SUSTAINABLE IMPROVEMENT STRATEGIES FOR LOWER INCOME URBAN COMMUNITIES

Report on the Reassessment Phase of
Assessing Sustainability in East Wahdat and Jofeh
Amman, Jordan

Unit for Housing and Urbanization
Harvard University Graduate School of Design
Cambridge, Massachusetts, USA
and
Urban Development Department
Housing and Urban Development Corporation
Amman, Jordan

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PREFACE

Enhancing the development potential of an urban community by creating an enabling social, economic and physical framework to maintain urban improvements is the essence of sustainability as defined in this research project. This report summarizes the findings of phase one of a study on the sustainability of urban improvements for lower-income communities in Amman.

Designed as a collaborative research effort as well as an ongoing training activity for the UDD, study teams from the UDD and the Unit focused on different aspects of the study during the reassessment phase. The UDD team was primarily responsible for survey design, data entry and analysis for the socio-economic survey. The Unit team concentrated on the physical assessment and its integration with the socio-economic data through the use of PALMS, a Geographic Information System developed by the Unit. Both the socio-economic survey and the physical survey were carried out by UDD survey teams. Valuable input was also provided by consultants during different stages of the study.

This *Report on the Reassessment Phase of Assessing Sustainability in East Wahdat and Jofeh* was prepared by John Driscoll, Research Associate at the Unit with guidance and review by Professor François Vigier, Principal Investigator and Dr. Mona Serageldin, Study Coordinator. Randa Tukan, Research Assistant at the Unit, developed the data management structure for the statistical and geographic mapping input and analysis.

The report is divided into the following sections:

- **OVERVIEW** provides a brief history of the project and summarizes the major issues of concern to this study.

- **COMMUNITY PROFILE** describes the major transformations that have occurred in two World Bank financed upgrading projects in Amman, *Jofeh* and *East Wahdat*, including densification, changes in plot and housing densities; *Employment* and *Education*, and *Resource Mobilization* to finance land purchase and housing construction and turnover.

- **REASSESSMENT OF INFRASTRUCTURE AND COMMUNITY FACILITIES** reviews the findings of the socio-economic surveys including *Resident Evaluations*, and *Review of Major Improvements*--circulation networks, storm-water drainage, water and sewerage, community facilities, commercial shops, communal spaces and maintenance.

- **CHILDREN** documents the use of space by women and children and the impacts of densification on children. Major issues include: *Use of Open Space*; *Age and Gender Differences*; *Injuries*; *Youth*; *Use of Community Facilities* - community centers, library, kindergarten, playground facilities, health facilities and green areas.

- **CHANGING URBAN DEVELOPMENT CONTEXT** assesses sustainability objectives in the context of a very different political, economic and institutional climate since Wahdat and Jofeh were first upgraded.

- **MAJOR ISSUES, OBSERVATIONS AND RECOMMENDATIONS** summarizes the interrelationships between socio-cultural, economic and physical variables that provide the basic framework for approaches to sustainability. Summary matrices describe the key issues, note major physical and social observations from the surveys, cite interrelated issues and current UDD standards and provide recommendations and comment.

- **APPENDICES** Various reference tables are included as well as maps and a background description of the Jofeh Community Center.

1.0 OVERVIEW

ASSESSING SUSTAINABILITY IN JOFEH AND EAST WAHDAT

1.0 OVERVIEW

1.1 Background

The Unit for Housing and Urbanization at the Harvard University Graduate School of Design and the Jordanian Urban Development Department (UDD) recently completed the first phase in an applied research project to identify sustainable improvement strategies for lower-income communities. The experience of two settlements upgraded in the early 1980s was systematically documented to ascertain the sustainability of the upgrading standards and community organizing techniques that were used. These findings are providing the basis for the second phase of the study that will identify new operational strategies and standards for future projects within a framework of major shifts in housing and urban development policies in Jordan.

The Amman project is part of a larger research effort underway in collaboration with agencies and research organizations in selected cities of developing countries. In Cairo, a reassessment was conducted on two older public housing estates, Rawd El-Farag and Khalafawy. The reassessment identified socio-economic, physical and community organizational factors that influenced the sustainability and livability of older planned communities and their impact on surrounding neighborhoods. A training program is underway for Cairo Governorate District staff; focusing on the community mobilization process leading to environmental upgrading through self-reliance methods. The objective is to achieve sustainability by the institutionalization of community participation in the various stages of planning, implementation and maintenance of physical improvements to the built environment.

The study in Karachi surveyed 403 families with 698 children under 5 in a low-income urban settlement. The variables that proved significant in determining the levels of household and child morbidity were grouped into four significant categories: individual, family, housing and environmental factors. Together these variables act synergistically to increase the risk of household and child morbidity. The findings are being used to develop a Health Risk Index that combines seven socioeconomic housing and environmental factors. As an indicator of risk in children under five, it is being integrated as a management tool in a community health program.

1.2 Assessing Sustainability in Jofeh and East Wahdat

In Amman, the upgrading of two sites (one in East Wahdat[1], one in Jofeh) in 1981/1982 were part of a larger World Bank financed upgrading and sites-and-services program initiated in 1980 to respond to rapid urban growth in the Amman-Zarqa corridor. Each of the two sites represent different settlement topologies and social profiles to which similar upgrading approaches were applied. A new plat allowed for the construction of streets and utilities, regularization of tenure, the construction of sanitary cores in selected plots, loans for plot purchase and house construction and the provision of community centers, a health clinic and a library.

1.2.1 Previous Studies

The two Amman sites were chosen because of their successful implementation and the excellent documentation offered by two previous studies, a 1981 baseline survey and a 1985 follow-up survey. Both studies established strong links between the health of infants and children and improved environmental conditions created by new housing and the provision of infrastructure.

The 1981 study was used by UDD to develop program strategies to address health issues in upgrading programs including: the upgrading of the physical environment and housing; and the construction of training centers and community centers to increase the economic and educational resources for women, especially for those at the margin. The positive effects of this strategy were evident in the 1985 study, completed three years after upgrading, which documented a dramatic overall decline in child mortality from 68 per thousand to 55 per thousand. This decrease was some five times higher than for Jordan as a whole.

1.2.3 Focus of the 1990 Reassessment

The 1990 reassessment identified factors which enhanced and safeguarded the sustainability of the improvements as well as factors which impaired their functional quality. The three major areas covered by the reassessment included:

- Identifying Sustainable Improvement Strategies

  The reassessment sought to document the transformation that had taken place during the last ten years, ascertain the environmental consequences of this growth

[1] In the remainder of the report, East Wahdat will be referred to as Wahdat.

and assess the adequacy of the development standards. The project also wanted to identify those standards, designs and operational strategies that encouraged a dynamic community partnership between the public and private sectors and contributed to maintaining the improvements in environmental quality gained through the initial upgrading. When incorporated into the design of future projects, these strategies can produce improvements that can be sustained over time, without the accelerated loss of environmental quality brought about by densification and the scarcity of municipal funds.

- Evaluating the Needs of Children and Youths

  The UNICEF funding allowed a more extensive study of public spaces where children are spending a large portion of their time. These spaces were assessed under different use patterns to identify methods that can enhance health and safety gains, and prevent a gradual deterioration in the overall quality of the physical environment where children's activities take place. The study sought to identify standards for development in new projects that meet the need of children to have access to open space, air and light especially since the public open space accessible to children diminishes with densification.

- Assessing the Role of Public Space

  Public space plays a vital and often unrecognized role in maintaining the health and vitality of a community. The reassessment sought to document the multiple functions of public spaces and identify those spaces in each community that were responsive to social, economic and cultural needs and contributed to maintaining environmental quality.

1.3 Methodology

In June 1990, a working session was held in Amman among the study teams and the donors to initiate the study, finalize the research design and visit the sites.

Socio-economic surveys for each site were based upon a 50% sample of the plots using a modified version of the 1985 questionnaire, supplemented by a resident satisfaction section, a documentation of physical changes on the plots and an assessment of environmental conditions. In addition, the use of space by children within and outside the plot boundaries was documented by asking both mothers and children where play took place. The socio-economic survey was conducted September/November 1990, and the physical reassessment was conducted in May/June 1991.

The geographic recording of physical conditions were used in conjunction with the socioeconomic survey to identify key relationships between the social, economic, cultural and physical characteristics of the two communities. Two working documents with companion atlases, "Assessing Sustainability in East Wahdat" and "Assessing Sustainability in Jofeh" integrated physical and socioeconomic data through the use of statistical and computerized GIS analysis. The working documents were used in a joint working session in November 1991 to review the findings from the surveys and develop operational guidelines and strategies.

1.3.1 Future Activities

The UDD's original organizational objectives reflect the approaches introduced in the late 1970's to address the growth of squatter settlements. The agency' mandate was to improve shelter conditions for lower-income people under the 40th income percentile, achieve full cost recovery and lower infrastructure costs. After a decade of successful project implementation in both upgrading and sites-and-services, the UDD is facing new challenges that require a reassessment of its approach to upgrading urban environments. The policies and programs designed and implemented during the last two decades no longer fit the economic and political profile of the 1990's nor the realities of today's urban land markets.

The study team has reoriented Phase II activities to better respond to the changing institutional context in Jordan, namely administrative decentralization, broader responsibility and authority at the local level and greater discretion in decision making at the community level regarding actions directly affecting the community. These changes have affected UDD's current project pipeline. In future projects, including the Aqaba Old Town upgrading project, UDD will be working through or on contract with provincial authorities and/or municipalities and will also incorporate active community participation in project planning and implementation processes. Some Phase II activities have also been revised to respond to the merger between the UDD and the Housing Corporation to form the Housing and Urban Development Corporation (HUDC).

Phase II will consist of the following components:

- <u>Establishment of a Monitoring Program</u>

  Selected elements that have a strong impact on sustainability will be field tested by integrating them in new projects as appropriate. A monitoring program will be established to:
  - Monitor study recommendations already in place in ongoing projects; and
  - Introduce study recommendations in future projects as they come on line.

- Assessment of Impacts of Alternative Implementation Strategies

  The Study Team will conduct in depth interviews with community leaders and a small sample of households in three settlements where residents have adopted different attitudes regarding land regularization and infrastructure and where improvements are being implemented through different institutional arrangements. The team will assess the impact on sustainability of these alternative operational strategies.

Phase II outputs would be used to develop a training program for UDD staff working with and providing technical assistance to local authorities and NGO's involved in the operation and maintenance of urban improvements.

1.4 Summary of Study Results

In Wahdat the major physical intervention resulted in a dramatic improvement in the physical environment. At the outset only 9% of households were connected to sewers; by 1985 almost all were connected. In Jofeh, 60% of households were connected to utilities prior to upgrading but public ways were unpaved and subject to severe erosion because of the steepness of the site; essentially all households are now connected and erosion has been stopped. In both sites, community centers were constructed as well as a health center and library in Wahdat.

Institutional loans provided by the project were primarily used to purchase the plot, with housing construction financed from a combination of personal loans and assets; the intensive construction activity contributed to a significant decline in crowding within the dwellings. The economic recession which started in 1988 has affected the settlements. Residents in both communities have seen their incomes decline in absolute terms in the last few years and, for at least half of the families, a reduction in household expenditures has been necessary. Families who indicated that they wanted to move out had on average higher income levels indicating rising housing expectations rather than lack of affordability, as traditionally assumed.

The interrelations between socio-cultural, economic and physical variables provide the basic framework for approaches to the sustainability of physical improvements in upgraded neighborhoods. Reassessment findings underscore the following considerations:

- Infrastructure capacity should reflect a realistic estimate of the load to be carried when population densities reach saturation levels. Its design should account for cultural patterns and maintenance practices.

- Site design, circulation, public spaces, community organization and education programs are critical contributors to the sustainability of urban improvements and the structuring of a supportive public/private interface.

- Sustainability requires innovative strategies for cooperative action among the public and private sectors, especially in the project development and financial planning stages. Sharpening environmental awareness among residents through outreach, promotes community involvement in safeguarding, operating and maintaining the improvements.

1.4.1 The Need for Alternative Standards and Strategies

An outcome of this reassessment is the identification of sustainable improvement strategies and standards that can be applied in various contexts including: a traditional integrated upgrading project; an incremental upgrading program that becomes part on a municipality's capital budget and planning process; or the extension of utility networks to informal settlements by utility companies. All of these approaches initiate transformations in the settlement and provide the framework for housing developed by the private sector. The reassessment has demonstrated that improvements which do not take into account the reality of future development tend to collapse when private sector response (formal and informal) surpasses the expectations of planners or deviates from predicted scenarios.

♦ **Circulation Network**

The primary issues regarding circulation in the sites is achieving a balance between the need for access, encouraging care and maintenance of public spaces, and providing play areas for children and gathering areas for adults. In the physical survey, certain households along specific paths demonstrated strong community cohesion, cooperation and maintenance for particular areas within the site. This occurred where the paths were designed to invite contact, even if transitional in character, in semi-public open spaces. Breaking long narrow paths with a variety of small open spaces creates transitional spaces that belong to a limited number of households who feel responsible for the maintenance, are encouraged to gather and interact among themselves, and feel secure about their children playing in these spaces. They tend to strengthen community ties and encourage community participation by building on existing kinship networks and relationships among neighbors. Shorter cul-de-sacs also serve as semi-public space for community interaction.

The advantages of a primarily pedestrian circulation system have to be balanced with the need for vehicular access. Residents in Wahdat stated that a higher level of demolition during the initial reparcelization of the site would have been preferable if it had allowed for better vehicular access to their plots. Moving building materials to plots and the difficulty experienced by the elderly and sick who have to walk along long paths and stairs to transportation are some of the access related problems identified in the surveys.

When the circulation system is made up primarily of pedestrian paths, the width of vehicular roads becomes critical. Plots allowing ground floor commercial development on cul-de-sacs at the end of a long narrow lane caused severe congestion problems and created safety concerns for children. Providing enough parking through a combination of off-street and on-street parking to accommodate increasing vehicular ownership will ensure that streets do not become congested due to illegally parked cars. In Wahdat, it is estimated that at least 100 personal vehicles are parked on the site in addition to employment related vehicles that residents bring home.

Residents, especially women and girls, cleaned the areas in and around their plots; there was also evidence of repair to paths by residents. These patterns can be encouraged through physical design and community organizing.

When maintenance problems are at a larger scale than what the residents should or can handle on their own, even collectively, they were unsure as to which public agency should be contacted, the UDD, the municipality or the Water Authority. The definition of maintenance responsibility from the outset is essential to overcome this problem. Once the responsibility for maintenance becomes more defined, the coordination between residents and the municipality on any maintenance issue becomes more effective.

- **Stormwater Drainage**

The hilly topography of Amman, and of these sites in particular, combined with the concentration of heavy rainfall in winter shows the need for a well designed drainage system. It became clear that some of the more critical drainage problems occurred where the paths were long and going against the natural contour lines. Additionally, stormwater trenches became blocked when their covers were broken and solid waste, accumulated in trench openings. Similarly, the relationship between plot entrance levels and street levels becomes critical in order to avoid the problem of runoff washing down onto residents' plots.

The stormwater drainage issue exemplifies how physical and social elements become interrelated. When the standard was less than adequate, as in the case of the drainage channels in Wahdat, problems arise that with time become an environmental hazard. In the interior of the community where paths are not well maintained and garbage collection is less frequent, solid waste was washed downhill, blocking the main drainage channel. While residents showed individual initiative for smaller scale maintenance of the stormwater system the problem was unattended once it grew beyond their scope, immediate interests or capabilities. Jofeh, despite its steep slopes shows no evidence of drainage problems. The surface drainage system was well laid out with paths that varied in width and length to avoid long drainage runs.

- **Water and Sewerage**

The standards used in water networks were not identified as problems in the surveys. The sewerage system on the other hand experienced considerable blockages at the outset of the project and up to 7% of households indicated ongoing maintenance problems because of 6-inch collectors. In all of its new project the UDD now uses eight-inch collectors and the newer sites are not experiencing blockages. The UDD is experimenting with 60 to 80 meter manhole intervals and paved paths over shallower trench depths to save on costs and facilitate maintenance.

Residents still perceive the UDD as responsible for maintaining the sewerage system even though the network has been handed over to the Water Authority. The development of education and training materials in cooperation with the utility agencies would help residents better understand the procedures for registering a complaint or avoiding blockages. A community coordination committee in liaison with utility authorities during the initial break-in period should be part of the initial community development efforts.

- **Community Facilities/Community Organizing**

The level of community cohesiveness has definite impact on operational strategies for community facilities and the design of social programs. In Jofeh, despite a very high level of initial hostility among residents to the UDD, the community center was viewed as a success due to a combination of factors: a strong and dedicated staff led by a community worker who came from the upgrading community; an outreach program that established trust between the residents and the UDD staff; and an established social and kinship network that facilitated the building of a constituency among residents for new programs. In Wahdat, these networks did

not exist to a similar level, making it difficult for the UDD social welfare team to develop a similar constituency, especially among the women. The relative difficulty of establishing a community center in Wahdat in contrast to the success of Jofeh shows that different types of community social structures and priorities will require distinct types of community organizing techniques, programs and resources.

Community facilities such as the community center, the women's vocational training center and the library had multiple objectives at the beginning of the project, including income generation, training and "consciousness-raising" among the residents. The reassessment has shown that community facilities can have a strong and synergistic effect in the development and maintenance of the community that goes far beyond the initial implementation period. Preplanning is critical to generating programs that reflect the specific characteristics of the community and in selecting the best management, staffing and organizing techniques for the facilities. When there are separate facilities, coordination of the different program is required to avoid an overlap of services.

Income generation through vocational training for women has had a limited impact because of the need to purchase machines for sewing, knitting or typing. Income generation activities are focused on traditional embroidery which, given its limited remuneration potential, underscores the need to open up new avenues for younger women capable of learning new skills marketable in Jordan's modern economic sector.

Education and training courses provided at the community center have met with partial success and are utilized by the residents. In Jofeh, the Community Center functions as a focal point for community outreach and education with a particularly effective program of health and hygiene education which has managed to make Jofeh a strikingly clean settlement.

Health facilities are desired by residents. In Wahdat, an estimated 61% of the households use the facility on a monthly basis in addition to the nearby UNRWA clinic and the outpatient services at the Ashrafiya hospital. For Jofeh residents, the most noted "missing element" in the project was a Health Center although the community did benefit from an active health and hygiene education program and a health referral service run out of the community center in cooperation with the Ministry of Health.

- **Commercial Shopping**

The shops in both communities are for the most part well located, serve a high percentage of the community and provide an important source of revenue used for cross subsidy purposes. In Wahdat, the plots located along a major road on the northern boundary of the site were designated for shops and workshops. The commercial plots represent 14% of the total plots, considerably more than the 5% normally designated by UDD, showing how flexibility in applying standards can capitalize on a special feature of the site to generate cross subsidies for the project. Smaller shops located within homes, provide the residents with opportunities for income generation and have lessened pressure on public spaces.

- **Communal Spaces**

The green areas designated as community gathering or recreational areas were essentially residual spaces left over after the delineation of parcels and the layout of roads, paths and community facilities. In most cases, they are not used or taken care of, and some have become collection points for garbage. Small areas have been planted and fenced in by abutters are taken care of as private property. Communal open spaces where public active and passive recreation take place are primarily confined to the pedestrian paths.

Given enough time and some encouragement, the greening of the community to provide shade and visual relief will reflect the hierarchy of the spaces and their social functions. For example, vines on individual plots grown onto trellis over narrow paths, provide shade for women to gather and attend to domestic activities, and young children to play. Well located designated areas, planted with shade trees, enhance social space as well as the visual appearance of the site.

- **Community Maintenance**

The effectiveness of the solid waste collection system is crucial to maintaining the health benefits derived from upgrading. While the system works fairly well there are definite areas for improvement, given the current methods of collecting garbage. Portions of the site characterized by steep and narrow paths and stairs are not served by garbage collector. Trash is left behind resulting in health risks, and the blockage of drainage channels. Coordination between garbage collector and residents should be encouraged; for example, residents could carry their garbage to certain collection points within the site accessible to the garbage collector's cart.

The cleaning and general maintenance of spaces in front of plots by each household plays a critical role in community maintenance and can be encouraged in part through the initial design and layout of the plots and circulation networks. Additionally, environmental awareness, and health education provided by the community center or community leader also has a very important impact on the community participation in the maintenance of their environment.

1.4.2 Children

This reassessment study defined open space available to children as a continuum, moving from the house and plot to semi-public spaces such as footpaths or small gathering areas, to public spaces including play grounds, roads, and community facilities. When there is an insufficiency in one area, either because of low standards, changes in the population profile, or the effects of densification, pressure is created to use alternative spaces that may be inadequate or not suitable for health and safety reasons. Within the communities, children are affected most by densification and the subsequent loss of open space, both within the plot and in the community at large.

The Amman research has demonstrated the importance of not only looking at children as a sub-group but also identifying their activities in family life and their interplay with physical space. The reassessment has shown that well thought out standards that include children as active contributors to the community not only have long-term benefits for children but the entire community.

Children will be affected by the current economic retrenchment. There is pressure to reduce standards, build fewer community facilities and provide less services, all trends that will reverse the potential gains demonstrated in previous upgrading projects. Noted below are summary conclusions from the 1990 reassessment divided into three groups: on-plot, off-plot and community facilities.

- **On-Plot**

  - Open spaces created by the building setbacks (primarily in the front) are the main play areas for younger children and a prime gathering areas for women. This open space is lost for children's use when the building is expanded and multiple unrelated households occupy a plot.

  - Younger girls are affected more by the loss of on-plot space than boys since they are less likely to use the paths and streets as play areas.

- **Off-Plot**

  - Existing paths and public open spaces provide informal play areas for children and act as a substitute for the more formal open spaces which are lacking. In Wahdat, some 75% of the households front on paths that are inaccessible to vehicles. Market preferences for future upgrading or infill projects are dictating increased vehicular access to plots which implies the loss of paths as areas where children can play in relative safety. Standards will need to acknowledge this shift and provide more formal play space for children and gathering areas for adults.

  - Infrastructure standards should not be reduced; current standards in Wahdat combined with site configurations are leading to drainage problems that expose children to environmentally hazardous conditions. A non-functioning sewer or drainage system that overflow in public areas reverses the health gains and negates the considerable public investment.

  - Vacant lots are used by children as play areas and also as dumping sites for solid waste.

  - Shorter paths help create more intimate and usable space for social gathering and children's play and help avoid surface drainage problems.

  - Paved paths provide multiple cross-sectoral benefits including health, social, economic and physical. For example, the incidence of ascaris, a parasite contracted in the soil of unpaved footpaths and unsewered areas, showed a decline from a 5% rate of infection in 1981 to 1% in 1985.

- **Community Facilities**

  - Children benefit from community organizing techniques that maintain the environment.

  - Community Centers provide an organizing, educational and environmental awareness locus for the community that is critical to encouraging community maintenance.

  - Children requested playground facilities, none are currently available in Wahdat. One small site is included at the Jofeh community center.

- Community facilities are an important to children, particularly to girls who are not allowed to play in unsupervised public areas. Girls in the age range of seven to eleven showed a consistently higher level of usage at the community center and library than boys. Achieving cost economies by excluding public facilities will further deny important play and educational resources to both boys and girls.

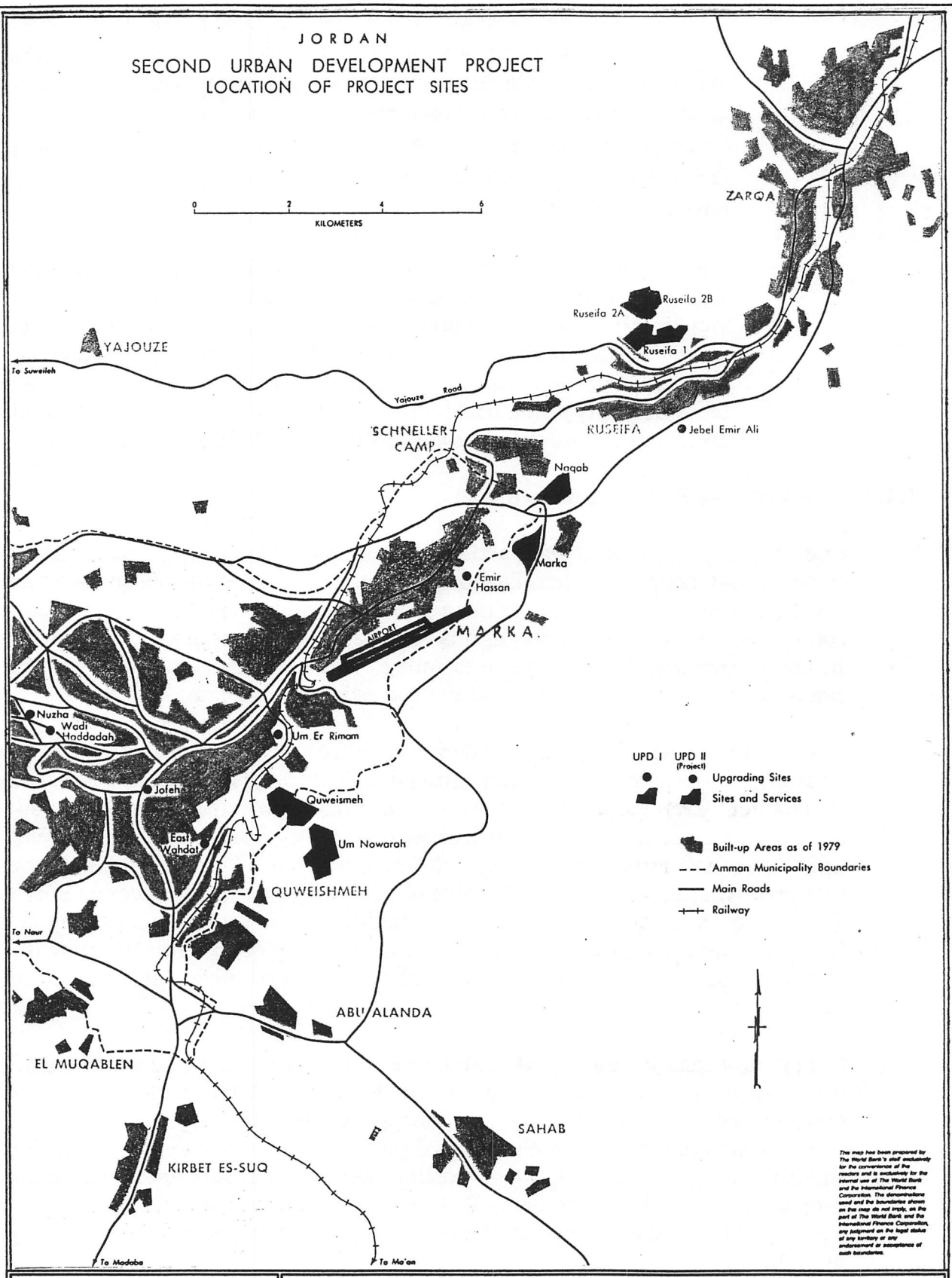
- The demand for nursery and daycare facilities depends on family income, the level of participation of the women in the labor force, and extended family and kinship networks in the community. In Wahdat, 7% of the households, mostly with incomes above the median, used the kindergarten and had a high level of satisfaction. Based on enrollment rates of 50%, the current facility in the community center could at most serve 20% of demand. Jofeh on the other hand, is adequately serviced given its current population profile.

