzed.

The data gathered during the interviews with the two municipalities of Bethlehem and Beit Sahour and the one with the local government directorate were translated into English and transcribed. Data was then analyzed.

Three frames of assessment were used to analyze the interviews:

1. The literature reviewed and synthesized (which was mainly adopted from the UN-Habitat, UNDP, UNFPA, UNEP, and other international research centers - refer to the bibliography to see sources).
2. The three reports from MOPIC and the ministry of environmental protection.
3. The current Palestinian regulations and codes.

- **Evaluating the results of the roundtable meetings**

The roundtable meetings with each of the municipalities and with the directorate of the local government were analyzed and the main problems that the each municipality is facing were pined out. The problems faced by the municipalities and the local government were linked to the causes of each problem.

- **Developing alternative policies towards sustainable development**

The assessments of the problems faced by each of the three municipalities and the results from reviewing the relevant literature on population dynamics, sustainable development and best practices on the local level were used as a basis to formulate and develop alternative policies that would be suggested by the project team. A set of policies and plans were suggested in the following domains: demography, urban growth management, urban environmental management and land management.

- **Assessing the relevant Palestinian laws and legislations**

The collected Palestinian laws and regulations were assessed in regard to their relevance to the provision of sustainable development and good governance.

- **Developing suggested amendments to the laws and legislations**

Amendments have been suggested for the laws and legislations so that they will lead more towards sustainable development and good governance.

- **Meeting with PRIPODE project delegate Dr. Aude**

In November 2005, Dr. Aude Signoles, who was delegated by CICRED, came for a technical visit to ARIJ. The visit was very constructive as the project team presented the project proceedings and outputs to her and listened to her comments and feedback.

- **Conducting a workshop for the decision makers at the three municipalities and the directorate of local government**

The directors of the administrative, accounting, engineering and planning, and health departments at the three municipalities and in the directorate of local government in Bethlehem were invited to a one day workshop at ARIJ. The workshop aimed at disseminating the results of the socio-economics analysis, the results from the previous roundtable meetings, highlight the depicted main problems faced by the municipalities, underline the assessment made to the Palestinian laws and legislations and present the formulated policies and strategies of the project team. A thorough discussion took place over the suggested policies where a consensus was reached by the different parts.

- **Conducting a workshop for the public and civil society organizations in Bethlehem District**

A one-day workshop was conducted for the public, for municipal council members, and for representatives of civil society organizations in Bethlehem. The workshop was held in the Shepherd Hotel and was attended by 21 persons. The aim of the workshop was to stimulate the citizens' involvement and participation regarding issues of sustainable development. The project team introduced the project objectives, familiarized the audience with sustainable development concepts, put forward the international developmental goals and campaigns, presented the geopolitical, demographic and socio-economic conditions in the targeted area, highlighted the main obstacles to sustainable development faced by the residents and municipalities in the three cities, underlined the results of the roundtable meetings with the decision makers in the municipalities and directorate of local government and stated the main problems faced by them. The participants were then asked to suggest alternative policies that would lead to sustainable development in the Bethlehem region. After compiling a list of suggestions from the audience, the policies developed by the project team were presented and discussed. A shared list of policies and plans regarding urban environmental and

land use management were formulated at the end of the workshop. The local media was present and wrote an article about the workshop.

A fact-sheet was prepared and circulated for the participants. The fact sheets briefly described the present geopolitical situation of Bethlehem Governorate, depicted the anticipated future plans of the Israeli occupation and provided other relevant background information about land and natural resources degradation in the study area.

- **Updating and finalizing the formulated policies**

  The comments over the suggested policies (developed by the project team) that were made at the two workshops (with the decision makers and with the public), as well as the policies suggested by the participants of the workshops were integrated and an updated version of the policies was developed.

- **Drafting the final report**

- **Producing a revised final report, taking into consideration the evaluation of the scientific committee of the PRIPODE programme**

PART II

The research team

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Role in the project: Environmentalist

Duration working on the project: December 12th, 2003 - to date

Name: Issa Zboun

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Role in the project: GIS and municipal management specialist

Duration working on the project: September 1st, 2003 – to date

Name: Helen Murad

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Duration working on the project: September 1st, 2003 – to date

Name: Anwar Qubaja

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Role in the project: Demographer, Scocio-economist

Duration working on the project: January 1st, 2005 – to date

Name: Lina khair

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Role in the project: Demographer (Generated the Population Projection)

Duration working on the project: September 1st, 2006 – to date

Name: Dr. Nael Salman

Note: Has left work at the Applied Research Institute-Jerusalem (ARIJ)

Role in the project: previous scientific coordinator

Duration working on the project: September 1st, 2003 - December 15th, 2004

Name: Majed Abu Kubi

Note: Has left work at the Applied Research Institute-Jerusalem (ARIJ)

Role in the project: previous GIS specialist

Duration working on the project: September 1st, 2003 - November 30th, 2003

Name: Roubina Ghattas

Note: She is on maternity leave from the Applied Research Institute-Jerusalem (ARIJ)

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Role in the project: Researcher

Duration working on the project: September 1st, 2003 - April 30th, 2004

PART III

The research proposal as originally submitted

The research project is a pilot study attempting to develop policy tools and choices to implement the national urban and environmental policies at the local or municipal level through the integration of sustainable development concepts and public participation. The project will deal with the interaction between population, urban development and the environment with special emphasis given to demographic factors, land use and the urban environment in the main municipalities of Bethlehem district as the focus of this research project.

Policies have been formulated and proposed for physical development at the national level to ensure the sustainable use of resources and to direct urban development but have never been implemented at the local level. The question remains on what policy tools will be needed towards sustainable and optimal land-use and urban environmental management, taking into consideration the demographic dimension at the local level under such a political context. The overall goal of this research project is to find out the possible routes that may reduce the poverty levels as they impact the long term, through the analysis of the interaction between the demographic dynamics and the environment. There are clear linkages between indices of environment, population, and poverty, and their impact on the sustainability of natural resources. A rapid growth of population adversely affects the environment, as more people consume more natural resources and produce more waste. In addition, poverty has an interrelationship with environment; the poor are considered both victims and agents of environmental damage. Since the poor are heavily dependent on nature for their livelihood, they are highly vulnerable to environmental degradation. And in their effort to survive, they also end up degrading the environment. At the policy level, policy options that make the population-environment linkage an issue of policy relevance have to be realized at an early stage if the long-term impact would be poverty alleviation. The research will investigate policy options linking population and environmental issues, presentation of resources needed and possibilities of technical assistance, environmental benefits from population related investments, and recommendations for action.

The project aims, however, at enhancing the role of the local Palestinian community in decision-making and capacity building. The research project will make the following fundamental argument: *If Bethlehem District ventures towards sustainable development, there is a need to reorient urban management approaches and develop policy tools to implement national urban and environmental policies at the local level.*

The research intends to show that weak institutions and management deficiencies in coordinating urban development investments are hindering process of development. The question to guide this research is: *"Can Bethlehem District become sustainable? If there is a possibility, what type of environmental instruments and demographic interventions, criteria, and policies can be attempted towards sustainable urban development?"* This question is composed of: 1) sustainable urban development and demographic change, and 2) environmental instruments and urban management

policies and approaches. In order to answer those questions, concepts, current thrust, current debate and criticisms have to be highlighted.

Training of staff and enhancing their capacities to do actual training is a main objective. Part of the data needed to accomplish the study are available at ARIJ, other needed data will be collected during policy makers' interviews, roundtables and public participation workshops in order to include public opinion and overlook their needs. Successful comparative examples in other countries will be studied. Furthermore, there will be reviews of existing land-use and environmental policies, plans, rules and regulations, applied and practiced in the municipalities of Bethlehem, Beit Jala and Beit Sahour and their relevance to sustainable development. Assessments, arguments, and criticisms will be undertaken in order to identify the deficiencies. The process is followed by the selection and design of sustainable urban environmental indicators, considering the interaction between population, development and the environment. Policy tools at Bethlehem District Municipal level will be defined. Choices and alternative policy tools with regard to land-use, attempted demographic change and urban environmental management followed by recommendations and guiding principles will be presented to policy makers. Tools and mechanisms for the implementation of policies will then be developed at the municipal level in Bethlehem District. Results will be disseminated through a book that will be produced and directed to stakeholders based on the conducted research, public opinion and decision makers' recommendations. At the end of the project a general workshop will be held to discuss the final results and present enhanced policies and tools of implementation at the local level towards a sustainable land use and urban environmental management.

Methodology and main findings

The data collected, analyzed and the main findings derived in this section were all done for the PRIPODE project, except for the section "Geopolitical Context of Bethlehem Governorate" where the data and analysis were derived from a report prepared by the Monitoring Settlements Unit at ARIJ for the project "Monitoring the Israeli Activities in the Occupied Palestinian Territory and Assessing their Impacts on the Viability of a Future Palestinian Statehood".

Outline of this part of the report:

Page No.

List of Abbreviations

ADB	**Asian Development Bank**
ARIJ	**Applied Research Institute - Jerusalem**
CB	**Crude Birth**
CBR	**Crude Birth Rate**
CD	**Crude Death**
CDR	**Crude Death Rate**
CICRED	**Committee for International Cooperation in National Research in Demography**
DEM	**Digital Elevation Model**
EIA	**Environmental Impact Assessment**
EMS	**Environmental Management Systems for Local Authorities**
EnRA	**Environmental Risk Assessment**
EnTA	**Environmental Technology Assessment**
EP	**Environmental Profiling**
EPA	**Environmental Protection Agency**
GIS	**Geographic Information System**
GR	**Growth Rate**
GS	**Gaza Strip**
IMR	**Infant Mortality Rates**
ISO	**International Organization for Standardization**
MCM	**Million Cubic Meter**
MOF	**Ministry of Finance**
MOH	**Ministry of Health**
MOHE	**Ministry of Higher Education**
MOLG	**Ministry of Local Government**
MOP	**Ministry of Planning**
MOPIC	**Ministry of Planning and International Cooperation**
MR	**Mortality Rates**
NDS	**National Development Strategy**
NEAP	**National Environmental Action Plan**
NGO	**Non Governmental Organization**
OPT	**Occupied Palestinian Territories**
PARC	**Palestinian Agricultural Relief Committees**
PCBS	**Palestinian Central Bureau of Statistics**
PDP	**Palestinian Development Plan**
PES	**Palestinian Environmental Strategy**
PNA	**Palestinian National Authority**
PRB	**Population Reference Bureau**
PRIPODE	**A Programme on the Interactions between Population, Development, and Environment**
PWA	**Palestinian Water Authority**
RUEA	**Rapid Urban Environment Assessment**
SPSS	**Statistical Package for the Social Sciences**
UN	**United Nations**
UN HABITAT	**United Nation Human Settlement Programme**

UNDP	**United Nations Development Programme**
UNDP/ PAPP	**United Nations Development Programme / Programme of Assistance to the Palestinian People**
UNEP	**United Nations Environment Programme**
UNFPA	**United Nations Fund for Population Activities**
UNRWA	**United Nations Relief and Works Agency**
USM	**Union of Stone and Marble**
WB	**West Bank**
WHO	**World Health Organization**

Geopolitical Context of Bethlehem Governorate

The study area/regional context

Bethlehem Governorate is one of the largest of the eleven Governorates of the West Bank (WB), see Map 1. It occupies an area of 607.86 Km^2 and is bounded by Jerusalem Governorate from the north and Hebron Governorate from the south. It extends from the western border of the West Bank reaching the Dead Sea in the east. The Governorate is distinguished by its topographic variability where the altitude ranges from the mountainous hills of Beit Jala that stand at 930 meters above sea level to as low as 412 meters below sea level along the shores of the Dead Sea.

Map 1: West Bank Governorates

There are 70 localities in Bethlehem Governorate, where the cities of Bethlehem, Beit Jala and Beit Sahour[1] form the urban centers. The Governorate also hosts the three refugee camps of Ad Duheisha, Ayda and Beit Jibrin (Al Aza). The Governorate is inhabited by 174,654 persons, of whom 60,123 (34%) live in urban areas, 100,567 (58%) live in rural areas and 13,966 (8%) live in the three refugee camps (PCBS, 2005).

Bethlehem Governorate boasts the Church of Nativity in Bethlehem city and the Shepherd's Field in Beit Sahour, as well as other spiritual religious sites that attract pilgrims from all over the world. Historically, the Governorate was always connected to Jerusalem by religious, economic and cultural ties. In particular, the pilgrimage and tourist routes taking place in the two cities were integrating activities in the two Governorates.

[1] According to the PCBS definitions an urban area is "Any locality whose population amounts to 10,000 persons or more. This applies to all governorate/districts centers regardless of their size. Furthermore, it refers to all populations varying from 4,000 to 9,999 persons provided they have at least four of the following elements: public electricity, public water network, post office, health centers with a full time physician and a school offering a general secondary education certificate." (PCBS, 1999)

Brief Historical Background

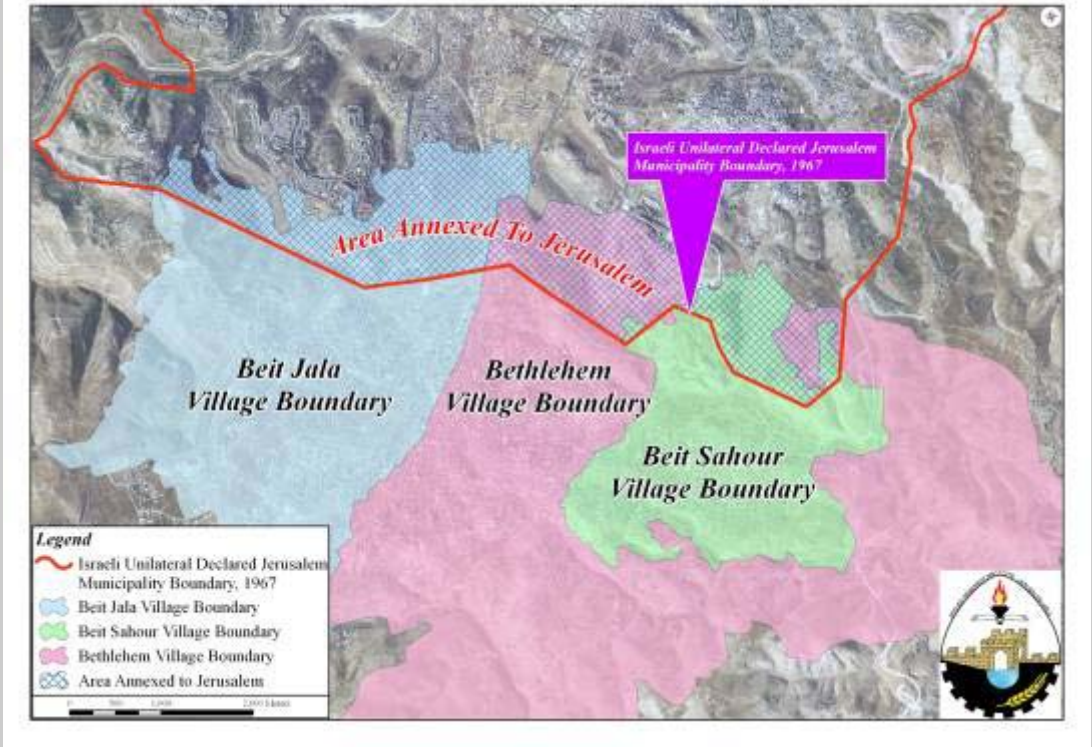
During the British Mandate and according to the administrative sub-districts, Bethlehem was part of Jerusalem district. On November 1947, the United Nations General assembly Resolution No. 181 endorsed the partition of Mandate Palestine into two states, an Arab (Palestinian) state and a Jewish one, see Map 2**Erreur ! Source du renvoi introuvable.** According to this plan, the Jews who owned only 8-9% of the land were allocated 55% of Mandate Palestine. Bethlehem and Jerusalem under this partition plan were to be within the Corpus Seperatum area; that is, a separate body to be run by an international administration**.** The boundaries of this Corpus Seperatum reached beyond Bethlehem in the south and until Shu'fat in the north, and had an area of 186 km^2. The Arabs at that time rejected the plan as it ignored the rights of the majority of the Arab Palestinian inhabitants. However, the 1948 war broke out and Israel took control of 78% of mandate Palestine, destroyed around 418 Palestinian villages and around 750,000 Palestinians became refugees. Bethlehem then became part of the West Bank and came under the Jordanian Administration until 1967.

Map 2: UN Partition Plan, 1947

On the 5th of June 1967, Israel launched a war that extended the Israeli occupation of the rest of mandate Palestine, the Syrian Golan Heights and the Egyptian Sinai Peninsula. Soon after the occupation, the Israeli government officially annexed East Jerusalem, redrew the administrative boundaries of the Palestinian Governorates and expanded the Jerusalem municipal boundaries from 6.5 km^2 to 71 km^2; increasing it by a factor of 10.8 times of its original size to include lands from surrounding towns and villages. As a result Bethlehem Governorate lost 18,048 Dunums of its lands out

of which 6844 Dunums belonged to the village boundary[2] of Bethlehem, Beit Jala and Beit Sahour cities.

A total of 2487 Dunums of Bethlehem city's lands were confiscated due to the expansion (roughly 8% of the city's total lands); while Beit Jala lost 3147 Dunums (22% of the city's total area); and Beit Sahour lost a total of 1210 Dunums (17% of the city's total area), Map 3.



Map 3: Lands confiscated from Bethlehem, Beit Jala and Beit Sahour

Throughout the past 39 years of occupation Israel has confiscated Palestinian lands to construct Israeli settlements[3]. A total of 19 illegal Israeli settlements with an estimated settler population of 77,376 were constructed in Bethlehem Governorate, occupying an area of 18,094 dunums (18.094 km²), (ARIJ Database, 2005). Additionally, 18 Israeli outposts have also been erected from 1996 until 2005. The existing Israeli bypass roads[4] stretch over 76 Km in length in and around the Governorate, while an additional 30 kilometers of bypass roads are planned within the Governorate.

According to the Oslo II Interim Agreement that was signed in September 1995 between the Palestinians and Israelis, the Palestinian areas in the West Bank were

[2]During the British mandate, the middle and northern parts of Palestine were divided into villages (the term village was also used for cities), the division was based on land ownerships where village boundaries were delineated

[3]Under international laws and United Nations Security Council resolutions these settlements are illegal.

[4] These are roads constructed in the West Bank and used to link the Israeli settlements together and with Israel. Palestinians are often prohibited from using these roads although they are constructed over confiscated Palestinian lands.

divided into three categories A, B and C aimed at facilitating a phased withdrawal by the Israeli military forces from these areas until the accomplishment of a final status agreement. In this interim arrangement, area A is area under Palestinian control, area B is area under Palestinian civil administration and Israeli security control while area C is under full Israeli control, see Table 1.

Table 1: Area Classification according to Sharm Al Sheik Agreement (2000) in Bethlehem Governorate

Area	Population (2005)	Area in Km²	% of the Total Governorate Area
Area (A)	97,423	47.6	7.8
Area (B)	61,327	33.8	5.5
Area (C)	15,904	424	69.7
Nature Reserves	--	102.4	17
Total	174,654	607.8	100

According to the Sharm El Sheikh Agreement in May 2000, 102 km^2 (17%) of the Bethlehem Governorate was transferred to the Palestinian National Authority (PNA) as Natural Reserve, but in reality this area remained under full Israeli control.

Only 13.3% of the Governorate's lands are within areas A and B and are inhabited by 91% of Bethlehem's total population (158,750 residents), while the rest are within areas C and nature reserves where the PNA does not have control.

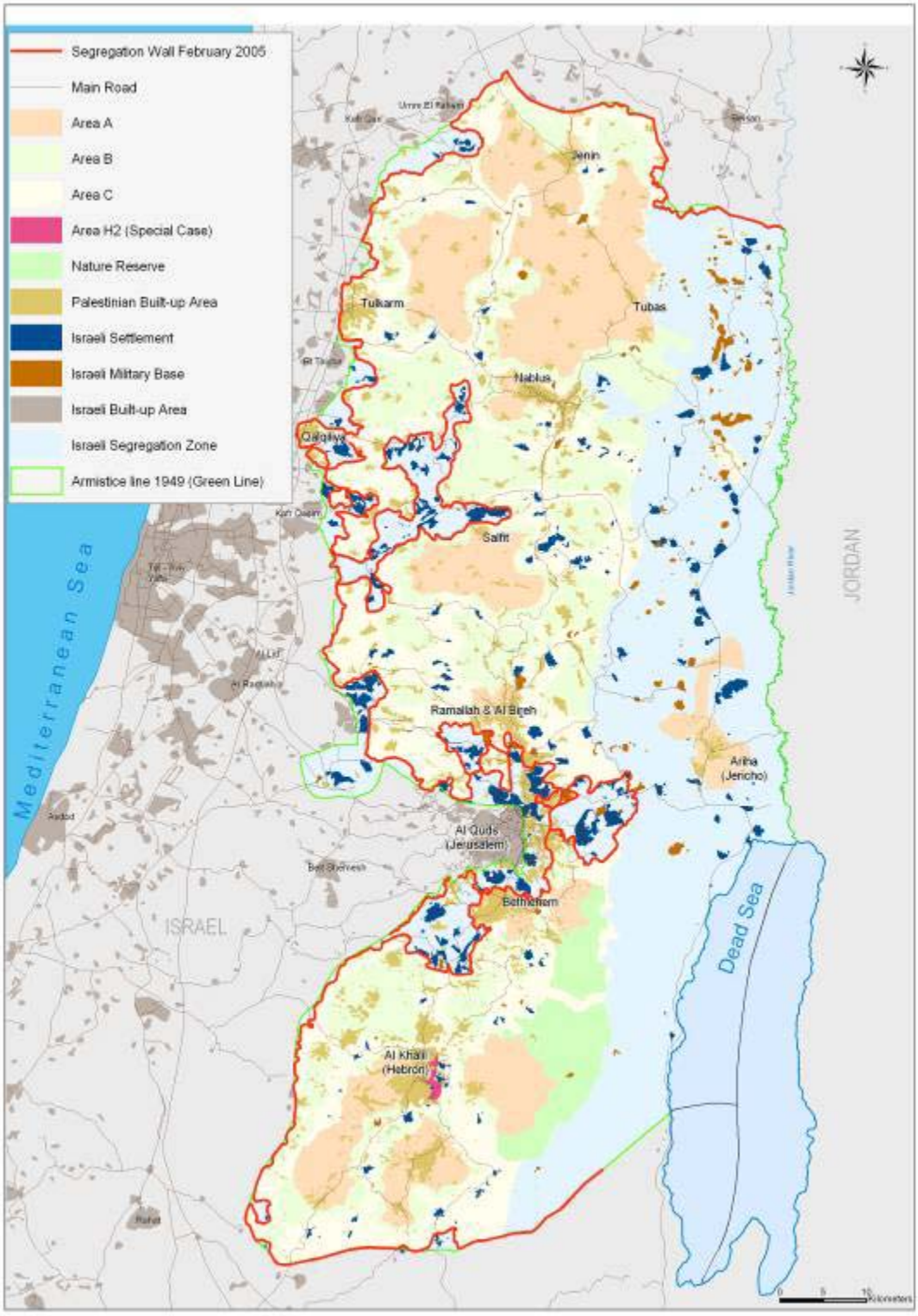
On September 28, 2000, the second Intifada erupted. Israel intensified its 'internal closure' policy (restriction of movement within the West Bank, even between nearby communities) in addition to the already present 'external closure' (restriction of movement from the West Bank to Israel or Gaza). In April 2002 Israel invaded the Palestinian authority areas, destroying and besieging cities and villages.