1.4.3 Assessing the Role of Public Space

Open space (paths, alleys, roads and other open spaces) provides a spatial framework ensuring that incremental densification will not, over time, erode the improvement in liveability resulting from the upgrading program. On plot open space, including courtyards tend to be temporary as it is often sacrificed to the need of additional space within the dwelling. Public ways on the other hand are permanent and, if well designed, can be used as a natural extension of the domestic activity space.

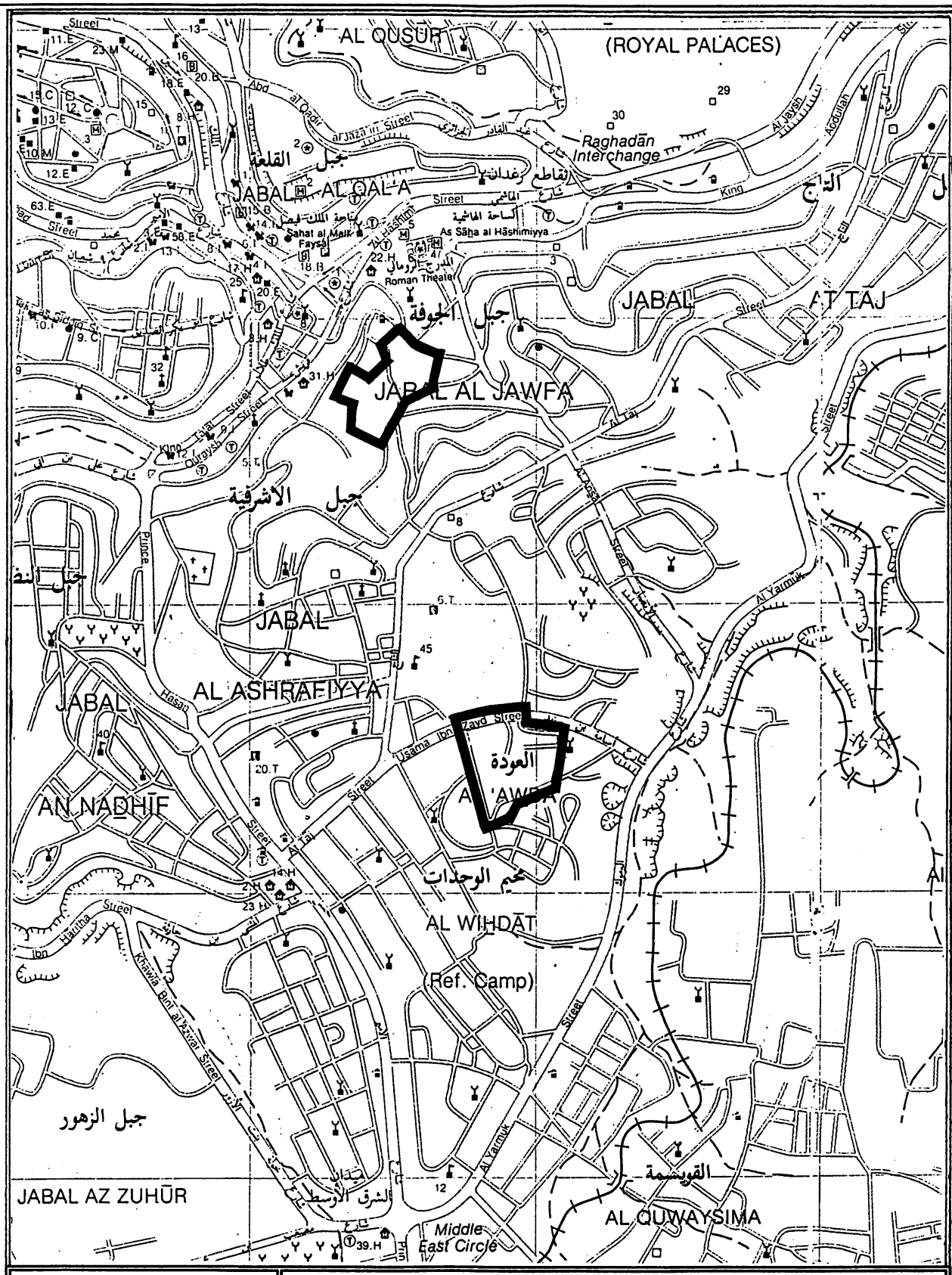
In the Wahdat and Jofeh sites, well designed public spaces are used by the community in a variety of ways. Circulation and parking double up as gathering points, and play areas for children; given the shortage in usable and maintainable open space, they also help maintain access to air and light as densities rise. Paved paths protect underground utilities, act as a surface drainage system, and encourage self-maintenance and cleaning that preserves the overall health benefits of upgrading and enhances community pride. These findings illustrate a weakness in the traditional assumptions underlying most housing project that primarily focus on the individual plot and relegates communal uses to specialized or residual areas that inevitably prove to be either insufficient or difficult to maintain.

Community based planning techniques, when combined with broader cross subsidy mechanisms, can create the incentive for resident participation in the upgrading and maintenance of their community. The Amman reassessment survey has clearly demonstrated that appropriately designed public space networks and community education programs can build upon existing cultural patterns to encourage community cooperation and self-maintenance. Together these elements reinforce the long-term sustainability of physical investments and diminish demand on municipal operating budgets.



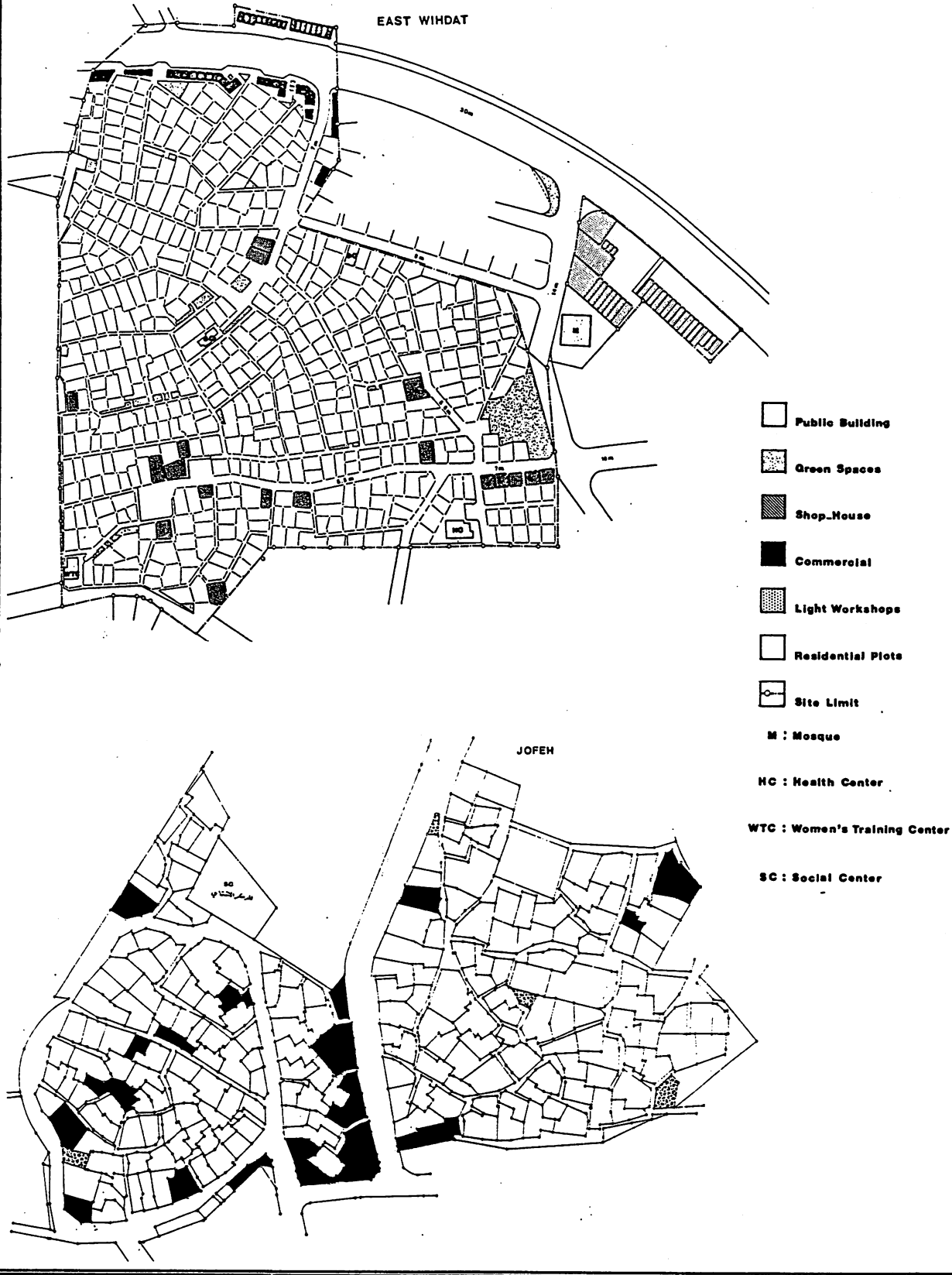
Map 1	AMMAN - ZARQA URBAN DEVELOPMENT CORRIDOR

Source: World Bank Appraisal Report, UDP2, 1985



Map 2	AREA CONTEXT MAP

Source: Tourist Map of Amman, Royal Jordanian Geographic Centre, 1989



Map 3	WAHDAT AND JOFEH SITE PLANS
Source: UDD	

2.0 COMMUNITY PROFILE

2.0 COMMUNITY PROFILE

2.1 Jofeh

The upgrading of Jofeh, an older community located in the heart of the city center, occurred within the existing settlement fabric, infrastructure and circulation patterns. Upgraded in 1981 at cost of JD 546,900, Jofeh already had some 2,400 residents or about 70% of its potential population under current zoning. The upgrading process actually caused an initial dedensification with households relocating to Wahdat when existing housing structures were demolished to accommodate circulation and infrastructure improvements. Ten years after upgrading the community is approaching its pre-project level with 2,475 residents in 338 households. This is far less that original projections from the 1981 baseline study that predicted there would be 3,330 residents by 1991, its legal saturation point under current zoning.

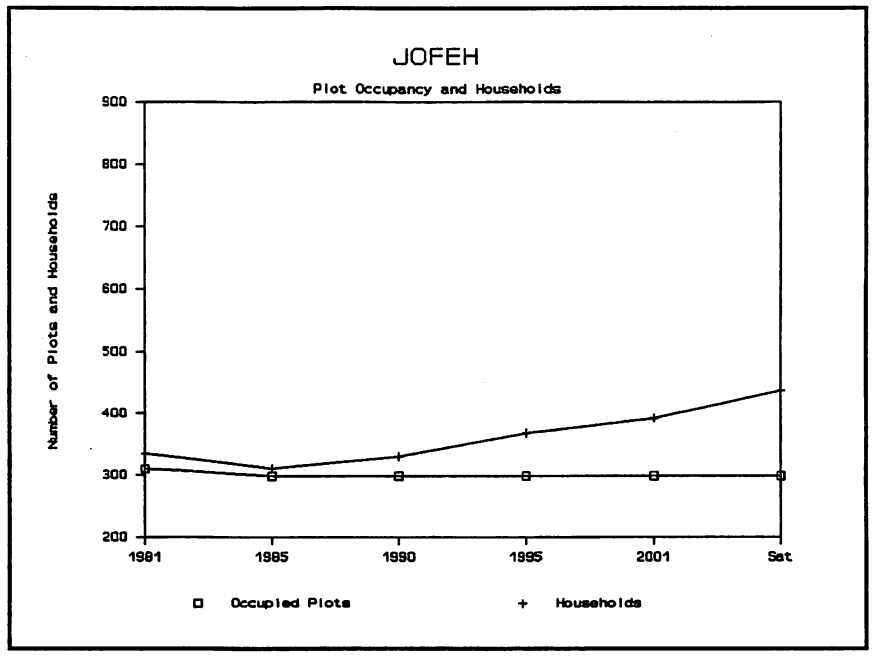


Figure 1, Plot Occupancy and Households-Jofeh, 1981 to Legal Saturation

There has been a dramatic shift to an older population with a drop in the percentage of the population under 15 years of old, from a high of 51% in 1981 to 36% in 1990. In the same period, there was a major increase in the 15 to 34 age group, the 35 to 59 age group stabilized somewhat and the over sixty group increased slightly. The increase in the 15 to 34 age group reflects an increase in younger unmarried men living at home and a high percentage of extended families that comprise 27% of the households that average 10.3 persons (Figure 2, *Household Sizes 1990, Wahdat and Jofeh*).

Since upgrading, overcrowding declined from 4.2 persons per room in 1981 to 2.6 in 1990 for two reasons: building expansion and an overall decrease in household sizes. The average number of rooms per household increased from 1.7 in 1981 to 2.9 in 1990 and, during the last five years household sizes have declined from 7.7 to

7.5 persons.[1] Yet, overall plot densities are still high given the small plot sizes. In Jofeh, plots average 92 square meters, or an average on-plot density of approximately 9.35 square meters per person in 1990[2]. This growth is occurring within the legal zoning limits and under the supervision of a closely regulated and enforced building license activity by the UDD and the municipality. When the community reaches its full potential buildout under current zoning, on-plot densities will approach 8.1 square meters per person.

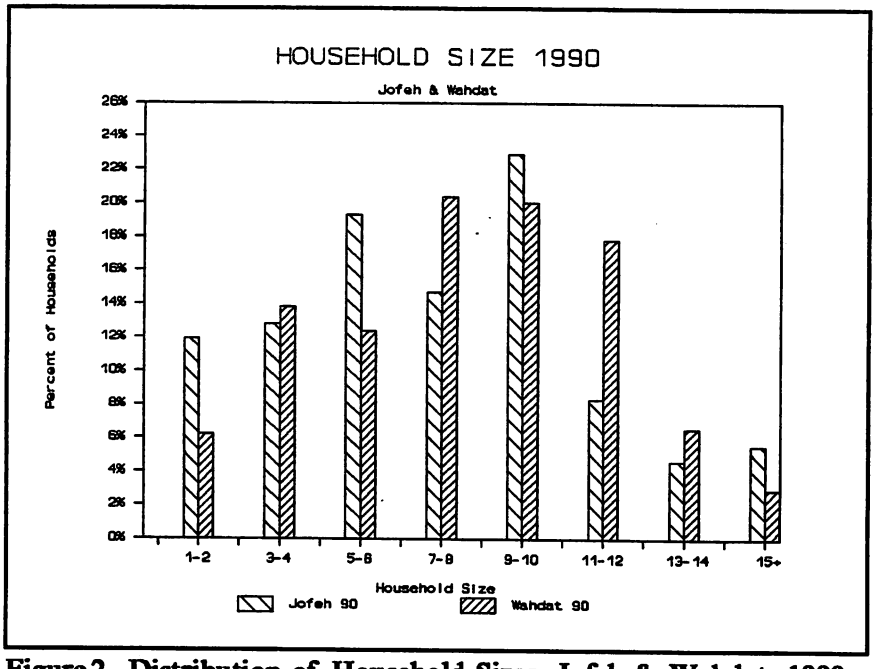


Figure 2, Distribution of Household Sizes--Jofeh & Wahdat, 1990.

[1] The average household size in Jofeh in 1990 was 7.5 persons, in Wahdat it was 8.1. The 1991 Land Reconnaissance Survey noted an average of 7.4 in greater Amman.

[2] The "on-plot density" is derived by taking the average plot size and dividing it by the average number of persons living on a plot. In Jofeh, there is an average of 1.38 households in a two floor structure and 1.44 in Wahdat, using average plot and household sizes in each community, this is equivalent to 11.6 sq. meters per person in Wahdat and 8.3 sq. meters per person in Jofeh. At three floors, the differences in plot densities between the two communities diminish to 8.47 for Wahdat and 7.7 for Jofeh.

TABLE 1 - Population Growth Rates, 1981 to Saturation

Year	Jofeh	% Change	Wahdat	% Change
1981	2,400		2,810	
1985	2,310	-4%	3,060	+9%
1990	2,475	+7%	5,145	+68%
2001	2,920	+18%	6,810	+32%
Saturation	3,230	+11%	7,045	+4%

Sources: 1981, Table 3.1, Baseline Health and Population Assessment; 1985, Table 2.6 and 4.3, 1985 Population Survey; 1990, 50% sample survey; 2001 and Saturation based on projected buildout, Appendix E.

TABLE 2 - Household Density Measurements

Year	Household Size		Persons per Room		Rooms per HH	
	Wahdat	Jofeh	Wahdat	Jofeh	Wahdat	Jofeh
1981	7.1	7.0	4.7	4.2	1.5	1.7
1985	7.5	7.7	3.4	3.5	2.2	2.2
1990	8.1	7.5	3.0	2.6	2.7	2.9

Source: UDD 1990 Survey, 1985 Survey and 1981 Baseline Data

TABLE 3 - Plot Density Measurements

Year	Avg Plot Area		Avg No. Floors		HH/Occupied Plot	
	Wahdat	Jofeh	Wahdat	Jofeh	Wahdat	Jofeh
1981	NA	NA	NA	NA	1.25	1.15
1985	121 m*	NA	1.2	1.2	1.11	1.05
1990	126 m*	92 m	1.4	1.5	1.23	1.19

Source: UDD 1990 Survey, 1985 Survey and 1981 Baseline Data
** The 1985 square meter figure is based on a calculated average from a digitized Palms map. The 1990 figure is based on reported plot sizes from the head of household, the two averages are remarkably similar given the different sources.*

2.2 Wahdat

The comprehensive upgrading of Wahdat, in contrast to Jofeh, involved a major intervention with extensive replatting, new infrastructure and circulation patterns at a cost of JD 1,910,900. Located on a steep hill not far from the city center, and immediately east of the old Wahdat Palestinian refugee camp, Wahdat was initially settled by some 440 refugee households from the 1967 war, all of them living in tin shacks. When the upgrading program began, it had approximately 2,800 residents (about 40% of its potential) and a considerable amount of undeveloped land.

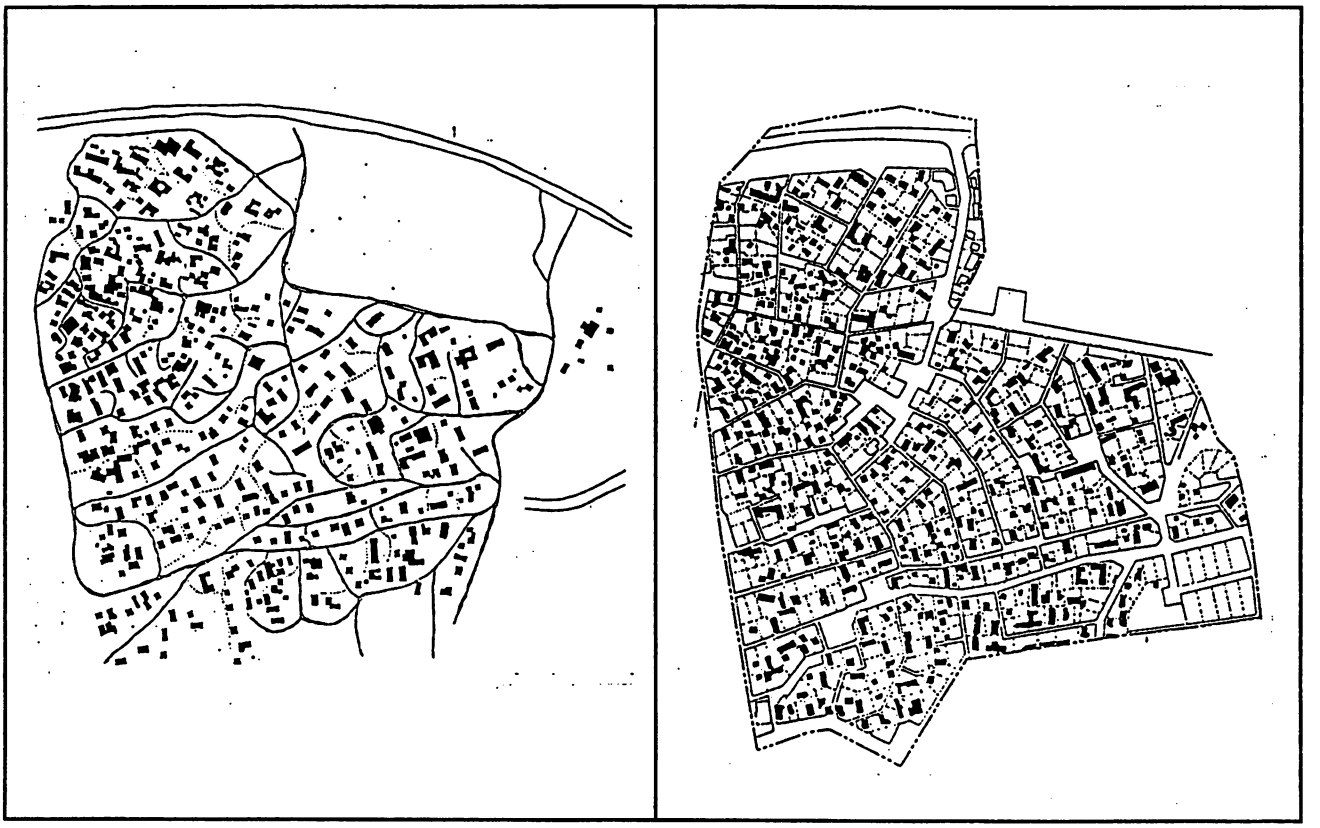


Figure 3, Wahdat Site Plan, Before and After Upgrading

In 1990 there were an estimated 5,145 residents in Wahdat, a figure that greatly exceeds the original projection of 3,865 residents by 1991 from the baseline study. Between 1985 and 1990, the population growth averaged 13.5% a year, while the growth rate in Amman during the same period was approximately 5%. This rapid increase in population was fueled by new construction and infill activity. Projecting the population to its

legal saturation[2] point there could be an estimated 7,045 residents in Wahdat with the growth rate slowing somewhat as building activity moves to vertical expansion.

Since 1981, there has been a slight decline in the percentage of the population under 15 years of age, from 51% to 47% in 1990. The 15 to 45 age groups increased and the 46 and above age groups declined slightly. The initial policy of allocating serviced plots to married sons who were living in multiple family households helped to reduce shared occupancy yet retain social cohesion in the settlement. Now, almost ten years after upgrading, the shortage of available new plots within the area is helping to recreate extended families who now comprise 17% of households and average 10.2 persons per household (see Figure 2, *Household Sizes 1990, Wahdat and Jofeh*) .

By 1990 Wahdat had reached between 60% to 70% of its potential population under current zoning. Plot sizes and not location were the determining factor in the rate of multi-story buildout during this period. Multi-story plots averaged 137 square meters whereas plots with single-story structures averaged 120 square meters. In 1985 the community had reached 42% of its potential population when 75% of the plots were occupied and 19% of the houses had two floors. Since then the community has reached its maximum horizontal expansion; 96% of the plots are developed and the percentage of two floor structures reached 35% (see *Map 4 Buildout Sequence*).

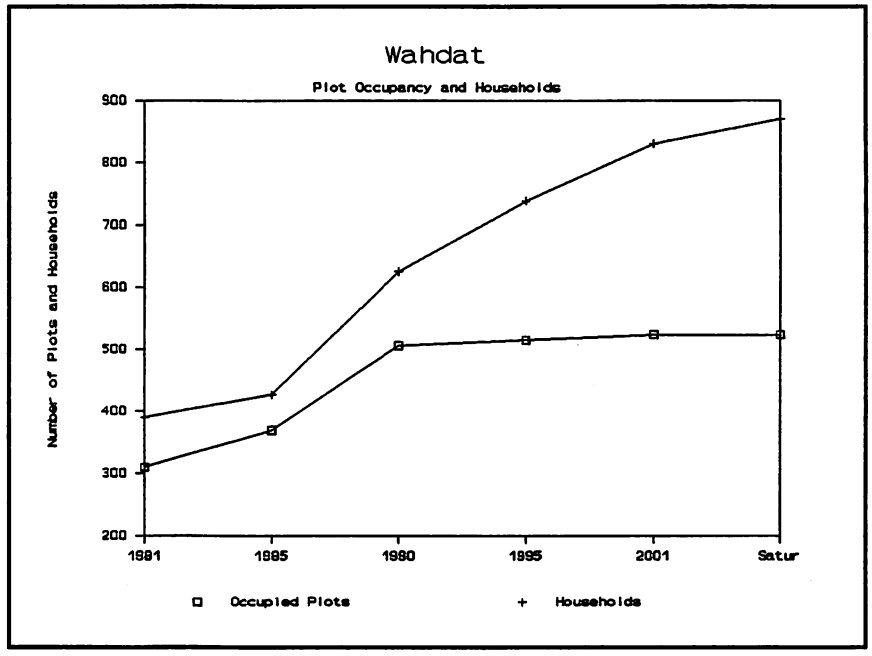


Figure 4, Plot Occupancy and Households-Wahdat, 1981 to Legal Saturation

Other indicators of densification include an increasing percentage of tenants and rent free lodgers who now make up and estimated 13% of the households, and larger households, reaching an average of 8.1 persons in 1990 as opposed to 7.1 in 1981.

[2] See Appendix A for population projection worksheets.

Overcrowding has declined from an average of 4.7 persons per room in 1981 to 3.0 in 1990 as the average number of rooms per household almost doubled, from 1.5 in 1981 to 2.7 in 1990.

The average on-plot densities are lower than Jofeh because of larger plot sizes of 125 square meters or about 12.6 square meters per person. Projecting buildout to the legal growth limits under current zoning shows that on-plot densities will approach 9.5 sq. meters per person. These rising densities will aggravate the current shortage of open space for children and adults and have a serious impact on the settlement's liveability, especially for children.