The Segregation Wall

In June 2002, the Israeli government launched its policy of unilateral segregation between Israel and the Palestinian territory by creating a Segregation Zone on the Palestinian lands in the West Bank. The Zone cuts through the western part of the West Bank and runs from north to south, seizing the most fertile agricultural lands, isolating Palestinian communities in enclaves, undermining the territorial contiguity between the Palestinian villages and cities, usurping natural resources, and enclosing most of the Israeli settlements. The Wall will run for 683 km in the West Bank. Only 138 km (20.2% of the total length) will actually follow the Green Line (the 1949 Armistice Line). When complete, this zone will isolate 576 km² of Palestinian land (approximately 10% of the total West Bank area). It also encloses 98 Israeli settlements accommodating 83% of the Israeli settler's population in the WB and 55 Palestinian localities.

In addition, Israel has created *de facto* an Eastern Segregation Zone without walls or fences but through control of access points along the Jordan Valley and the shores of the Dead Sea. This zone has a total area of 1664 Km^2, representing 29.4% of the West Bank and including 43 Israeli settlements and 42 Palestinian localities.

In most of the areas through which the wall runs, the Segregation Zone consists of a 40-100 meter wide double layered fence comprised of barbed wire, trenches, military roads and footprint detection tracks as well as 4-5 meter high electrified metal fencing supplied with security cameras. In areas with sizeable populations and/or in close proximity to the Green Line, the Segregation Wall consists of 6-8 meter high concrete walls punctuated by military watchtowers spaced 250 meters apart.



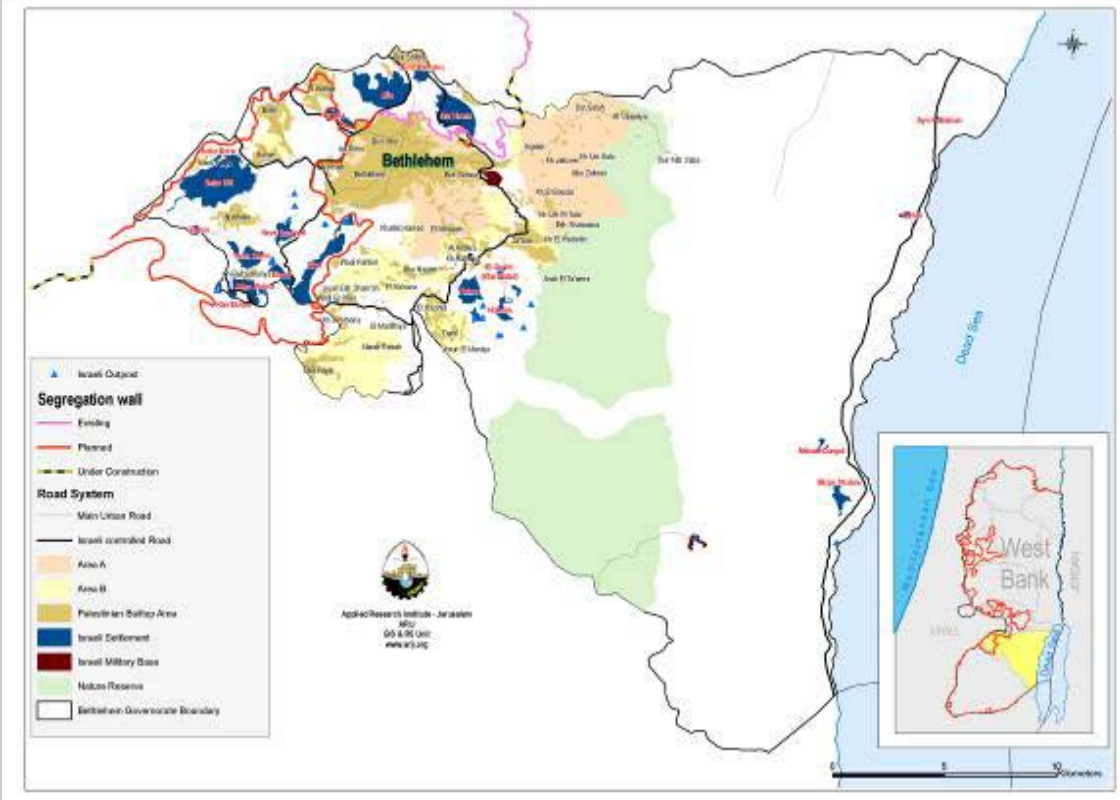
Israeli Segregation Zone, February 2005

The Segregation Wall in Bethlehem Governorate

In Bethlehem Governorate 73,000 Dunums (73 km²) of land will be segregated behind the Wall. The Segregation Wall confines the western rural villages of Battir, Husan, Nahhalin, Wad Fuqin and Al Walaja in a large canton whereby any movement from or to these villages will be controlled completely by the Israeli occupation forces, thus incarcerating more than 18,651 Palestinian residents. These residents will be segregated from their lands, livelihood, and vital social services such as hospitals, schools and universities that are only found in the city centers east of the Wall.

The eastern part of Bethlehem Governorate lies within the West Bank's eastern segregation zone. This area extends from Bethlehem's eastern slopes to the western shores of the Dead Sea. This part has an area of 287 km² (47.2% of the total Governorate area).

Of the isolated lands in Bethlehem Governorate, 26,063 Dunums are agricultural lands in addition to 2900 Dunums of forest. Entrance to the isolated agricultural lands will only be to farmers who are able to prove landownership through a credited Israeli organization (most likely to be the civil administration) and only the owners whose names listed in the ownership deeds (usually the eldest of the families) will receive permits. Furthermore, the Israeli civil administration will only issue permits on seasonal basis. Hence the owners will encounter great difficulty in managing the cultivated lands on their own, especially as permits do not include bringing in additional labor or equipment, see Map 4.



Map 4: Segregation Wall in Bethlehem Governorate

Impacts of the Segregation Wall

The construction of the Segregation Zone has negative impacts on the political, economical, social, and environmental aspects of Palestinian life. The following is a summary of these major impacts.

Political Impact

- The Israeli government through constructing the Segregation Zone is unilaterally delineating the political borders for the State of Israel. As the Israeli Justice Minister Tzipi Livni (Minister of Exterior now) declared in a conference in Caesarea, *"One does not have to be a genius to see that the fence will have implications for the future border. This is not the reason it was built, but it could have political implications."* (Aljazeera Net, December 2005).
- The Segregation Plan intends to keep more than 59.2% of the Bethlehem Land under Israeli control in the Eastern and Western Segregation Zones.
- The Segregation Zone is placing many Palestinian towns and villages in geographically disconnected and segregated enclaves or ghettos.
- The segregation plan is creating new demographic facts that will lead to forced migration among Palestinians who will loose their livelihoods.
- The Plan will sever the organic tie between Jerusalem and Bethlehem.

Economic Impact

- The Segregation Plan causes severe damage to the Palestinian agricultural sector and to the Palestinian farmers as a result of land confiscation and the constraints imposed on mobility and marketing.
- Israel maintains control over Palestinian trade and tourism.
- Unemployment as well as poverty levels increase.
- Rise in land prices and reduction of investment opportunities.

Social Impact

- Thousands of Palestinian citizens will be cut off from the main urban centers where health, educational and social services are located.
- Harsh measures are imposed on Palestinian mobility and movement, as transportation to and from the segregated areas is extremely difficult.
- The Segregation Zone is cutting off social relations among Palestinian citizens living on different sides of the Wall.
- Increased urbanization pressure and population density.

Impact on the Palestinian environment

- There will be no places for landfills or waste water treatment sites.
- Natural resources will decrease; forests, pastures, open spaces and recreation areas will be extremely limited.
- Loss of grazing area and increase in desertification.
- The disruption of wildlife movement as a result of isolating different kinds of animals from their natural habitats.

- The Segregation Plan is altering the Palestinian natural landscape.
- Many archeological and historical sites related to the Palestinian cultural heritage will be segregated behind the wall.
- Loss of open space which poses a threat to the sustainability of the urban and rural areas as well as a threat to more losses of the natural resources and biodiversity.

Terminals in Bethlehem Governorate

In September 2005, the Israeli government announced the construction of 10 main terminals (passages) in the West Bank in addition to 23 crossing points along the path of the Segregation Wall (Haaretz, July 21, 2004). Once they have been fully constructed, the ten terminals are to control the movement of more than 2 million Palestinians once they're fully constructed. Five of these terminals will be trade terminals.

There are two major terminals in Bethlehem Governorate: Rachel terminal and Mazmuriya terminal:

- Rachel Terminal is located at Bethlehem's northern entrance and was inaugurated on November 15, 2005. People entering to/exiting from Bethlehem/Jerusalem cities go through very strict inspections and security measures taken by the Israeli forces in the terminal. This terminal allows passage for Palestinian passengers holding special permits issued by the Israeli civil administration which allows them to enter Jerusalem, tourists, and diplomatic and religious missions.

- Mazmuriya trade terminal is located at the Bethlehem eastern entrance.

Profile of the Study Area

Demographic Composition of Bethlehem, Beit Jala and Beit Sahour Cities

This part of the study will trace the demographic composition of the study area; the data obtained were derived from the Palestinian Central Bureau of Statistics (PCBS).

Population Size and Distribution

In 1997, the PCBS carried out the first Palestinian Census. According to this census, Bethlehem Governorate is inhabited by 132,090 persons, 67,597 (51%) of whom were males and 64,493 (49%) were females. There were 22,680 households living in 22,105 housing units. The urban area of the Governorate is spatially clustered in the middle part of the Governorate and consists of Bethlehem, Beit Jala and Beit Sahour cities[5]. Whereby, 34% of the Governorate's population were living in these cities. The two refugee camps Ayda and Al Aza are located within Bethlehem municipal boundary while Ad Duheisha camp is situated at the southwestern fringes of Bethlehem within Ad Doha municipality. The population in the camps reached 10,563 in 1997. The rural area in Bethlehem Governorate is spatially located in the mideastern, western and southern parts of the Governorate. The rural population makes up 58% of the Governorate.

The eastern part of Bethlehem Governorate from the eastern hills to the Dead Sea shores is sparsely populated as this area has been classified by the Israeli army as a closed military area into which Palestinians are not allowed to enter.

In 2005, the total population in Bethlehem Governorate increased to reach 174,654 persons of whom 60,123 (34.42%) live in urban areas, 100,567 (57.58%) live in rural areas and 13,966 (8%) live in the three refugee camps. The population growth rate from 1997 to 2005 reached 32% and was roughly the same for urban, rural, and refugee areas (PCBS, 2005).

The reported spatial distribution in 2005 nearly resembled that of 1997. This could be because the 2005 data is a projected one and because not much data is available about internal migration to be able to detect possible movement from the urban to the rural areas or vice versa.

Population Growth (1997-2005)

	Bethlehem Municipality	Beit Sahour Municipality	Beit Jala Municipality	Urban Area	Bethlehem Governorate
Census of 1997	21673	11250	11957	44880	132090
PCBS Projection of 2005	29019	14921	16183	60123	174654
Percentage of Increase	33.89	32.63	35.34	33.96	32.22

[5] The urban area in Bethlehem Governorate is the focus of this study and will be referred to as the targeted area or the study area in the context of this report

The Demographic Status of the Study Area, 2005						
Municipality	Females*	Males*	Total Population of Mid 2005	Total Area (Dunum)	Built Up Area (Dunum)	Population Density (person/km²)**
Bethlehem	14185	14834	29019	6100	4093	4757
Beit Sahour	7390	7531	14921	4780	2736	3122
Beit Jala	8015	8168	16183	4460	3020	3628
Total	29590	30533	60123	15340	9849	3919

* The same upshot ratio of Men to Women of 1997 Census was applied here.
** Population Density is the ratio of the total population to the total area.

Population distribution by age group and sex ratio

The population pyramid in Figure 1 shows the population distribution by age group of the study area in 1997. The histogram is large at the base and becomes narrow at the top, which shows that the population is centered in the younger age groups. The population aged between 0 and 14 years makes up 36.3% of the population. As age increases, the percentage of people in the age group decreases. The percentage of people aged 65 years and above constitutes 5.5%. In the age group 80 years and above, the percentage decreases to 1%.

The histogram also indicates that 41.8% of the study area population is less than 15 years old and above 65 years old, which means that they are not in the labor force age group and are considered dependents. It is important to note that the aforementioned age groups are regarded as the one most in need of services and facilities such as schools, daycares, clinics, elderly houses, etc.

The population is concentrated in the pre-reproductive and reproductive age groups due to the high fertility rate in the past few years, which gives an indication of a high population growth. According to this distribution it is projected that the growth rate will remain high in the coming years if no appropriate policies will be adopted to deal with this phenomenon.

It is important to assess the capacity of the current infrastructure and services in the Bethlehem urban area to meet the demands of the population and to assess the needs for the coming years. Decision makers at the local level should take the population distribution histogram into consideration when directing/allocating developmental projects.

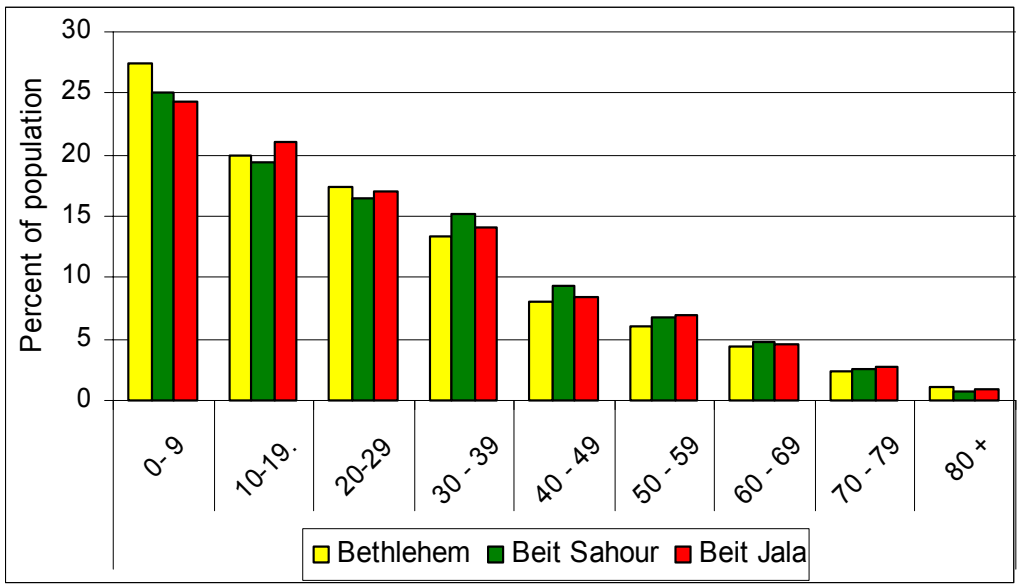
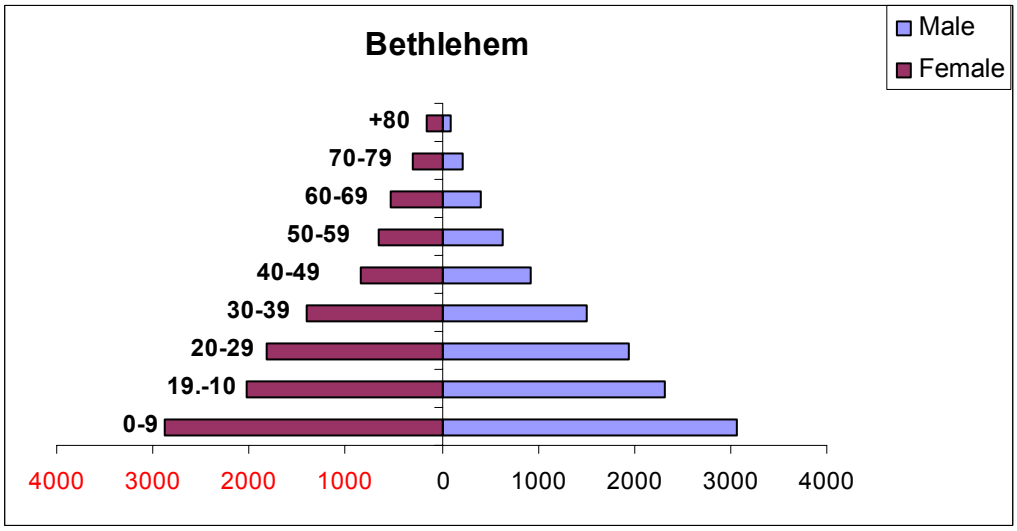
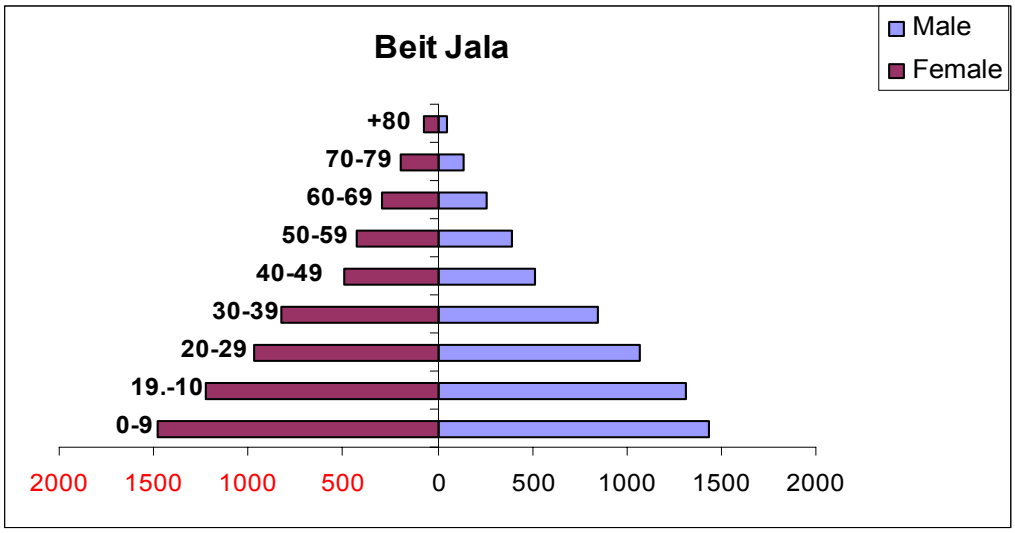


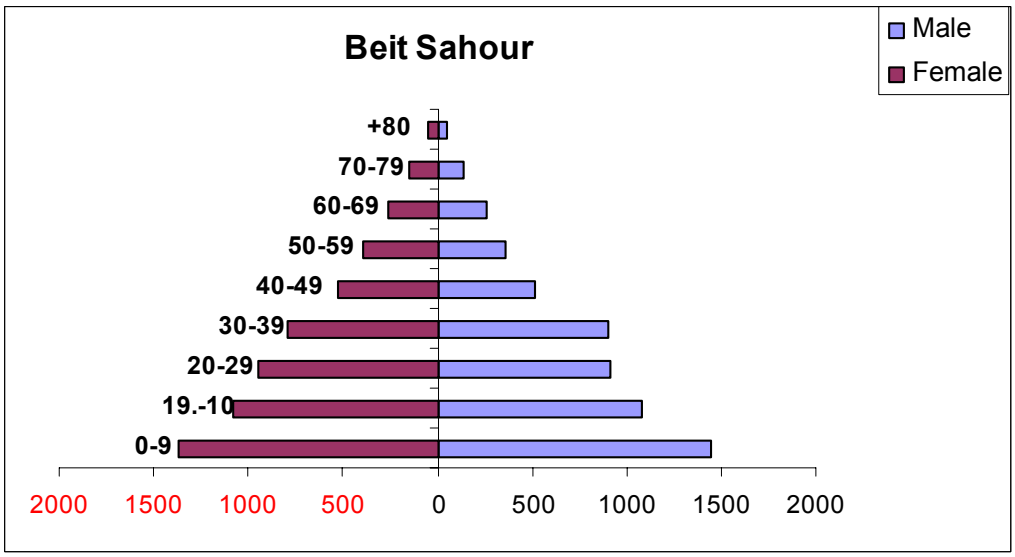
Figure 1: Population Pyramid in the Study Area, 1997



Population Pyramid in Bethlehem, 1997



Population Pyramid in Beit Jala, 1997



Population Pyramid in Beit Sahour, 1997

Males constitute 50.7 percent of the population in the study area and females constitute 49.3 percent. This makes the sex ratio 103 males per 100 females (i.e.1.028:1.000 [M: F]).

Population Growth

According to the 1997 Census, the urban population in Bethlehem Governorate was 44,880 inhabitants. The population grew to reach 58,243 in the mid of 2004 and increased to 60,123 in the mid of 2005. This indicates that the population grew by 33.96% over the past eight years. The projected population for the study area in mid-2006 is estimated to be 62,004 (see **Erreur ! Source du renvoi introuvable.**).

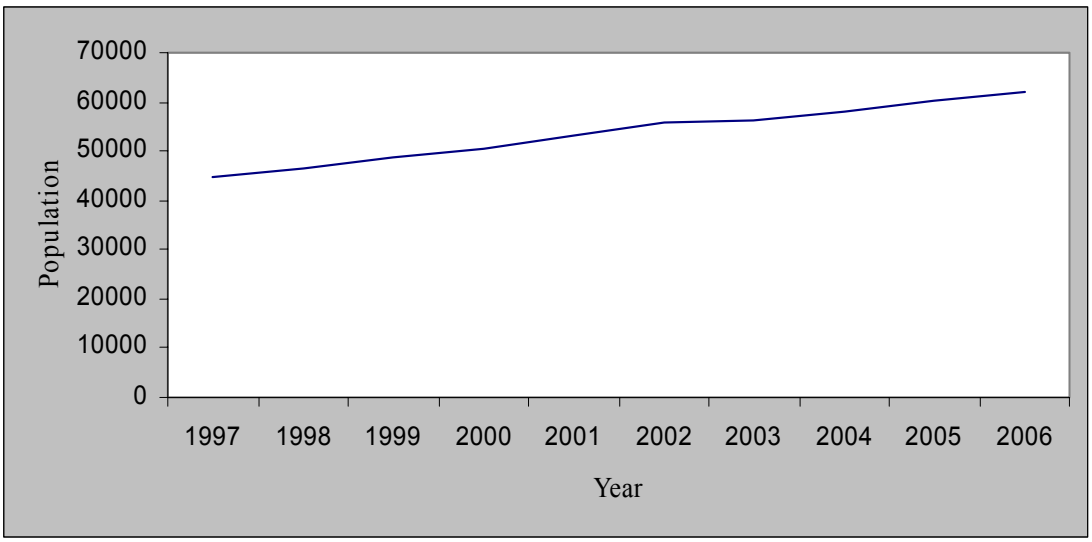


Figure 2: Population growth in the study area

Growth Rate (GR)

The annual growth rate in the study area had an average of 3.16%. The growth rate in the study area is less than the national growth rate which reached 3.4% (PCBS, 2005). These growth rates are considered high when compared with other countries, as the Population Reference Bureau (PRB) reports the world growth rate to be 1.2%, the Arab States growth rate to be 2.7%, and the rate for the less developed countries to be 1.5% (PRB 2005, World Population Data Sheet).

Fertility

The fertility rate in the OPT was 6.04 births/woman in 1997, however this rate is decreasing – in 2004 the rate had dropped to 4.6 (PCBS, 2004) - but it is still considered to be very high, as the average world fertility rate is 2.7 births/woman (PRP, 2005). Average fertility rates in nearby countries were lower than the Palestinian fertility rate as it reached 3.7, 3.5 and 2.1 in Jordan, Egypt and Tunisia respectively (PCBS, 2004).

Total Fertility Rates in the OPT (1997- 2004)			
Year	**West Bank**	**Gaza Strip**	**Total**
1997	5.61	6.91	6.04
2004	4.1	5.8	4.6

There are many reasons for the high fertility rate in the OPT. The major reasons are related to societal and cultural dynamics - mainly family and marriage customs - as the rates of early marriages, especially among females, are high but decreasing, where the average marriage age for females in the OPT were 18, 19 and 19.3 in the years 1997, 2001 and 2004 respectively. Another reason is that people tend to have more children in order to work and help with the family income and to serve as caregivers to the parents in old age, since the current social security system in the OPT is deficient due to the long years of occupation. (PCBS, 2004).

However, one may notice the decline in the fertility rate in the last decade. This was accomplished after the PNA undertook the civilian administration in the OPT and started to take care of the educational and health status of the Palestinian people. The decline in the fertility rate is due to the change in marriage and family customs, the increase in the use of family planning methods, and an increase in the percentage of females who insist on finishing their higher education before they get married.

In spite of the decline in the fertility rate, the number of births is still increasing. The reason for this is that the percentage of the pre-reproductive and reproductive age groups are high due to the high fertility rate in the past years; therefore, it has created a force generating a population growth at the present time and in the future.

Mortality

In 2005, the PCBS has projected the crude death rate (mortality rates) in the OPT to be 4.1 and 3.9 per thousand residents in the WB and GS, (PCBS, 2004).

Infant Mortality Rates (IMR) in the OPT through the period (1999-2003) was 24.2 per thousand live births (26.6 for males and 21.6 for females). This rate has reached 22 per thousand live births and 44 per thousand live births in Jordan and Egypt, respectively in 2003, (PCBS, 2004). However the overall worldwide infant mortality rate was 54 per thousand live births, which means that the Palestinian rate was half of that of the world average (PRP, 2005).

Since the Palestinian Ministry of Health (MOH) took responsibility for the supervision, regulation, licensing and control of the health services sector in the OPT, the health status in the territory has improved, thus leading to a decrease in the IMR.

Migration

Data on the rates of internal and external migration are not available in the Palestinian Territory due to the continued Israeli military control over the international border crossings, mainly between the West Bank and Jordan as well as the control over the checkpoints which are spread all over the West Bank . It was therefore not possible to obtain such data for the sake of this research. The net migration rate was therefore considerate to be zero.

Population Projection

In 2005, the PCBS published projections for the population in the Palestinian Territory. The result indicates that the Palestinian population increased by 35.2% from 1997 to reach 3,762,005 inhabitants in 2005, and will increase by 3.4% in 2006. The same projection indicated that the population will increase by 82.9% from 1997 levels to reach 5,091,314 inhabitants in 2015.

In Bethlehem Governorate, the PCBS estimated that the population in 2005 was 174,654 and will increase in 2006 reaching 180,116 inhabitants. To reach this figure the PCBS has projected the Growth Rate (GR), Crude Birth Rate (CBR), Crude Death

Rate (CDR) and the Net Migration for the Palestinian Territory, West Bank and Gaza Strip. However, projections for the local level were not prevailed.

Thus, and for the purpose of this research, the following demographic equation was adopted to measure the population growth and to calculate population trends in the Bethlehem Governorate:

Population i+1 = Population i + Natural Increase + Net Migration
Where: Natural Increase = Births (i,i+1) - Deaths (i,i+1);
I: initial time
I+1: projected time

Data of the 2005 mid-year of Bethlehem Governorate population was used as a primary base year in the population projections. From this data, projections for every year between 2005 and 2015 were made utilizing the crude birth and deaths rates from the PCBS - 2005 estimates, see Table 2. The difference between births and deaths for each projected year indicated the natural growth rate, while net migration was assumed to be zero. Each calculation gave an annual population projection which could be utilized as a new base data upon which calculations could be made for the following year's projection, see Table 3.

Table 2: PCBS Demographic Projections of the WB

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Growth Rate	3.00	3.00	2.90	2.80	2.80	2.70	2.60	2.60	2.50	2.50	2.40
Crude Birth Rate	34.50	33.70	32.80	32.10	31.40	30.70	30.10	29.40	29.00	28.50	28.00
Crude Death Rate	4.10	4.00	4.00	3.90	3.80	3.80	3.70	3.70	3.60	3.60	3.60

Source: PCBS, 2005 <http://www.pcbs.gov.ps/Portals/_pcbs/populati/demd3.aspx>.

Table 3: Population Projection of Bethlehem Governorate

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Base Population	**174,654**	179,963	185,308	190,645	196,021	201,432	206,850	212,311	217,767	223,299	228,859
Crude Births (CB)*	6,026	6,065	6,078	6,120	6,155	6,184	6,226	6,242	6,315	6,364	6,408
Crude Deaths (CD)*	716	720	741	744	745	765	765	786	784	804	824
Net Migration	N/A**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

** Note :these values were derived from the national CB and CD values indicated in table 2 above , as the PCBS only issued percentages – not figures– of CB and CD values of the Palestinian Governorates and Districts.*
*** N/A: Not Available*

The projection results indicate that the birth and death rates will decrease in the future, where the CBR (births per 1,000 of the population) was 34.5 in 2005, and projected to reach 30.7 and 28.0 in 2010 and 2015, respectively in the West Bank. And the CDR (deaths per 1,000 of the population) was 4.1 in 2005 and projected to reach 3.8 and 3.6 in 2010 and 2015 respectively in the West Bank. The reasons behind

the decline in birth and death rates are the increase of awareness among families especially among women and the development of the delivered health services.

According to the projection, the population of Bethlehem Governorate will augment to reach 201,432 and 228,859 in 2010 and 2015 respectively. The population of the study area is projected to reach 69,340 inhabitants with an increase by 15.3% during (2005-2010) and 78,782 inhabitants with an increase by 31.0% during (2005-2015). See the following tables.

Population Projection of Bethlehem City

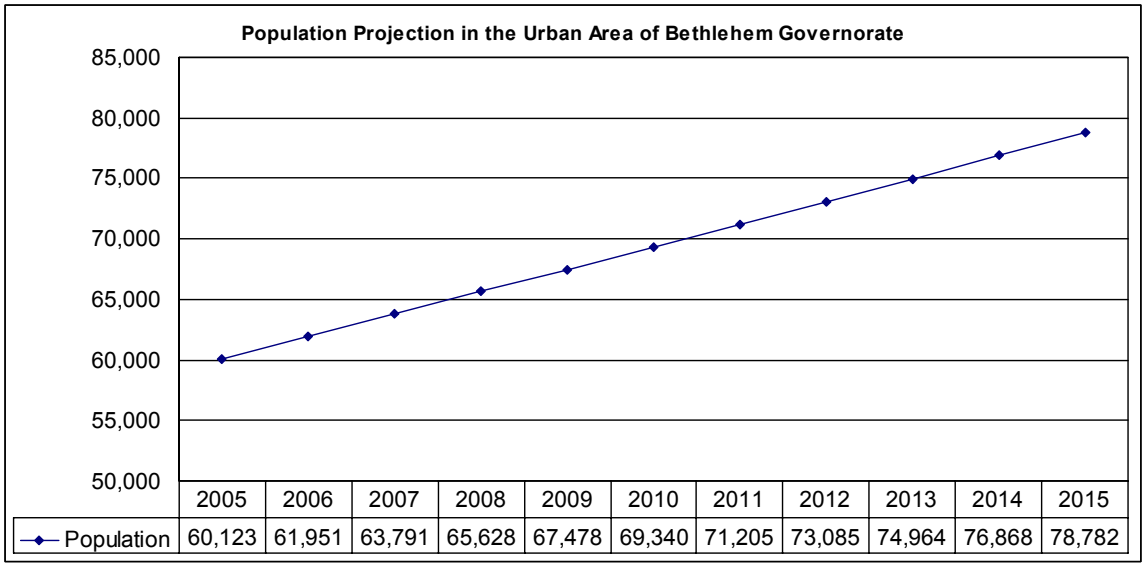
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Base Population	29,019	29,901	30,789	31,676	32,569	33,468	34,368	35,275	36,182	37,101	38,025
Crude Births	1,001	1,008	1,010	1,017	1,023	1,027	1,034	1,037	1,049	1,057	1,065
Crude Deaths	119	120	123	124	124	127	127	131	130	134	137
Net Migration	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Population Projection of Beit Sahour City

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Base Population	14,921	15,375	15,832	16,288	16,747	17,209	17672.00	18,139	18,605	19,078	19,553
Crude Births	515	518	519	523	526	528	532	533	540	544	547
Crude Deaths	61	62	63	64	64	65	65	67	67	69	70
Net Migration	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Population Projection of Beit Jala City

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Base Population	16,183	16,675	17,170	17,664	18,162	18,663	19,165	19,671	20,177	20,689	21,204
Crude Births	558	562	563	567	570	573	577	578	585	590	594
Crude Deaths	66	67	69	69	69	71	71	73	73	74	76
Net Migration	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Population	60,123	61,951	63,791	65,628	67,478	69,340	71,205	73,085	74,964	76,868	78,782

Population Density

The population density of the study area was 3919 person/Km² in 2005. This population density is considered to be very high when compared to the world population density which is 48.3 persons/ Km², with the 'less developed' world where the density is 63.7 persons/ Km², or with the population density in Asia which reached 45.2 persons/ Km².

The population density is projected to increase as the population growth rate is high and the access to open land is limited because of the land grab policies that the Israeli occupation is implementing in the OPT.

If we assume the Israeli activities will remain as they are today (with land confiscation and with the construction of the Segregation Wall) and using the population projection figures from the previous section, the population density will increase to 4520 person/Km² in the year 2010 and 5135 person/Km² in the year 2015 in the study area.

Marital Status

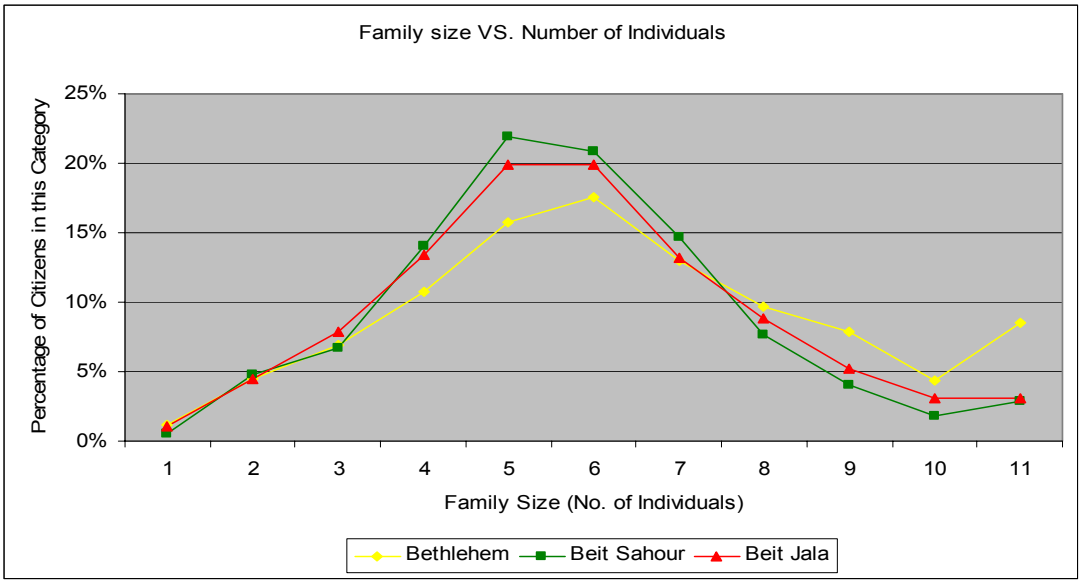
The table bellow showed the marital status of the population of the study area who were 12 years and over. The data showed that 12,698 persons had never been married (40.7%) of whom 7,089 were males and 5,609 were females, 16,877 persons were married (54.1%), 270 persons were divorced (0.9%), and 1,338 persons were widowed (4.3%).

Population (12 years and over) by Gender and Marital Status in the Study Area, 1997										
Locality	Never Married		Married		Divorced		Widowed		Total	
	M	F	M	F	M	F	M	F	M	F
Bethlehem	3479	2638	3873	3860	46	113	75	632	7473	7243
Beit Sahour	1616	1329	2342	2339	6	33	41	251	4005	3952
Beit Jala	1994	1642	2239	2224	27	45	31	308	4291	4219

Socio-economic Status

Households

The 1997 Census data revealed that number of households in Bethlehem city had reached 4,158, followed by Beit Jala which hosted 2,413 households and Beit Sahour which had 2,306 households. The average household size in the OPT was 6.5 persons/household, while in Bethlehem governorate it was 5.85 persons/household. The percentage of people who are living in families that have between 5 and 6 members is 37%, that have between 1 and 4 members is 25%, and that have more than 6 members is 38%. The household size is considered to be large in the study area. Among the three cities Bethlehem city has the largest percentage of its population living in households of more than 6 persons (this percentage reached to 43% in Bethlehem city, 33% in Beit Jala city and 31% in Beit Sahour city). It is noticed from the graph that 9% of the population in Bethlehem city lived in households having 11 members.



Household Size, 1997

Private Households by Tenure of Housing Unit in Bethlehem								
	Bethlehem Governorate		Urban		Rural		Camps	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Owned	17567	77.50	5886	65.8	10522	89.12	1159	60.21
Rented Unfurnished	2289	10.10	1904	21.3	311	2.63	74	3.84
Rented Furnished	136	0.60	111	1.20	16	0.14	9	0.47
Without Payment	2487	11.00	951	10.6	874	7.40	662	34.39
For Work	55	0.20	29	0.32	24	0.20	2	0.10
Others	38	0.20	25	0.28	9	0.08	4	0.21
Not Stated	108	0.50	43	0.50	50	0.42	15	0.78
Total	22680	100	8949	100	11806	100	1925	100

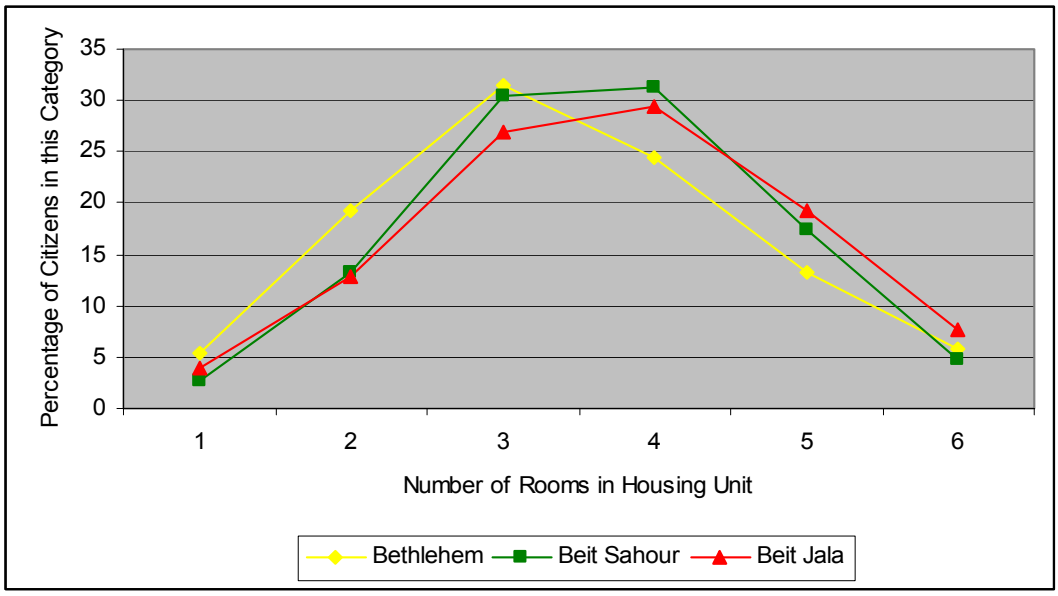
Population density per room

The Population, Housing and Establishment Census data of 1997 reported that the average number of persons per room in the OPT was 2 and the average number of rooms in the housing unit was 3.4.

In Bethlehem Governorate the average number of persons per room was 1.78. The number was higher in the rural areas where there were 2.04 persons/room, followed by the refugee camps where there were 1.74 persons/room. The average number of persons per room was lowest in the urban areas (Bethlehem, Beit Jala and Beit Sahour) where there were 1.47 persons/room.

The Census data revealed that the average number of rooms of housing units in Bethlehem Governorate was 3.3 rooms whereby 57.4% of the population lives in housing units with between 3 and 4 rooms (30% and 27.4% respectively). In contrast to this, 22% of the population live in housing units of between 5 and 6 rooms (16% and 6% respectively). At the other end of the scale, 16% of the population live in housing units of 2 rooms and 4% live in housing units of 1 room.

In terms of disparities between the three major urban centers, 44 % of Bethlehem city residents live in housing units that have 4 or more rooms followed by Beit Sahour where 54% of residents live in housing units which have 4 or more rooms. The highest percentage is in Beit Jala whereby 56% of the population are living in 4 or more rooms.



Number of Rooms in the Housing Unit of the Study Area

Education Status

Educational attainment

The 1997 Census provided data about the study area concerning educational attainment. The data showed that 6.4% of the study area population were illiterate, 13.2% were capable of reading and writing, 24.8% completed elementary education, 22.8% completed preparatory education, 18% completed secondary education, 5.4% have an associate diploma and only 8.5% have university degrees, as shown below. The data also showed that 60.3% of the illiterate people were in Bethlehem city, with more females illiterate (65.2%) compared with males (34.8%).

Study Area Population (10 years and over) by Gender and Educational Attainment

Sex	Illiterate	Can read & Write	Elementary	Preparatory	Secondary	Associate Diploma	Bachelor	Higher Diploma	M.A	PHD	Total
Male	740	2309	4429	3677	3212	734	1266	37	245	96	16745
Female	1386	2060	3763	3866	2991	1064	1008	22	103	16	16279
Total	2126	4369	8192	7543	6203	1798	2274	59	348	112	33024
Percentage	6.4	13.2	24.8	22.8	18.8	5.4	6.9	0.2	1.1	0.3	

When looking at the education attainment in Bethlehem Governorate specifically, it is evident that the percentage of illiterate people is high in comparison with the other educational categories. In addition to this, percentage of illiterate women is considered to be high as it reaches to 20.3% of the women. The percentage of people who have a university degree is also low and reaches 5.5% of the population. It is noticed also that only 3.1% of the women in the Governorate have a university degree.