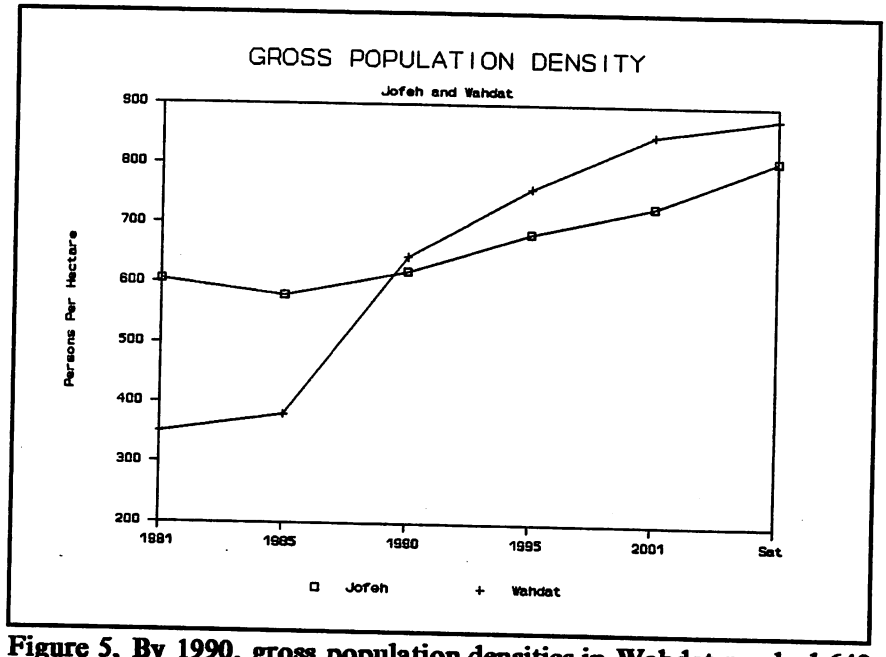


Figure 5, By 1990, gross population densities in Wahdat reached 640 persons per hectare, in Jofeh the level reached 620 persons per hectare.

2.3 Employment

Employment activities among residents in both communities are concentrated in skilled and unskilled construction, communication, retail, transport, armed services and government. Retail trade occupations represented a major difference, with 13% of

Wahdat's employment in retail trade, more than twice the level in Jofeh. The presence of a large number of shops and workshops on the northern boundary of Wahdat is most likely the reason for the difference.

The percentage of the population within the working age (15 to 64) and the percentage of this group that is economically active also varies between each community. In Wahdat, 51% of the population is within the age range of employment and 36% of this group is economically active. In Jofeh, 63% is within the working age range and 42% of this group are economically active. The higher percentage of the population in the working age range and economically active group in Jofeh reflects the community's older population profile and a higher percentage of men in the 14 to 34 age group.

In Jofeh, 23% of the economically active group was looking for work compared to 13% in Wahdat. The high percentage of those actively seeking employment was also influenced by the Gulf Crisis the higher percentage of men in the 14 to 34 age group.

In 1985, only 10% of the economically active population in all the upgrading communities was female, a result of the high level of fertility that leaves little time in a women's reproductive years for employment activities. In 1990, 9% of the economically active population in Wahdat were women and 11% in Jofeh. In 1985, the most common employment among women included: cleaning 25%, the role of home 3%, peddlers 2%, textile workers 23%, teachers 13%, clerical workers or nurses 12% and bookkeepers 4%. This distribution does not seem to have changed dramatically but a closer analysis is warranted to compare 1985 and 1990 data to provide a better context to evaluate the impact of the women's training center in Wahdat.

2.4 Education

There has been a continued improvement in the educational profile in UDD upgrading sites, paralleling national trends. Since 1985, the levels of illiteracy have fallen (Table 4, *Illiteracy Levels -- Jofeh and Wahdat*). In Wahdat the percentage of the population who were illiterate fell from 14.8% to 9.8%. In Jofeh the rate of illiteracy declined from 16% to 13%. The design of literacy classes in the community centers were targeted for older women who make up a significant portion of those who are illiterate.

TABLE 4 - Illiteracy Levels--Jofeh & Wahdat

Percent of Total Population	Jofeh		Wahdat	
	1985	1990	1985	1990
Women	11.1%	10.2%	10.2%	6.5%
Men	4.9%	2.8%	4.6%	3.3%
Source: UDD 1990 Survey				

In Wahdat the percentage of the population with a community college or university degree increased from 2.2% in 1985 to 5.2% in 1990. In Jofeh, the change is much more dramatic, from 4.6% to 12%. For those who have attained intermediate or secondary level, the percentage rose from 18.7% in 1985 to 27.1% in 1990 in Wahdat. In Jofeh, the increase was from 25.6% to 31.9%. (See Appendix C, Educational Profile).

Among women, there have been gains towards higher educational levels. In Wahdat, women with a higher education represented less than 1% of the population, by 1990 it had increased to almost 2%; intermediate and secondary also increased from a combined 8.8% in 1985 to 12.8% in 1990. In Jofeh the percentage of the women with a higher education represented less than 1% of the population in 1985, by 1990 the percentage increased to almost 5% and the intermediate and secondary group moved from 10.7% to 13.6% in 1990.

2.5 Resource Mobilization

The reassessment measured how households marshall the economic resources to acquire plots and build housing and how they adjust to the economic burden of carrying a formal loan. In both communities, real household incomes have declined from 1985 to 1990, reflecting the larger economic difficulties faced by Jordan even before the Gulf Crisis. In Wahdat, the monthly median income declined from JD 130 in 1985 to JD 120; in Jofeh similar declines were registered, from JD 115 to JD 110. Additionally, at least 25% and possibly up to 34% of the households were at or below the poverty line of JD 89 a month in 1990. This trend is confirmed by the 1991 Land Reconnaissance Survey undertaken to update the National Housing Strategy and which showed that household incomes were slightly lower than in the 1986 National Housing Survey.

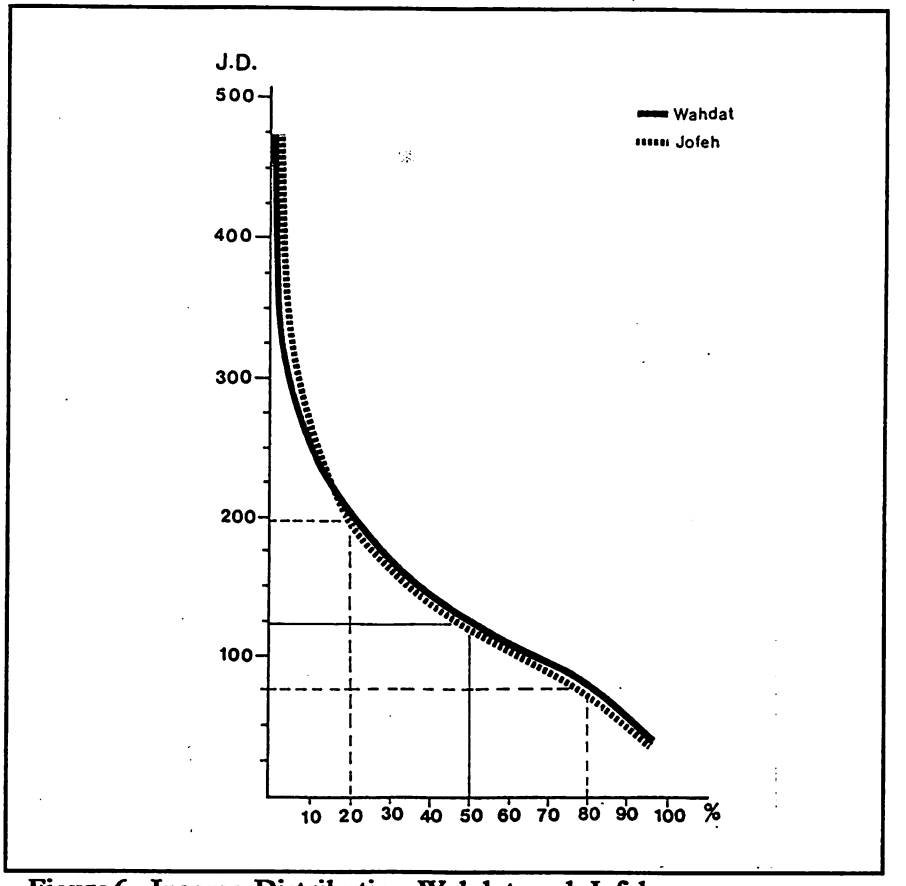


Figure 6, Income Distribution, Wahdat and Jofeh

2.5.1 Financing Land and Housing Construction

The transformation of a beneficiary plot from a single floor into a multiple story structure is facilitated by the incremental nature of an investment that can be scheduled flexibly once the plot is acquired. In Wahdat, almost two-thirds of the households acquired their plot with the assistance of a loan from the Housing Bank. The smaller legal plot sizes in the upgrading sites in comparison to the market at large and the availability of financing to cover plot charges, which are widely regarded as the price of acquisition of legal title, allowed lower income households to gain access to land without having to accumulate large amounts of seed capital. Construction and expansion of housing was financed primarily by a combination of household resources, including the use of personal savings, selling of gold jewelry and borrowing from relatives and friends. The direct contribution of salaries and remittances were not as prominent as usually assumed. In Wahdat, landlords indicated that the average loan repayment was essentially equivalent to average monthly rents, a clear incentive to incremental densification.

Households in Jofeh had lower rates of participation in formal loan options, with only 40% of the households having a first commitment loan to cover the cost of plot charges and housing construction. The lower loan levels were due in part to previous housing investments; 86% of structures in place by 1985 were built before the upgrading program began. Some households also indicated that they did not participate in the loan programs on religious grounds.

2.5.2 Adjusting Household Incomes

One of the important issues outlined at the beginning of the study was the ability of households to carry loans contracted for the purchase of plots. This is especially critical as the downturn in the national economy, coupled with inflation, has meant that debt carrying families may be over committed, particularly those below the poverty line. Table 5, *Coping with Financial Shortfalls* shows that the methods of coping with financial shortfalls can be divided into three categories: reduction of family expenditures, generating supplementary household income or contracting additional debt. In times of economic crisis, the reduction in expenditures is the most prominent method and causes great concern to those families whose income is already fully committed to basic needs, especially female heads of household. In both the 1981 and 1985 surveys about 11% of the households were in this category. Most of the women are widowed, illiterate and lack employment skills, often relying on their older children for a portion of the household income. The UDD did provide financial assistance to a limited number of welfare cases.

TABLE 5 - Coping with Financial Shortfalls

Methods (does not add to 100%, Response = yes)	Jofeh	Wahdat
Reduce Family Expenditures	55.0%	51.0%
Another Family Member Work	15.0%	13.5%
Wife would work	3.0%	5.5%
Rent part of House	3.7%	4.7%
Children quit school to work	3.0%	4.7%
Head of Household additional job	2.0%	4.0%
Contract Additional Debt	8.0%	21.0%
Suspend Loan Payments	11.0%	6.5%
Source: UDD, 1990 Wahdat Household File		

Methods of resource mobilization vary among income groups. Households below the poverty line of JD 89 a month were more likely to reduce expenditures and seek additional income by having either the head of household or another family member undertake additional work. Middle income groups, while also reducing expenditures, can generate additional resources by renting part of the house, and having the wife enter the labor force. Withdrawing older children from school is an option for some families. Those who employ this option tend to have higher incomes reflecting the prevalence of multiple wage earners and shared living expenses.

If additional income cannot be generated, contracting additional debt is selected by 21% as an option in Wahdat and 8% in Jofeh; these households tend to be close to the poverty line. Eleven percent of the households in Jofeh and 6.5% in Wahdat would consider temporarily suspending payment on their loans.

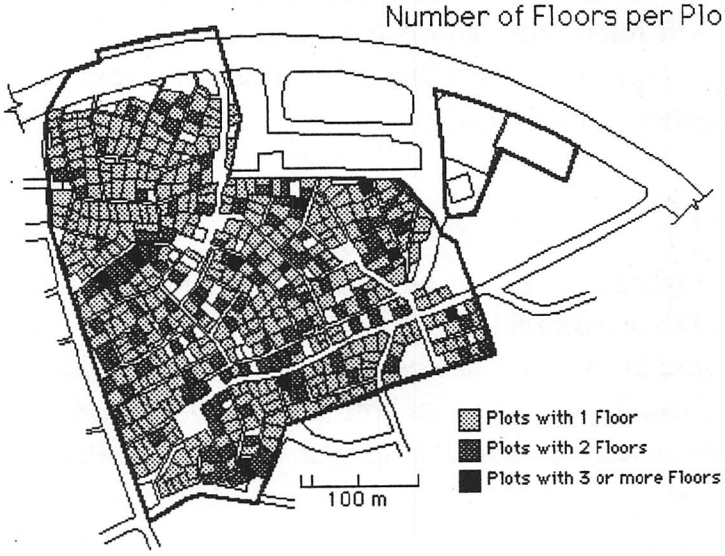
2.5.3 Turnover

Interestingly, when households were asked for a reason why they wanted to leave the site, affordability was not the issue. When asked if they intended to move, 13% of the households in Wahdat and 6% of those in Jofeh responded they would citing problems with neighbors, lack of facilities and insufficient space. In both communities these households have higher than average incomes (Jofeh--JD 160 and Wahdat--JD 163.

Number of Floors per Plot, 1985

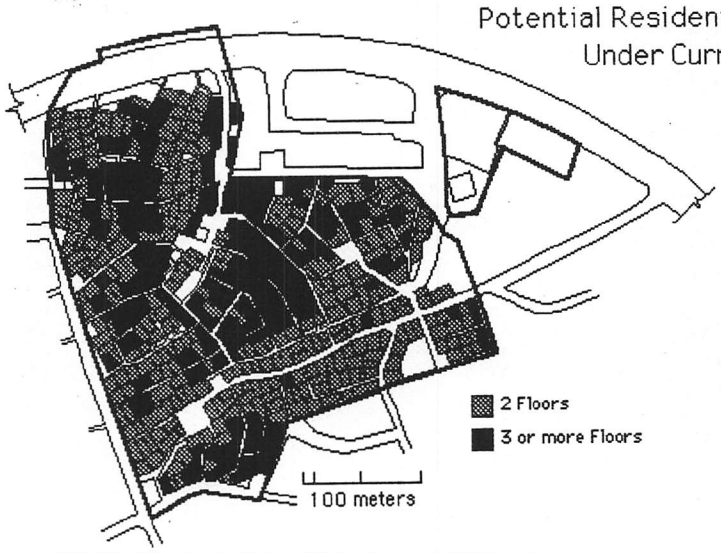
Population3,060
Number of Households 427
% of Occupied Plots 71%
% of 1 Floor Structures 80%
% of 2 Floor Structures 19%
% of 3 Floor Structures 1%

Number of Floors per Plot, 1990



Population 5,145
Number of Households 626
% of Occupied Plots 96%
% of 1 Floor Structures 62%
% of 2 Floor Structures 34%
% of 3 Floor Structures 4%

Potential Residential Buildout
Under Current Zoning



Population7,215
Number of Households 870
% of Occupied Plots 100%
% of 1 Floor Structures 0%
% of 2 Floor Structures 60%
% of 3 Floor Structures 40%

Map 4	BUILDOUT SEQUENCE-- WAHDAT, 1985, 1990 AND FULL BUILDOUT
Source: UDD 1985 and 1990 Survey, Wahdat	

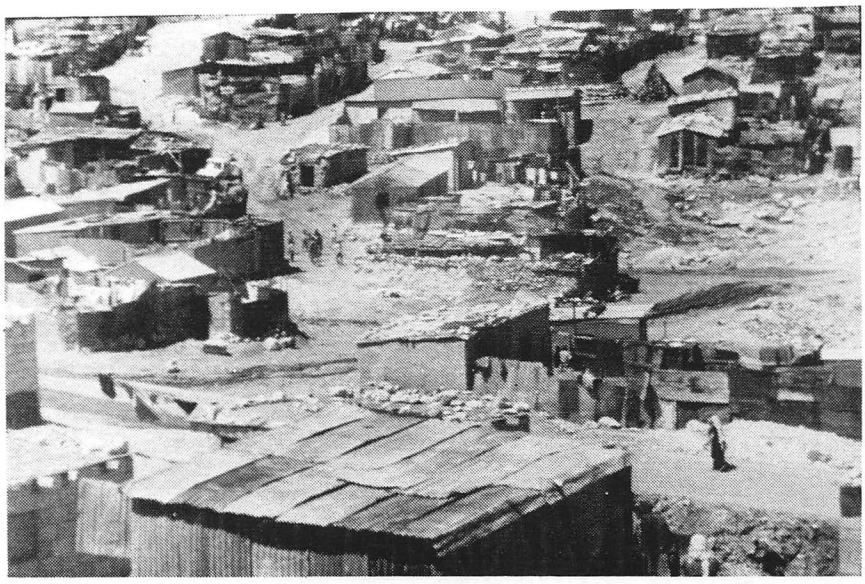


Photo 1

Prior to upgrading in 1981, Wahdat had a population of 2,810 living in 390 households on 310 plots. Houses were primarily constructed from temporary building materials and almost all households lacked access to basic services.

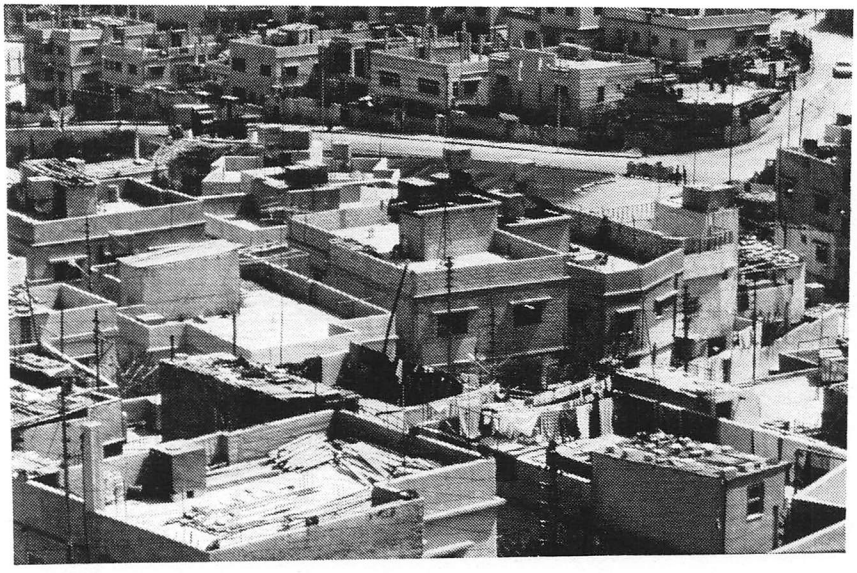


Photo 2

Ten years after upgrading in Wahdat, almost all of the 10 plots are occupied with an estimated 5,140 persons living in 626 households with full access to services.

Photo 3

Housing expansion in Wahdat is now the primary method of creating new housing units. In 1990, thirty-five percent of the plots had two floor structures; legally every plot in Wahdat can buildout to two floors and to three floors when the slope exceeds 20 degrees. Building regulations and dwelling setbacks have been maintained through on-site monitoring and the enforcement of sales covenants. The plot to the left has its original structure as do several others in Wahdat.

3.0 REASSESSMENT OF MAJOR UPGRADING ACTIVITIES

3.0 REASSESSMENT OF MAJOR UPGRADING ACTIVITIES

3.1 Introduction

A central element of this study was to measure the sustainability of the original infrastructure improvements, given the growth that occurred over the last 10 years. This was accomplished through socio-economic and physical surveys and the use of a geographic mapping system to document any spatial correlations regarding infrastructure services. A brief summary of the findings from the two working documents "Assessing Sustainability in Wahdat", November 1991, and "Assessing Sustainability in Jofeh", December 1991, follows.

3.2 Resident Evaluation

More than three-quarters of the women in both sites responded that they were satisfied with their living conditions; where dissatisfaction occurred, it pertained to plot characteristics (size, shape or location) rather than to upgrading improvements. For all residents, the most important upgrading interventions was the widening of streets and paths. In Jofeh, where more infrastructure services were in place prior to upgrading, the percentage of households rating infrastructure services as better than before are less than in Wahdat. Generally, the rating of each service is related to the level of services prior to upgrading.

TABLE 6 - Evaluation of Infrastructure Services

Evaluation of Infrastructure - Service Better Than Before Upgrading	Jofeh	Wahdat
Water	39%	97%
Sewerage	84%	95%
Electricity	23%	90%
Telephone	51%	48%
Roads	91%	90%
Paths	93%	79%
Drainage	85%	87%
Street Light	63%	88%

Source: 1990 UDD Survey, Jofeh and Wahdat Dwelling File

Three issues were cited by household in both communities as major problem areas: bringing materials to their homes, restrictive building regulations and changing land uses on vacant plots. Plot accessibility issues had similar ranking level for both sites even though it should be lower in Wahdat given that there was a greater opportunity to reconfigure the site layout at the beginning of the project. The residents who complained were mostly clustered along stairs and narrow paths where the lack of vehicular access and the topography make the distances even more pronounced. Households complaining of changing land use cited vacant plots which have become sites for the unauthorized dumping of garbage and those indicating problems with building regulations were either denied permits to expand their buildings or believe there are violations in a nearby plot.

3.3 Review of Major Improvements

In both sites, the importance of adequate standards is demonstrated by the relative absence of infrastructure problems despite of the difficult site conditions including steep topography and a tight urban fabric. Larger plot sizes and higher standards were implemented for roads, footpaths, water supply and sewerage disposal than originally proposed in the World Bank feasibility study. The reassessment documented that where standards were less than adequate, problems have occurred. Table 7, *Level of Infrastructure Services* shows the extent of infrastructure services for households prior to upgrading and in 1990. Table 8, *Problems with Infrastructure Services* categorizes the most frequent occurrence of problems.

TABLE 7 - Level of Infrastructure Services in 1990

Infrastructure Services for Households in Survey		Jofeh	Wahdat
Water	Previous Access	60%	9%
Water	Current Access	99%	98%
Sewerage	Previous (septic tank)*	96%	96%
Sewerage	Current (main line)	100%	98%
Electricity	Previous (access)	82%	4%
Electricity	Current (access)**	97%	99%
Road	Previous Asphalt	2%	3%
Road	Current Asphalt	100%	97%
Path	Previous Paved	2%	NA

Infrastructure Services for Households in Survey		Jofeh	Wahdat
Path	Current Paved	100%	95%
Drainage	Previous (unpaved surface)	98%	93%
Drainage	Current surface & covered drains		89%
	Current paved surface	100%	
Street Light	Previous	17%	NA
Street Light	Current	80%	91%
Telephone	Previous (NA)	6%	NA
Telephone	Current (Connected)	53%	48%

Source: 1990 UDD Survey, Jofeh & Wahdat Dwelling File
* 14% were connected to municipal sewerage system in Jofeh
** 3% in Jofeh and 12% in Jofeh have access via neighbors

TABLE 8 - Problems with Infrastructure Services

Households with Infrastructure Service Problems	Jofeh	Wahdat
Water availability (Household Response)	2%	6%
Sewerage (Household Response)	5%	7%
Waste Water outside house (Observer Remarks)	5%	4%
Storm water (Household Response)	0%	12%
Stagnant Water outside house (Observer Remarks)	10%	7%

Source: UDD 1990 Survey, Jofeh and Wahdat Dwelling File

3.3.1 Circulation Network

The circulation system in Wahdat is pedestrian oriented, with limited vehicular access *(Map No. 5, Wahdat Site Circulation Network).* Paved paths, varying in width from 2.5 meters to 4 meters, are connected by stairs and ramps when slopes are greater than 20%. Seventy-four percent of the households consider themselves to be located on paths that are generally inaccessible to vehicles. They are used by children as play areas and to a more limited extent, by adults as meeting places. Roads for local traffic, varying in width from five to eight meters, lead to cul-de-sacs containing parking areas. Larger roads, from 10 to 14 meters, are designed for through traffic and are considered as part of off-site infrastructure. Twenty-six percent of the households are located on lots fronting on a road.

Jofeh is separated into three areas by roads and topography *(Map No. 6, Jofeh Site Circulation Network).* Prior to upgrading, paths and roads were not paved and the steep topography created a severe storm drainage situation leading to erosion along footpaths. With upgrading, paved paths varying in width from less than one meter to 3.5 meters are connected by stairs and ramps. Seventy-five percent of the households are located on paths that are inaccessible to vehicles and, as in Wahdat, are used by children as play areas and to a limited extent, by adults as meeting places. Twenty-five percent of the households have direct access to a road that are a natural extension of the existing network in the area.

In Wahdat, designated parking areas double as open spaces for various community activities in addition to their use by some one-third of the households for vehicular parking (17% of the households own cars and another 16% have occasional access to employment related vehicles). Households who are close-by the parking areas use them as play spaces for children and gathering points for weddings. This underscores the need for community activities space as rising car ownership preempts the currently under utilized vehicular circulation network. Each category of use generates different parking needs, ranging from daily to occasional. In Jofeh, 9% of the households own cars and park on the street.

3.3.2 Stormwater Drainage

Twelve percent of the households in Wahdat complained of drainage problems and the presence of stagnant water outside their homes. Storm water tends to collect at the intersection of paths on steeper slopes with a perpendicular path or street. A major drainage channel that serves both on-site and off-site drainage has become a particular environmental problem. Originally designed as an open trench and subsequently

covered with concrete covers and inlets that have been broken and blocked, the channel has become a major environmental hazard especially for children. Residents are unclear as to who to contact to repair the drain.

In Jofeh residents did not indicate any problems with the storm water drainage system in spite of the fact that it is a surface system that uses paved paths, stairs and roads over steep slopes. A concrete flashing angled at 45 degrees between the path and boundary walls has prevented edge erosion.

3.3.3 Water and Sewerage

Access to the municipal water system increased dramatically with upgrading in Wahdat and to a much lesser extent in Jofeh; today, virtually all of households have access to municipal water. When water availability was a problem, it was not due to the project's design standards but to endemic water shortages in Amman.

Prior to upgrading, 96% of the households in Wahdat used septic tanks; in 1990 all of the houses with the exception of five plots were connected to the municipal sewerage system. Frequent blockage occurred during the initial operating period and continues to a lesser extent, 7% of the households in the survey experienced problems with sewerage blockage or overflows. The 6" (152.4mm) lines in Wahdat are clearly inadequate and the problems will increase in the future as the site increases in density, especially in the central areas where dwellings can be built to three floors. UDD engineers indicated that the frequent blockage during the initial operating period was also due to the unfamiliarity of new residents with the capacities of the sewage system.

Jofeh, given its central location and proximity to existing networks, had higher levels of infrastructure services than Wahdat prior to upgrading. Septic tanks were used by 82% of the households and 14% were connected to a sewerage network; today essentially all of the households are connected to the municipal system. The sewer lines in Jofeh were also 6 inches and in the 1990 survey, 5% of the households indicated problems with sewage overflows.