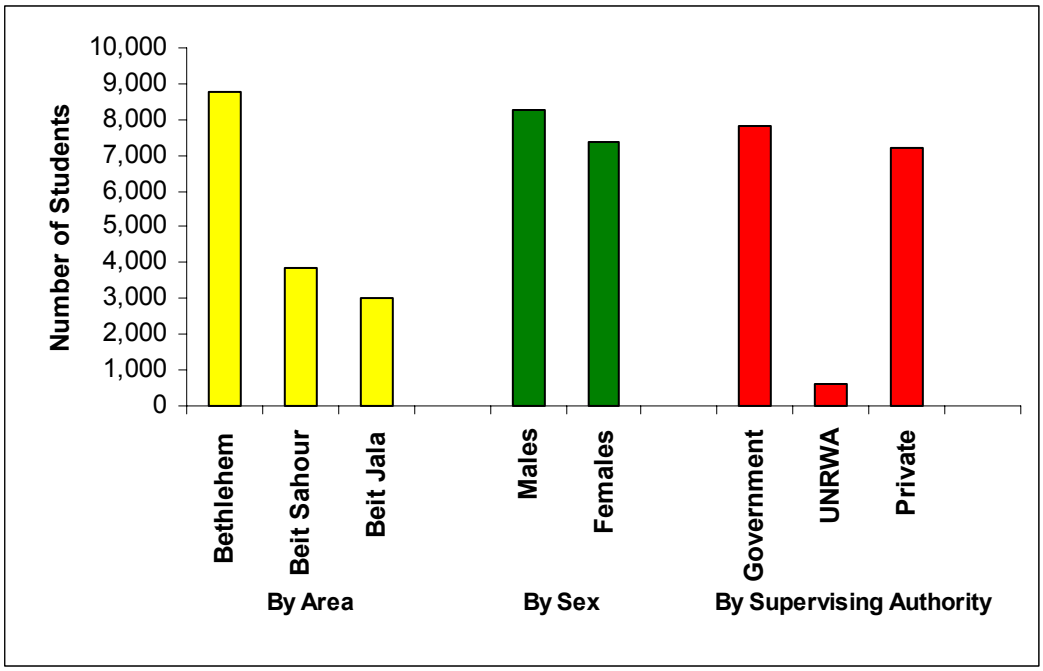
Distribution of Persons (15 Years and Over) By Educational Attainment and Sex in Bethlehem Governorate,1997

Sex	Illiterate	Can read & Write	Elementary	Preparatory	Secondary	Associate Diploma	Bachelor and above	Total
Male	7.8	10.3	21.9	28.8	17.8	5.6	7.8	100
Female	20.3	9	20.4	27.2	15.1	4.9	3.1	100
Total	13.9	9.6	21.2	28	16.5	5.3	5.5	100

Schools

Bethlehem Governorate has 135 schools consisting of 1602 classes attended by 49,272 students and 2,624 teachers. On average there are 30.8 students/class and 18.8 students/teacher. These ratios are lower than the ones in the West Bank as the ratio of students per class is 31.3 and the ratio of students per teacher is 19.8. (MOHE, 2006).

As of the scholastic year of 2005/2006, the data of MOHE showed that there were 15,642 students attending schools in the study area; of these, 8,793 were in Bethlehem, 3,851 were in Beit Sahour, and 2,998 were in Beit Jala. These students are distributed by gender as follows: 8,284 males and 7,358 females. They are distributed according to supervising authority as follows: 7,822 students in governmental schools, 611 students in UNRWA schools, and 7,209 students in private schools. It may be noted that the study area has witnessed an average increase of 2.1% in the number of students from the year 1997 to 2006.



Study Area Students by Area, Gender, and Supervising Authority, 2005/2006

At the outset of the scholastic year 2005/2006, there were 39 schools (29% of the total number of Bethlehem Governorate schools) in the study area, of which 21 were in Bethlehem, 10 in Beit Sahour and 8 in Beit Jala. 12 schools out of the 39 are for males, 9 schools for females and 18 schools are co-educational. These schools are managed by different bodies; 16 schools are governmental schools, one is a UNRWA school and 22 are private schools. (PCBS, 2006).

The data also showed that there are 526 classes, of which 284 classes in Bethlehem, 130 classes in Beit Sahour and 112 classes in Beit Jala. The classes are distributed by gender as follows: 161 classes for males, 141 classes for females and 224 classes for co-education.

The Directorate of Education in Bethlehem Governorate indicated that for the scholastic year 2005/2006 in the study area, the average number of students per teacher in schools was 21.6 students/teacher. This ratio varied according to the managing authority, as it was the highest in the UNRWA schools where the ratio was 27.8 students/teacher, followed by the governmental schools where the ratio was 21.9 students/teacher, then by the private school where the ratio was 15 students/teacher.

The average number of students per classroom in the study area for the same scholastic year (2005/2006) was 31.7 students/classroom; this ratio was 36.9 in governmental schools, 33.9 in UNRWA schools, and 24.4 in students/classroom in private schools.

As is evident from these figures, the classes are relatively crowded and lack enough teachers to meet good standards in education. Additionally, some schools have been forced to implement a 'shift system,' consisting of a morning shift and an evening shift, to cope with the large number of students. These problems may negatively

effect the students as well as the teachers themselves, thus causing problems in educating the young generation and affecting their conduct within their society**.**

Health Care Status

In Bethlehem Governorate in the year 2004 there were 9 hospitals that had a capacity for 626 beds. There were 1.2 doctors per 1000 of population and 1.7 nurses per 1000 person.

Indicator	2000	2001	2002	2003	2004
No. of hospitals	9	9	9	9	9
No. of hospital beds	605	602	645	629	629
No. of hospital beds per 1000 of population	12	11.5	11.9	11.2	11
Physician per 1000 of population	1.1	1.1	1.1	1.2	1.2
Nurses per 1000 of population	2.7	1.6	1.6	1.7	1.7

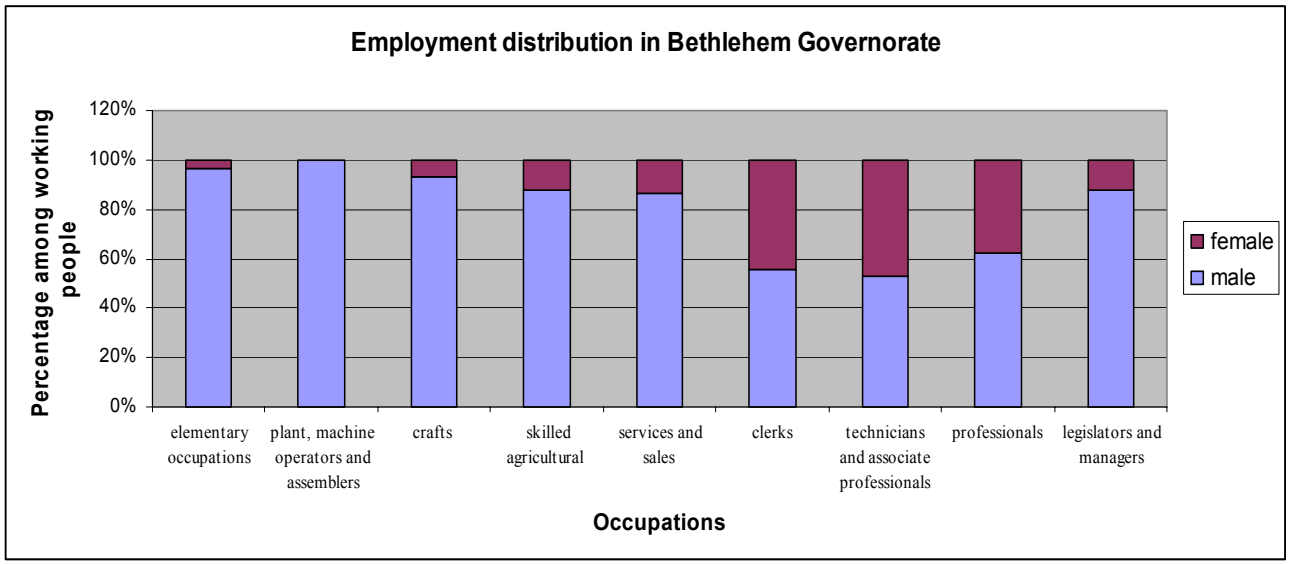
Health care Indicators in Bethlehem Governorate

Labor Force

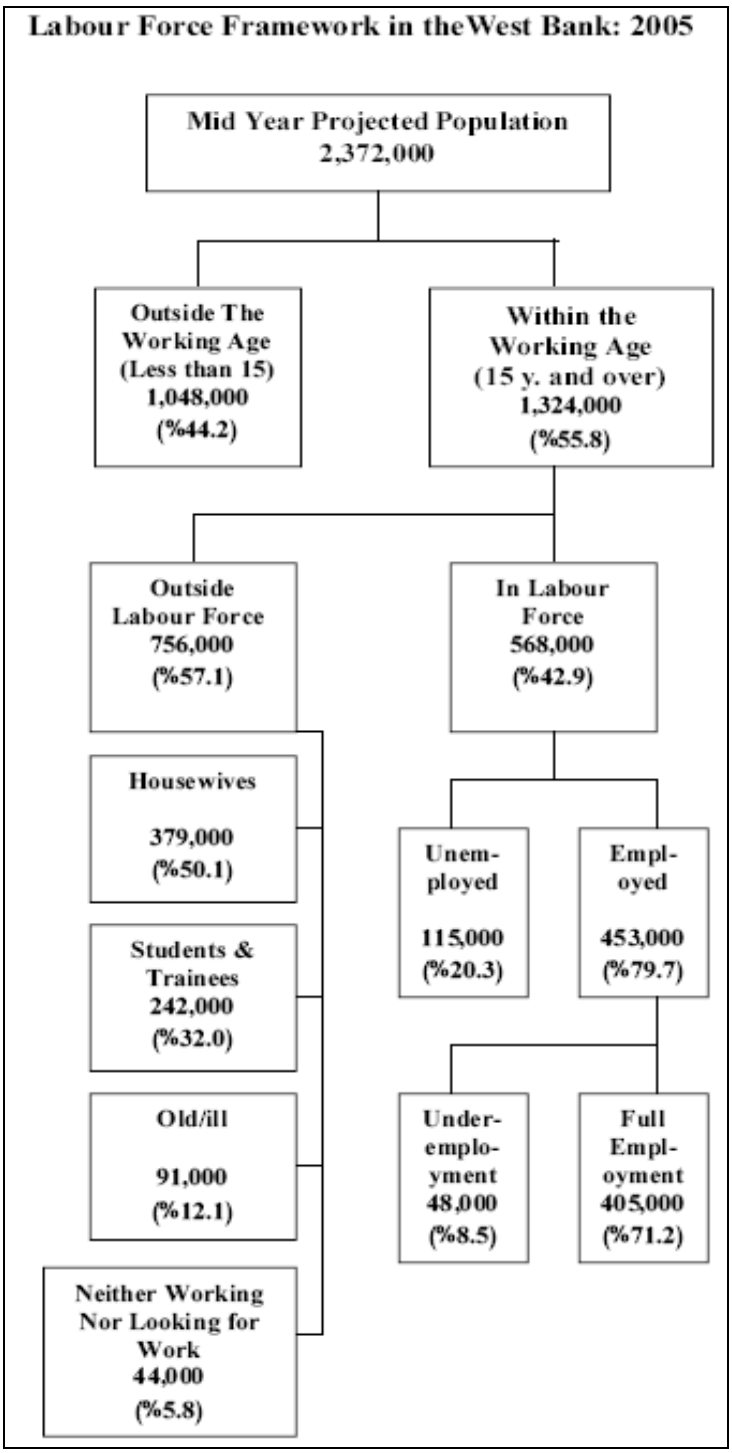
The 1997 Census showed that 38.9% of the population in Bethlehem Governorate who are 10 years and above are economically active while 60.5% are not economically active, and are divided into students (44.7%), housewives (43.1%), people unable to work (6.4%), and people not working and not looking for work (6.4%).

In Bethlehem Governorate 30% of the economically active people work in elementary occupations, 28% work in crafts and related work, 12% work in services and sales, 7% as technicians and associate professionals, 7% as professionals, 5% as plant machine operators and assemblers, 4% as clerks, 3% as legislators and managers and 3% as skilled agricultural workers.

According to the 1997 Census, 59% of the working women are working as professionals, associate professionals and technicians, legislators and managers, and clerks. These occupations demand a diploma or a university degree. Meanwhile, 45% of the working men are employed in elementary occupations, in crafts, and in the services and sales sectors which demand skilled manual labor.



After the outbreak of the second Intifada at the end of 2000, the Palestinian labor market faced several setbacks due to the Israeli restrictions on movements of people and goods. In 2005, the PCBS published the annual report of the labor force survey. The results revealed that in 2005 the unemployment rate reached 23.5% in the OPT. The unemployment rate was higher for the males as it reached 23.7% than for the females which was 22.3%. The result showed that unemployment is concentrated among the youth aged 15-24 years where their percentage reached 34.8%. In the West Bank, the unemployment rate reached 20.3%. The figure below indicates the labor force framework in the West Bank in 2005.



(Source: Labour Force Survey Annual Report: 2005 - PCBS, 2006)

In Bethlehem Governorate 60.7% of the population who are within the working age (15 years and above) are outside of the labor market. This percentage is considered to be very high. 52.5% of the people who are outside the labor market are housewives, 32.4% are students, 9.6% are either old or ill and 5.5% are outside the labor force market for unspecified reasons (PCBS, 2005). Because the methodology and assumptions used in the 1997 Census were different than the ones used in the 2005 labor force survey comparisons between them have not been made.

Labor Force Status, 2005						
Bethlehem Governorate	Percentage of population Outside of the labor force			Percentage of population Inside the labor force		
	Total	Females	Males	Total	Females	Males
	60.7	89.2	32.5	39.3	10.8	67.5

In Bethlehem Governorate 12.4% of the people within the working age (15 and above) and who are in the labor force are unemployed. As for the people who are employed 27.1% of them are working in services and similar branches, 25.2% are working in the construction sector and 20.5% are working in the mining, quarrying and manufacturing sectors.

Economic Activity	Percentage from employed population (2005)
Agriculture, hunting and fishing	7.7%
Mining, quarrying and manufacturing	20.5%
Construction	25.2%
Commerce, Hotels and restaurants	14.0%
Transportation, storage and communication	5.5%
Services and other branches	27.1%

Infrastructure

The results of the 1997 Census with regard to the basic infrastructure in the cities of Bethlehem, Beit Jala and Beit Sahour indicated that 98.4% of all housing units of the study area were connected to the public water network and 99.3% were connected to the public electricity networks. With regard to the sewage network only 45.1% of all housing units in the study area were connected to the public sewage system, 54.3% of housing units are connected with cesspits, and 0.3% of housing units have no sewage system. During the interviews with decision makers in the municipalities they indicated that the percentage of housing units connected to the public sewage system has increased as infrastructure projects were conducted during the past years.

It is important to mention that even if 98.4% of the housing units are connected to the public network, the water supply is irregular. At times the interruptions in the water supply last for days, especially in summertime. The shortage in the water supply is a national problem resulting from the Israeli occupation. As the Israelis have absolute control over water resources and the Palestinians are not granted their water rights either in the surface water resources (mainly the Jordan River) or the groundwater resources, which is leading to severe shortages in the water supply. The per capita

water consumption in the OPT in the year 2000 was 80 liters per day (Aljazeera Net, 2001) while in the year 2003 it was 94 liters per day in the study area (PWA, 2003). This value is nearly half of the minimum level of water consumption level recommended by the World Health Organization (WHO) which is 150 liters per day. It is worth mentioning that in the year 2000 the average per capita Israeli water consumption was 3-4 times more than the Palestinian per capita consumption.

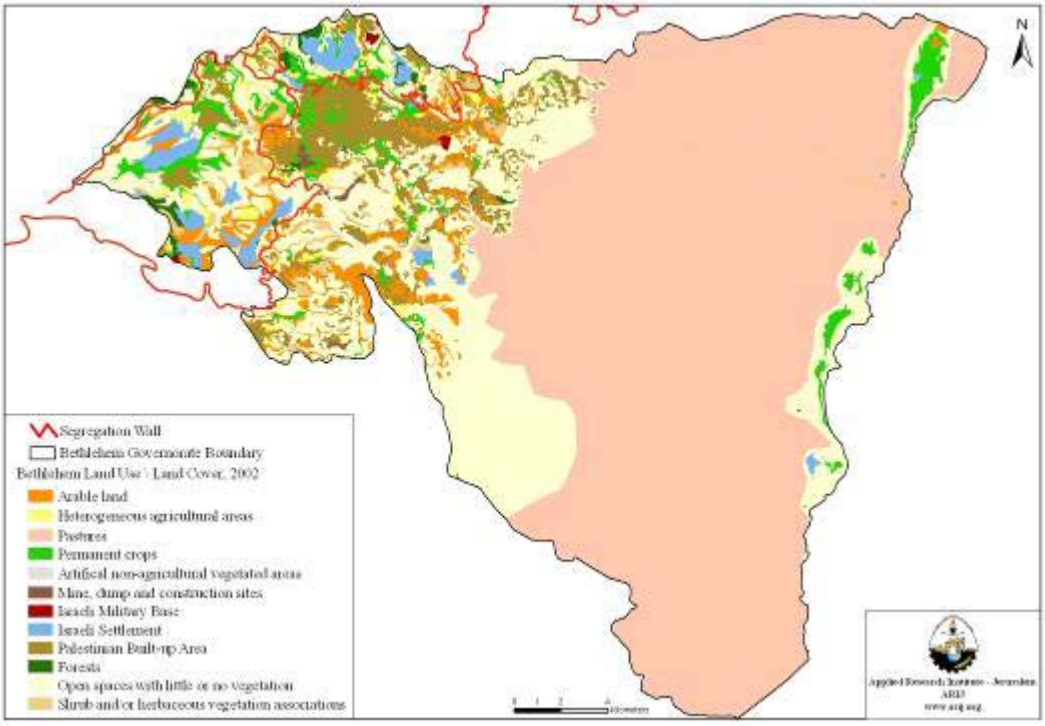
Bethlehem Governorate is located above the Eastern and Western Basin of the West Bank Mountain Aquifer. The available renewable water resources in Bethlehem Governorate consist primarily of groundwater and surface water; however, due to the political situation, Palestinians have little access to these resources. The total water consumption of Bethlehem Governorate is nearly 7.761 MCM, whereas only 2.599 MCM is locally provided, this lead to shortage of nearly 5.162 MCM (PWA, 2005).

Land use/Land cover and Natural resources

Land cover in Bethlehem governorate

Analysis of the land cover in Bethlehem Governorate indicated that:

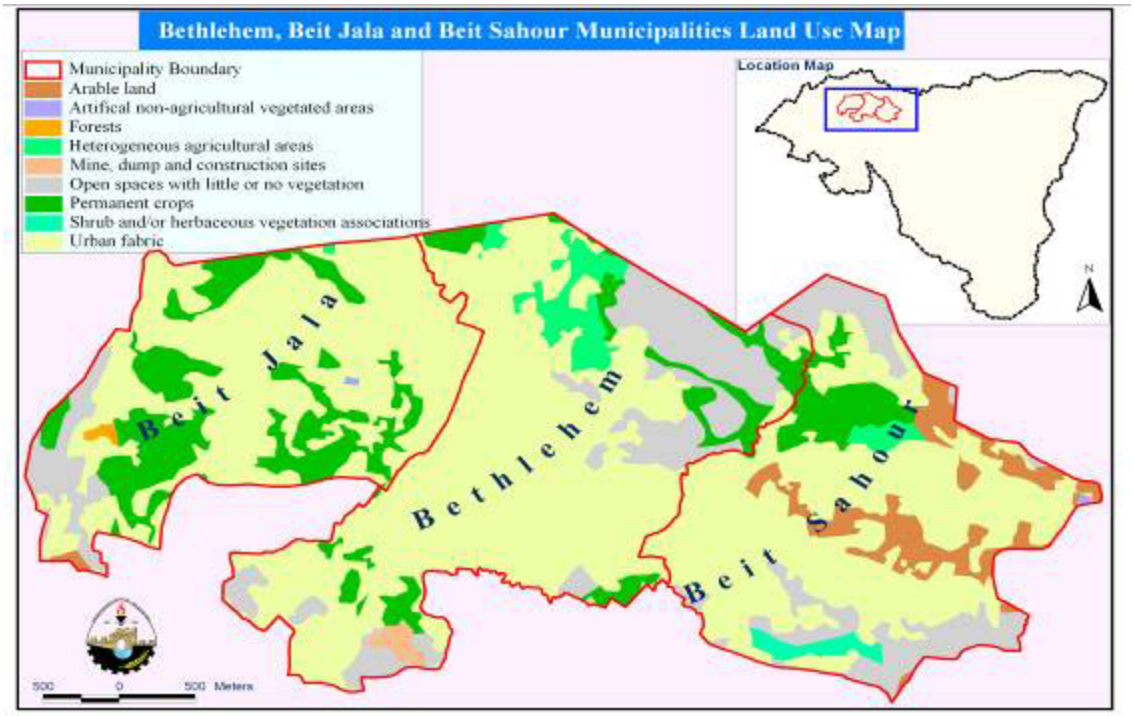
- 59.2% of the Governorate's lands are classified as pastures where these areas are spatially located in the eastern plains
- 22.6% are classified as open spaces with little or no vegetation and these areas are mainly around the built up area and in the southeastern part of the Governorate
- 8.2% are agricultural lands and these are located in the middle and western parts of the Governorate and along the western shores of the Dead Sea
- 5.7% are Palestinian built-up areas and are mainly clustered in the middle and western parts of the Governorate
- 2% are forests and semi-natural areas and these are mainly in the western part of the Governorate
- 1.9% are the built-up area of Israeli settlements
- 0.2% are classified as mine, dump, or construction sites
- 0.1% are Israeli military bases



Bethlehem Land Use \ Land Cover -2002

Land cover in the study area

Analysis of the land cover inside the three municipalities revealed that the built up area makes up around 64% of the municipal area. In Bethlehem municipality 13.6% of the municipal lands are agricultural lands and are located in the northern and southern parts, 18.3% is open space and is located in the northeastern part of the municipality and 1% is stone quarry. In Beit Jala 24.9% of the total area is for agricultural purposes and is located in the western and southern parts of the municipality, 0.5% is forest which is in the western part, and only 6.8% is open space and is located at the southwestern periphery of the municipality. In Beit Sahour 20.6% of the municipal land is used for agriculture, located in the middle and northern parts of the municipality, 2.2% are shrub and/or herbaceous vegetation associations and these are located in the southern part of the municipality and 19.9% of the municipality lands are open spaces and these are located in northwestern and southern parts of the municipality.



	Bethlehem Municipality		Beit Jala Municipality		Beit Sahour Municipality	
Land Cover	Area (in Dunum)	% from Total Muni. Area	Area (in Dunum)	% from Total Muni. Area	Area (in Dunum)	% from Total Muni. Area
Arable land	--	--	18	0.4%	593	12.4%
Heterogeneous agricultural areas	305	5.0%	6	0.1%	72	1.5%
Permanent crops	527	8.6%	1086	24.4%	319	6.7%
Shrub and/or herbaceous vegetation associations	--	--	--	--	103	2.2%
Forests	--	--	22	0.5%	--	--
Artificial non-agricultural vegetated areas	--	--	5	0.1%	7	0.1%
Mine, dump & construction sites	61	1.0%	--	--	--	--
Open spaces with little or no vegetation	1114	18.3%	303	6.8%	950	19.9%
Urban fabric	4093	67.1%	3020	67.7%	2736	57.2%
Total	**6100**		**4460**		**4780**	

Classification of lands isolated by the segregation plan

Due to the segregation plan Israel is imposing in the West Bank, 59.2% of Bethlehem Governorate's lands will be segregated; 12% in the Western Segregation Zone west of the Wall and 47.2% in the Eastern Segregation Zone. The table below indicates the land use/land cover of the segregated areas in Bethlehem Governorate and their percentages from the total Governorate's area.

Land Use/Land Cover	Total Area of Bethlehem Governorate (Dunum)	Area segregated in the western segregation zone(Dunum)	Area segregated in the Eastern Segregation Zone (Dunum)	Total area segregated in the Eastern and Western Segregation Zones	Percentage of segregated areas from Bethlehem Governorate
Agricultural lands	**49934**	**20577**	**5486**	**26063**	**52.2%**
Forests and semi-natural areas	**12386**	**7476**	**779**	**8255**	**66.6%**
Open spaces with little or no vegetation	**137629**	**28955**	**16177**	**45132**	**32.8%**
Pastures	**359998**	**0**	**263761**	**263761**	**73.3%**
Mine, dump & constructions	**1097**	**0**	**0**	**0**	**0.0%**
Playgrounds	**29**	**0**	**0**	**0**	**0.0%**
Palestinian Built-up Area	**34685**	**5732**	**0**	**5732**	**16.5%**
Israeli settlement	**11449**	**10084**	**401**	**10485**	**91.6%**
Israeli Military Base	**653**	**402**	**12**	**414**	**63.4%**
Total Area	**607860**	**73226**	**286616**	**359842**	**59.2%**

Agricultural Areas

In Bethlehem Governorate 52.2% of the total agricultural area will become inaccessible for the Palestinian residents. The western part of Bethlehem area receives a relatively high average annual rainfall of 550-600 mm (ARIJ Database, 2005). The area is mainly planted with rain-fed field crops (wheat and barley), fruit trees (olive groves, vineyards), and irrigated agriculture.

Furthermore, 73.3% of the total pastures in Bethlehem Governorate will be segregated in the Eastern Segregation Zone. The segregation of these lands would impose further pressure on livestock rising and the availability and prices of livestock products in Bethlehem Governorate.

Forests and Biodiversity

The segregation zone in Bethlehem Governorate would cause isolation and fragmentation of forested areas. The forests are considered major recreational areas and are mainly concentrated in the western part of Bethlehem Governorate where 7476 Dunums of forested and semi-natural area would be isolated between the Western segregation wall and the Green line in addition to 779 Dunums that will be segregated in the eastern segregation zone, that is 66.6% of the forested and semi-natural areas in Bethlehem Governorate will be isolated. Most of these forests were planted during the British mandate and Jordanian administration while a small percentage was made up of remnants of natural forests.

The Wall will disrupt the contiguity of the landscape, the movement of biota, and will threaten plant species that grow naturally in the area. The Israeli unilateral segregation plan will exacerbate long-term trends of environmental degradation in the Bethlehem Governorate and may potentially have adverse impacts on securing the protection of contiguous areas of habitats and ecosystem management.

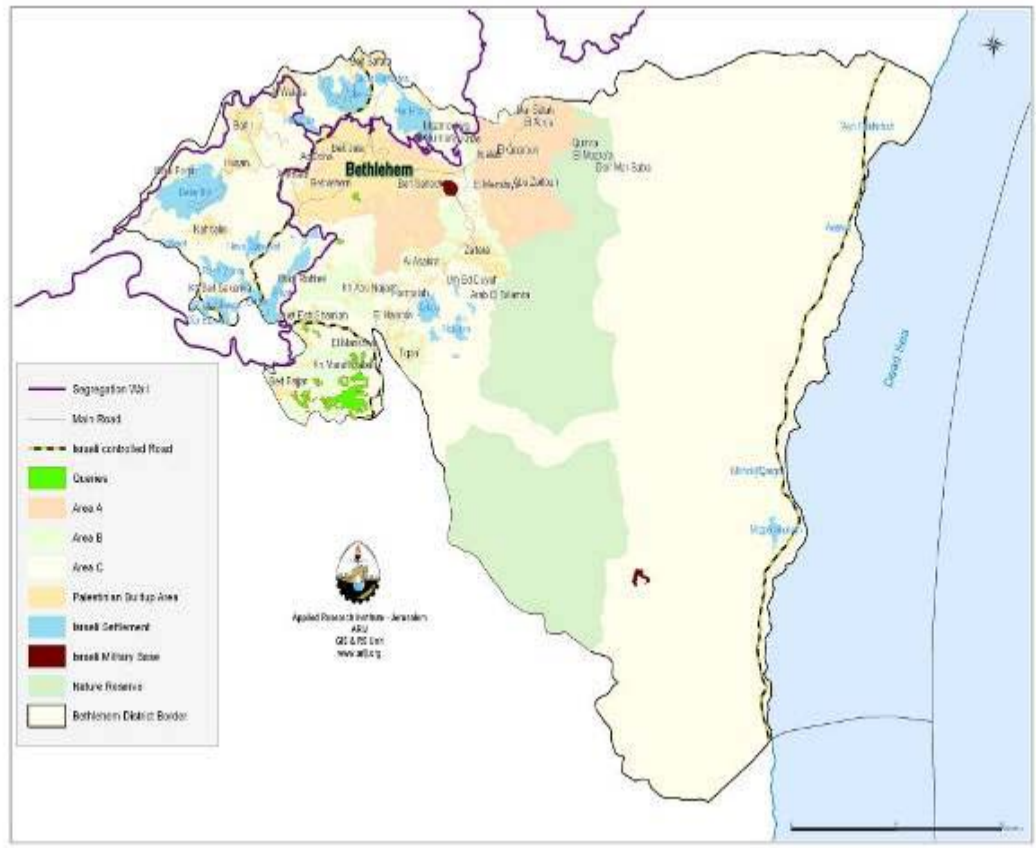
Water Resources

Most of the isolated Palestinian lands west of the segregation Wall in Bethlehem fall on the Western Basin of the West Bank Aquifer. This aquifer basin contains more than 18 groundwater springs and wells, which supply the area with water for irrigation and other uses. Such isolation would risk increasing the water shortage problem in the Bethlehem Governorate.

Natural Resources in Bethlehem Governorate

Stone is considered to be an important natural resource in Bethlehem. There are 32 stone and marble quarries in Bethlehem Governorate. These are mainly located in the towns of Beit Fajar and Marah Rabah in the southern part of the Governorate.

The stone and marble industry is distinguished for employing a considerable percentage of the working force in the West Bank; nearly 19% of the workers engaged in the stone and marble sector are from Bethlehem governorate, (USM, 2003). It is noted that 20.5% of the employed people in Bethlehem work in the mining, quarrying and manufacturing sectors.



Quarries in Bethlehem Governorate

Prospects of Sustainable Development in Bethlehem Governorate

Political constraints imposed by the Israeli military occupation on the West Bank and Gaza Strip are the main causes for hindering the implementation of sustainable development in Palestine. Over the last 39 years of occupation the Israeli authority has been able to control and seize large quantities of open land, fertile agricultural regions, water and other natural resources. These actions has existed parallel to impositions by the Occupation preventing the Palestinians from having a viable economic base by obstructing the Palestinians from developing their cities and towns, destroying infrastructure facilities developed by the PNA after 1993, demolishing private properties and fragmenting the land space though the presence of checkpoints, settlements, by-pass roads and the segregation barrier's.

These occupation practices have resulted in resource depletion, shortage in fresh water supplies, increases in unemployment, increases in poverty, decreases in agricultural production and an incapacity for the PNA to adequately fund and develop public infrastructure. If the current situation persists it will be increasingly difficult for the Palestinian authority to implement sustainable development and address the many social, demographic, economic, environmental challenges Palestine faces.

In Bethlehem Governorate, population density is expected to increase significantly as a result of high population growth and the Israeli unilateral plan of disengagement whereby 59.2% of the Governorate's lands will become inaccessible to Palestinians. Increasing population densities will place additional pressure on the Governorate's already weak infrastructure facilities which are deficient in meeting both the current and future projected needs of the local Palestinians.

Although some indicators such as the fertility and child mortality rates have decreased (after the PNA assumed control over parts of the WB and GS), these should be accompanied by consistent policies to improve the quality of life for the Palestinians. Particular focus should be given to addressing unemployment, poverty, institutional and legislative reform and effective environmental management[6]. That said the ongoing occupation and denial or Palestinian environmental sovereignty will continue to prevent the PA from acting effectively as well as denying many of the expected benefits continued donor aid might achieve.

[6] The fourth section of this report contains Proposed Policies and Tools towards Sustainable Development that should be adopted by the Palestinian Authority.

Problems Faced by the Municipalities

Analysis of the role of the Municipalities and the problems faced by them

In order to analyze the role of the municipalities and the problems faced by them a series of interviews and roundtable meetings were conducted with the decision makers at these municipalities and with the directorate of Local Government in Bethlehem Governorate who is the organizing and monitoring body for the performance of the municipalities and village councils under their jurisdiction. During the interviews and roundtable meetings information about the adopted strategies and plans by the three municipalities was obtained.

A review was also made of the laws and mandates that govern the municipalities to compare the compliance of the municipalities with these laws. The data collected and reviewed from the three national plans and the literature review of relevant population dynamics, sustainable land use, environmental management and urban governance policies that were conducted were also used as a guideline to form the framework of analysis.

A questionnaire was prepared to be discussed with the municipal executive staff and decision makers in the municipalities of Bethlehem, Beit Sahour and Beit Jala. The questions were divided into three parts directed to the different municipality departments; the administrative department, the planning department and the environmental department.

Another questionnaire was prepared for the local government directorate in Bethlehem Governorate. The questions aimed to investigate the level of cooperation of the municipalities with the local government, the compliance of the municipalities with the national development policies, the inclusion of the public in the decision making process, the main hindrances to sustainable development, and policies that can be adopted under a changing political condition, among other issues.

The analysis was divided into four sections according to the sectors and issues that the analysis tackled. The issues addressed were divided into the following:

- **Municipal administrative and financial management**
- **Urban growth, land and infrastructure management**
- **Urban environmental management**
- **Demographic dynamics**

In each section the main problems that the municipalities suffer from are listed. An example of incidents mentioned by the decision makers that helped in generating the conclusion of that problem/issue is then listed.

Problems faced by the municipalities

- **Municipal administrative and financial management**

Administrative

- Weakness of an executive body to enforce the legislations and prevent violations.
- Weakness of a legal system to support the execution of laws.
- Lack of coordination between the different departments, ministries and institutions
  - The municipalities of Bethlehem, Beit Jala and Beit Sahour were ignorant of the existence of the Palestinian Development Plan, the National Policies for Physical Development and the Palestinian Environmental Strategy.
  - The Ministry of Local governance in Bethlehem had no idea about the previously mentioned plans as well.
  - There is a lack of coordination between decision makers at the national level and the personnel implementing these decisions at the local levels of Bethlehem, Beit Jala and Beit Sahour.
  - Initiatives of coordination between municipalities are directed towards service provision and not planning (Joint Service Committee).
- Information is not channeled from one level to another
  - The three national development plans did not trickle from the national level to the local level; a structure of information dissemination and channeling from one level of action to another is absent.
  - There is no mechanism of information channeling from one level to another or from one body to another.
  - The public in Bethlehem, Beit Sahour and Beit Jala have access only to general data such as statistics, budgets, projects, but do not have access to the details of the data.
- Centralization of decision processing and making
  - Concerning public participation, Beit Sahour municipality usually includes the public in decision making. Such examples include the establishment of sanitary sewers or street reconstruction. The municipality convenes with the people concerned and discusses issues related to the project and takes into consideration their recommendations. On the other hand, just 1 out of the 31 persons who filled the community questionnaire and lived in Beit Sahour city said that the municipality refers to public participation in the decision making process.

- The lack of a clear internal evaluation strategy for the approaches that the municipality undertakes towards projects.
    - The ministry of local government monitors the financial issues in the municipality. Nevertheless, municipalities indicated that the personnel from the local government delegated to do the financial monitoring need to have more professional capacities.
    - There are no follow-up actions from both the local and national levels on projects funded by donors and the consistency of the projects with national policies and strategies.
- There is a lack of professionals at the local level to either develop or implement strategies.
    - The three municipalities indicated that one of the main reasons they lack updated clear strategies is because they lack professionals to draft or implement such strategies.
    - Employees in the municipalities are seldom sent to capacity building courses or training due to the budget shortages or the work overload that the employees are facing. The decision makers also indicated that often the wrong person is given the appropriate capacity building course or training. They also indicated that decisions regarding which employee will take the training or course are arbitrary and are up to the municipality council members to decide.
- There is no mechanism for the review or update of the structure of the municipality, and no evaluation for the currant structure.
    - At the same time, there is an initiative embraced by Bethlehem municipality to develop a manual of the municipal structure, and adopt the ISO standards for organization and management. However this manual is still in progress and has not been adopted yet.
    - In the interview with the local government the decision makers indicated that each municipality has a clear structure that is approved by the ministry of local government and that municipalities have to abide by that.
- Women should be more represented in the decision making positions
    - The local council's election law demands that 20% of the seats are to be allocated for women. In Beit Sahour municipality, 23% of the council members and 25% of the employees are women. In Bethlehem Municipality 33% of the unit directors are women.

Financial

- Municipalities suffer from deficiencies in their budgets
- The allocated budget to the municipality does not cover the expenses and there is a problem with collecting bills.
  - The budgets of the three municipalities lack developmental entries
- There is no enforcement on collecting the taxes, though incentives are provided for those who pay in the first months of the year (January and February). Taxes are collected by the central government "Ministry of Finance - MOF" and then the money is transferred to the local level. Often there are delays in transferring this money to the local level. (The money transferred to the municipality is the tax revenue and the transportation tax).
- The donors impose their agendas on the municipalities and direct their programs and projects funds that had been earmarked for infrastructure or emergency projects.
- No incentives are provided to the private sector, and there is no cooperation between the private and public sectors.
- The municipalities indicated that there is no equitable distribution of financial resources from the central government to the municipalities.

- **Urban growth and infrastructure Management**

- The lack of strategy or plan for physical development on the local level and the regional level

  On the local level

  - Beit Sahour and Bethlehem municipalities are working on an emergency plan to solve the pressing needs according to their perceived priorities and dealing with issues as they emerge but lack a clear strategy or plan (i.e., curative instead of preventive).
  - Beit Jala municipality has a three year plan

  On the regional level

  - On the regional level, there is also a lack of a strategy

    The Directorate of the local government in Bethlehem indicated that there are no regional plans in Bethlehem governorate; rather, each local entity develops its own plans that are approved by the ministry of local government.

At the same time, the three municipalities think that the central government lacks a clear method to evaluate and prioritize projects from the different districts. The central government takes a top-down approach towards the municipalities where it determines for them what kind of projects are to be implemented in their domain.

However, Beit Sahour municipality indicated that the local government consulted them when formulating the five year plan. The municipality submitted a list of projects needed in the area and their prioritization.

- The lack of updated masterplans

  Beit Sahour municipality does not have a masterplan, though Bethlehem is in the process of preparing one, and Beit Jala has a masterplan that was drafted in 1987, though it has not been updated

  Beit Jala municipality also indicated that a strategic regional plan for the three cities was developed in 1999 by an Argentinean group; however Bethlehem and Beit Sahour municipalities made no mention it.

- The lack of qualified professionals to draft developmental plans and masterplans at the local or regional levels, as well as the lack of sufficient budgets that would enable then to perform such plans.

  The three municipalities, as well as the directorate of the local government, indicated that the lack of professionals and budgets are two of the main obstacles to the development of physical plans at the regional and local levels.

  The local government has recently adopted a training program in the planning and managerial domains.

- Urban growth is not directed in a specific direction, largely because it has become difficult to maintain protected areas under the current constrains and shortage of land.

  - In Beit Sahour there is no zoning for agricultural, industrial, residential, recreational and other purposes due to the absence of a master plan and the absence of an executive body to enforce compliance with the land uses and building codes.

  - As a result of uncontrolled urban growth the holy places in the region are not well protected (for example, the Shepherds' Field in Beit Sahour).

  - The uncontrolled urban growth has resulted in the fragmentation of farmlands.

- There is a lack of sufficient information about socioeconomic and environmental indices at the municipal level

  As part of developing sound and applicable plans, enough updated information should be collected at the local and regional levels to be able to assess the current situation and develop plans accordingly.

The three municipalities indicated that they do not have updated databases. The main reason for that is the lack of a budget for information collection, data entry, and analysis. However, in the last workshop with the decision makers, personnel from Beit Sahour indicated that they are in the process of creating a database.

- The deficiencies in the budgets to develop and implement plans
    - The deficiencies in the budget of other ministries and bodies such as the Palestinian Water Authority (PWA) and the electricity company constitute further impediments to integrated planning.
- The unstable political condition, characterized by Israeli occupation practices in the West Bank and the lack of total sovereignty and integration between the different parts of the West Bank makes it even harder for the municipalities and local government to draft and implement developmental plans at the regional and local levels.
- The current legislations and laws concerning the mandates of the municipalities and the building and planning codes were adapted from laws that were drafted by Jordanian and Egyptian administrations during the 1960s, and consequently, some articles of these legislations are outdated.
- Land registration is not yet complete.
    - This is a national problem in the Occupied Palestinian Territory, arising in a large part from the consecutive non-Palestinian governors who ruled and administered the area; from the Ottoman rule to the British mandate to the Jordanian administrative rule and finally to the Israeli occupation, there has been no consistent organized land registration. The Palestinian National Authority is currently in the process of registering the lands in areas A and B. But lands in area C are still subject to the Israeli 'Civil Administration' where fees for land registration are very high and reach up to 9% of the value of the land.
    - Most of the lands in the municipal jurisdiction are privately owned, which makes it harder for municipal or governmental bodies to implement large scale projects, unless they buy pieces of lands, which in turn would increase the costs of the projects.
- Donors target certain municipalities with specific projects and the municipalities, having no other sustainable funding for implementing projects, often adopt these projects without assessing them with regard to the needs, priorities and impacts in the region.
- Infrastructure assessment
    - The three municipalities agreed that schools, electricity, streets, health clinics, public transportation, garbage collection and street cleaning services are considered 'good' services in regard to quality and quantity, but they require consistent funding for maintenance and rehabilitation.

- The water network pipes are worn out and need rehabilitation and in some cases replacement. The current water network has been in poor condition since the onset of the Israeli occupation.

- The sewage network has to be connected to places where people are still dependent on cesspits.

- The street drainages are insufficient and their locations need to be reevaluated.

- Both Bethlehem and Beit Sahour municipalities consider the street lighting to be insufficient and in need of enhancement (Beit Jala municipality, however, considers this utility to be an excellent one).

- The municipalities indicated that their maintenance departments would function better if their equipment were enhanced and the number of qualified maintenance people were increased.

The presence of other services;

- Bethlehem and Beit Sahour cities lack public libraries, though Beit Jala has recently opened one.

- There is a lack of public parks

- The three municipalities consider the number of kindergartens and nurseries, as well as the number of universities and academic faculties, to be sufficient, but these facilities are in need of continuous improvements.

- There are few orphanages and elderly care facilities

- **Urban Environmental Management**

- There is no special department for urban environmental management

  - Beit Sahour is the only municipality that has an environmental management department, but the department is functioning poorly due to political constrains.

  - Both Bethlehem and Beit Jala municipalities lack an environmental department; however, they have a department that is responsible for monitoring the health conditions in the municipalities and testing water quality. In Beit Jala there is also a specialized employee who is responsible for the care of the water springs at the fringes of the city.