3.3.4 Community Facilities

The surveys showed a high awareness of community facilities; a level of utilization determined by need, interest and pre-qualification in the case of training programs; and a high level of satisfaction by the users. In Wahdat, the Health Center is the most frequented community facility, with 77% of the households indicating that they use the facility, of whom 61% do so on a monthly basis for medical treatment, maternity and child care and the purchase of medicines. Residents also use the nearby the Ashrafiya

hospital that offers outpatient services and a UNRWA clinic. The use of the Community Center is determined by the interest of residents in the activities offered. The 30% of the households who use the center indicated that they are very satisfied with its activities. The Women's Training Center is used by only 3.5% of the women surveyed who attend courses in knitting, sewing and typing. The main reason given for not attending was lack of time, although the fact that the center required course participants to have attained intermediate education levels acted as a deterrent for some 50% of the women in the community. The Library is primarily used by young people for reading, and to a lesser extent, playing computer games. While demand for library services is dependent upon interest, distance does play a factor in its use by youth and children living nearby. When the women were asked what additional community facilities were required, the two most frequent answers were schools and playgrounds; 65% felt that no additional facilities were required.

In Jofeh, 89% of the households are aware of the existence of the Community Center and 37% used its facilities and indicated that they were very satisfied with its activities, primarily aimed at women and children: nursery school, playground, hair dressing, sewing, embroidery and health education. One of the more successful of these activities has been consciousness-raising regarding health-education (see Section 4.0 Children and Appendix D, *The Community Center in Jofeh-Elements of Success from the Perspective of a Community Organizer).* When the women were asked what additional community facilities were required, the two most frequent answers were health facilities and playgrounds; 48% felt that there were no missing facilities.

There were differences in the use of the community centers between both sites that can be attributed to the difficulty experienced by the UDD community organizing staff. Jofeh was a well established community with strong kinship networks in place. Neighbors in Jofeh are more likely to visit and cooperate among themselves. Consequently, despite a high level of resentment in Jofeh towards the UDD at the start of the project, it was easier to gain the trust and interest of residents as the UDD staff could easily identify and work with established leadership and social networks. In Wahdat, this network, while existing among older residents of the community, was not easily established while the community was undergoing rapid population growth and experiencing influx of new residents and it is difficult for the Community Center staff to identify a constituency to work with, community leadership was fragmented and the client groups were constantly changing.There is now evidence that after ten years and a stabilization of growth rates, that these networks are beginning to be established.

3.3.5 Commercial Shopping

The shops built in Wahdat and Jofeh are used by over 80% of the households, with a high percentage of use on a daily basis or for a majority of household needs. The high demand for goods and services provided by the shops emphasizes the importance of convenience shopping as part of upgrading. The commercial shops along the larger streets provide needed cross subsidies while smaller shops within the site generate income for the resident shop-owners.

3.3.6 Communal Spaces

As is the case in most upgrading projects, residual land in Wahdat was theoretically designated as public open space but little attempt was made to create useful community spaces. Narrow green strips have been fenced in to protect the vegetation while the lanes are used as social gathering areas. The only large open areas, the three parking lots, are used as improvised play spaces for youth and as community gathering points for celebrations such as weddings. Unlike the narrow pedestrian paths that are kept clean by the abutters, the parking lots are not as well maintained and tend to accumulate trash. The UDD did negotiate maintenance agreements with some property owners to maintain garden space, that even though fenced in, provide a welcome visual contrast in a dense environment.

In Jofeh, where there are no green open areas, there are communal spaces that are well used by both adults and children. They tend to be located where paths intersect each other or where paths intersect the road. Popular vantage points are where residents can sit and visit with pleasant views of the city below.

3.3.7 Community Maintenance

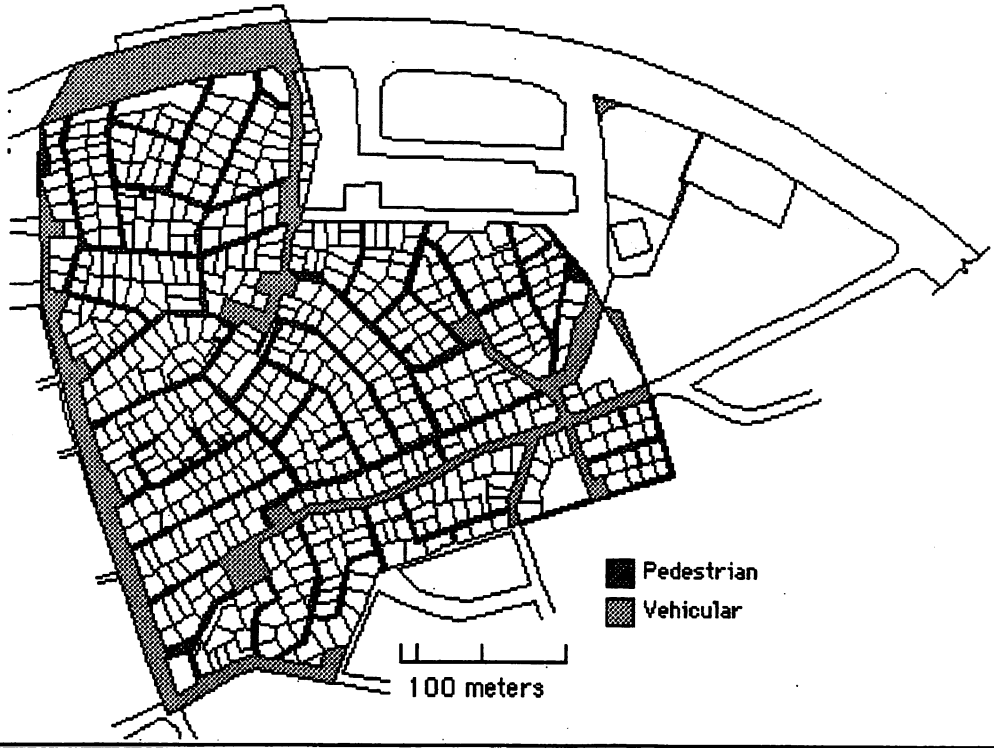
The projects, disposal of solid waste is often the weak link in the series of physical and service interventions, jeopardizing the initial environmental benefits brought about by upgrading. In both communities solid waste is either picked-up by a garbage collector or taken to dumpsters by family members, a task often assigned to children. Garbage is either placed by the residents in plastic bags in front of their houses for collection or deposited in communal containers that the collector empties into a cart. Almost no one admitted to burning or otherwise disposing of trash in the streets, vacant lots or open spaces. In both communities there are distinct zones where residents use the plastic bags and those where waste is deposited in containers. However, the dumping of solid waste in vacant lots was observed during the physical survey. The frequency of service declines

as plots are more difficult to reach by the garbage collector with his wheel barrow. Waste observed on public ways may be simply due to the open wheelbarrow used by the garbage collector; as they move along the small paths and stairs solid waste that is not in a bag falls out and is left behind.

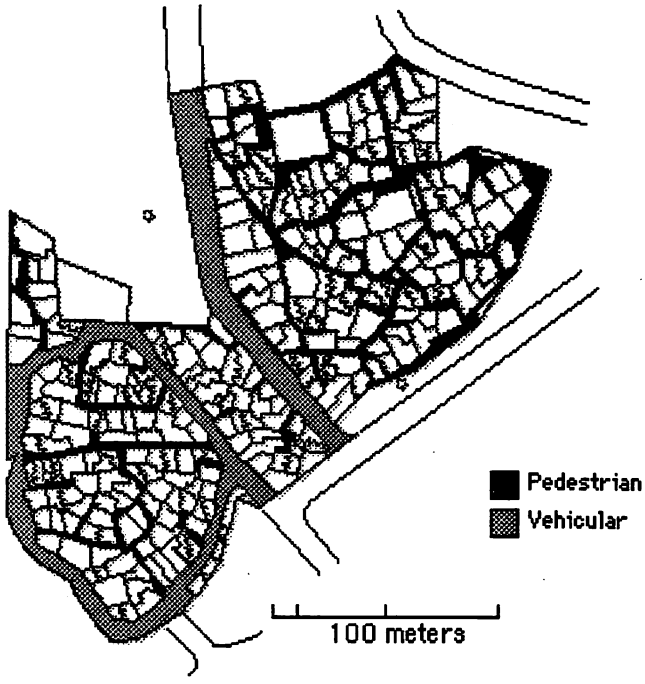
This analysis has shown that children have a far greater role in the disposal of refuse than previously acknowledged: they take garbage to the dumpsters and help clean the footpaths. The children who carry garbage to the dumpsters sometimes dump it in a vacant lot or deposit it around the dumpster when they cannot reach its edge to throw the garbage inside.

Street cleaning, especially in front of plots, is for the most part taken care of by the women in the households, as only 5% of the households said the garbage collector cleaned their streets. Site observations show that maintenance of public areas by women and children is concentrated on the footpaths and interior locations while the municipality concentrates on locations where the path meets the road, around cul-de-sacs, and in commercial areas and around community facilities. An additional benefit from the paved paths, often cleaned by younger girls is that they are easier to clean, thus reducing the accumulation of material which contribute to respiratory and intestinal diseases.

The maintenance of public spaces along the plot frontage represents a considerable "in-kind" contribution by residents to the maintenance and upkeep of the community and underscores the importance of creating an enabling environment through design and that encourages residents to undertake these activities.



Map 5	SITE CIRCULATION WAHDAT
Source: Digitized UDD Site Plan	



Map 6	SITE CIRCULATION JOFEH
Source: Digitized UDD Site Plan	

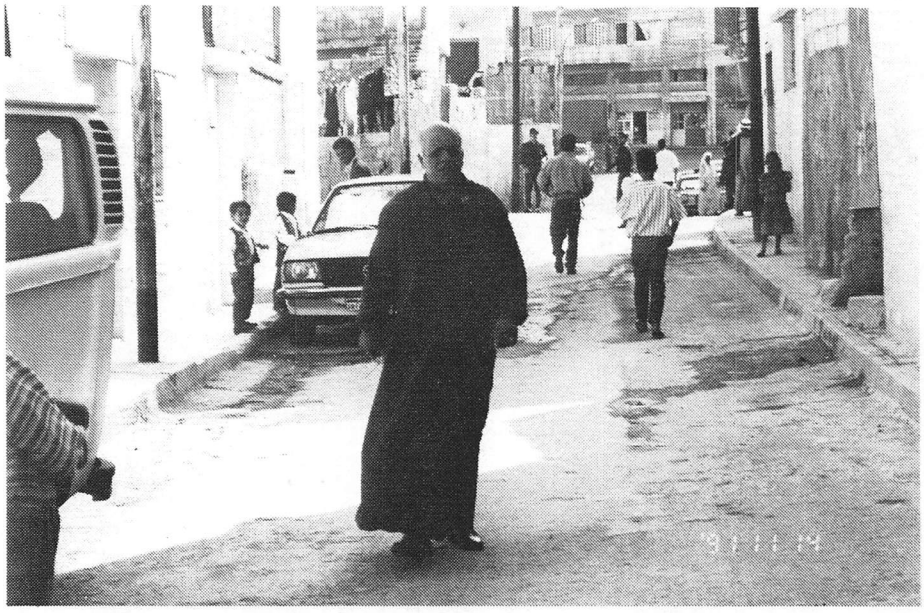


Photo 4

Vehicular Access. In Jofeh, low volume residential streets provide vehicular access to some plots, allowing easier access to interior plots.

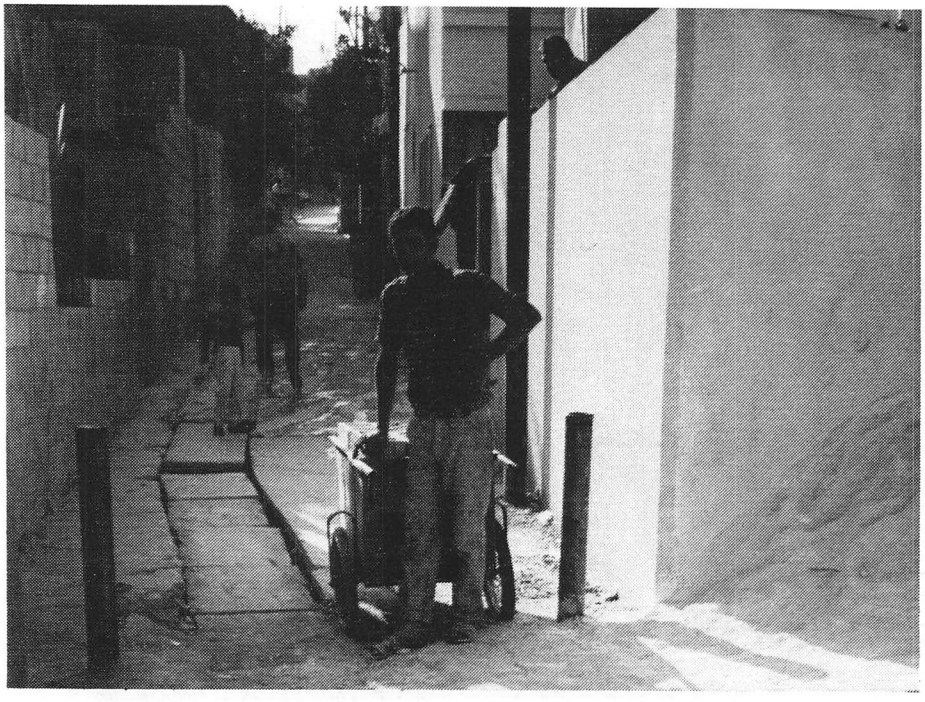


Photo 5

Circulation System. Residents, in both communities stressed the importance of vehicular access to plots. In Wahdat, Building materials are transported by hand truck to interior plots.

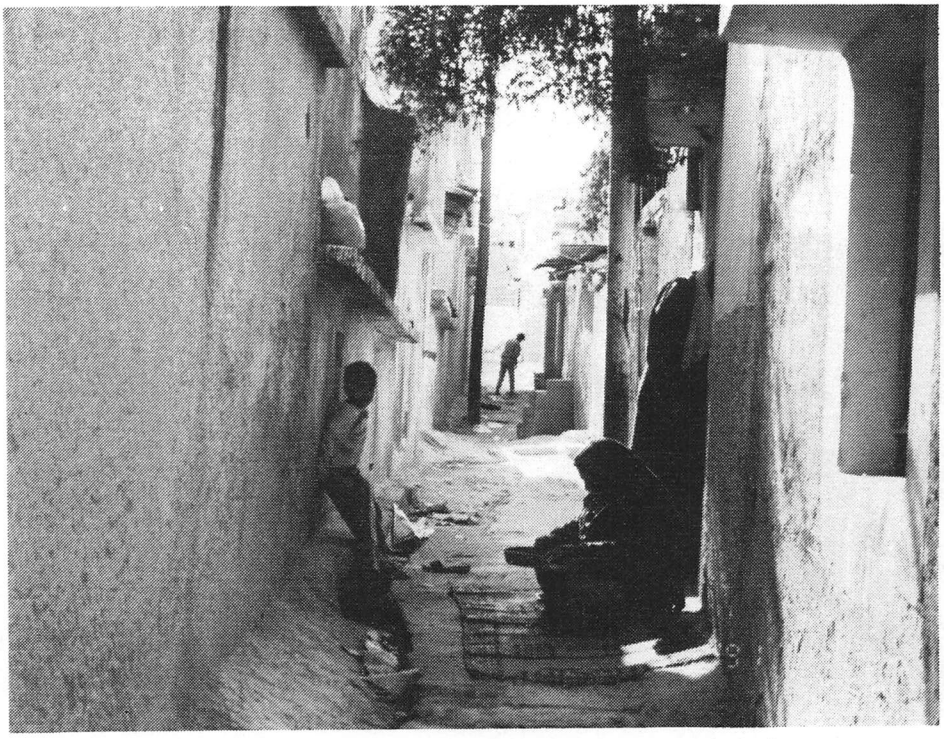


Photo 6

Paths function as an important transition zone between private and public activities. The photo from the adjoining Wahdat Refugee Camp, illustrates how domestic activities typically spill out from the plot into paths.

Photo 7

Meeting Points. In Jofeh, the widening of a path at the junction of several plot entrances provides a natural gathering area for neighbors and family. These areas are well maintained by the residents.

Photo 8

Vehicular access in Wahdat to interior plots is provided by roads ending in cul-de-sacs.

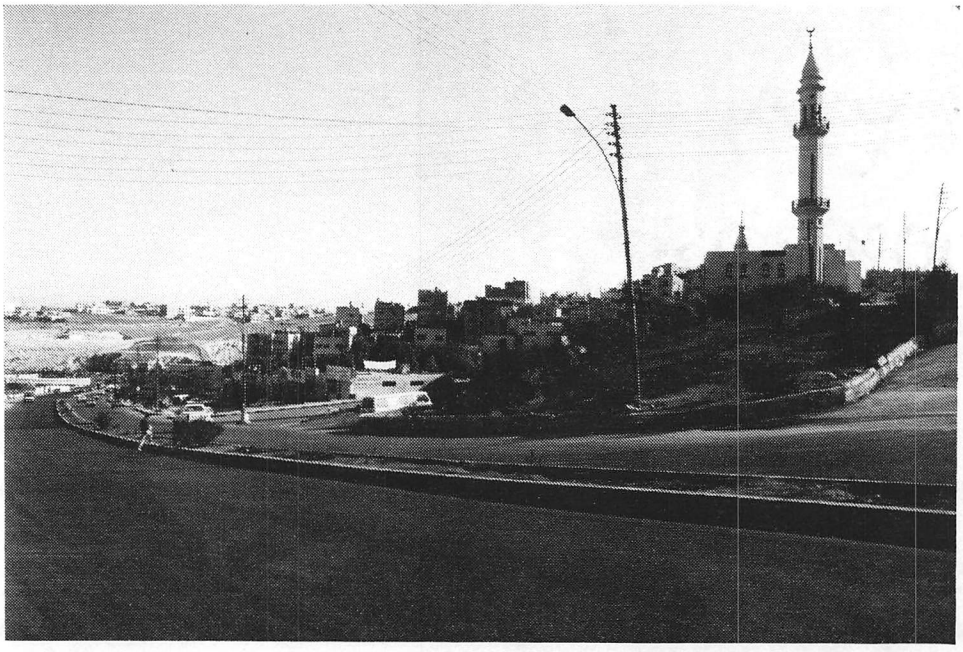


Photo 9

Larger commercial establishments along the major highway on the northern boundary of Wahdat provided an important source of cross-subsidy for the project.

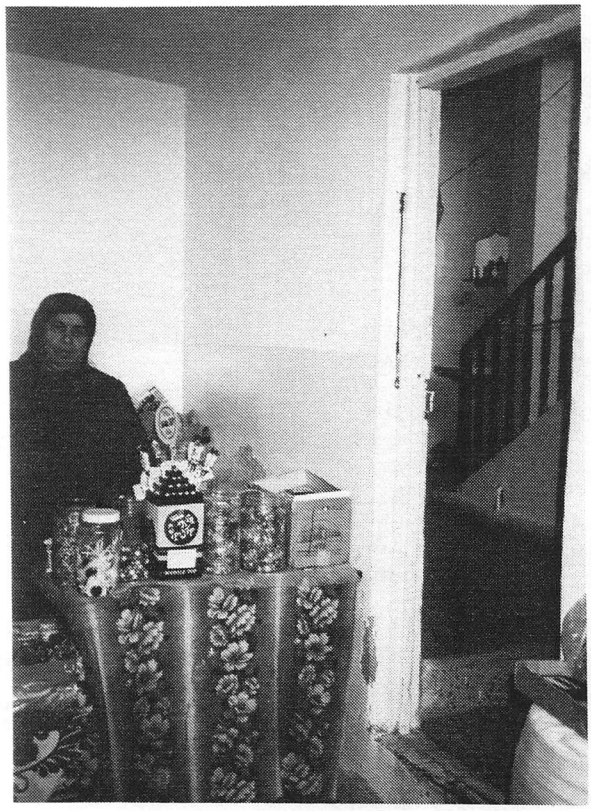


Photo 10

Smaller shop-houses provide important sources of income for residents. One of the rooms of this house in Jofeh is being used for that purpose.

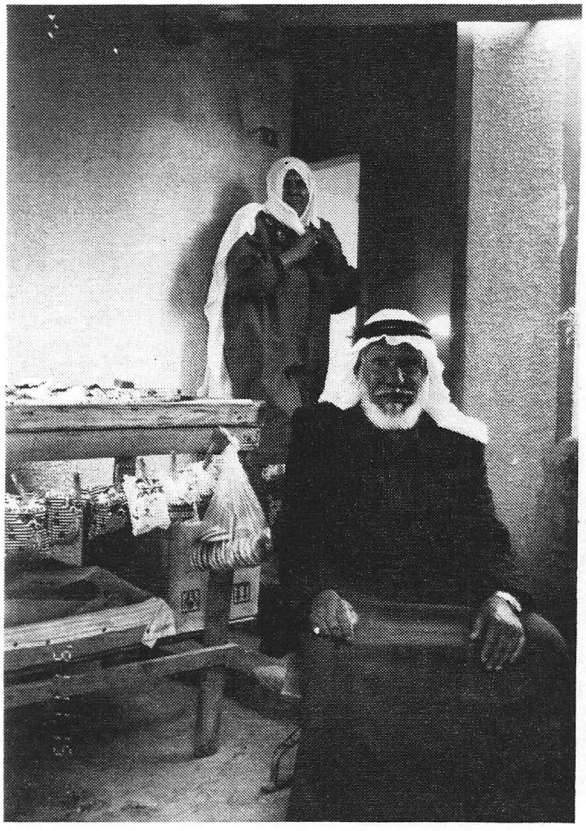


Photo 11

Front Setbacks also provide space for setting up small shop-houses such as this one in Wahdat.

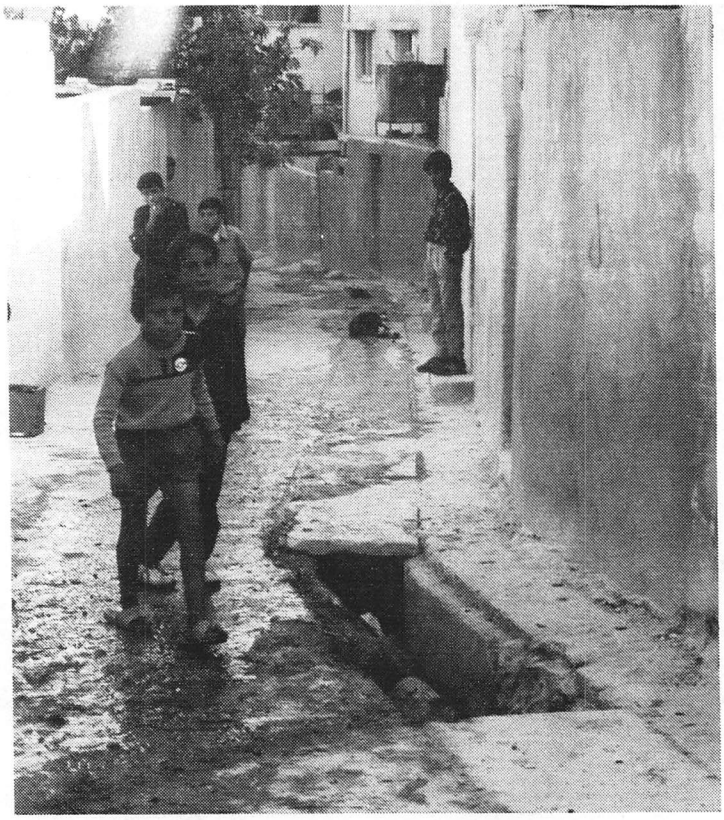


Photo 12

Storm Water Drainage. In Wahdat, debris and silt now block the channel after the concrete slabs were removed or broken.

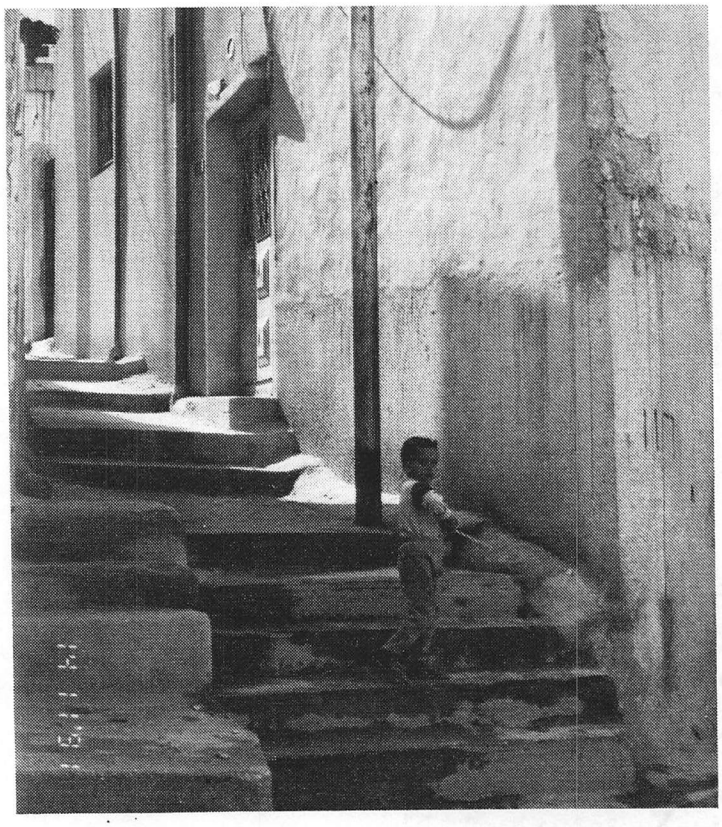


Photo 13

Surface drainage system in Jofeh, was well laid out over paths that vary in width and length to avoid long drainage runs.

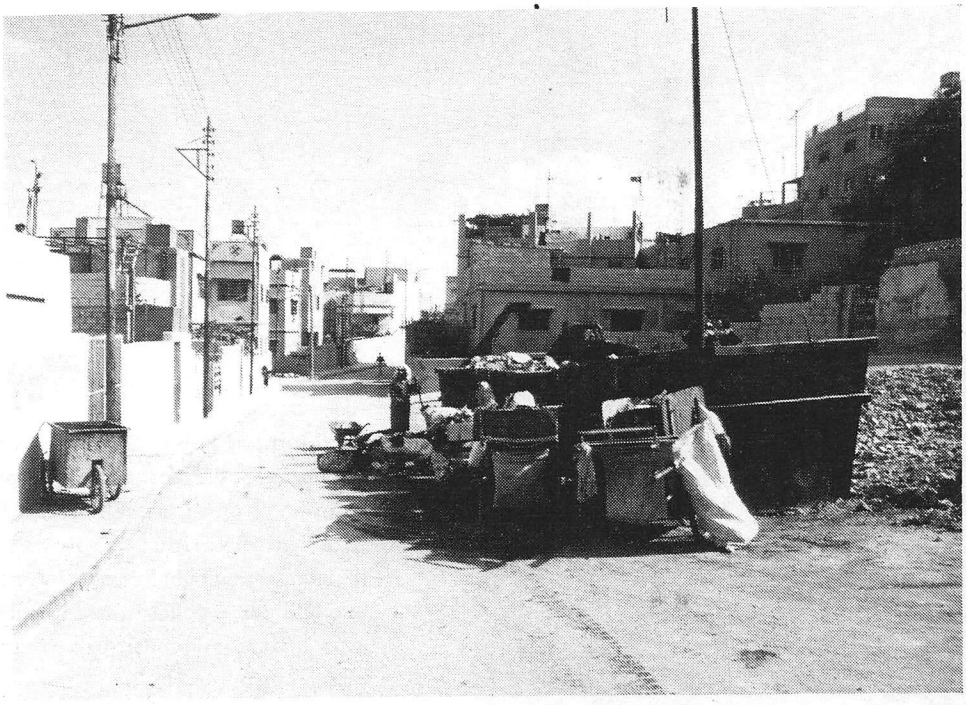


Photo 14

Garbage Collection. In Wahdat garbage is collected from households into small carts designed to negotiate paths and then transferred to large dumpsters located at the edge of the community.

Photo 15

Vacant Lots, similar to any unattended space, become dumping areas for garbage and unintended play areas for children.

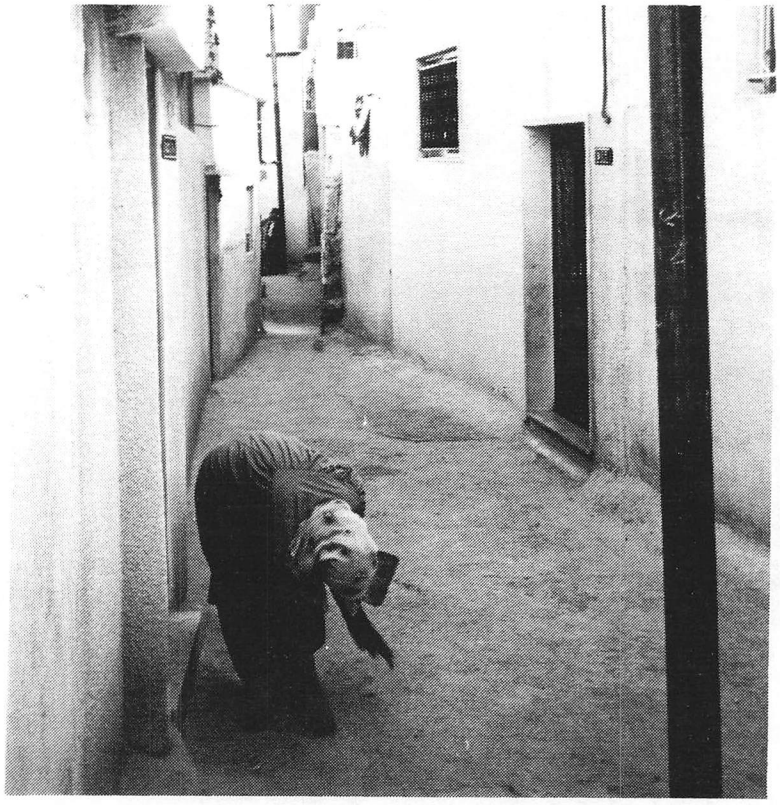


Photo 16

Maintaining Public Spaces in front of plots is for the most part taken care of by the women in the households. Site observations show that maintenance of public areas by women and children is concentrated in paths and interior locations of the community.

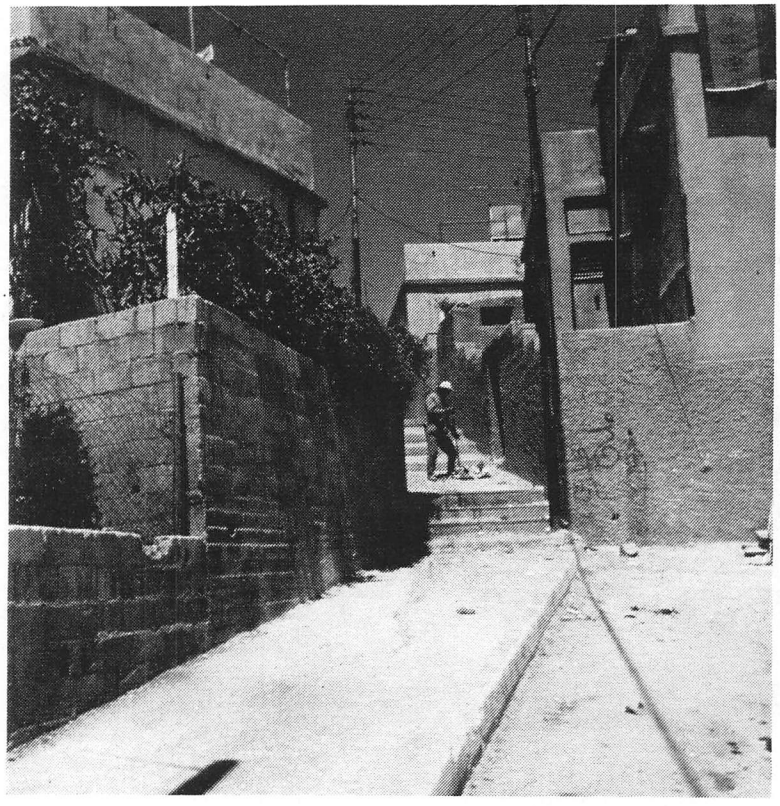


Photo 17

Municipal employees maintain locations where the path meets the road, around cul-de-sacs, and in commercial areas and around community facilities.

4.0 CHILDREN

4.0 CHILDREN

4.1 Use of Open Space

The funding provided by UNICEF allowed a more extensive study of open spaces to evaluate its adequacy under different use patterns, identify methods to enhance health and safety gains, and prevent the gradual deterioration of the physical environment where children's activities take place.

Open spaces are defined as a continuum from the privacy of the house and plot to transitional semi-public spaces, such as footpaths or small gathering areas, to public spaces, including roads, playgrounds, parks, community facilities and commercial facilities. The use of space along this continuum is almost seamless, moving progressively from private to public areas and back again, with activities and users depending on the day of the week, the time of the day and the particular location. Paths and cul-de-sacs are a transitional zone between the public and private and become an important play and recreation area for children when formal play grounds do not exist. Figure 7, *Use of Open Space*, provides the framework for analyzing the use of space in this reassessment. When there is an inadequacy in one area along this continuum, either because of the design standards, a change in population profile or the effects of densification, pressure is created to find other open spaces which may be inadequate or not suitable for health and safety reasons.

FIGURE 7 - Use of Open Space

House----->-----Plot-------->-------Off-Plot/Semi-Private--->---Off-Plot/Public----->-------Off-Plot/Communal				
-Interior	-Courtyard	-Front of House	-Streets	-Collector Roads
	-Gardens	-Footpath	-Larger Gathering Areas	-Commercial Shops
	-Balconies	-Small Gathering Areas	-Shop Houses	-Mosques
	-Roofs	-Small Play Grounds	-Public Park	-Community Facilities
		-Cul-de-sacs		

4.2 Use of Space by Women

The use of space by mothers and older daughters who are taking care of their younger siblings has a direct impact on the quality and type of space young children have access too. In Jofeh, where the plots and dwellings are on average smaller than in Wahdat, more women tend to gather in front of their homes and a higher percentage of children play outside the dwellings. For example, only 15% of the women interviewed gathered inside the plot in contrast to 39% in Wahdat. Furthermore, almost half use the space in front of their plot for gathering while in Wahdat only one-third do so. In Jofeh, only

41% of the women felt that there was sufficient open space on the plot and more than one-third felt that the dwelling setback was not sufficient. In Wahdat 68% felt there was sufficient open space and virtually none felt that the setback was insufficient.

TABLE 9 - Use of Space By Women

Responses of Women (does not add to 100%)	Wahdat	Jofeh
Gather in Rooms	56%	63%
Gather inside Plot	39%	15%
Gather in Front of House	32%	48%
Sufficient Open Space on Plot	68%	41%
Setback not sufficient	<1%	38%
Source: *Women's File Wahdat and Jofeh, UDD 1990 Survey*		

Maps 7 and 8, *Where Women Gather*, show the gathering areas identified by the women in Table 9. In upper Jofeh, the front of the houses are important gathering areas even for households where women have sufficient space within the plot. In middle Jofeh, almost no one gathers within the plots. These are its plots which were identified by the women in the survey as having insufficient open space. In lower Jofeh, where there is a notable absence of open areas due to narrow paths, households tend to use only their plot for gathering. Similar patterns occur in Wahdat, with definite spatial clustering of sub-areas where women gather only inside the plot or only in front.

In Wahdat, open space as gathering areas for women and younger children tend to be on the western edge of the community, bordering the Wahdat refugee camp. This pattern reflects kinship ties between the two settlements as well as the attractiveness of transitional open spaces between public and private areas. Cul-de-sac parking areas are important as gathering points for women and play areas for younger children. There is a notable absence of identified gathering areas in the center of the community.

In both communities, building setbacks are used for gathering, domestic activities, and children's play (Figure 8, *Use of Plot Setback, Wahdat and Jofeh*). There is evidence from Wahdat that with densification and an increase in multiple households on the plot, the front setback shifts in use from a gathering and visiting area to simply an entrance.

The setbacks established at upgrading have been maintained through enforcement of sales covenants and on-site monitoring by the UDD, even ten years after upgrading.

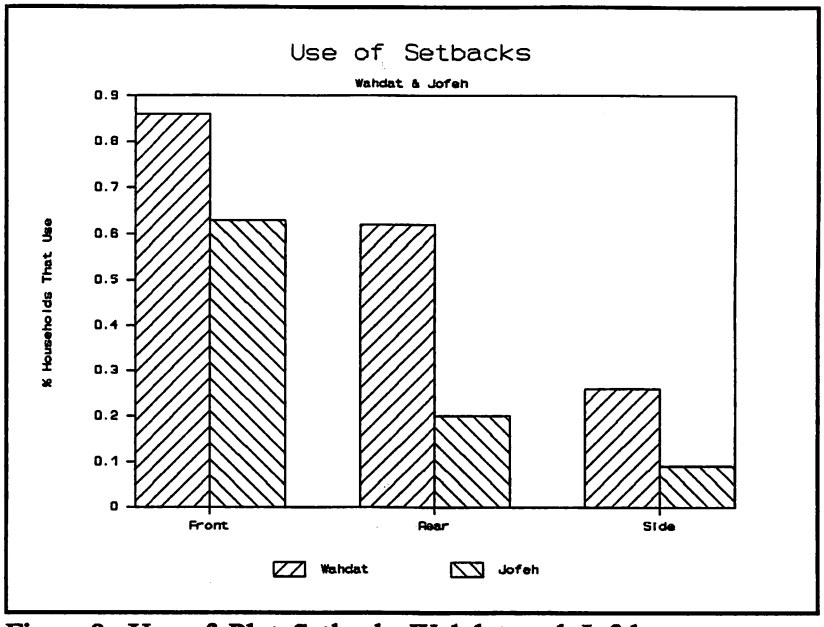


Figure 8, Use of Plot Setback, Wahdat and Jofeh

4.3 Children Under Six

For younger toddlers and children under 6, active play moves in a hierarchy from inside the house, courtyards, gardens and roofs to footpaths and streets. Table 10 shows significant differences in how these spaces are used between the two communities.

TABLE 10 - Where Children Under Six Play

Responses of women when asked if their children under six played in listed areas (does not add to 100%):	Wahdat	Jofeh
House	78%	73%
Courtyard, Garden, Roof	56%	36%
Footpath	30%	46%
Streets	22%	38%
Other	3%	-
Source: UDD, 1990 Jofeh and Wahdat, Womens File		

For the under 6 age group, the use of open to sky spaces on the plot is considerably less in Jofeh than Wahdat, 36% in comparison to the 56% in Wahdat, again a reflection of the lack of open space within the plot in Jofeh. The importance of off-plot areas for

children to gather becomes more important as densities within a plot increase or the existing open space within the plot takes on new uses. In Jofeh, 46% of the mothers responded that their children under six play in footpaths, in Wahdat it is considerably less at 30%. For both communities, mothers noted the lack of play areas and open space for children.

4.4 Children Ages Six to Twelve

In this age group, the patterns emerge between Wahdat and Jofeh are similar to those for the younger group. While the house remains an important gathering point, its use by children is less in Jofeh, where mothers reported that six-to-twelve years old tended to play more outside the house and plot than their counterparts in Wahdat. Table 11 shows that 39% of the mothers in Wahdat and 51% in Jofeh acknowledged that their children play on footpaths. For this older group of children, the use of other places to play in, both on and off the site, including organized sports activities, are mentioned by the mothers.

TABLE 11 - Where Children Play - Mothers' Response

Responses of Mothers for Children Ages 6-to-12 (Does not add to 100%)	Wahdat	Jofeh
House	73%	65%
Courtyard, Garden, Roof	53%	36%
Footpaths	39%	51%
Streets	44%	53%
Others	11%	07%
Outside the Site	08%	04%
Source: UDD, 1990. Womens File, Wahdat and Jofeh		

In general, mothers felt that the plots lacked sufficient space for children but that footpaths provided a safer, traffic free environment for them to play in than the streets. The interviewers observed children playing in those alleyways which were relatively free of stairs, in the residual spaces designated as open areas but left unplanted and in vacant building plots bordering on the alleyways, even though the accumulation of solid waste in vacant plots is a source of concern. Mothers did note concerns about the cleanliness

of public areas where children played, including the area around the garbage transfer station in Wahdat.

4.4.1 The Childrens' Perspective

The responses of the children provide important clues to spaces they find usable given the lack of formal play areas. In both Jofeh and Wahdat there is a definite clustering related to slope, path width and setbacks (Maps 9 and 10). Within Jofeh, a similar pattern prevails between upper and lower Jofeh, which has narrower footpaths and lacks open spaces.

TABLE 12 - Where Children Play - Children's Response

Responses of Children Ages 6-to-12 (Does not add to 100%)	Wahdat	Jofeh
Roof	34%	30%
Courtyard	58%	31%
Front of House	35%	39%
Footpath	29%	38%
Street	27%	54%
Source: UDD, 1990. Children File, Wahdat and Jofeh		

The tighter grain of Jofeh is reflected in the fact that only 31% of the children use the courtyards as opposed to 58% in Wahdat (Table 12, *Where Children Play - Children's Response*). The similarities in the use of the areas in front of the house reflects the use of this space by younger children and older siblings, especially daughters taking care of younger children.

Most school age children have a space for studying usually a designated room in the dwelling. This is a reflection of the importance placed on education by the parents. Yet, rarely do children sleep in an independent room. In Wahdat an average of 4.4 children share a bedroom as compared to an overall average of 3 persons per room. This is due to the prevalence of large families and the functional specialization of space within the dwelling which diminishes the flexibility of multipurpose use. In Jofeh, the differences

are not as widespread because of the smaller household sizes, with 2.8 children sharing sleeping quarters and 2.6 persons per room overall.

4.5 Age and Gender Differences

A closer examination based upon gender and age among 6- to 12-year olds provides a valuable insight to the use of space. Figure 9, *Use of Open Space, Boys-Wahdat* and Figure 10, *Use of Open Space Girls in Wahdat*, shows the relative importance of different play areas among boys and girls. When space is available, the courtyard, areas in front of the house and paths remain important play areas for children of all ages, most likely because the children can be easily supervised by parents and relatives. There is a definite relationship between the use of space by boys and girls, their ages and the level of privacy and public supervision. For girls, access to open space off the plot diminishes with age and the "publicness" of the space.

TABLE 13 - Play Areas for Children 6 to 12 - Wahdat

Play Areas, Children (6-12) (Does not add to 100%)	% Who Play	% of Play who are Girls
Roof	34%	57%
Courtyard	58%	58%
Front of House	35%	56%
Footpath	30%	38%
Street	27%	19%
Green Areas	3%	20%
Source: UDD, Wahdat Child File		

Table 13 further illustrates how, in Wahdat for example, girls are more likely to play in private spaces such as the roofs, courtyards and in front of the house rather than the more public spaces of footpaths and streets. Figure 11, *Play Areas -- Paths & Streets*, dramatically shows this along with the various use patterns based upon age.

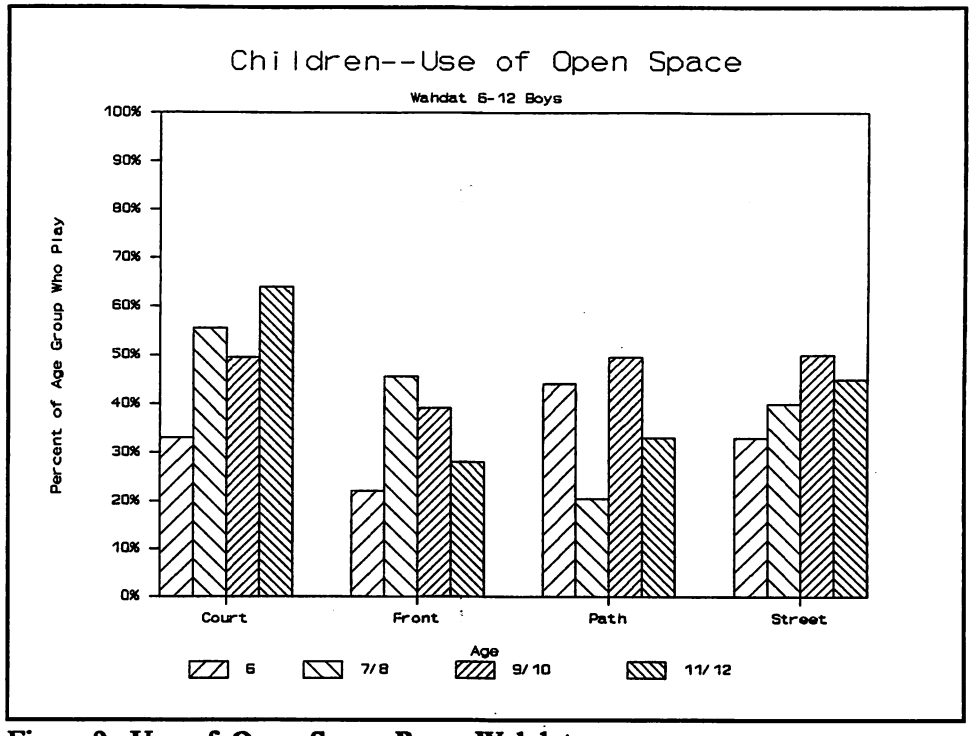


Figure 9, Use of Open Space, Boys, Wahdat

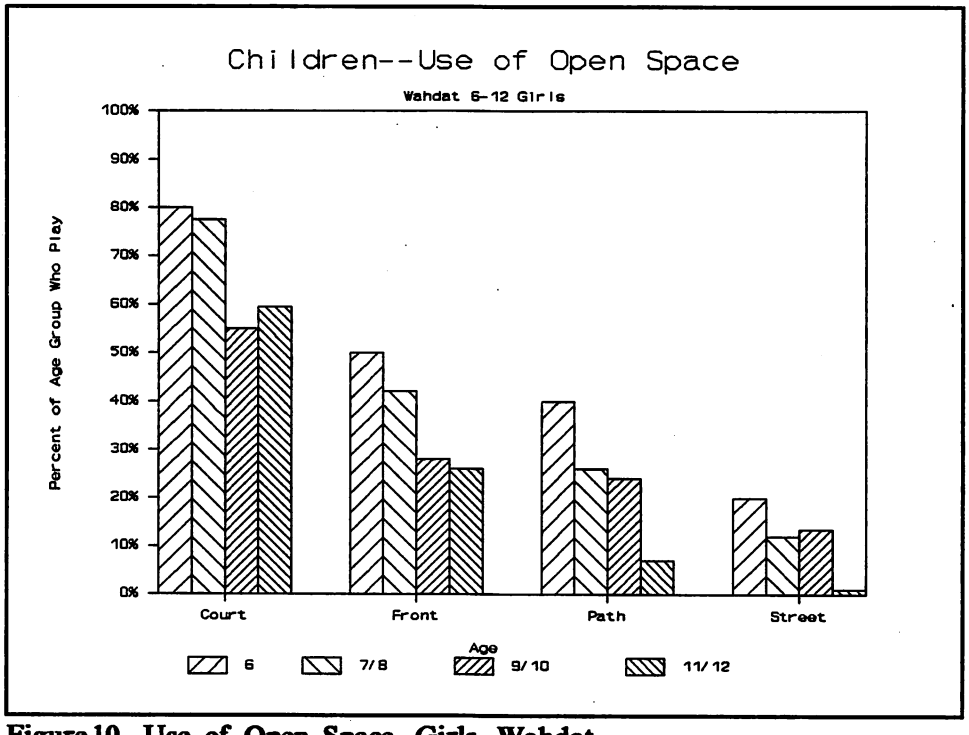


Figure 10, Use of Open Space, Girls, Wahdat

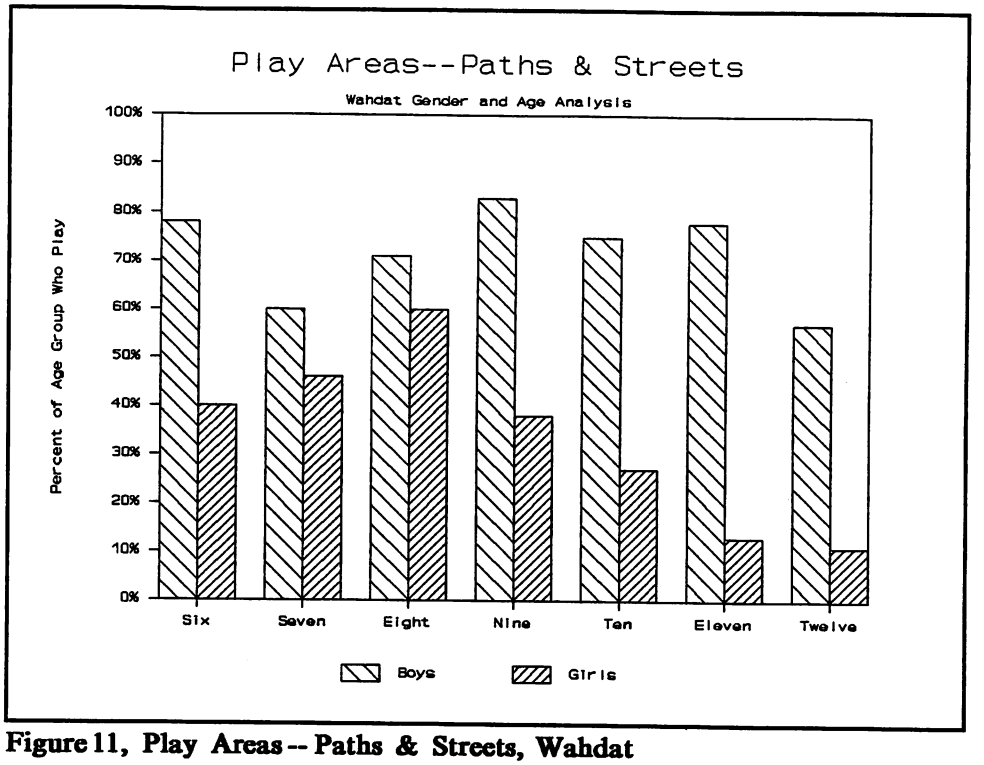


Figure 11, Play Areas -- Paths & Streets, Wahdat

4.6 Injuries

Safety issues posed by vehicular traffic were of concern for mothers, although only one Wahdat mother indicated that her child was injured by an automobile. The long 5.5 meter wide road into the center of lower Wahdat was of particular concern because of the volume of traffic and the plot entrances that open directly onto the street. In Jofeh two children were injured by automobiles.

It is notable that in the 1990 survey, unlike the 1981 and to a lesser extent the 1985 surveys, there were no accidents from burns associated with cooking in multipurpose rooms where children would play. In Wahdat, 96% of the households now have separate kitchens, in Jofeh virtually all the households in the survey had separate kitchens.

4.7 Youth

Although the study did not focus on youth over 12, their activities on the site are limited to informal play in streets and footpaths, especially football. For this group off-site activities become important, especially organized sports. Further analysis of the needs and requirements of teens, should become part of a community assessment techniques.

4.8 Community Facilities

The community facilities included in the project that are available to children include a library in Wahdat and community centers in each site. These facilities become more important as a formal recreational area for children when site densities increase. They are also important for girls who, have less access to public areas as they grow older. Children obviously benefit from the Wahdat health centers. Community organizing and the development of health and hygiene education programs through well run community centers have an synergistic role in improving the quality of life for infants and young children as demonstrated in Jofeh.

TABLE 14 - Use of Public Facilities

Use of Public Facilities, Children 6 to 12 (does not add to 100%).	Do you know of its Existence	Of those who know its existence % who use	Go Alone	Satisfied
Community Center Jofeh	82%	46%	95%	91%
Community Center Wahdat	62%	27%	93%	90%
Library Wahdat	61%	47%	92%	99%
Source: UDD, Wahdat & Jofeh Child File				

4.8.1 Community Centers

One of the reasons between the differences in the level of use between the two community centers is the successful organizing capabilities of the Jofeh center staff. In Jofeh, the children initially demonstrated hostility towards the center and vandalized the facility, an indication of the antagonism felt by the community towards the UDD and the costs associated with the upgrading. Over time, as the staff gained the confidence of the adults, children began to attend the center for afternoon video shows and health awareness programs. When the UDD was more active in the site and provided vehicles, trips were organized to other schools, public gardens and the aviary. The UDD has stopped providing transportation, and since it is difficult for parents to absorb the cost and the trips are rarely scheduled now.

The center in Jofeh does have limited playground equipment but it is not used by the children because of its small size, and lack of accessibility. The demand for these programs shows that there is a need for them, especially as sites densify and children do

not have access to formal recreational and educational activities. The hours of operation for centers, from the morning to early afternoon, coincide with the school hours. Hours of operation need to be changed to serve better the children and youth in the afternoon.