  - Since there are no active environmental departments at the three municipalities or in the directorate of local government, there are no clear strategies or plans for addressing the current environmental issues or mitigation actions to reduce the environmental problems.

- There is no follow-up for the environmental strategies on the regional and local levels

  - The Palestinian environmental strategy results and recommendations were not delivered to the municipalities or to the directorate of the local government in Bethlehem.

- With regard to solid waste the municipality collects the waste and moves it to the dumpsite at Abu Dees, northwest of Bethlehem.

  - The municipalities have to pay for each truckload of solid waste delivered at Abu Dees dumpsite, in addition to the transportation fees which increase the costs of collecting and dumping the solid waste. Furthermore, there are no mechanisms to separate medical and industrial waste from domestic waste.

- The wastewater is collected and dumped in the Wadi El Nar valley (away from the built up areas) without any treatment.

  - There were initiatives in Bethlehem Governorate to construct a treatment plant for the solid waste and wastewater, but the Israeli authorities who have total control over area C in the West Bank have turned down these plans.

- No Environmental Impact Assessment (EIA) has been applied to the projects taking place in the municipalities, except for the industrial projects which have to submit an EIA to the ministry of environmental protection.

- Only Beit Jala municipality enforces healthy authorized slaughter guidelines.

- **Demographic Dynamics**

- There is no clear strategy or plan in the municipalities that would specifically deal with demographic issues

  - Bethlehem and Beit Sahour municipalities are of the opinion that the demographic structure of the population will not hinder efforts of sustainable development. On the other hand, Beit Jala municipality believes that the demographic structure of Beit Jala city will not lead to sustainable development if no clear strategies are developed and implemented in the near future.

  - The directorate of local government indicated that there is a national committee for combating poverty headed by the ministry of planning and the UNDP/PAPP. This committee is working in cooperation with local NGOs and with the MOLG. The committee aims at preparing a participatory poverty assessment, developing strategies to combat poverty and implementing these strategies.

  - There are some local initiatives to reduce urban poverty. Several income generating projects have been implemented by the municipalities in

cooperation and partnership with other institutions like the Palestinian Agricultural Relief Committees (PARC) and United Nations Development Program (UNDP). These projects are intended to help the urban poor, such project is the home garden one.

- The municipalities support women's organizations by helping them apply for and obtain funds and/or grants.

- There have been initiatives of cooperation between the municipalities and the local civil society organizations which assist on the local level in raising the public awareness. Decision making has proved stronger when associated with community based organizations that provide the municipalities with recommendations and assess the needs of the local communities.

Citizens' Perception of the Municipality Role

A questionnaire was designed to assess the citizens' perception of the municipality policies and the quality of public services as well as the citizens' awareness and knowledge of issues related to sustainable development, demography, urban environmental management, and the structural organization of different governmental bodies, among other issues.

The citizen questionnaire was designed by the research team. The data collected and reviewed from the three national plans, together with the international recommended practices in the fields of demography, urban management, sustainability and urban environmental management were used as guidelines for formulating the citizens' questionnaire.

A sample of 97 persons from the study area completed the questionnaire. The sample was selected randomly from people working in governmental and non governmental organization, students, workers, housewives, shopkeepers and unemployed persons.

The questionnaire consists of 51 questions that tackle the following issues:

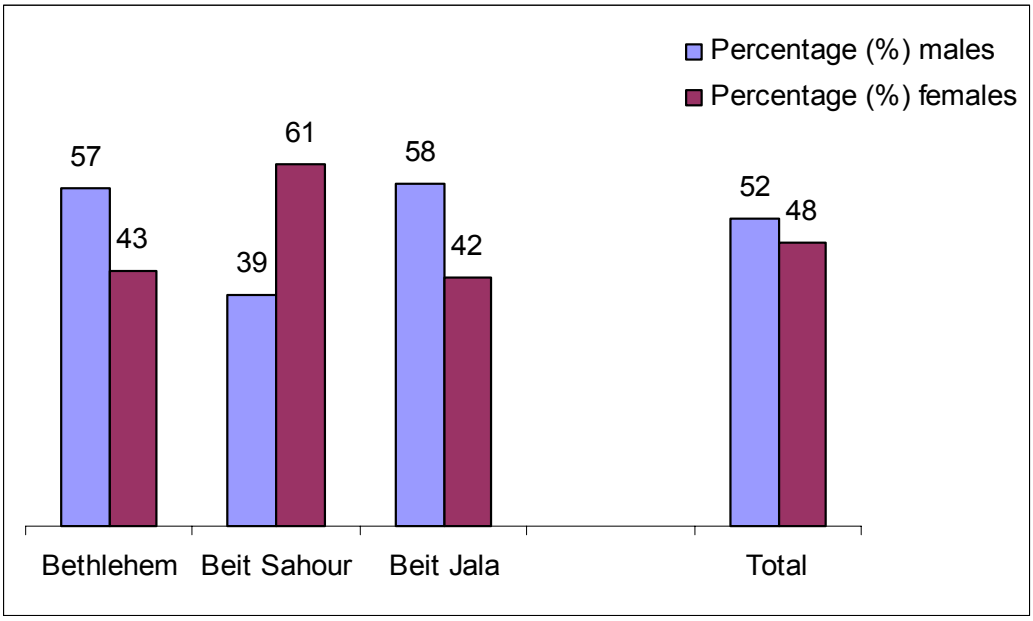
- **General national and municipal policies**
- **The quality of services and accessibility to them**
- **Addressing the needs of the population**
- **Environmental Polices**
- **Public participation**

The citizen questionnaire was translated from Arabic to English language and entered in the Statistical Program for the Social Sciences (SPSS) software. The data produced by SPSS was entered into Excel where figures and diagrams were generated and analyzed.

Main findings

General information of the questionnaire fillers

97 persons from Bethlehem (30.9%), Beit Jala (32%) and Beit Sahour (37.1%) cities filled the questionnaire. 51.5% of the questionnaire fillers were males and 48.5% were females. 79% of the questionnaire fillers were between 15 to 51 years of age.



Study sample distribution by Area and Gender

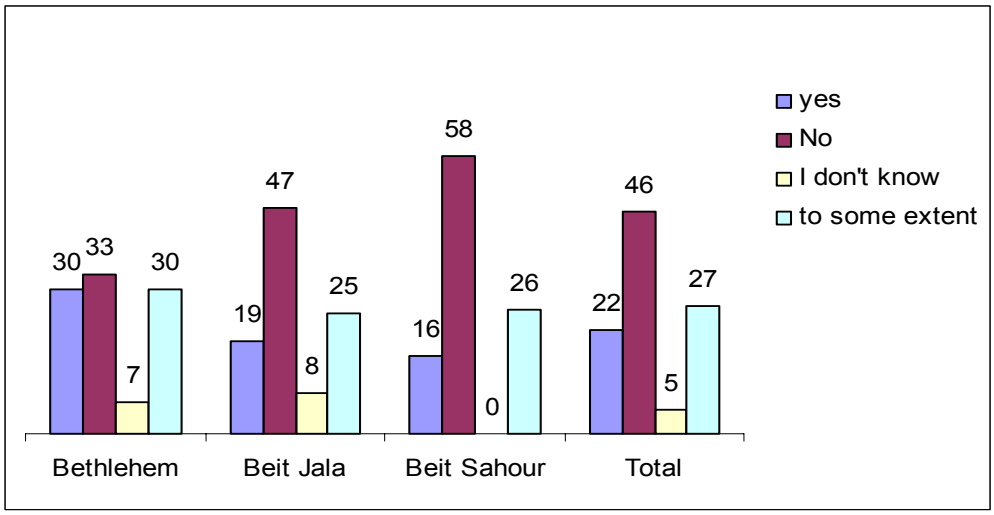
Study Sample by Area of Residence		
Living Area	**Frequency**	**Percentage (%)**
Bethlehem	30	30.9
Beit Sahour	36	37.1
Beit Jala	31	32.0
Total	97	100

Study Sample by Age Groups		
Age Groups	**Frequency**	**Percentage (%)**
25 -15	30	30.93
30 -26	16	16.49
40 -31	31	31.96
50 -41	12	12.37
60 -51	5	5.16
70 -61	2	2.06
110 -71	1	1.03
Total	97	100

- **General national and municipal policies**

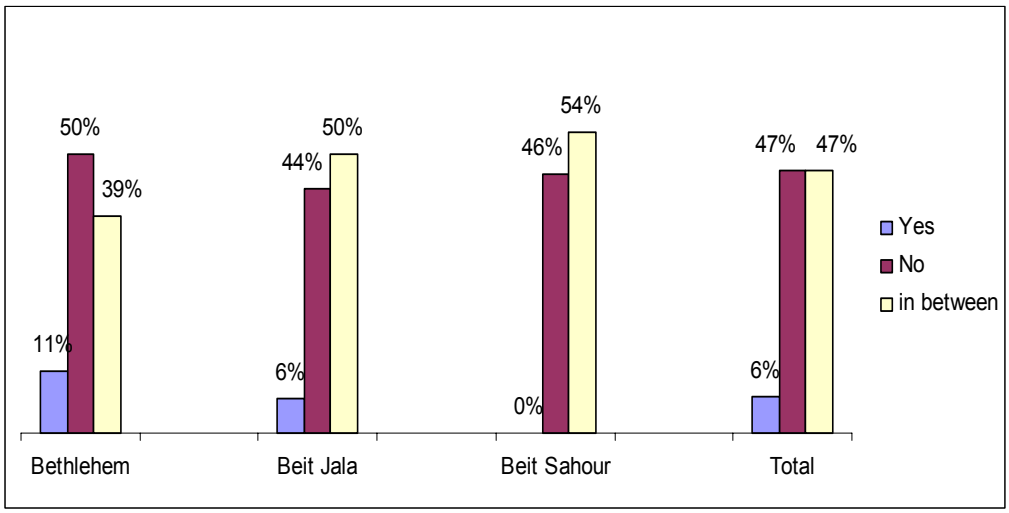
  - 74% of the questionnaire takers had not heard about the National Development Plans. The 10% who had heard about them did so through the television, newspaper, public lectures by specialized institutes and from the MOLG. 70% out of the 10% who heard about the plans were females.

  - 52.6% of the people who took the questionnaire either were not aware of the planning and building codes or were unsure. 67% of the people who were aware of the planning and building codes were males.



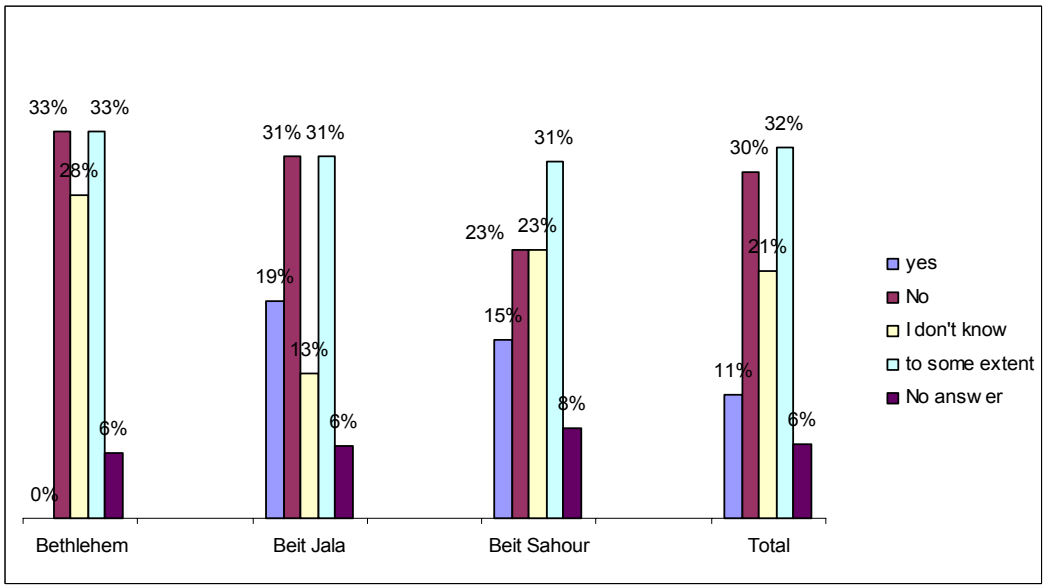
Awareness of the Planning and Building Codes

- Only 6% indicated that citizens abide by the planning and building codes. More than two-thirds of the respondents who indicated that citizens do not abide by the codes and laws were men.



Citizens Abidance by the Building Laws

- Only 4.12% of the questionnaire takers believed that the municipalities deal appropriately with code violations. The decision makers during interviews and roundtable meetings indicated that the main problem they face in enforcing the laws is the weakness of the executive body. Even if the municipality takes a court order against law breakers, the order will not be executed, due largely to the political situation.

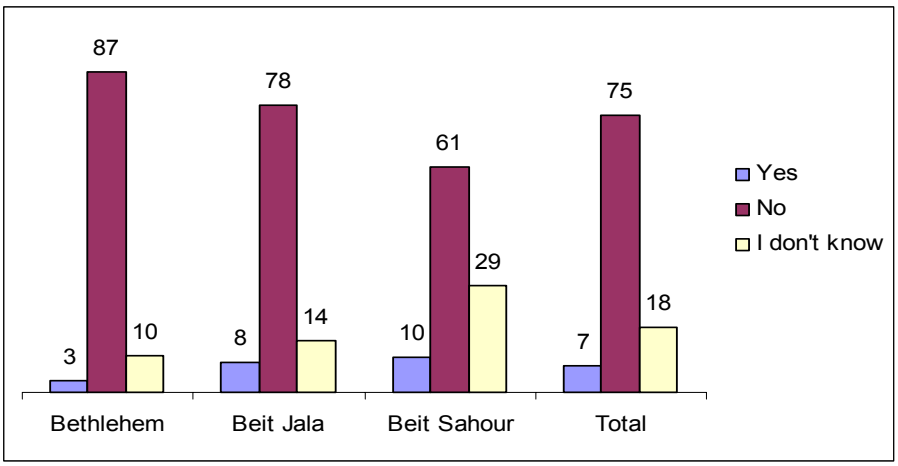


Municipality Abidance by the Planning and Building Laws

People's suggestions for methods the municipality can use to implement the building codes were: to consider the community needs more seriously, apply the law to everyone equally, communicate with the public, impose higher financial penalties, adopt more efficient procedures, and use force to implement the law.

- 56% of the people who filled the questionnaire thought that there are no guiding policies for urban expansion while 16% thought there are guiding policies. Additionally, 59% did not know on what basis zoning and land uses are determined.

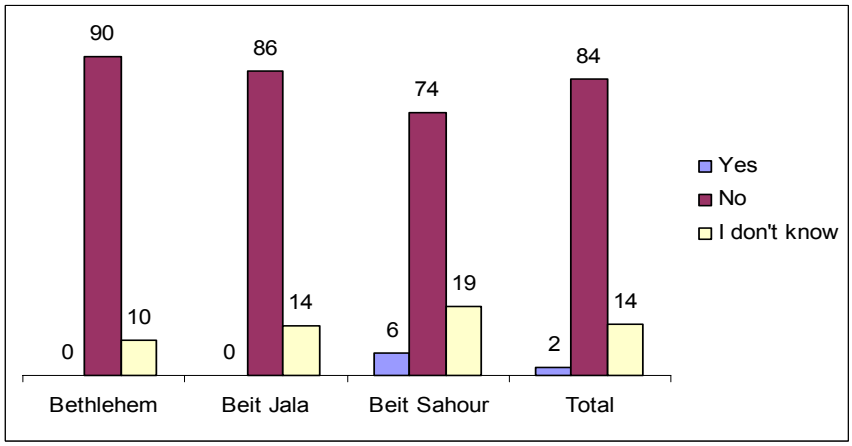
Awareness of the contents of the masterplan



Awareness with the master plan contents

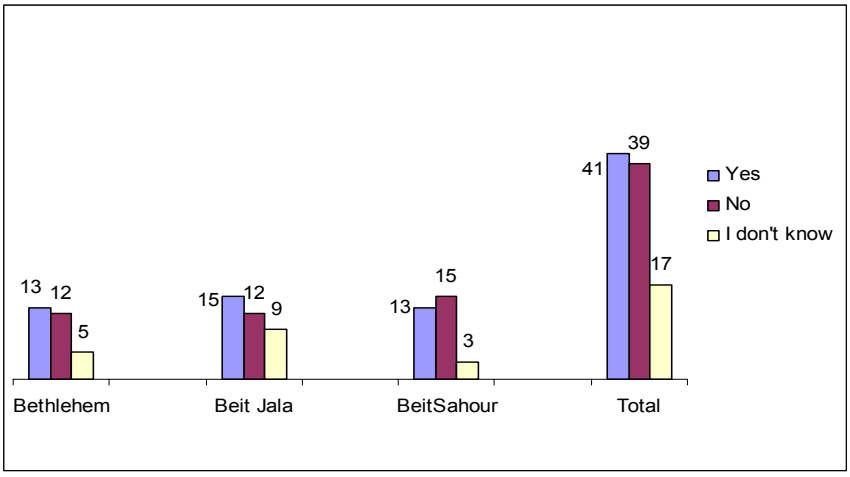
- 77% of the questionnaire takers were not aware of the contents of the masterplan in their area. Oddly, the highest percentage of respondents indicating that they were aware of the contents of the master plan was in Beit Sahour, which entirely lacks a masterplan.

- None of the females who answered the questionnaire were aware of the contents of the local masterplans.



Consultation with the public about the contents of the master plan

- 8.25% noted that the municipalities used participatory approaches while preparing the masterplan. Of the 78.35% that indicated that they didn't participate in the masterplan process, 52.63% of them were men.



Readiness of the population structure to carry out development within the transitional political context

- 63% of the questionnaire takers did not know the procedures undertaken by the municipality when drafting the masterplans. 55.67% stated that their municipalities did not make field surveys while preparing the masterplans

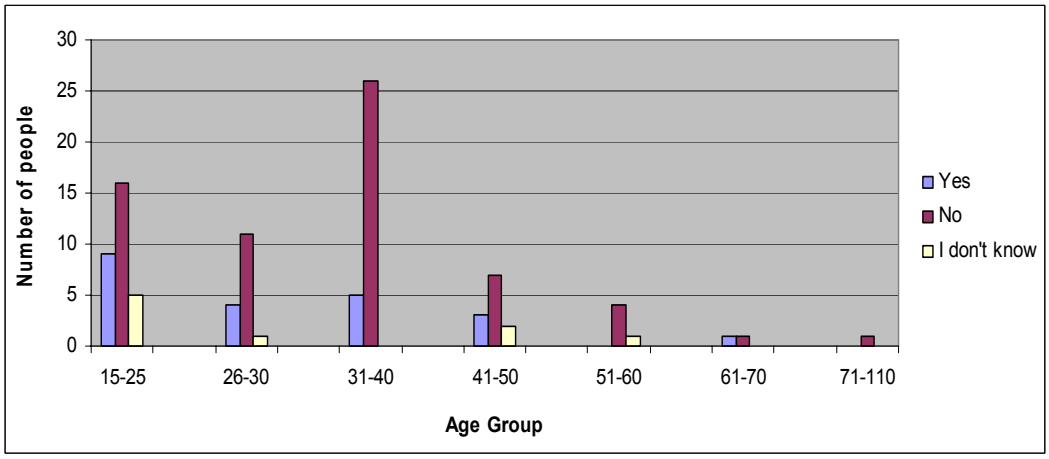
- 20% indicated that the public are informed through the official and local newspapers about the contents of the masterplan, while 42% indicated that they are not informed and 38% were unsure.

- 28% said that the municipalities allow the public the opportunity to inspect and make objections to the masterplans, while 42% said they do not, and 30% were unsure.

Awareness of sustainable development concepts

- 68% of the people who filled out the questionnaire were ignorant of sustainable development concepts. 80% of them were in the age group between 15 and 40.

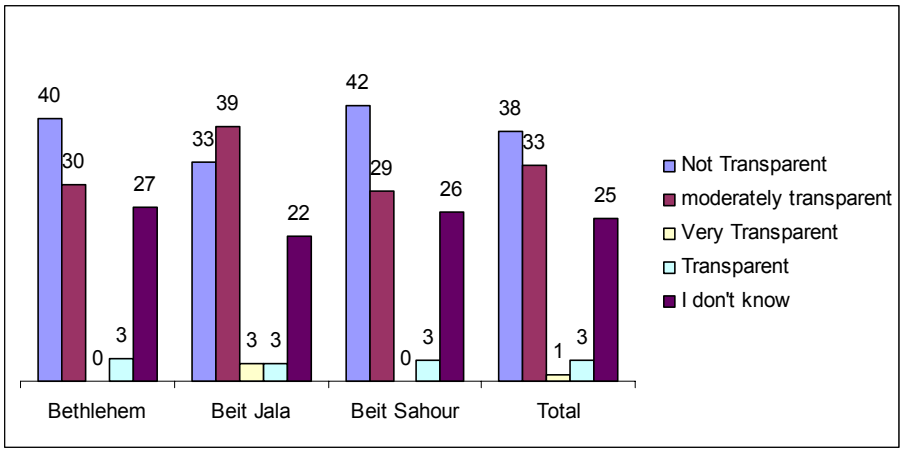
- 58% indicated that they do not know whether the sustainability concepts in Bethlehem region are being implemented or not, 18% said that the sustainability concepts are not being implemented, and 25% said they are being implemented.



Knowledge about sustainable development

- 42% of the questionnaire takers thought that the demographic and population structures are suitable for development within a transitional political context, while 40% indicated that the conditions are not suitable to carryout development and 18% were unsure. The answers were similar among males and females.

Transparency of municipalities' policies



Transparency of the municipalities

- 70% indicated that they are ignorant of municipality budget allocation, and more than two-thirds of the respondents were unaware of how the budgets are being transferred from the national to the local level.