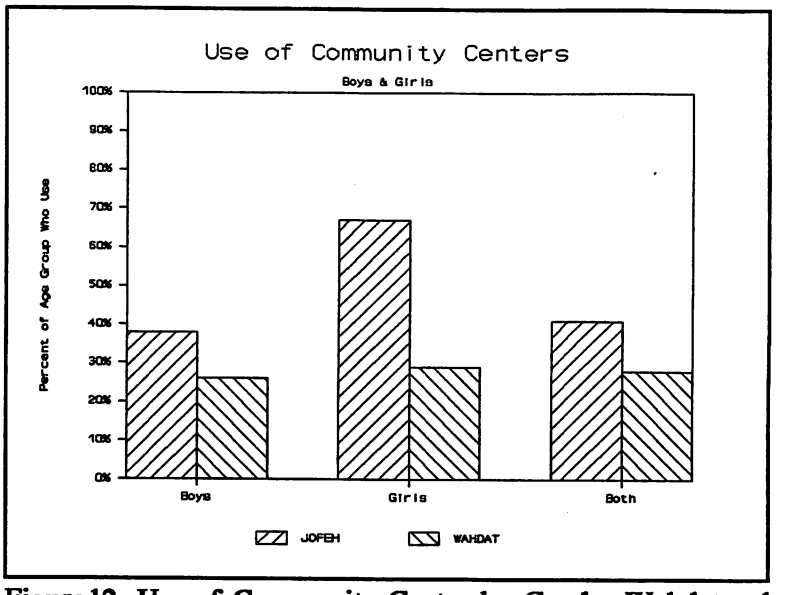


Figure 12, Use of Community Center by Gender, Wahdat and Jofeh

4.8.2 Library

The library operated by the Friends of the Children Association is located in the northwest section of Wahdat and is used by some 22% of the households in the community. The children who use the facility tend to live nearby and are attracted to the library to read and play computer games. This is an example of a facility that is community based, operated by a private or voluntary agency, and can provide educational and recreational alternatives for children of different ages.

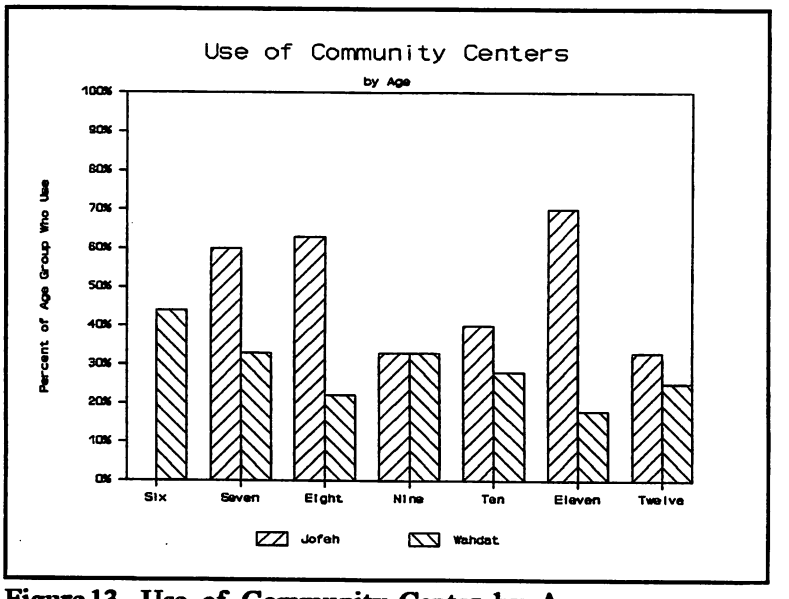


Figure 13, Use of Community Center by Age, Wahdat and Jofeh

4.8.3 Kindergarten

Children between the ages of 4 to 6 directly benefit from the kindergarten located in the community centers of both sites. Initiated with UNICEF assistance for children of lower income households, classes are held in the morning, with generally between 25 to 40 children in a class taught by a community worker with volunteer support. Fees average 1-2 JD a month.

The demand for nursery and daycare facilities depends on family income, the level of participation of the women in the labor force, and extended family and kinship networks in the community. The 1990 survey in Wahdat showed that 7% of the households made use of the kindergarten and also had a high level of satisfaction. Based on population profiles and assuming that 50% of eligible children would attend kindergarten, the current facility in the community center serves 20% of the potential demand, and are largely children from higher than average income households (JD 138 vs. JD 110 for the entire community). Furthermore, to meet this level of assumed demand, more affordable day care facilities are required than are available. Facility standards for other lower-income projects note that an average of one square meter per child is required for day-care facilities. In Wahdat, with some 430 children in this age group and 50% attendance, there is a need for five to six rooms of daycare facilities while only one is presently available. The need for additional space will increase to at least eight rooms when the community is fully built out. Jofeh is adequately serviced, given its current population profile.

The reassessment showed that in a rapidly growing community such as Wahdat, it is difficult for a public agency such as the UDD to meet the demand for daycare. Future options should encourage more private/public cooperation through a variety of means including: contracting services to private non-governmental organizations; a larger definition of catchment areas; more intensive use of existing facilities, such as double shifts; or provision of dedicated rooms in other parts of the community.

4.8.4 Playground Facilities

In Wahdat some 85% of the children ages 6 to 12 asked for playgrounds as did mothers in both communities, currently there are none. Noted below are standards for open space[1] suggested for play lots, small parks and playing fields and the defacto spaces that are currently serving these uses.

[1] The Cities of the Poor: Settlement Planning in Developing Countries, edited by Alan Turner, Croom Helm, London, 1980.

FIGURE 14 - Formal Playground Standards and De Facto Substitutes

Tot Lots, .5 to 2 sq meters per lot or about 1,050 sq meters for the community--(*defacto informal areas = paths, juncture of paths and on-plot courtyards*).

Small Park, 1-2 sq meters per plot for vest-pocket park or an additional 1,050 sq meters--(*defacto informal areas include paths, juncture of paths, cul-de-sacs).*

Play fields 1 sq. meter per person or about 525 sq meters--(*defacto informal areas include the parking area near the health center in Wahdat and ring road in upper Jofeh, both areas are fairly level).*

The defacto areas listed above demonstrate how public spaces can either supplement or provide for informal play when formal areas are lacking. In certain areas of Wahdat and Jofeh, the "defacto supply" is adequate. This occurs when path configurations become level pedestrian cul-de-sacs where younger children can play in proximity for their houses or where parking cul-de-sacs double as informal play fields for neighborhood football games among youth. Given preferences for increased vehicular access that would result in the loss of paths where children can play in relative safety, standards for future development will need to provide more formal areas for children to play and for adults to gather.

4.8.5 Health Facilities

The importance of public health care for the community is obvious given the high level of usage for both the UNRWA clinic and Ministry of Health facilities as reported in the 1985 survey.

TABLE 15 - Health Facility Usage-1985

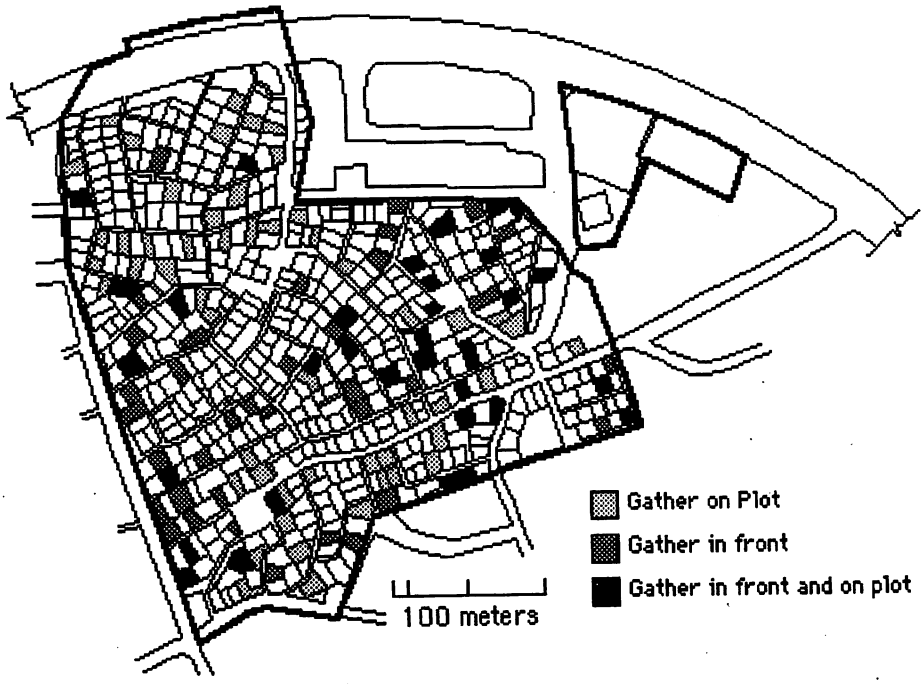
	Jofeh	Wahdat
UNRWA	20%	76%
Private Doctor	5%	4%
MOH	75%	20%
Source: 1985 UDD Survey		

The 1990 survey found that 73% of the households in Wahdat use the on-site health center. Of this group, 61% use the facility on a monthly basis for medical treatment, maternity and child care and the purchase of medicines (Map 11, Use of Health Center). These households, as well as others, also use the nearby UNRWA clinic. By 1990, the population level in Wahdat reached the Health Center's planning standard of 5,000 person service population and with the location of the health clinic on the edge of the community in a urbanized neighborhood, its catchment area is much larger than Wahdat proper.

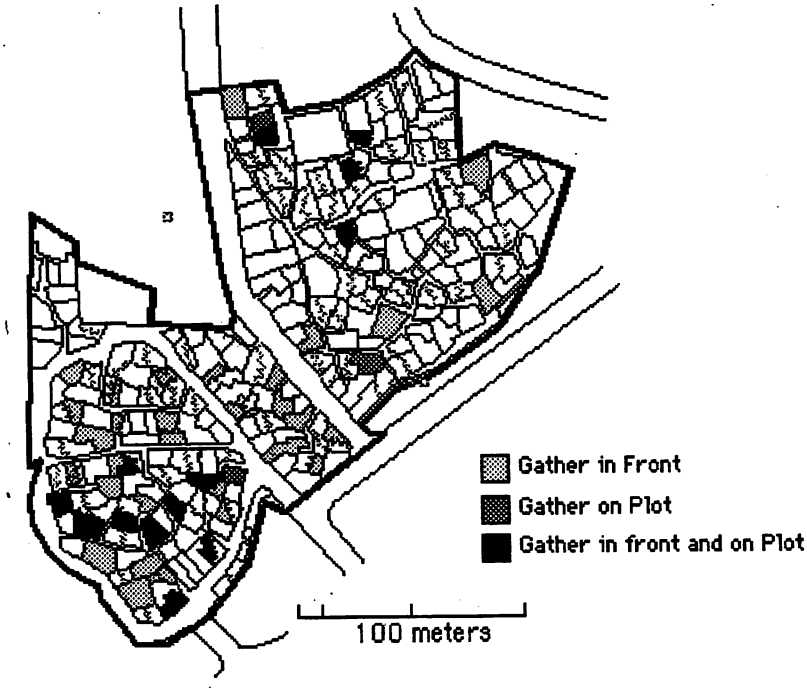
For residents in Jofeh who lack the convenience of an on-site health facility, the closest facility is the Ministry of Health Al-Bashir hospital. Jofeh's community center did provide limited health referral and assistance with vaccinations. For Jofeh residents, the most noted "missing element" in the project was a Health Center. Yet, it has benefitted from the activism of the community center staff regarding basic health education, hygiene and community environmental awareness. In Wahdat, where health facilities are available, community-wide health education and environmental awareness are lacking.

4.8.6 Green Areas for Children

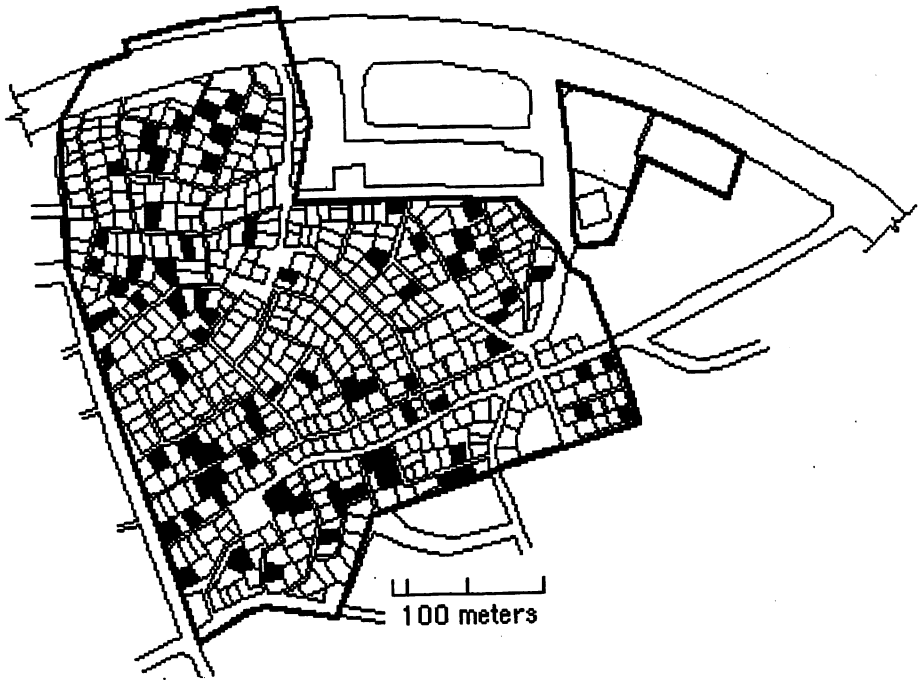
The areas designated as green areas are either planters with a parapet surrounding them or small open spaces that could not be incorporated within plots when the sites were replatted. Often, the planters no longer have plants in them, and the small open spaces are either fenced in or incorporated within a boundary wall. Children have not directly benefitted from these areas with the exception of shade and covering that is provided in paths from plantings in individual plots. The large municipal park on the eastern boundary is used by very few children and generally not accessible without adult supervision.



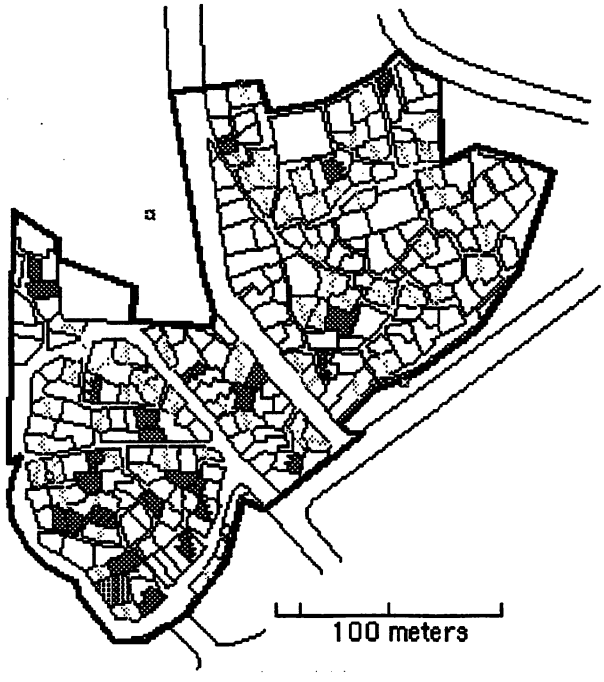
Map 7	WAHDAT, USE OF OPEN SPACE BY WOMEN
Source: Based on 50% Survey, UDD 1990 Womens' File, Wahdat	



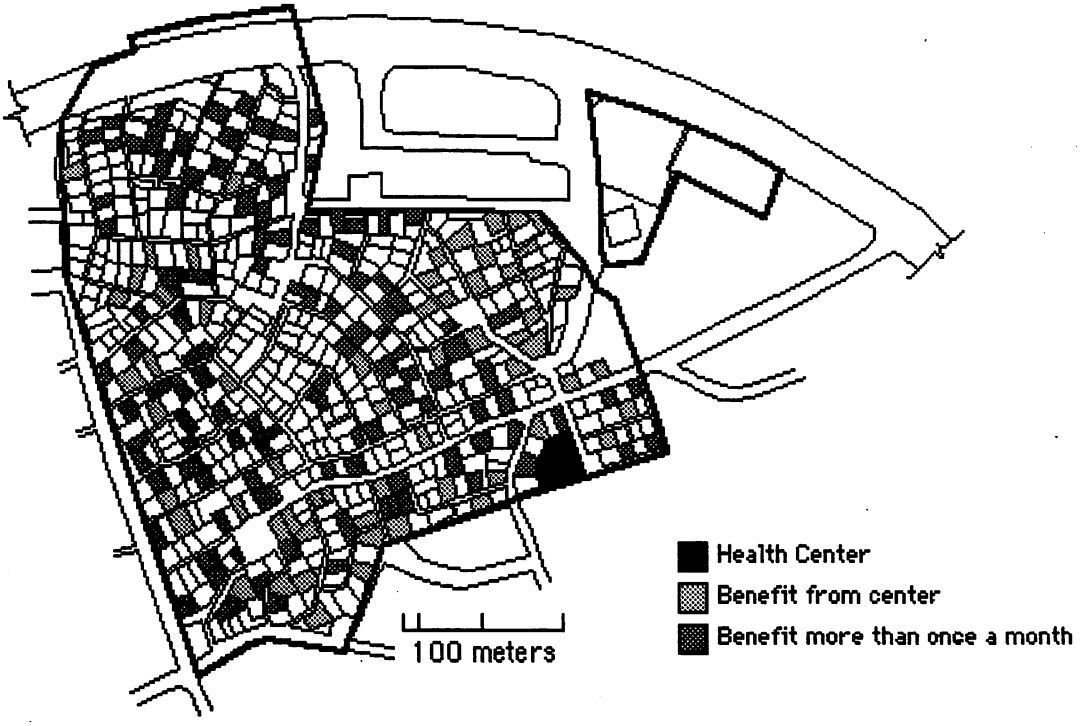
Map 8	JOFEH, USE OF OPEN SPACE BY WOMEN
Source: Based on 50% Survey, UDD 1990 Womens' File, Wahdat	



Map 9	WAHDAT, AREAS WHERE CHILDREN PLAY IN PATHS
Source: Based on 50% Survey, UDD 1990 Children File, Wahdat	



Map 10	JOFEH, AREAS WHERE CHILDREN PLAY IN PATHS
Source: Based on 50% Survey, UDD 1990 Children File, Jofeh	



Map 11	WAHDAT, USE OF HEALTH CENTER
Source: Based on 50% Survey, UDD 1990 Womens' File, Wahdat	

Photo 18

Open Spaces. Children spend a considerable amount of time in public open spaces. Prior to upgrading children were exposed to hazardous environmental conditions throughout the site.

Photo 19

Older youth in Wahdat gather in open space at the edge of the community.

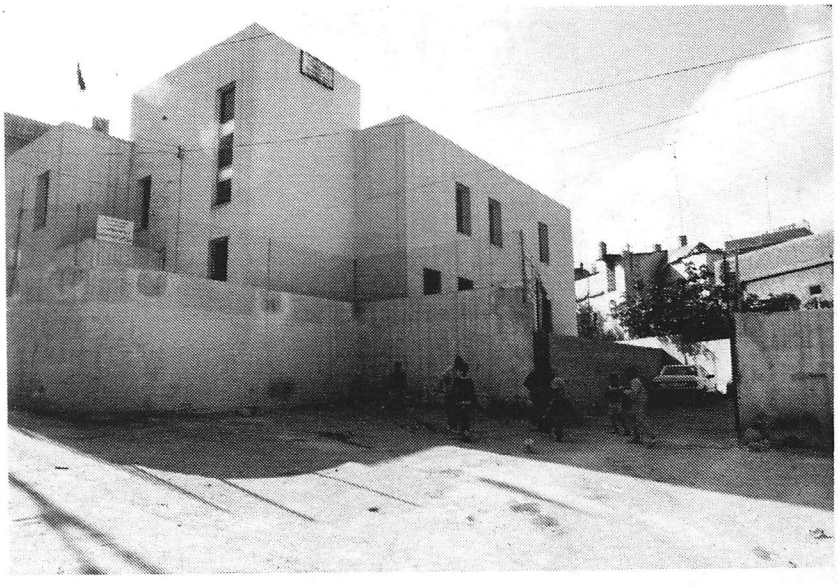


Photo 20

Larger Open spaces such as this parking area near the Wahdat Health Center are used for football.

Photo 21

Gathering areas such as this one in Jofeh occur at natural transition points between public streets and more private residential paths.

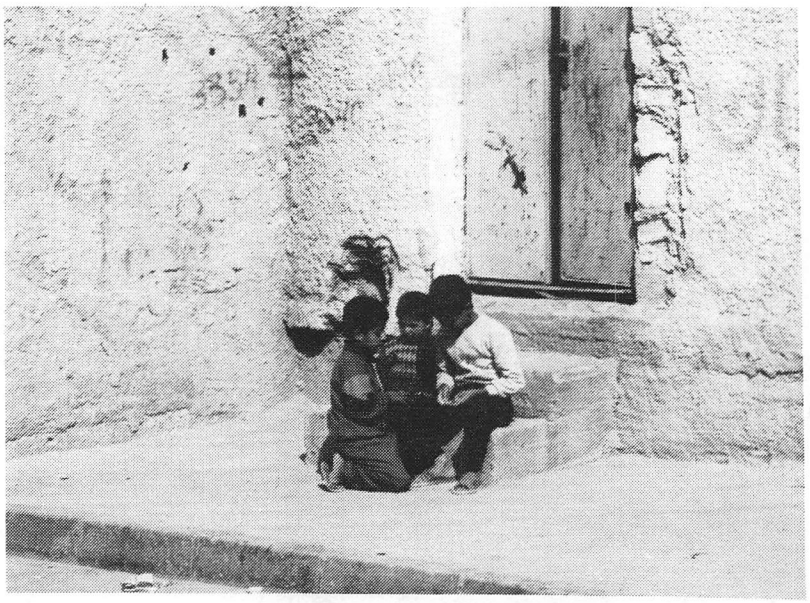


Photo 22

Children make use of different types of open spaces. The sidewalk in Jofeh between the plot entrance and residential street provides a transition zone.

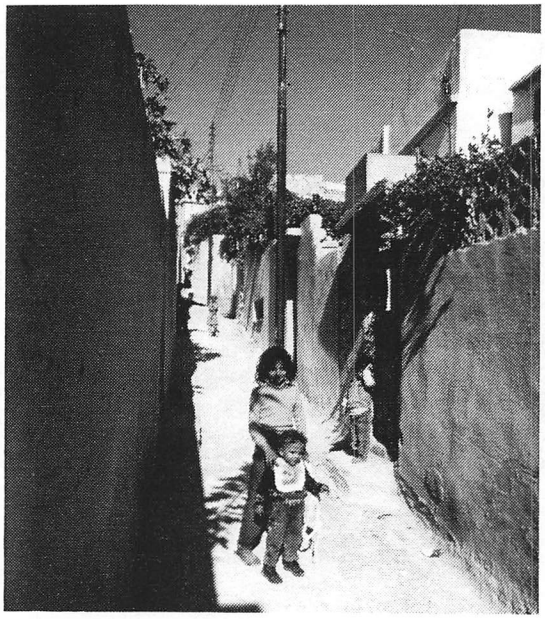


Photo 23

Paths function as important public open space for younger children.

Photo 24

Cleaning public spaces in front of plots is often a task assigned to children as shown here in Jofeh.

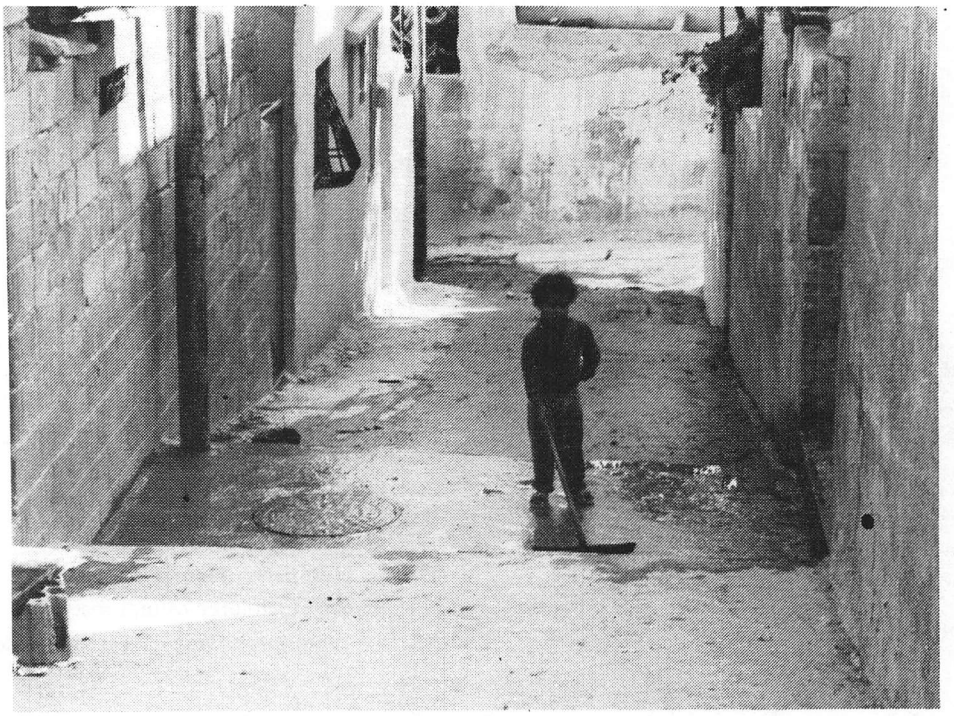


Photo 25

Community maintenance activities often occur among neighbors with strong kinship ties as in this Wahdat path.

Photo 26

Solid Waste is often taken to dumpsters by children.