Credit Programs

- 20% indicated that there are ongoing credit programs which promote access to credit for the urban poor, 32% said there are no such programs, and 49% did not know.

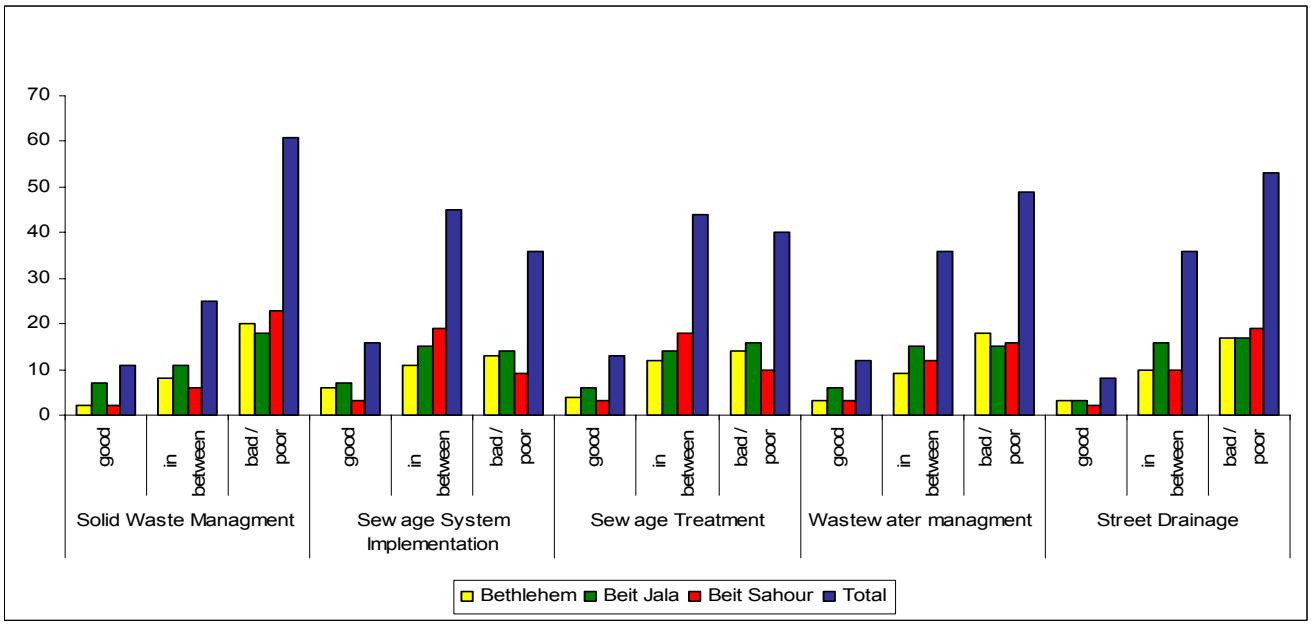
- 43% thought that the ongoing credit programs which promote access to credit for the urban poor did not treat women and men on an equal basis.

- Two-thirds of the residents believe that both private and non-governmental organizations should be responsible for programs that provide credit for shelter, whereas about 45% were unsure whether the municipalities provide such services in their programs or not.

- **The quality of services and accessibility to them**

- Peoples' perceptions about the urban services in general ranged between "good" and "mediocre." However, 46% said that the hospitals are in poor condition, and another 34% said that they are of moderate quality.

  Complains generally referred to road networks, water supply networks, garbage collection, street cleaning, street lighting, pedestrian routes, public parks, car parking, shelters, public transportation, solid waste management, sewage treatment, wastewater treatment, and street drainage.



Quality of Municipal services

Municipality	**Does the municipality ensure the accessibility of public facilities to all individuals?**					
	Answer	**Yes**	**No**	**I don't know**	**No answer**	Total
Bethlehem	% of respondents	10%	73.3%	13.3%	3.3%	100%
Beit Jala	% of respondents	27.8%	50%	22.2%	-	100%
Beit Sahour	% of respondents	41.9%	48.4%	9.7%	-	100%
Total	% of respondents	26.8%	56.7%	15.5%	1%	100%

Accessibility to public facilities

- 57% indicated that the municipalities do not ensure the accessibility of public facilities to all individuals; the percentage was the highest in Bethlehem where 73.3% of the questionnaire takers indicated that accessibility to public services is not ensured to all individuals.

- **Addressing the needs of the population**

Municipality	**Does the local government undertake actions to provide affordable housing?**				
	Answer	**Yes**	**No**	**I don't know**	Total
Bethlehem	% of respondents	3.3%	73.3%	23.3%	100%
Beit Jala	% of respondents	-	66.7%	33.3%	100%
Beit Sahour	% of respondents	3.2%	74.2%	22.6%	100%
Total	% of respondents	2.1%	71.1%	26.8%	100%

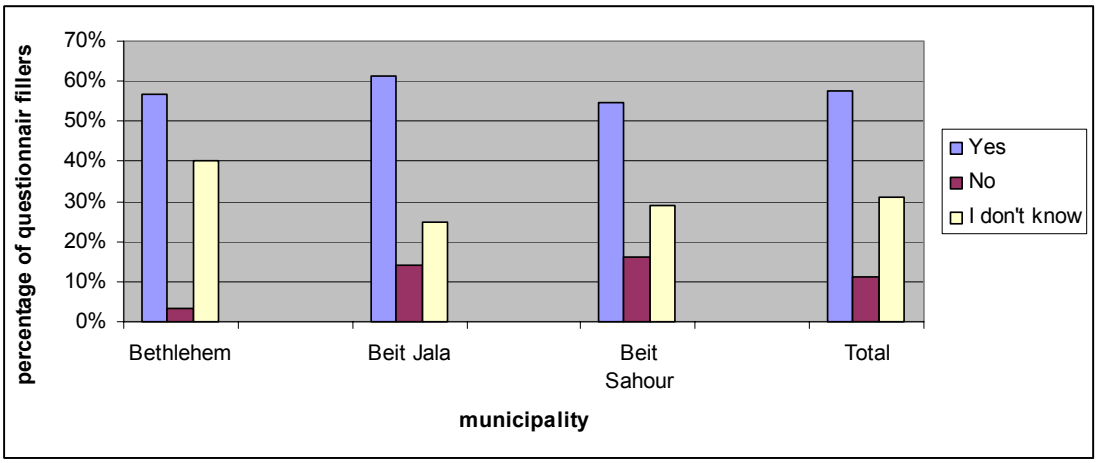
Affordable housing

- 71.1% of the respondents noted that the local government does not take actions to provide affordable housing. However, the directorate of local government in Bethlehem assured that this is one of the Ministry of Housing mandates.

Municipality	**How do you judge the procedural and administrative steps of getting a building permit regarding the time it takes and the fees charged?**					
	Answer	good	in between	bad/poor	No answer	Total
Bethlehem	% of respondents	3.3%	46.7%	46.7%	3.3%	100%
Beit Jala	% of respondents	11.1%	47.2%	41.7%	-	100%
Beit Sahour	% of respondents	9.7%	48.4%	38.7%	3.2%	100%
Total						
	% of respondents	8.2%	47.4%	42.3%	2.1%	100%

Assessment of building license issue

- About ninety percent of the respondents asserted that the procedural and administrative steps of getting a building permit and/or registering land were bad/poor, particularly in regard to fees and time duration.



Building license issuing steps incorporate obstructions on the poor and /or on women

- 57.70% indicated that there is discrimination against women and the poor. While 56% of the study sample believed that there are no direct or indirect factors that prevent women from ownership/renting, only 43% of these respondents were women.

	Do the development plans that are executed at the local level consider the future needs of Bethlehem population?					
	Answer	**Yes**	**No**	**I don't know**	**No answer**	**Total**
Bethlehem	% of respondents	6.7%	46.7%	43.3%	3.3%	100%
Beit Jala	% of respondents	5.6%	55.6%	38.9%	-	100%
Beit Sahour	% of respondents	16.1 %	41.9%	41.9%	-	100%
Total	% of respondents	9.3%	48.5%	48.5%	1%	100%

Development plans and future needs

- Only 9.3% of the respondents thought that the plans that are executed at the local level consider the future needs of Bethlehem population, while 48.5% indicated that the plans do not consider the future needs and another 48.5% were undecided or unsure. Moreover, 7% considered that the current legislations, regulations and laws are consistent with the future needs of the Bethlehem urban population, 45% think that they are not consistent with the future needs of the Bethlehem urban population.

- Furthermore, only 9.3% said that the municipalities adopt a set of procedures and steps toward sustaining the governorate natural resources and historical heritage. 51.6% were unaware if the municipalities have such actions or not.

- **Environmental policies**

Municipality	How well do you think you are informed about environmental issues and hazards?				
	Answer	Good	In between	Bad	Total
Bethlehem	% of respondents	10%	46.7%	43.3%	100%
Beit Jala	% of respondents	22.2%	50%	27.8%	100%
Beit Sahour	% of respondents	19.4%	51.6%	29%	100%
Total	% of respondents	17.5%	49.5%	33%	100%

Knowledge of Environmental issues and hazards

- 17.5% indicated that that they are well informed about environmental issues and hazards, while 33% felt that they are not well informed about environmental issues and 49.5% considered themselves medially informed.

- 41% said that there are no private, public, or NGOs that address environmental issues in their areas, and only 35% know of the existence of specialized personnel who deal with environmental policy development.

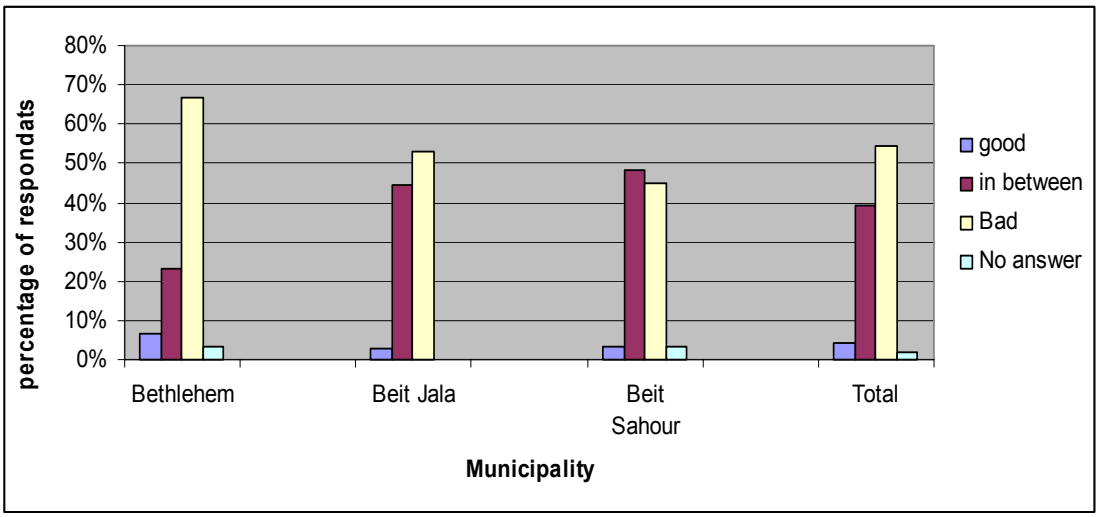
- 43% believe that the municipalities do not protect water and natural resources from pollution and over-extraction.

- **Public participation**

Municipality	**Does the municipality participate with public in the process of need assessment?**				
	Answer	Yes	No	I don't know	Total
Bethlehem	% of respondents	6.7%	60%	33.3%	100%
Beit Jala	% of respondents	5.6%	44.4%	50%	100%
Beit Sahour	% of respondents	16.1%	38.7%	45.2%	100%
Total	% of respondents	9.3%	47.4%	43.3%	100%

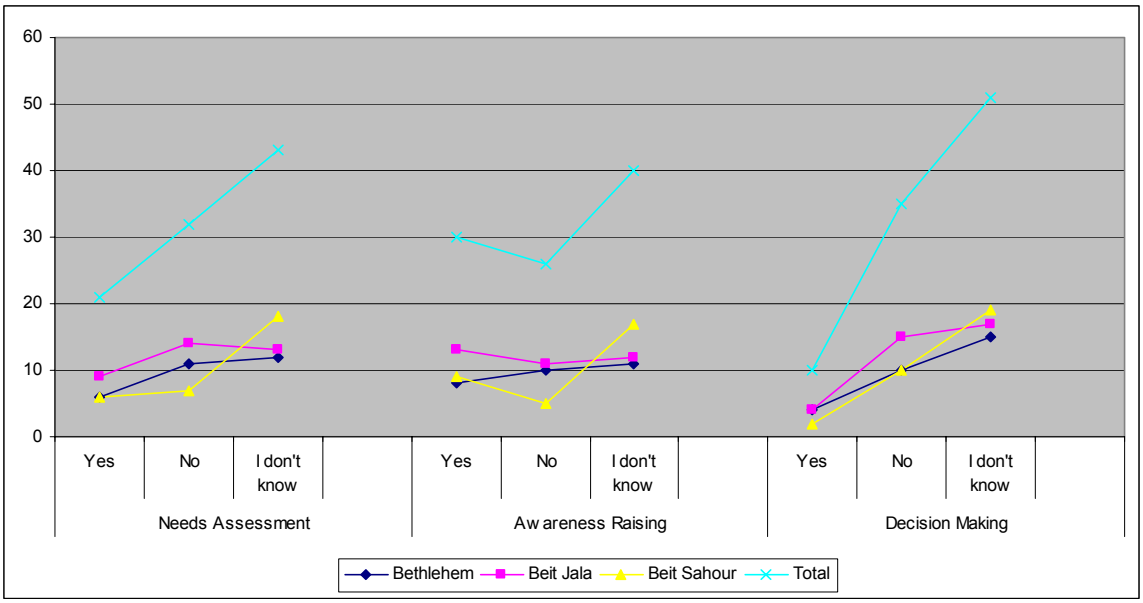
Public participation in need assessment process

- About half of the questioned said that the municipality does not participate with the public in the process of both need and capability assessment.



Public Accessibility to information

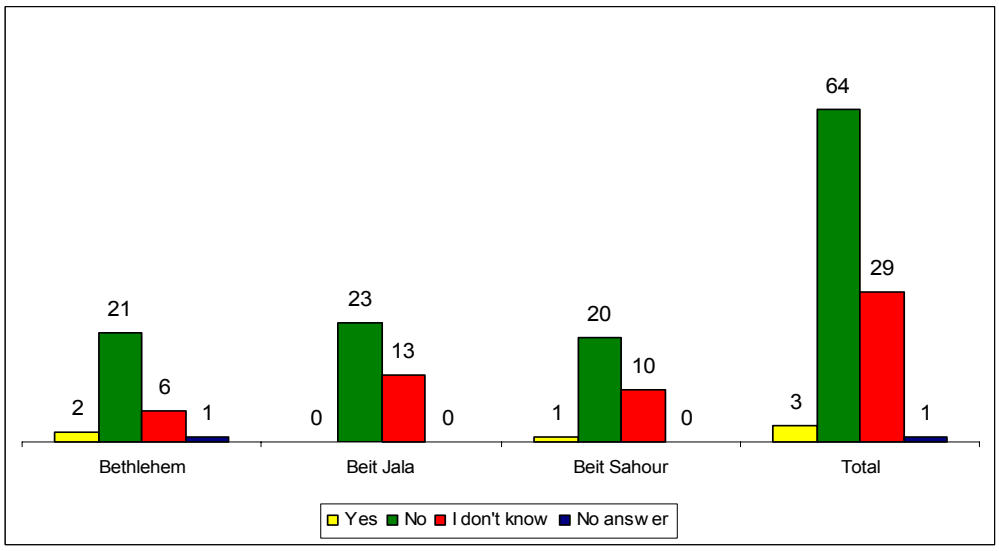
- 55% of the questionnaire respondents thought that the public accessibility to information is poor while 39% described it as mediocre. This percentage was highest in Bethlehem where 67% of the respondents characterized the accessibility as poor.



Public participation assessment

Municipality	**Does the municipality encourage local initiatives?**					
	Answer	Yes	No	I don't know	No answer	Total
Bethlehem	% of respondents	30%	30%	36.7%	3.3%	100%
Beit Jala	% of respondents	27.8%	30.6%	41.7%	-	100%
Beit Sahour	% of respondents	38.7%	22.6%	38.7%	-	100%
Total	% of respondents	32%	27.8%	39.2%	1%	100%

Encouragement of local initiatives



Participation of public in the decision making process

Municipality	**Do you think involving the public in the planning and in the decision making process will help in making the projects more successful?**					
	Answer	Yes	No	I don't know	No answer	Total
Bethlehem	% of respondents	80%	3.3%	13.3%	3.3%	100%
Beit Jala	% of respondents	69.4%	16.7%	13.9%	-	100%
Beit Sahour	% of respondents	83.9%	-	16.1%	-	100%
Total	% of respondents	77.3%	7.2%	14.4%	1%	100%

Success of public participation process

- Only 3% said that the municipalities include them in the decision making process, and 4% said that the municipalities include them in the planning process.

- 77.3% believed that the projects would be more successful if citizens were involved in the planning and in the decision making processes.

- And when asked how these aspects would be reinforced, 16.5% indicated the need for more public services to strengthen the community and 2.1% indicated the need for masterplans.

Proposed Policies and Tools towards Sustainable Development

This section will first outline the proposed policies and tools, then indicate the main constrains towards their implementation and finally will specify the main priorities.

Proposed Policies:

Based on the literature review conducted and analyzed and on the results of roundtable meetings with the decision makers at the local level, as well as the analysis of the citizen questionnaire and the workshop conducted with the citizens, the following policies and tools are suggested in the following domains:

- **Municipal administrative and financial management**
- **Urban growth, land and infrastructure management**
- **Urban environmental management**
- **Demographic strategies**

However, unless the Israeli occupation fully ends in the occupied Palestinian territory and the Israeli forces withdraw to the Green Line (the pre 1967 war Armistice line), prospects for sustainable development in all sectors will be undermined.

• Municipal administrative and financial management

Policy tools

- Institutional Strengthening and Capacity Building
  - There should be a clear definition of roles and functions for each department in the municipality, with cooperation and coordination between the different parts.
  - There should be a clear job description for each mandate within the municipalities.
  - Enhance the ability of the personnel in the municipality to perform urban management tasks; develop strategies, build-on plans, structure and implement work plans, and anticipate emerging problems and be able to deal with them. Capacity building includes: training, seminars, exchange of best practices, internal and external information exchange, and innovation sharing.

- Draft clear mandates for the ministries, governmental bodies, national authorities and agencies that will be in harmony with each other and will be incorporated within the laws

- Develop a clear internal evaluation strategy for evaluating the approaches that the municipality undertakes towards projects.

- Initiate political decentralization and structural adjustments, including the transfer of administrative, financial, planning and executive authorities from the central

government into the local government, so that local people have more control on their immediate environment.

- Emphasize the application of the clauses of the local authorities' law.

- Reduce the financial dependency of local governments on the central government by initiating revenue generating projects and investments to be able to undertake development projects.

- Improve tax collection and assessment methods

- Build and enhance partnerships through cooperation and the establishment of networking ties with the different departments in the municipality, with other municipalities in the region, ministries, other governmental and non-governmental organizations, research centers, academic institutions, and with international bodies.

- Participate with the public – local communities are key stockholders who have to be included in the decision making process as both sources of inspiration and knowledge. Local initiatives should be encouraged and developed.

- Perform decision-support tasks, such as the use of the following methods:
  - Study the impacts of alternative policy choices
  - Establish models to forecast future demands
  - Assess local needs and capabilities
  - Employ GIS as a powerful planning tool to map and mange a wide range of urban data

- Adopt and update national effective laws and regulations, and formulate relevant bylaws at the local level to implement these laws

- Promote public and private sector cooperation and investment in urban and urban environmental development.

- Raise public awareness of the municipal mandates as well as the mandates of the different governmental bodies. Also raise the public's awareness with regard to their obligations towards the municipalities and the government. (ADB, 1999).

• Urban growth management

The main problems that our cities face today have arisen from uncontrolled urban growth and the unplanned developments. These problems include degradation to environmentally sensitive land and ecosystems, loss of cultural heritage, loss of open space, loss of prime agricultural lands, development in hazardous areas, urban sprawl, degraded air quality, and more energy consumption. Therefore, land use and land development policies must be established and actively implemented. These policies should balance among urban growth, environmental protection, and demographical factors (participatory urban governance).

• Urban management policies

- Collect, update and disseminate urban data on the local level
  - Develop a land inventory (which includes the parcels, land value land ownership, land cover and land use, environmental value, linkage to infrastructure, etc.)
  - Prepare an environmental, economic, building, resources and social profiles
- Formulate development strategies and plans on the regional and local levels
- Formulate masterplans that would guide decisions about the physical, social and economic development on the regional and local levels
  - The masterplan serves as a guideline for the community of where, how and when they want development to occur.
  - Prepare the framework under which zoning maps and rules are prepared. This is important because land use decisions are based on the zoning maps which designate specifically which parcels can be used for which particular purposes. Thus zoning regulations would give the municipality control over the kind and size of development in particular places.
- Direct urban growth and protect sensitive areas
  - Identify clearly the urban growth needs
  - Identify environmentally sensitive areas and resources and protect them from urban development
  - Protect cultural heritage
  - Preserve the old city cores and encourage their use or re-use, and register the historic buildings within a national historic building inventory
  - Renovate or demolish (if the building does not have architectural, cultural or religious significance) buildings that are structurally weak
  - Create buffer zones around sensitive areas (either environmentally, culturally, or religiously sensitive)
  - Impose land use controls consistent with the masterplans
  - Give priority in development to areas within the existing urban fabric, while ensuring that there will be sufficient infrastructure to support this intensification
  - Minimize urban sprawl in and around the municipal peripheries

- Preserve the landscape and open space at the peripheries of the municipalities as part of cultural heritage
- Preserve the green open space for the coming generations
- Encourage urban agriculture
- Protect the urban environment

- Determine the locations of facilities and services, analyze their adequacy in relation to current and projected needs of the community and recommend the type and location of suggested ones.