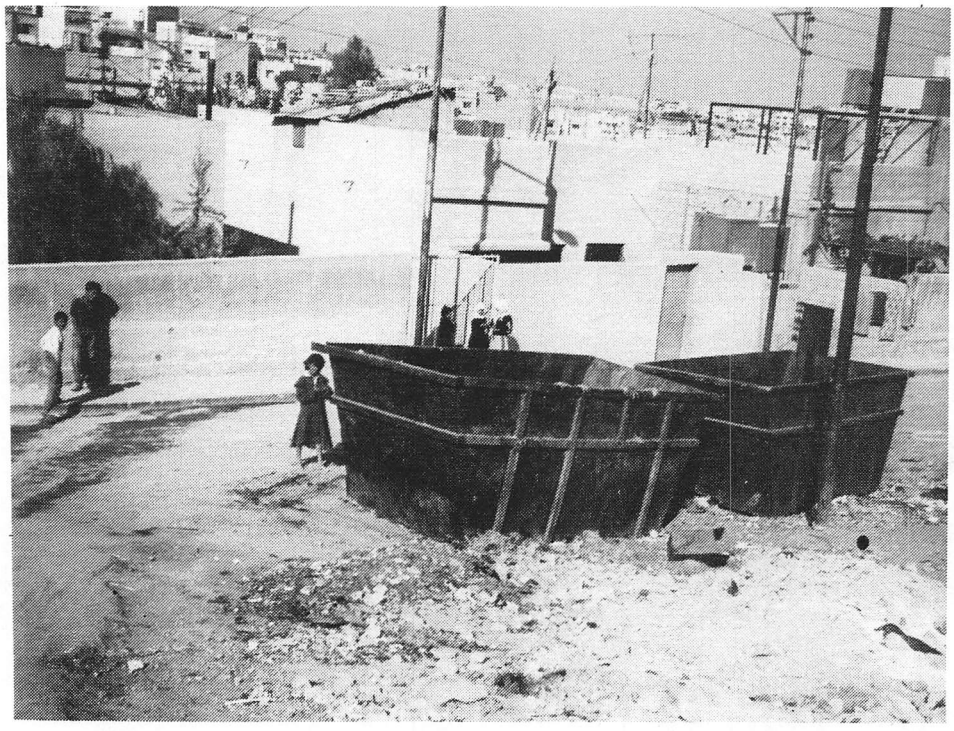


Photo 27

Dumpster Heights. Because of its height, children cannot reach into the dumpster, leaving the garbage aside.

Photo 30

Interior Courtyards are an important open to sky space for younger children as shown here in Jofeh.

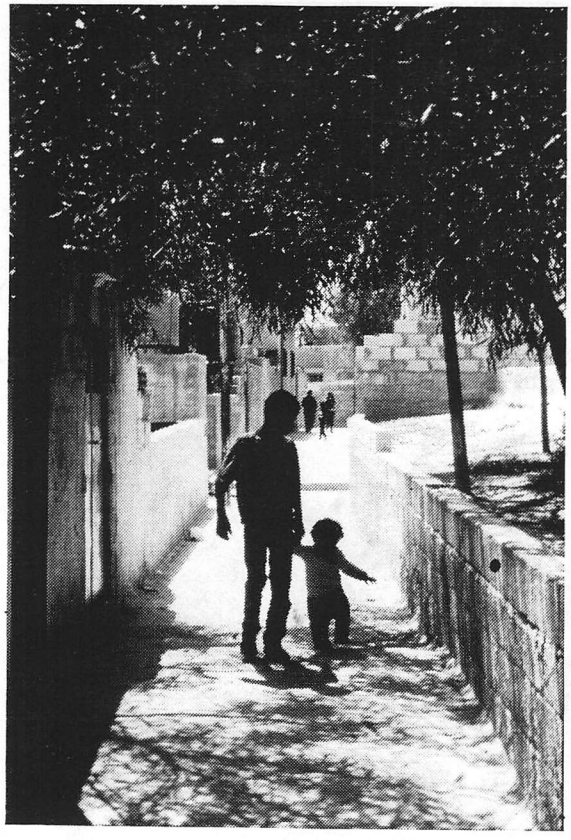


Photo 31

Ten years after upgrading and the departure of an implementing agency such as the UDD, a community's environment begins to reflects the values and actions of its residents.

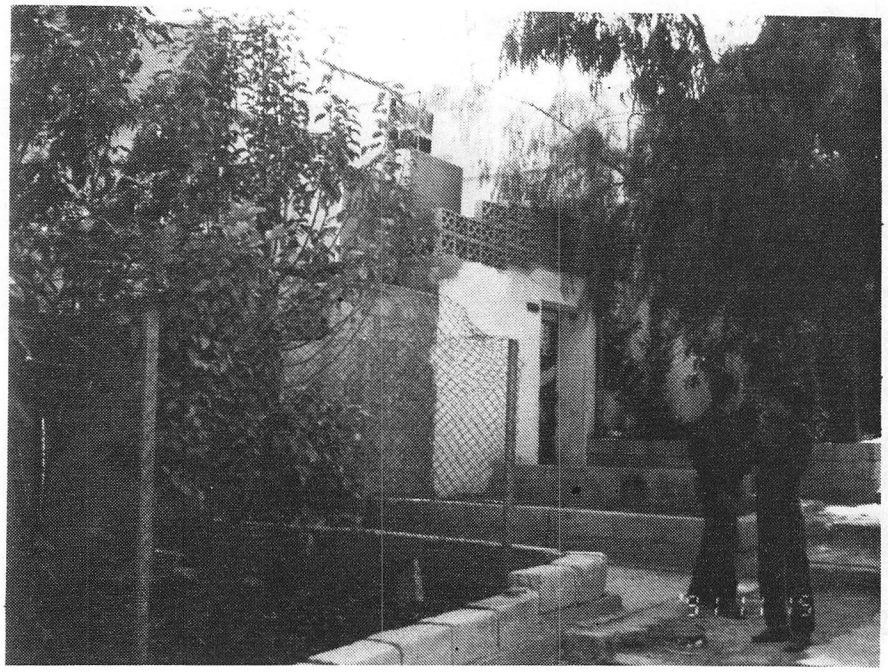


Photo 28

Small green areas often are fenced in, and maintained by plot owners through maintenance agreements.

Photo 29

Vines growing on individual plots combine to form a shade canopy.

5.0 CHANGING URBAN DEVELOPMENT CONTEXT

5.0 THE CHANGING URBAN DEVELOPMENT CONTEXT

The UDD's original objectives reflected the approaches introduced in the late 1970s to address the growth of squatter settlements. The agency's mandate was to improve shelter conditions for households under the 40th income percentile, achieve full cost recovery and lower infrastructure costs. After a decade of successful project implementation in both upgrading and sites-and-services, the UDD is facing new challenges that require a reassessment of its approach to upgrading urban environments.

Throughout greater Amman the layering of modern private land ownership categories onto traditional customary classifications has resulted in the growth of informal development where residents are reluctant to pay for infrastructure services which they could obtain at a lower cost when networks reach their settlement. They also feel that their current tenure is secure and will eventually be registered. These factors, combined with the economic crisis that precludes further subsidization and a political setting exerting pressure to reduce charges for services extended to lower income families has constrained UDD activities.

During the last four years, the UDD has conducted studies to review technical criteria, land use distribution, cost recovery methods and new mechanisms to encourage private sector participation. These studies have included reducing standards for civil works to save on costs. The sharp increase in construction prices has eroded the effectiveness of this approach as a cost reduction mechanism without compromising operational efficiency. The reassessment has demonstrated that lowering standards below a critical level leads to accelerated deterioration of urban improvements. Elimination of landscaping and open spaces does not significantly alter the project's financial picture but does impair its liveability. The recent tendency to reduce public facilities to save on costs will compromise demonstrated benefits these facilities contribute towards enhancing the quality of life in the project area.

In many upgrading projects, recoverable costs range between 50% and 65% of total investment; the UDD for the most part has managed to recover 100% of on-site infrastructure costs. Few agencies can match this record. Unrecovered costs include off-site infrastructure, land acquisition for public right-of-ways, the primary road system and community facilities. Together these non-recoverable portions account for upwards to 37% of total investment in some projects. Cost recovery criteria have been reviewed in an attempt to maintain the desired affordability levels. Flexibility in designing credit financing programs to extend affordability for beneficiaries is restricted by legal statutes that limit total interest payments to the amount of the original principal. Consequently, the burden on beneficiaries was reduced by transferring to the central government

the financing of project elements that serve a larger population like parks and major roads. Comparisons have also been conducted between the UDD development costs and those of utility agencies. An alternative approach is being tested where secure land tenure is combined with a new community plan, and services introduced by other agencies, an option which could be plagued with problems of coordination as each agency follows its own planning and scheduling of capital improvements.

Currently, the UDD is giving priority to sites that have a high potential for cross subsidy, including from adjacent land. However, the effectiveness of this approach is constrained by the inability to deviate from a project profile whereby 60% of the new plots are allocated to households below the 40th income percentile with the cross-subsidy coming from the remaining market rate residential and commercial lots.

Improving the quality of the environment in which private investment takes place is the most effective mechanism to mobilize private resources. The integration of a community into a wider economic structure releases productive capacities beyond a serviced site. This potential has traditionally been underestimated. Improvements which do not take into account the reality of future development tend to collapse when the private sector response (formal and informal) surpasses the expectations of planners or deviates from predicted scenarios.

The impacts of the UDD's upgrading interventions over the past ten years have gone far beyond the upgrading of project sites and improving the quality of life for the residents in these communities. Project experience, and the feedback from official and beneficiary preferences has resulted in new municipal standards that are more affordable to lower-income families. The agency's active and ongoing monitoring and evaluation capability has resulted in continuous adaptation in both its approach and standards.

For new upgrading projects to succeed, they will have to simultaneously demonstrate: linkage into the municipal and urban development planning process; stronger relationships between designs, standards and residents' lifestyle; broader and more flexible cost recovery mechanisms and finally, community based planning techniques that encourage self-reliance and higher levels of public and private cooperation. The merger of the UDD with the Housing Corporation to form the HUDC puts this new organization in a unique position to work with government and non-government organizations and capitalize on institutional skills to initiate new strategies and approaches.

6.0 MAJOR ISSUES, OBSERVATIONS AND RECOMMENDATIONS (MATRICES)

6.0 MAJOR ISSUES, OBSERVATIONS AND RECOMMENDATIONS (MATRICES)

The following seven matrices summarize the observations and analysis from the reassessment:

- Circulation Network
- Storm-water Drainage
- Sewerage
- Community Facilities
- Communal Spaces
- Community Maintenance
- Women and Children.

Each matrix is divided into two major sections: *Issues and Observations* which outline major issues, observations from the social and physical surveys and key interrelationships; and *Current Standards and Recommendations* which note current UDD standards and practices, maintenance, and recommendations for alternative standards and implementation strategies. Using the matrices, operational strategies and standards can be formulated for future sites. Factors to be considered include:

- Capital and Maintenance Costs
- Ease of Maintenance
- Affordability and Resource Mobilization
- Organization and Motivation for Community Action
- Assessment of Environmental Quality and Health Hazards
- Support Action by the UDD, the Municipality and Other Public Agencies Involved

CIRCULATION NETWORK -- *Issues and Observations*

Issue	Physical Observations/Indications	Social Observations/Indications	Interrelated Issues
Paths. Balance between need for access, encouraging care and maintenance of space, limiting demolition and providing play areas for children and gathering areas for men and women.	> Narrow paths when combined with steep grades and long distances to vehicular access points create accessibility problems for heavier items such as building materials. > Garbage collector's wheelbarrow spills garbage on steep slopes with ramps and stairs. > Small "wheelbarrow ramps" added on some paths.	> Semi-private spaces create sense of ownership and care. Smaller paths are cleaner. Creates hierarchy of spaces for activities and children's play areas and womens' gathering. > Entrances with setbacks provide transition zone from house to path that are used by mothers and children for gathering and visiting. > Accessibility remains a major issue for residents especially during emergencies and access for elderly.	> Paved paths encourage self-maintenance of paths. > Paved paths on sites with slopes also provides surface drainage and protects sub-surface infrastructure from erosion damage. > Function as important open space in higher density areas. Uses and users vary depending on time of day.
Roads. Narrow roads have access problems.	> In Wahdat, a long 5.5 meter road leading to cul-de-sac with shop-houses creates access problems, too narrow for two-way traffic, road blocked if car parks. > No sidewalk, multiple house/plot entrances directly on to road. > Location of injuries to children.	> Residents prefer plots with vehicular access to convey goods and materials to house and increased market value. One-third complain of access problems.	> Ten years after upgrading, residents in Wahdat indicated they would have preferred higher level of initial demolition to increase vehicular access when layout was more flexible.
Parking. Cul-de-sac parking used for truck parking during non-working time. Smaller parking areas provided on access road.	> Vehicular parking occurs on-site and off-site. Residents prefer to have cars near home.	> In Wahdat, 17% of HH own cars, 36% of HH use parking areas, 20% on a daily basis, while in Jofeh 9% of HH own cars, and no parking is available on site.	> Cul-de-sacs used for communal activities and play area for children.
Maintenance	> The municipality is responsible for repairing paths. > Some evidence of resident repair.	> Residents have contacted UDD, Amman Municipality and Traffic Dept. for a solution to narrow road leading to cul-de-sac.	> When site is delineated by one side of roadway, lack of curbing and edge treatment on non-UDD side results in overall road deterioration.

CIRCULATION NETWORK (cont.) -- *Current Standards and Recommendations*

Issue	Current UDD Standard	Recommendation/Comments
Paths.	> Min. path width of 2.5 meters now used except if requires large amounts of demolition. > Preferable standard is 4-6m in width, depending on number of plots to be accessible by footpath only. > New sites include aesthetic aspect of footpath to create agreeable surroundings including access to sunlight, encouraging greenery as shade covering etc.	> Build on existing kinship networks in defining areas through transition areas, path and road network and open spaces. > Break-up path by varying widths and length to encourage ownership, sense of space, gathering and children play areas. > Create gathering areas at junctions of paths.
Roads.	Targets: paved road within 100m of Plot, Main Road 14 meters, Primary and Local Access 10 meters, Cul-de-Sac 7-8 meters.	> Review width standard against performance expectations of street including parking, design speed, link to municipal system and uses of plot fronting on street. > Cul-de-sacs within 90 meters from larger road. > Increase vehicular accessibility. > Coordinate road design and cost recovery to account for maintenance.
Parking.	> Depends on site conditions.	> Design parking areas to accommodate multiple uses. > Continue to provide smaller-off-street parking.
Maintenance	> Site is transferred over to municipality	> Define maintenance responsibilities at outset of project, differentiate between tasks (cleaning, repair, resurface) type (path, access road, main road) and group (residents, municipality, contracted agency). > Develop community coordination committee to liaison with utility authorities during initial "break-in" period as part of community development efforts.

STORMWATER DRAINAGE -- *Issues and Observations*

Issue	Physical Observations/Indications	Social Observations/Indications	Interrelated Issues
Stormwater Drainage. > In Wahdat drainage trench serves on-site and off-site catchment area including neighboring camp. > On-site drainage via paved paths. > Residents open manholes to facilitate surface drainage indicating inefficiency in system and/or layout.	> Wahdat. Originally open trench, subsequently covered with concrete covers and inlets. Covers damaged due to vehicles, vehicle access subsequently barred. Currently missing inlets at points of water convergence from upper paths, open trench blocked with silt, cans, other solid waste. Inlets also filled in with silt/dirt. > Layout of paths affects surface drainage, long sloping paths intersecting with path containing trench brings down dirt solid waste.	> Residents do not cooperate in cleaning out the larger drainage trench, they feel it is a UDD problem. > Survey shows households open manholes to ease drainage.	> Layout affects stormwater drainage given combination of surface drainage over paved paths and trench. > Open trench included as on-site UDD infrastructure costs to correct off-site source problem. > Narrow paths next to camp combined with slope lead to complaints. > Capacity of drainage system includes roof and plot. > Poor solid waste collection leads to accumulation of solid waste in lower paths.
> Households modify entrance slope.	> Three percent modified, includes steps and/or grade changes.	Within the resident's capacity to change on their own.	Related to drainage (plot entrance facing upward slope or path) and or desire to diminish grade separation.
Maintenance	> Municipality is responsible for maintaining and cleaning trench and inlets. In case of major blockage, Municipality coordinates with Water Authority for supply of staff and equipment.	> Larger trench blockage requires community response in contacting UDD or Municipality.	> Residents unclear who to contact regarding maintenance and repair--UDD, Municipality, and or utility agency. Socio-econ survey shows residents still hold UDD responsible.

STORMWATER DRAINAGE (cont.) -- *Current Standards and Recommendations*

Issue	Current UDD Standard	Recommendation/Comments
Stormwater Drainage	> If sub-surface drainage is provided, UDD uses covered pipes. > Paved paths used as a method for stormwater drainage. > 20% of stormwater drainage costs is included in the on-site cost, and 80% is included in the Off-site cost calculations	> Reexamine design standards and layouts to match contour, avoid long uninterrupted vertical slopes, use catch basins, widen paths.
Modify entrance slope.		> Early detection of problems with plot entrance levels, to coordinate solution between owners and site engineer.
Maintenance	Road network is transferred to the Municipality. However, in the case of major blockage due to drainage the action is then coordinated by the Municipality with the Water Authority.	> Define acceptable level of self-maintenance. > Develop education/training materials in cooperation with utility agencies, eg. how to register complaints etc. > Integrate community level-maintenance within community center activities (could be liaison group to utility company (s) or self-help group.

SEWERAGE -- *Issues and Observations*

Issue	Physical Observations/Indications	Social Observations/Indications	Interrelated Issues
Sewerage > Frequent blockage occur during initial operating period. > Occasional blockage continues.	> 6 " lines resulted in blocked lines.	> Residents required education in use of system to avoid blockage.	> Sewer and water lines protected from exposure from erosion by paved paths.
	Manholes. General criteria has the maximum span at 100 meter intervals. However, this standard is seldom reached due to site's topography or existing build up conditions.		> Water Authority uses 60m hoses to clean sewerage.
	Manhole Covers. Initial covers were concrete, less durable and prone to damage when lifted aside by residents to facilitate drainage. They were later all changed to steel covers by the Water Authority.	> Residents required education regarding blockage from dumping large objects into manholes during initial operating period. Residents lift covers aside to facilitate drainage. Are covers put back on?	> Manhole covers lifted for site drainage, objects subsequently thrown in causing blockage.
Maintenance	> Five to seven percent of households indicate problems with sewerage, which may reflect the smaller sewer main sizes.	> Residents correct individual household problems, cannot repair larger network blockage.	> Residents unclear who to contact regarding maintenance and repair--UDD and or utility agency. Socio-econ survey shows residents still hold UDD responsible.

SEWERAGE (cont.) -- *Current Standards and Recommendations*

Issue	Current UDD Standard	Recommendation/Comments
Sewerage	> 8" lines now used. > UDD experimenting with shallower trench depths to save costs.	> No reduction in standard. Design for buildout user population.
	> UDD uses 60-80 meter intervals to facilitate maintenance.	> Review recent experiences to determine tradeoff between initial cost and long-term maintenance.
	> Steel covers	> Steel covers used in new projects. > Community education in care and maintenance of system.
Maintenance	> Longer sewer pipes are being used in new sites. > Responsibility for system officially transferred to Water Authority.	> Define level of self-maintenance and responsibility of plot-owner. > Develop education/training materials in cooperation with utility agencies, eg. how to register complaints, use service, avoid blockage. > Develop community coordination committee to liaison with utility authorities during initial "break-in" period as part of community development efforts.

COMMUNITY FACILITIES -- *Issues and Observations*

Issue	Physical Observations/Indications	Social Observations/Indications	Interrelated Issues
Community Center (CC)	> In Wahdat, CC is located in center of community > 120m^2 of built up area and 75m^2 garden. > Full 1.5-2.5 meter high boundary wall recently added. > In Jofeh, CC is located in periphery of the upper part of site. > Very little open space available on plot for playground.	> In operation for 7 years. > Use defined by interest and program offering and activities, some 30% of households use center and indicate satisfaction with center. > In Wahdat, CC lacked defined leadership and management capabilities, while in Jofeh there is a defined and effective leadership involved in running the center.	> Complementary activities & programs with WTC, whereby CC is aimed at illiterated women and WTC aimed at the literate. > Ministry of Social Affairs cannot provide required start-up support, no registered association. In Wahdat UDD stays involved in day-to-day operations due to the lack of leadership, while in Jofeh, UDD has minimum supervision over the center. > Gender and age analysis important in defining programs and access by users during different times of day.
Women's Training Center (WTC)	> In Wahdat, WTC location on periphery of site attracts off-site users. > Positive environmental effect on adjacent plots (eg.care for green areas). > In Jofeh, WTC is not available, activities are partially included in CC activities and programs.	> 3% of women of Wahdat surveyed attended courses in knitting, sewing and typing. > Program requires intermediate educational level for participation.	> Program overlap with CC. > Literacy requirement is screening out potential users for some of the activities. > WTC is operated by Vocational Training Corporation. The format is designed to encourage flexible programs that reflect the local economic/social profile of women.
Health Center (HC)	> In Wahdat, HC is located on southeast corner of site. > Residents use adjacent Wahdat Camp's UNRWA Health Center has lower fees. > In Jofeh, HC is not available, with partial use of CC where possible, ex: vaccination.	> Need generated facility, 73% of Wahdat HH use center, 45% at least once a month. > In Jofeh 15% of residents felt there is a need for HC on site.	> In Jofeh, CC is being used for some health needs as well as health and hygiene education.

COMMUNITY FACILITIES (cont.) -- *Current Standards and Recommendations*

Issue	Current UDD Standard	Recommendation/Comments
Community Center	> In new sites, UDD has physically combined CC and WTC, but under separate management that offers different activities. > UDD reviewing design options for a central community facility core to include CC, VTC, commercial activities and open space. > Attempting to form an association from local women to operate center and run programs. > Activities encouraged include: child development, literacy classes, libraries, womens productivity, cleaning campaigns.	> Multi-purpose use of center, AM and PM shifts if necessary, include gender analysis in determining use. > Ongoing environmental awareness and community outreach through existing (nursery & health education) and expanded programs. > When appropriate combine activities of WTC and CC. > Assess type of community to early planning for CC management and operation, including the possibility of contracting out services and programs. > Community organizing and facility operation techniques should vary depending on type of upgrading intervention, community undergoing a rapid transformation that require different organizing techniques and facilities than a more socially stable community.
Women's Training Center		> Introduce programs that respond to various educational levels and new skills marketable in Jordan's modern sector. > Greater coordination with CC programs for further development of higher literacy standard. > Develop skills for income generating activities.
Health Center	> Project standard 5,000 person catchment area, 30-to-50 patient per day per physician.	> Service area can be larger than site to justify use. > Review fee levels for welfare cases.

COMMUNITY FACILITIES (cont.) -- *Issues and Observations*

Issue	Physical Observations/Indications	Social Observations/Indications	Interrelated Issues
Library	> Located in northeast section of Wahdat. > Distance affects level of use with frequent users clustered around facility, a reflection of younger users. > In Jofeh, not available.	> Use defined by interest (reading and computer games), 22% of Households use. > Operated by Children Friends Association	> Children (both girls and boys) can go to facility alone.
Shops	> Smaller shops located inside community and usually connected to owner's home serves local residents > In Wahdat, 14% of all plots for commercial shops (59) and workshops (27). > Commercial shops located on both sides on 30 meter road north of site. > Workshops separated from residential area. > Shop-houses have strong competition from area shops. > Location of shop-houses and shops along narrow roads of 5.5M and cul-de-sac contributes to congestion problems. > In Jofeh, commercial shops on ground floor of plots on larger roads, serving larger catchment area.	> Most households use shops, 65% more than once a week, often for all household needs. > Shop-houses vary from small to larger shops, smaller shops important source of income for households headed by women. > Some designated small shops and shop-houses are closed up and not used, while others are trying to open.	> Location of commercial establishments on major road has significant off-site impact and revenue benefit to municipality. > Careful zoning of activities required to avoid conflicting uses. > Important source of revenue generation and cross-subsidy, for Wahdat, percent of commercial/workshop plots higher than standard. > Combination of shop-house and commercial shops serve hierarchy of shopping needs.

COMMUNITY FACILITIES (cont.) -- *Current Standards and Recommendations*

Issue	Current UDD Standard	Recommendation/Comments
Library	> New UDD sites have library as part of CC	> Operate in PM for after-school use for older children.
Shops	> In new sites, shops mainly in central core, with some small shops randomly distributed throughout the site. > 5% of total site residential area is for shops, workshops and commercial plots.	> Wahdat shows potential for effective landuse, eg., commercial provides source of cross-subsidy. Demonstrates flexibility in project land-use standards to put market land to highest and best use given location of site. > Need to continue encouraging shop-houses for income generation.

COMMUNAL SPACES -- *Issues and Observations*

Issue	Physical Observations/Indications	Social Observations/Indications	Interrelated Issues
Green Areas	> Designated as residual or "unproductive" land. > Larger privatized walled green space was garden area prior to upgrading.	> Large spaces are not maintained. > Small spaces if maintained are privatized leading to social conflict over use and control. > Women do not use green areas as gathering points because the spaces are either fenced in or too small for such use.	> Planting & landscape activities form a hierarchy that combined form an overall pattern that benefits plot, neighborhood and community. For example, plot plantings include grape vines that provide cover and shade to plot and adjacent paths. Green "strips" along paths benefit plot owner and neighbors. Larger communal green spaces benefit entire community.
Parking Areas	> Cul-de-sac parking areas serves multiple uses.		
Vacant Land	> Used as dumping areas for solid waste. > Used by children as play areas.	> Residents complain of vacant lots. > Indicates need for children's external play areas and football play areas for youth.	> Vacant plots include those sold on cash basis therefore no buildout control by UDD.
Maintenance	> Vacant plots and land not maintained by owners or municipality.	Green areas vandalized if not fenced in.	> Maintaining green areas requires use of scarce water resources with related costs. Reason larger privatized public green areas become walled.

COMMUNAL SPACES (cont.) -- *Current Standards and Recommendations*

Issue	Current UDD Standard	Recommendation/Comments
Green Areas	> In new sites, small residual sites eliminated, replaced by larger green areas. > UDD enters into unofficial agreement with residents to take responsibility of small green areas. > In new sites target of $6m^2$ of open space per household. > Green areas "transferred" to community facilities for maintenance reasons and shifting cost recovery burden away from residents.	> View green areas as productive space relative to cost recovery. > Develop landscaping plan based on hierarchy of planting activities (plot, path, community) that form a pattern that overtime creates shade, gathering areas that reflects the hierarchy of social activities. > Assess the ability of municipality maintaining green areas should they be designed large enough to be a public garden
Parking Areas	> In new sites, landscaped green spaces included at edge of parking cul-de-sac. > Minimum of 1 parking space on/off road per 2.5 hh., 1 space/plot for house w/road frontage.	> Parking cul-de-sacs and access road can serve as youth play areas.
Vacant Land	> UDD has building control over vacant plots sold on installement basis. UDD requires that construction begins within 1 year	> Require fence or boundary wall on plots within 1 year.
Maintenance	> UDD negotiates maintenance of green areas with adjacent plot owners.	Develop maintenance agreements with incentives to maintain green areas, define use, access, border material etc.