- Provide and maintain infrastructure and services
  - Make a complete assessment of the current infrastructure networks (water networks, wastewater networks, electricity, telecommunication networks, roads [including their width, structural condition, presence of side walks, height of buildings around them, etc.]) and draft recommendations and prioritization of rehabilitation/creation works that need to be done to ensure adequate and efficient services
  - Ensure the presence of adequate roods to make areas accessible to service and emergency vehicles.
  - Ensure the adequate provision of wastewater networks and the treatment of the wastewater in the nearest treatment plant
  - Ensure the presence of an adequate drainage system
  - Ensure the presence of a good water network that provides clean water to all neighborhoods, and control the losses within the network
  - Improve the maintenance of the infrastructure

- Adopt effective regulations, laws, building codes, and policies
  - Ensure the presence of a regulatory system that will provide the framework for sustainable development
  - Increase the construction density within the parcels; in response to land shortages and increasing land values, there should be more efficient land utilization
  - Adopt a framework that regulates private investment
  - Develop regulations that balance between urban development and environmental protection
  - Adopt an appropriate taxation and pricing system for properties and services

- Adopt participatory decision making and implementation processes
    - Identify the stakeholders in every project, include them in decision making, and cooperate with them to implement projects
    - Ensure children's participation
    - Encourage regional and local cooperation
- Increase the awareness of the public, civil society, municipalities, local elected officials and the local government personnel regarding concepts and issues of sustainable development and their applicability.
- Build the capacity within the municipalities to be able to design and implement sustainable urban, resource, and urban-environmental management policies and strategies.
- Ensure that population growth is matched by access to basic infrastructure, housing and employment
    - Facilitate public transportation and mass transit
    - Coordinate and cooperate with governmental authorities and institutions to provide affordable housing
    - Take into account the special needs of marginalized groups such as the elderly, women, and the handicapped.
- Develop a process of land registration
- Employ integrated land management strategies
- Develop plans for disaster mitigation, both in the event of natural disasters such as earthquakes, and political disasters such as Israeli incursions
- Design building codes that would lead to the improvement of seismic adaptation designs (NDS, 1996).

• Urban environmental management

Urban management policies have to be based on a clear understanding of the causes of urban dilapidation and urban environmental problems, as well as a clear consideration of the externalities associated to them together with a cost-effective assessment of the proposed solutions.

A very important aspect in the success of environmental management is the presence of clear regulations, laws and bylaws that protect the environment. There should also be a strong executive body that enforces the implementation of these laws. In cases were these laws are absent, efforts should be directed to formulating ones.

Policies to be pursued to achieve a good urban environmental management:

- Assign a financial municipal budget for enhancing environmental management programs

- Increase public awareness of environmental protection issues

- Increase public participation in decision making and provide the public with open access to information

- Develop an urban environmental database that includes a clear mapping of the local resources and risks

- Prepare an urban environmental profile that includes factors influencing the environmental quality and ways to measure them in addition to observed trends

- Develop local and regional partnerships on issues that concern environmental protection and management

- Manage solid waste and wastewater
  - Adopt "best practices" guidelines in collection, treatment and disposal of solid waste and wastewater for domestic waste, industrial wastes including hazardous and toxic waste, and medical wastes
  - Encourage a reduction in the generation of waste by public awareness programs
  - Encourage and enforce instruments which mitigate the industrial waste creation and aid in disposal.

- Control air pollution by adopting policies that minimize CO_2 emissions, such as the use of unleaded gasoline, the domestic and industrial use of alternative sources of energy (like solar and wind energies), regular monitoring of the air quality, traffic management, and vehicle maintenance, among other practices.

- Encourage coordination and cooperation among the different environmental protection bodies and institutes, and between the national and local levels.

- Adopt integrated environmental and spatial planning policies

- Adopt disaster mitigation policies to minimize the losses caused by natural disasters such as earthquakes, floods, and others.

- Identify quantitative and qualitative indicators to assess urban environmental improvement. Such indicators would involve air quality, water quality, solid waste management, and wastewater management, among others.

- Pursue decision support tools/instruments such as :

1. Environmental Risk Assessment (EnRA)
   Identify the type, source and magnitude of the risk and develop a risk management plan that describes ways of dealing with anticipated risks.

2. Environmental Technology Assessment (EnTA)
   Assess different environmental technologies and adopt the most sustainable one.

3. Environmental Profiling (EP)
   Identify environmental issues, development projects taking place in the area, available resources and their dynamics, relevant stakeholders, and issues to be tackled.

4. Rapid Urban Environment Assessment (RUEA)
   Clarify issues and identify stakeholders by compiling a questionnaire on environmental data, preparing an environmental profile, discussing the results through consultations, and conducting public workshops.

5. Environmental Management Systems for Local Authorities (EMS)

This system involves four stages; the first stage is the planning stage where the goals and objectives for the project are identified, in addition to the methodologies for achieving them. The second stage is the implementation phase in which actions are performed towards accomplishing the projects goals. The third stage is the evaluation stage where the actions undertaken are evaluated using measurable indicators and the project results are assessed in relation to goals achievement. The fourth stage is the improvement stage where the plan is revised and modified to meet changing circumstances, and any deficiencies that were identified in the evaluation stage are improved. (UNEP, 1999).

- **Demographic and social policies**

- Implement the strategies, policies and plans prepared by the National Commission for Poverty Eradication.
- Adopt programs for family planning at the local level and formulate action plans towards their implementation.
- Work directly with the communities at the local level
- Enhance reproductive health care services
- Ensure the accessibility of reproductive health care services to all individuals
- Design and implement public campaigns at the regional and local levels
    - Provide couples with adequate family planning information in order for these couples to be able to make decisions about the number and distribution of their children.
    - Increase public awareness of family planning issues
    - Increase public awareness of reproductive health and birth control methods
    - Increase public awareness of the issues surrounding early marriages

- Include schools, colleges and universities in these campaigns

- Improve public health insurance coverage and extend it to cover the whole population. Improve for all individuals the conditions of accessibility to health services.

- Build and reinforce partnerships between governmental bodies, non-governmental organizations, the private sector, research centers, academic institutions and international organizations on issues of awareness raising and implementation of population strategies.

- Prepare services, facilities and programs to accommodate the projected population increase, in order to meet the needs of all society groups and improve their quality of life.

- Integrate physical development and environmental strategies with population concerns in order to ensure sustainable development.

- Increase the percentage of literate people in Bethlehem Governorate – especially the percentage of literate women – by raising the awareness of the importance of women's education and by adopting special education programs for those who are beyond school age.

- Analyze the presence and specify the need for educational facilities for all stages of education, both public and private. Promote coordination of school and youth activities with community activities

- Determine the skills, knowledges and educational attainments needed in Bethlehem governorate and direct the youth towards these areas.

- Act towards creating jobs for the continually growing percentage of people who are within the working age (15 years and above). This economic growth should be done in cooperation and partnership between the government and the private sector.

- Give emphasis to developing the human resources in each developmental project.

- Strengthen food security and encourage initiatives and programs that facilitate the accessibility to food (especially that which is locally produced and grown) to all individuals.

- Empower marginalized groups in the society, including the poor, women, elderly and children, by targeting them with special programs, enhancing their accessibility to services, and meeting their needs.

Main Constrains:

The main constrains facing the implementation of the proposed policies

The unstable political conditions, characterized by Israeli military occupation in the West Bank, the lack of Palestinian sovereignty over their lands and resources, the Segregation Wall the Israelis are constructing on the Palestinian lands, together with the fragmentation of the West Bank into smaller Israeli controlled cantons are the main constrains the Palestinians are facing in implementing sound sustainable development. Unless the Israeli occupation fully ends in the occupied Palestinian territory and the Israeli forces withdraw to the Green Line (the pre 1967 war Armistice line), prospects for sustainable development in all sectors will be undermined.

Of the major constrains towards the implementation of policies proposed in the previous section are the weakness of the executive body to enforce the legislations and prevent violations accompanied with the weakness of the legal system to support the issuance and execution of rules and laws. Beside, the presence of outdated laws that need to be adapted to the needs of the local people and the changing conditions

Another important constrain comes from the serious deficiencies both in the national budget and the local budgets, accompanied by the financial dependency of local governments on the central government. This situation is also reflected in the lack of financial resources for the institutional and human capacity building in the local level, which hinder initiatives of institutional strengthening. The deficiencies in the budgets also deter the local government and the municipalities from hiring appropriate professionals to prepare and implement development plans; including masterplans, demographic strategies, environmental management plans and disaster mitigation plans.

Additionally, initiatives towards the decentralization are still stumbling. Also, there are unclear mandates for the different ministries and departments; where in some cases the same mandate is given to more than one ministry, which creates confusion and conflict over the roles of the different departments/ministries, in addition to the lack of coordination between the different departments, ministries and institutions. Another constrain is the lack of awareness between community members about their rights in participation in planning and development for their communities

The unstable political conditions make it hard for the municipalities and local government to draft and implement developmental plans at the regional and local levels, where the absence of these strategies make it difficult to implement integrated clear policies. In addition, constrains facing the implementation of the policies proposed in the previous section include the deficiencies in the organizational and administrative structures in the municipalities which make the processes of planning, implementation and monitoring of development project difficult.

Policy Priorities:

Prioritization of proposed policies towards sustainable development in the study area

Sector	Proposed policies

Municipal administrative and financial management	• Institutional Strengthening and structural adjustments
	  ○ Defining and clarifying each of the municipal employee's roles and functions;
	  ○ Drafting clearer mandates to the ministries, governmental bodies, national authorities and agencies;
	  ○ Transferring of the administrative, financial, planning and executive authorities from the central government into the local one (decentralization);
	  ○ Adopt and update effective laws and regulations and formulate relevant bylaws to implement them, for instance, updating and improving tax collection mechanisms;
	• Ensure the participation of the public
	• Enhancing the municipal employee's abilities to perform urban management tasks through Training and Capacity Building
	• Exchange of best practices, internal and external information exchange, and innovation sharing corresponding to urban management fields
	• Perform decision-support tasks

Urban growth, land and infrastructure management	• Direct growth in urban areas
	  ○ Collect, update and disseminate urban data on the local level in order to identify the urban growth needs
	  ○ Formulate land inventories, land distributions and masterplans to guide decisions about physical, social and economic development
	  ○ Protect sensitive areas (cultural, religious, environmental and historical sites)
	• Provide and maintain sustainable infrastructure and services
	  ○ Conduct a complete assessment of the current infrastructure networks
	  ○ Ensure the development of adequate services; including facilitating public transports, wastewater networks, healthy water network and adequate drainage systems
	• Adopt effective regulations, laws, building codes and policies
	  ○ Increase the construction density within the parcels to provide affordable housing in urban growth areas
	  ○ Adopt an appropriate taxation and pricing system for properties and services
	• Develop plans for natural and non-natural disaster mitigation;

Urban environmental management	• Assign a financial municipal budget for enhancing environmental management programs such as the management of domestic solid waste and wastewater. • Manage solid waste and wastewater • Identify quantitative and qualitative indicators to assess the improvements in the urban environment • Increase public awareness and participation in environmental protection issues, by developing partnerships with related corporations • Pursue environmental assessment, management and profiling decision support tools / instruments • Adopt integrated environmental and spatial planning policies that incorporate disaster mitigation policies. • Support integrated and participatory researches and studies to reduce environmental burdens on the urban poor, and enhance the use of natural resources for food, water, and income security.
Demographic strategies	• Adopt programs for family planning at the local level and formulate action plans towards their implementation • Ensure the accessibility of reproductive health care services to all individuals • Design and implement public awareness campaigns at the regional and local levels : o Provide new married couples with adequate family planning information; o Increase public awareness of family planning issues; reproductive health and birth control methods; and the issues related to early marriages • Prepare services, facilities and programs to accommodate the projected population increase, in consistency with the prepared national ones. • Improve public health insurance coverage and extend it to cover the whole population, through developing and reinforcing partnerships between the governmental and non-governmental organizations. • Increase the percentage of literate people in Bethlehem Governorate – especially the percentage of literate women. • Create jobs for the continually growing percentage of people who are within the working age (15 years and above).

Using Suitability Analysis as a tool for sustainable land use and urban environmental management

This section includes an example of a tool that can be utilized by the decision makers in the municipalities and the local government to mange the urban growth and the resources for sustainable land use and urban environmental management in Bethlehem Governorate.

The purpose of this analysis is to use a spatial GIS-based model to assess the potential suitability of locations for urban growth in Bethlehem governorate. The analysis aims to help the decision makers at both local and regional levels to avoid any unwanted side effects of unplanned development. This will be achieved through considering two distinct scenarios. The first scenario shows the current situation in which *political constraints* play a major role in specifying the limits of population development in the study area, i.e. Israeli control of open spaces and other suitable area for development. Alternatively, the second scenario *"Environmental Constraints"* would also include those areas that are presently under Israeli jurisdiction in the scenario with a particular consideration for development of the environmental factors, so as to develop a clear picture of the environmental impact on development planning, regardless of the political situation.

Several map layers of data - such as water sensitive areas, built-up areas, and grade slopes - were incorporated into two suitability modeling scenarios. The Arc/GIS Spatial Analyst tool was used to perform the spatial analyses. The analyses consistently categorized five potential areas for urban growth in Bethlehem area, based on the extent to which they indicated suitability for urban development. The five categories are: most suitable, suitable, moderately suitable, less suitable and least suitable areas and were assigned a value of 5,4,3,2, and 1 respectively. See the following table.

Multi-Factor Rating Scenario 1 (Political Constrains)	
Factor	**Rating**
Built-up Areas	Inside the built-up areas = 5 Outside the built-up areas = 1
Factor	**Rating**
Geopolitical Classification	Area (A) = 5 Area (B) = 4 Area (C) = 2 Nature Reserves = 1
Factor	**Rating**
Land Use / Land Cover	Arable land, forests heterogeneous agricultural areas and permanent crops = 1 shrub and/or herbaceous vegetation associations = 2 Open spaces with little or no vegetation / Artificial non-agricultural vegetated areas = 3 Mine. Dump and construction sites / Pastures = 4

Factor	Rating
Segregation Wall	"Buffer Zone" of 200 meters at the two sides of the wall = 1 Else = 5
Factor	**Rating**
Settlement Masterplans	Inside the settlement = 1 Outside the settlements = 5
Factor	**Rating**
Bypass Roads	"Buffer Zone" of 150 meters at the two sides of the road = 1 Else = 5
Factor	**Rating**
Water Sensitive Areas	The area of Bethlehem governorate was zoned into five zones (1-5) Relying on the Water Sensitivity Map of the West Bank published by Ministry of Planning in 1998.
Factor	**Rating**
Slope	Slope and aspect models for Bethlehem governorate were derived from the Digital Elevation Model (DEM) of the West Bank.
Factor	**Rating**
Heritage Sites	"Buffer Zone" of 100 meters around the heritage sites of Bethlehem governorate = 1 Else = 5

Note: The second scenario has the same rating except for the built-up area and for the geopolitical classification. Where the rating of the "inside the built-up area" and "outside the built-up areas" were switched becoming; 5 for "outside the built-up areas" and 1 for "inside the built-up areas", and the rating for the geopolitical classification became; 1 for "Nature Reserves" and 5 for Else (i.e. Areas A, B and C).

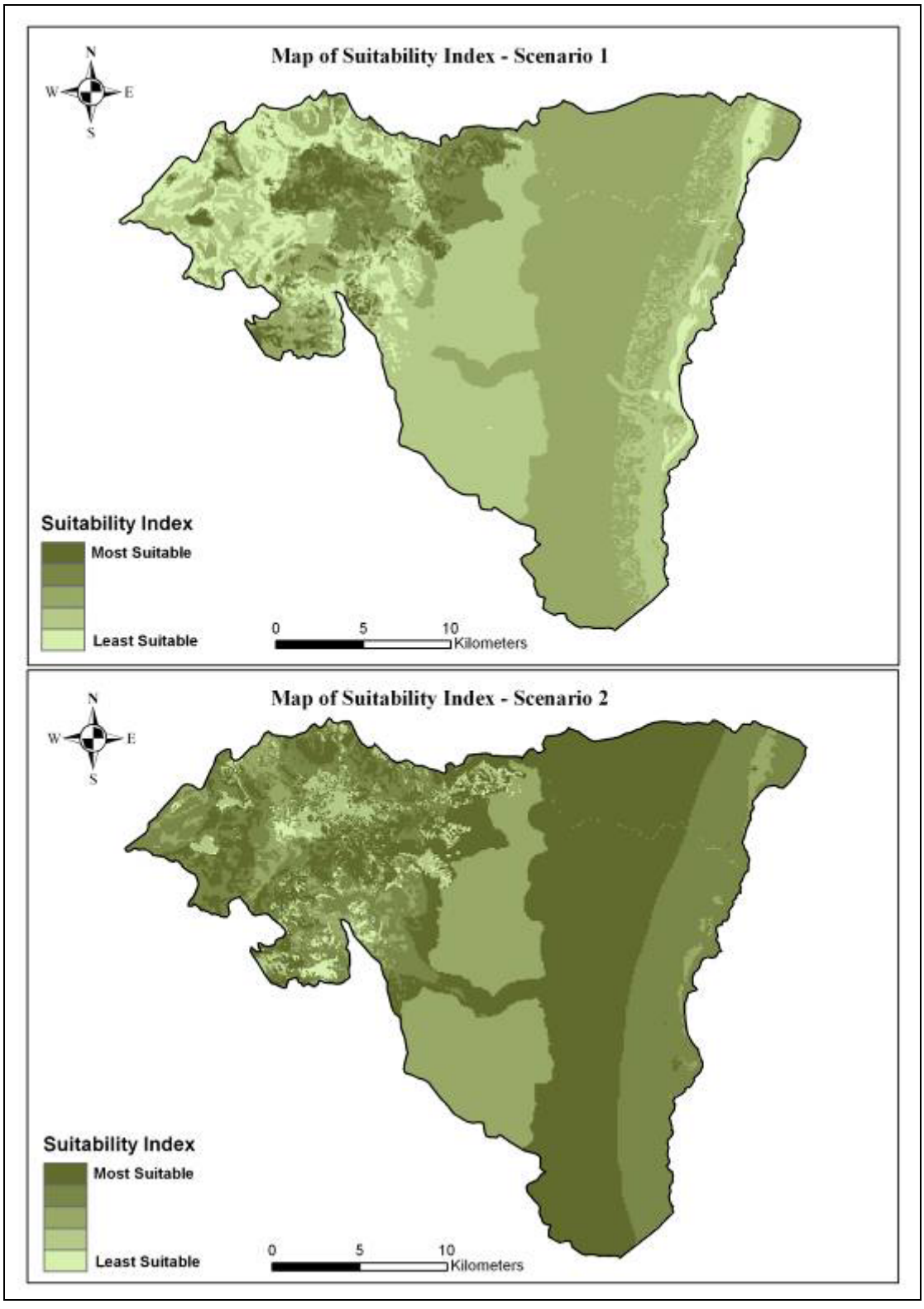
The spatial analysis map calculator was used to weigh and combine the individual map layers and produce a suitability model. For instance, the used map calculator expression for scenario 1 was: ([Built-up Areas] × 0.40 + [Geopolitical Classifications] × 0.20 + [Land Use / Land Cover] × 0.15 + [Segregation Wall] × 0.05 + [Colony Masterplans] × 0.05 + [Bypass Roads] × 0.05 + [Water Sensitive Areas] × 0.04 + [Slope] × 0.04 + [Heritage Sites] × 0.02).

In this model, the built-up area is weighted most heavily because it should have the most influence in the model. The output of the map calculator is the suitability model. The table below summarizes the weighting schemes used for each of the two suitability models. The suitability model is displayed on a shaded scale of one to five, five being the most suitable and one being the least suitable.

Multi-Factor Weighting			
Scenario 1 (Political Constrains)		**Scenario 2 (Environment Constrains)**	
Factor	**Factor Weight**	**Factor**	**Factor Weight**
Built-up Areas	40%	Built-up Areas	40%
Geopolitical Classification	20%	Geopolitical Classification	20%
Land Use / Land Cover	15%	Land Use / Land Cover	15%
Segregation Wall	5%	Segregation Wall	1%
Israeli Settlement Masterplans	5%	Israeli Settlement Masterplans	1%
Bypass Roads	5%	Bypass Roads	1%
Water Sensitive Areas	4%	Water Sensitivity	10%
Slope	4%	Slope	2%
Heritage Sites	2%	Heritage Sites	10%

The results from the two model analyses should be considered preliminary and demonstrate the usefulness of the spatial suitability analysis technique.

The findings of the analysis reveal some interesting facts. As in scenario 1 the suitable area (summation of areas 4 and 5), see the following two maps; constituted only 8% of the total area of Bethlehem governorate, compared to more than 73% in the second scenario, where the geopolitical factors were differentially rated comparing to the environmental ones. Paradoxically, the existing built-up area constituted more than 50% of the available suitable area in scenario 1 compared to less than 1% in the second scenario. Nevertheless, it should be accentuated on the fact that more than 87% of the suitable lands for urban development in scenario 2 falls under the full Israeli control in areas C, where 15.6% of the suitable lands in scenario 2 are confiscated for the purpose of constructing the Israeli settlements, bypass roads and lately the segregation wall.


Map of Suitability Index - Scenario 1
N
W
E
S
Suitability Index
Most Suitable
Least Suitable
0
5
10
Kilometers
Map of Suitability Index - Scenario 2
N
W
E
S
Suitability Index
Most Suitable
Least Suitable
0
5
10
Kilometers