COMMUNITY MAINTENANCE -- *Issues and Observations*

Issue	Physical Observations/Indications	Social Observations/Indications	Interrelated Issues
Solid Waste Collection	> Garbage is either collected by municipality or taken to dumpsters, no collection for houses within 20 meters of dumpster. > Dumped in vacant plots. > Large Dumpster (essentially a small transfer station) is too high for children to reach, garbage is left on the ground around it. > Collection rate affected by difficulty of access by collector's cart. > Topography and street layout is not suitable for the current method of garbage collection.	> Children take the garbage to the dumpster.	> Children play in vacant plots > Solid waste and garbage left on streets for collection is carried down hill into open trenches and inlets blocking them after rainfall or street cleaning. > Use of garbage bags increases level of cleanness.
Community Maintenance	> Women of household play major role in maintaining public space, 86% clean public space in front of plot. Level of cooperation among households in maintaining public space influenced by kinship and proximity and/or neighborhood leadership.	> Individual initiative as needed, for example, modifying entrance slopes, street lighting, manholes, complaints etc. > Lack of group participation for non-social activities such as cleaning blocked drainage trench. > Group participation in major social events, for example, reorganizing of parking areas for special occasions, such as weddings. > Larger and undefined spaces, vacant plots, open areas, cul-de-sacs not maintained by residents.	> Represents major "in-kind" contribution by residents to maintaining community and a cost savings to municipality. > Budgetary constraints at municipality, cannot assume city can maintain additional public spaces.

COMMUNITY MAINTENANCE (cont.) -- *Current Standards and Recommendations*

Issue	Current UDD Standard	Recommendation/Comments
Solid Waste Collection	> No defined standard, part of municipal responsibility.	> Explore options to encourage the use of plastic bags, for example municipality provide bags free of charge. > Explore ways to change the current collection system to fit the physical nature of the site. Have both residents and collectors complement each other's work rather than overlapping. > Design dumpster sites to make them accessible to children.
Community Maintenance		> Build upon kinship network in organizing community maintenance. > Use kinship and proximity influences as part of design of layout. > Include environmental awareness in community education activities. > Define realistic maintenance requirements for public spaces, encourage community maintenance through design.

WOMEN AND CHILDREN -- *Issues and Observations*

Issue	Physical Observations/Indications	Social Observations/Indications	Interrelated Issues
Womens' Gathering Areas	> Gathering occurs in smaller spaces and transitional areas between public and semi-public spaces.	> Some paths and spaces are used for gathering depending on extent of kinship, and "communal domestic activity" (eg. food preparation)	> Use of paths and gathering areas depends on time of day. > Cooperate in maintaining public spaces.
Children Play Areas	> No designated areas within the project boundary. > Children under six play within plot (house, roof, courtyard) and to lessor path and street. Younger children play in front of house in "threshold space" created by setback and transition to path. > Children ages 6-12 tend to play more on paths and streets. > Other areas include vacant plots, areas free of stairs, undefined open areas. > Paved paths benefit children.	> Gender differences in play areas, most boys can play alone and in paths, streets and green areas. After 8 years of age sharp drop in girls playing in street or path. > Older siblings take care of younger siblings on paths. > Children want playgrounds with swings. > Youth need football playing area. > Existing kindergarten meeting 20% of estimated demand in Wahdat.	> No indication of activities of youth of ages 12-18. > 37% of children use Library, 17% use Community Center, in both cases used by girls and boys who can go alone, while in Jofeh, only CC is available and is used by 37% of children. > Children come in contact with garbage/solid waste in vacant plots. > Paved paths important safety factor since they represent major play space for children. > See paths, vacant plots, parking areas

WOMEN AND CHILDREN (cont.) -- *Current Standards and Recommendations*

Issue	Current UDD Standard	Recommendation/Comments
Womens' Gathering Areas	> Not considered as part of standards or design process.	> Identify and build on existing kinship network. > Break up paths by varying length and widths. > Create gathering areas at junctions of paths.
Children Play Areas	> If possible incorporate a playground on CC premises.	> Maintain front setbacks (private open-space) as play area for younger children. > Design and plan for specific play areas eg. in CC (supervised and non-supervised). > Design parking areas for multiple use. > After-school programs for youth 12-18. > Incorporate gender analysis in developing options for children. > Provide more daycare facilities, explore private/public options. > Account for supplemental de facto play area provided by paths and open spaces.

APPENDICES

A. Population and Buildout Projections, Jofeh and Wahdat

B. Population Profile, Jofeh and Wahdat - 1985 and 1990

C. Education Profile, Jofeh and Wahdat - 1985 and 1990

D. The Community Center in Jofeh - Elements of Success from the Perspective of a Community Organizer

E. Sample Maps and Digitized Images from Wahdat and Jofeh

F. Background Studies and Reports

COMMUNITY Jofeh
YEAR 1990

Total Occupied Plots	295				
Total Plots*	298			Household per Plot	Total Households
Percent three floors	5%	15	Plots	1.7	25
Percent two floor	42%	124	Plots	1.2	149
Percent one floor	53%	156	Plots	1	156
	100%	295	Total		330
Average hh size	7.50		Average HH size		Percent
Total Population	2,476		-Owner Occupied	7.9	77%
			-Owner/Landlord	8.3	6%
			-Renters/Free Lod	5.4	17%
			Weighted Average	7.50	

YEAR 1995

Total Occupied Plots	298				
Total Plots	298			Household per Plot	Total Households
Percent three floors	15%	45	Plots	1.7	76
Percent two floor	65%	194	Plots	1.2	232
Percent one floor	20%	60	Plots	1	60
	100%	298	Total		368
Average hh size	7.45		Average HH size		Percent
Total Population	2,742		-Owner Occupied	7.9	70%
			-Owner/Landlord	8.3	10%
			-Renters/Free Lod	5.4	20%
			Weighted Average	7.44	100%

YEAR 2000

Total Occupied Plots	298				
Total Plots	298			Household per Plot	Total Households
Percent three floors	25%	75	Plots	1.7	127
Percent two floor	65%	194	Plots	1.2	232
Percent one floor	10%	30	Plots	1.1	33
	100%	298	Total		392
Average hh size	7.45		Average HH size		Percent
Total Population	2,919		-Owner Occupied	7.9	65%
			-Owner/Landlord	8.3	10%
			-Renters/Free Lod	6	25%
			Weighted Average	7.47	100%

YEAR Saturation

Total Occupied Plots	298				
Total Plots	298			Household per Plot	Total Households
Percent three floors	35%	104	Plots	1.8	188
Percent two floor	60%	179	Plots	1.3	232
Percent one floor	5%	15	Plots	1.1	16
	100%	298	Total		437
Average hh size	7.40		Average HH size		Percent
Total Population	3,231		-Owner Occupied	7.9	55%
			-Owner/Landlord	8.3	15%
			-Renters/Free Lod	6	30%
			Weighted Average	7.39	100%

Total Hectares 4	Year	No of Household	Total Pop	Occupied Plots	Gross Dens/HA	Percent <15	Tot Pop <15
	1981	335	2,422	310	606	51%	1,235
	1985	311	2,312	298	578	44%	1,017
	1990	330	2,476	298	619	36%	881
	1995	368	2,742	298	685	34%	932
	2001	392	2,919	298	730	40%	1,168
	Sat	437	3,231	298	808	40%	1,292

Sources:
1981 Table 3.1, Baseline Health and Population Assessment
1985 Table 2.6 and Table 4.3, 1985 Health and Population Survey
* Based on 1985 Survey of all plots, there are a total of 298 plots among the 217 amalgamated plots noted in the UDD Final Report. The 1990 Survey based on 50% of 217 plots.

APPENDIX A--WAHDAT POPULATION AND BUILDOUT PROJECTIONS

COMMUNITY Wahdat
YEAR 1990

Total Occupied Plots	506				
Total Plots	524			Household per Plot	Total Households
Percent three floors	4%	20	Plots	2	40
Percent two floor	34%	172	Plots	1.4	241
Percent one floor	62%	314	Plots	1.1	345
	100%	506	Total		626
Average hh size	8.21		Average HH size		Percent
Total Population	5,143		-Owner Occupied	8.6	77%
			-Owner/Landlord	9.5	6%
			-Renters/Free Lod	6	17%
			Weighted Average	8.21	

YEAR 1995

Total Occupied Plots	515				
Total Plots	524			Household per Plot	Total Households
Percent three floors	15%	77	Plots	2	155
Percent two floor	50%	258	Plots	1.5	386
Percent one floor	35%	180	Plots	1.1	198
	100%	515	Total		739
Average hh size	8.20		Average HH size		Percent
Total Population	6,060		-Owner Occupied	8.6	80%
			-Owner/Landlord	9.5	5%
			-Renters/Free Lod	6	14%
			Weighted Average	8.20	100%

YEAR 2000

Total Occupied Plots	524				
Total Plots	524			Household per Plot	Total Households
Percent three floors	25%	131	Plots	2	262
Percent two floor	65%	341	Plots	1.5	511
Percent one floor	10%	52	Plots	1.1	58
	100%	524	Total		831
Average hh size	8.20		Average HH size		Percent
Total Population	6,810		-Owner Occupied	8.6	70%
			-Owner/Landlord	9.5	10%
			-Renters/Free Lod	6	20%
			Weighted Average	8.17	100%

YEAR Saturation

Total Occupied Plots	524				
Total Plots	524			Household per Plot	Total Households
Percent three floors	35%	183	Plots	2	367
Percent two floor	60%	314	Plots	1.5	472
Percent one floor	5%	26	Plots	1.2	31
	100%	524	Total		870
Average hh size	8.10		Average HH size		Percent
Total Population	7,046		-Owner Occupied	8.6	60%
			-Owner/Landlord	9.5	15%
			-Renters/Free Lod	6	25%
			Weighted Average	8.09	100%

Total Hectares 8	Year	No. of HH's	Total Pop.	Occupied Plots	Gross Dens/HA	Percent <15	Number <15
	1981	390	2,810	310	351	51%	1,433
	1985	427	3,057	370	382	51%	1,559
	1990	626	5,143	506	643	47%	2,412
	1995	739	6,060	515	758	45%	2,727
	2001	831	6,810	524	851	40%	2,724
	Satur	870	7,046	524	881	45%	3,171

Sources
1981 Table 3.1, Baseline Health and Population Assessment
1985 Table 2.4 and Table 4.3, 1985 Health and Population Survey

POPULATION AGE DISTRIBUTION 1985 AND 1990, WAHDAT AND JOFEH

		<5	5-9	10-14	15-19	20-25	26-45	46-65	65+	Total (n)
Wahdat	1985	16.1%	18.0%	17.1%	13.4%	9.7%	14.0%	8.8%	2.8%	3,059
	1990	13.8%	15.9%	17.2%	14.6%	12.2%	16.9%	7.7%	1.4%	2,230
Jofeh	1985	12.8%	14.3%	17.2%	14.6%	12.9%	13.6%	10.9%	3.7%	841
	1990	11.8%	12.7%	11.2%	16.9%	17.4%	15.7%	11.8%	2.6%	2,348

POPULATION AGE DISTRIBUTION 1985 AND 1990, WAHDAT

		<5	5-9	10-14	15-19	20-25	26-45	46-65	65+	Total
1985	Male	8.5%	8.9%	8.8%	6.4%	5.5%	6.2%	4.7%	1.4%	50.3%
	Female	7.6%	9.1%	8.3%	7.0%	4.4%	7.8%	4.0%	1.4%	49.7%
	Total	16.1%	18.0%	17.1%	13.4%	9.7%	14.0%	8.8%	2.8%	-----
1990	Male	7.3%	8.0%	8.9%	7.1%	6.5%	8.2%	4.5%	.7%	51.4%
	Female	6.5%	7.9%	8.3%	7.5%	5.7%	8.7%	3.2%	.7%	48.6%
	Total	13.8%	15.9%	17.2%	14.6%	12.2%	16.9%	7.7%	1.4%	-----

1985 TOTAL N = 3,059
1990 TOTAL N = 2,230

POPULATION AGE DISTRIBUTION 1985 AND 1990, JOFEH

		<5	5-9	10-14	15-19	20-25	26-45	46-65	65+	Total
1985	Male	6.3%	7.3%	9.3%	7.8%	7.0%	7.1%	4.9%	2.5%	52.2%
	Female	6.5%	7.0%	7.9%	6.7%	5.9%	6.5%	6.0%	1.3%	47.8%
	Total	12.8%	14.3%	17.2%	14.6%	12.9%	13.6%	10.9%	3.7%	-----
1990	Male	4.8%	7.0%	5.9%	8.6%	10.2%	7.7%	5.1%	1.5%	50.9%
	Female	7.0%	5.7%	5.2%	8.3%	7.1%	8.0%	6.7%	1.1%	49.1%
	Total	11.8%	12.7%	11.2%	16.9%	17.4%	15.7%	11.8%	2.6%	-----

1985 TOTAL N = 2,348
1990 TOTAL N = 841

LEVEL OF EDUCATION 1985 AND 1990 FOR WAHDAT AND JOFEH

		Too Young <5	Illit-erate	Read & Write	Primary	Inter-mediate	Second-ary	Community College	Univer-sity
Wahdat	1985	26.2%	14.8%	2.7%	35.4%	14.5%	4.2%	2.0%	0.2%
	1990	18.9%	9.8%	0.2%	37.8%	20.5%	6.6%	3.8%	1.4%
Jofeh	1985	19.8%	16.0%	3.2%	30.8%	18.4%	7.2%	3.8%	0.8%
	1990	16.8%	13.0%	0.1%	26.2%	21.3%	10.6%	9.0%	3.0%

LEVEL OF EDUCATION 1985 AND 1990, WAHDAT

		Too Young <5	Illit-erate	Read & Write	Primary	Inter-mediate	Second-ary	Community College	Univer-sity	Total (n)
1985	Male	13.6%	4.6%	1.7%	19.0%	7.9%	2.0%	1.3%	0.2%	50.3%
	Female	12.6%	10.2%	1.0%	16.4%	6.6%	2.2%	0.7%	0%	49.7%
	Total	26.2%	14.8%	2.7%	35.4%	14.5%	4.2%	2.0%	0.2%	-----
1990	Male	9.8%	3.3%	0.2%	20.1%	11.4%	2.9%	2.3%	1.0%	51.4%
	Female	9.1%	6.5%	0%	17.7%	9.1%	3.7%	1.5%	0.4%	48.6%
	Total	18.9%	9.8%	0.2%	37.8%	20.5%	6.6%	3.8%	1.4%	-----

1985 TOTAL N = 3,059
1990 TOTAL N = 2,230

LEVEL OF EDUCATION 1985 AND 1990, JOFEH

		Too Young <5	Illit-erate	Read & Write	Primary	Inter-mediate	Second-ary	Community College	Univer-sity	Total (n)
1985	Male	10.6%	4.9%	2.3%	15.9%	10.7%	4.2%	2.9%	0.7%	52.2%
	Female	9.2%	11.1%	0.9%	14.9%	7.7%	3.0%	0.9%	0%	47.8%
	Total	19.8%	16.0%	3.2%	30.8%	18.4%	7.2%	3.8%	0.8%	----
1990	Male	7.3%	2.7%	0.1%	15.1%	12.1%	6.2%	5.1%	2.1%	50.9%
	Female	9.5%	10.2%	0%	11.1%	9.2%	4.4%	3.9%	0.8%	49.1%
	Total	16.8%	13.0%	0.1%	26.2%	21.3%	10.6%	9.0%	3.0%	----

1985 TOTAL N = 2,348
1990 TOTAL N = 841

APPENDIX D

The Community Center in Jofeh-
Elements of Success from the Perspective of a Community Organizer

The success of the Community Center is Jofeh can be attributed to the efforts of its staff and their willingness to go beyond the standard programs offered by the Ministry of Social Affairs. The establishment of the community center in Jofeh was in the context of mistrust and widespread opposition to the UDD. The social worker in charge of the center began promotional home visits to establish personal relationships with residents, and learn more about their concerns. Based upon her observations and discussions she designed a series of programs and activities focused on health and hygiene. The social worker gave most of the lectures and on occasions invited outside speakers such as a doctor or a social worker, "People like different things" she noted and "new faces are taken seriously".

Environmental Awareness

Observers that were aware of the conditions in Jofeh prior to upgrading note that there is a marked difference in the level of maintenance and cleanliness within the community today. This is due in a large part to an ongoing environmental education program initiated through the center. Through the home visits, the houses that were prone to health and hygiene problems received special attention and an awareness campaign was initiated to stress the links between environmental and health conditions. Over time, these households began to not only clean their own homes, but the streets and public spaces within the vicinity of their households. The community is cleaner than before the campaign and the municipality now assigns less workers to clean the streets.

Observing the children attending the kindergarten at the community center was another method used to assess health and hygiene practices within a family, either through home visits or meetings at the centers. At the center, meetings begin as a performance evaluation of the children and then open to a more general discussion of health and hygiene without pointing out a specific child or family. Since the kindergarten also serves children from the neighboring areas, this method of outreach and education had an impact beyond Jofeh. As households showed an improvement, whether inside the household, or through the children, home visits become less frequent and currently only take place as needed.

Health Care

The social worker attended a training course at the Ministry of Health that focused on maternal and child health. She found the course useful and it has enabled her to give lectures on health to the mothers. She also gave vaccinations to the children under the supervision of a Ministry of Health worker who made periodical visits to the center and later administered the vaccinations herself using supplies provided by the Ministry. Although the Ministry is no longer supporting this service, she still serves as a health resource for women in the community and assists them with shots prescribed by their doctors.

Other Issues

Because of the personal relationships she has developed, the women in the community will confide in her, discuss difficulties they are facing and ask for assistance. This relationship helps

her to identify topics for meetings and lectures that are advertised by means of flyers distributed to households. The speaker, often a private consultant volunteering their time, lectures to the group, and then takes private appointments in a separate room in the center to discuss particular cases. For example, a lawyer reviewed the legal rights of women in divorce.

For older children between 6 and 12 years the activities at the center are limited and have been further reduced because of budget constraints. On occasion entertainment or educational videos are shown and organized trips planned outside the site. There is a playground that is too small to serve the number of children. Additionally, the center closes at one pm and is not open on the weekends.

Community Center Staff Selection and Training

When asked what she would emphasize in training someone to start and operate a community center, the community organizer replied "establishing trust with the community, good management and developing education programs that respond to concerns generated from within the community." Initially she noted, trust must be established through house visits, developing relationships with people and learning how to work with the community. The next emphasis is on managing the center, organizing classes and setting fees. The social worker is now delegating the organizing of activities and classes to the more active women from the community.

The type of person selected to run a community center is very critical to the success and effectiveness of the center within the community. Wanting to know more about the community and feeling that you are part of it is essential. Often she noted, the social workers from the Ministry of Social Affairs have a difficult time relating to the residents in the community and subsequently engenders ill that results in the community's resistance to joining in the center's activities. She has established strong personal relationships with the people in the community and through her experience feels that hiring social workers from within the or similar communities is preferable.

APPENDIX E

The following maps were generated using PALMS™, Planning and Land Management System, a geographic information system developed by the Unit.

To analyze the data in PALMS™, a computerized base map consisting of plots, infrastructure lines, public facilities and open spaces were created for East Wahdat and Jofeh. The 1981 baseline data, 1985 UDD survey data and the more recent 1990 survey were imported into PALMS™ Oracle data base and linked with the maps of the site as well as the physical survey conducted in 1990.

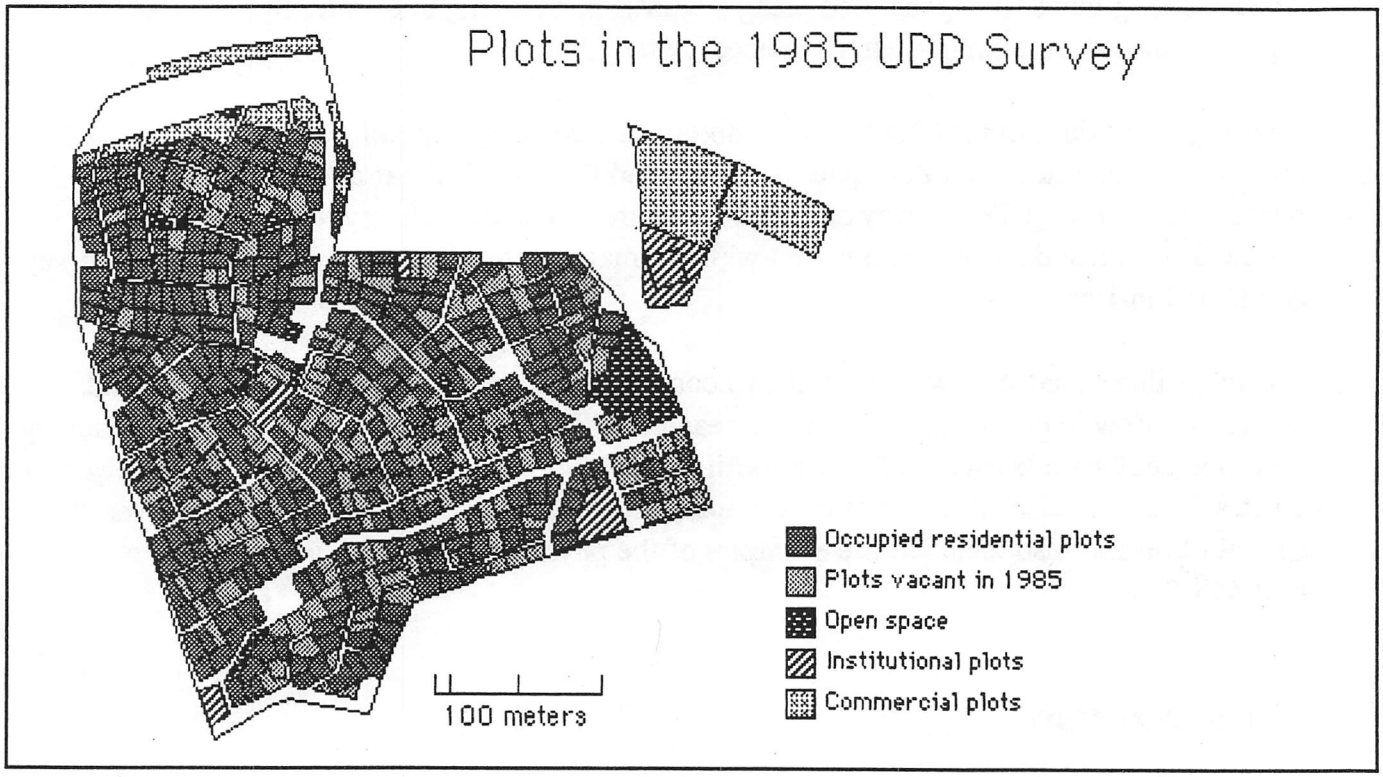
The maps illustrated here were part of two companion atlases used by the UDD and Unit teams to review issues of sustainability for each site. The maps are based upon the 1990 survey, a fifty percent sample survey of plot in both sites. Consequently, they should not be viewed as illustrations of statistical data but rather, unique geographic information reflecting overall spatial patterns. Also included are examples of the physical survey data as entered into PALMS™.

East Wahdat Maps

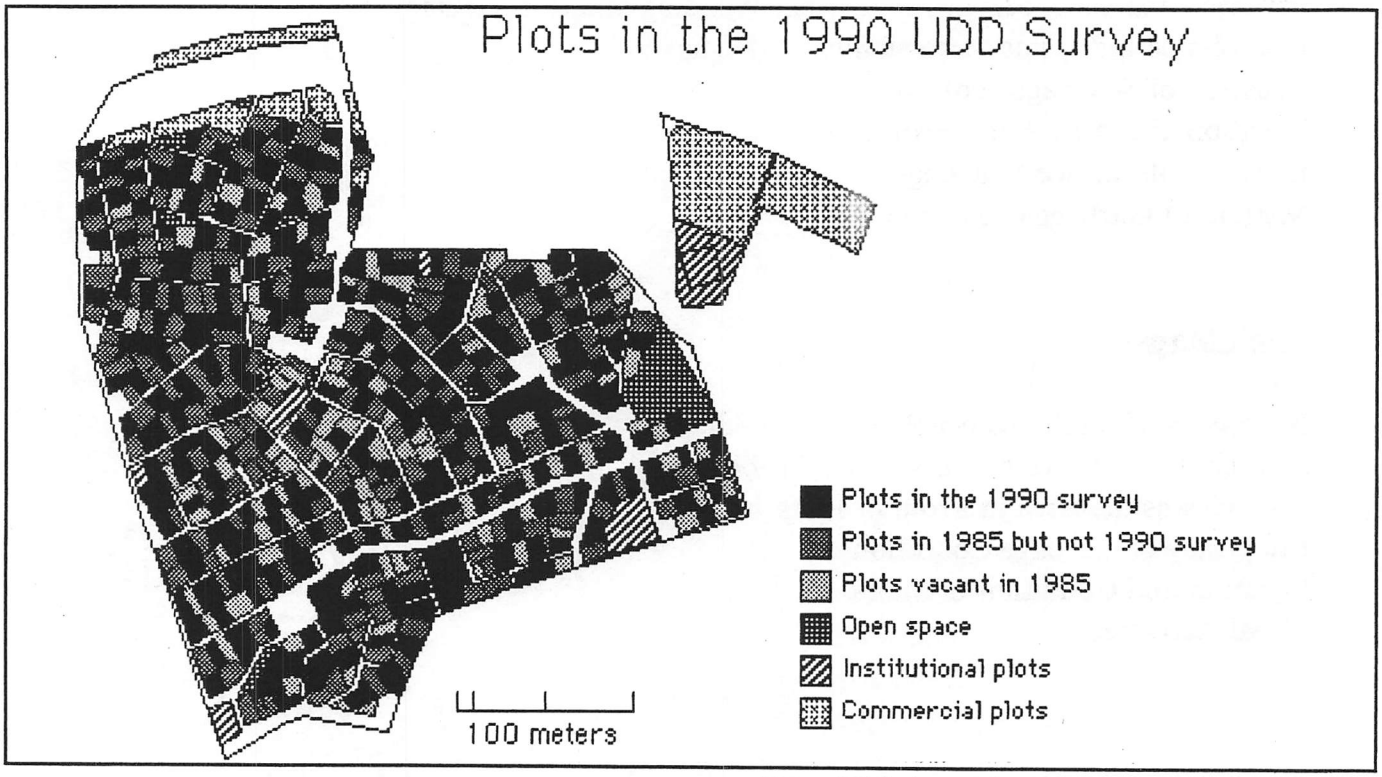
Plots in the 1985 UDD Survey
Plots in the 1990 UDD Survey
Parking Area Uses (Playing/Gathering, Wedding and Car Parking)
Households Indicating Accessibility Problems
Location of Sewerage Problems
Location of Storm Water Problems
Location of Surface Drawings
Method of Garbage Collection

Jofeh Maps

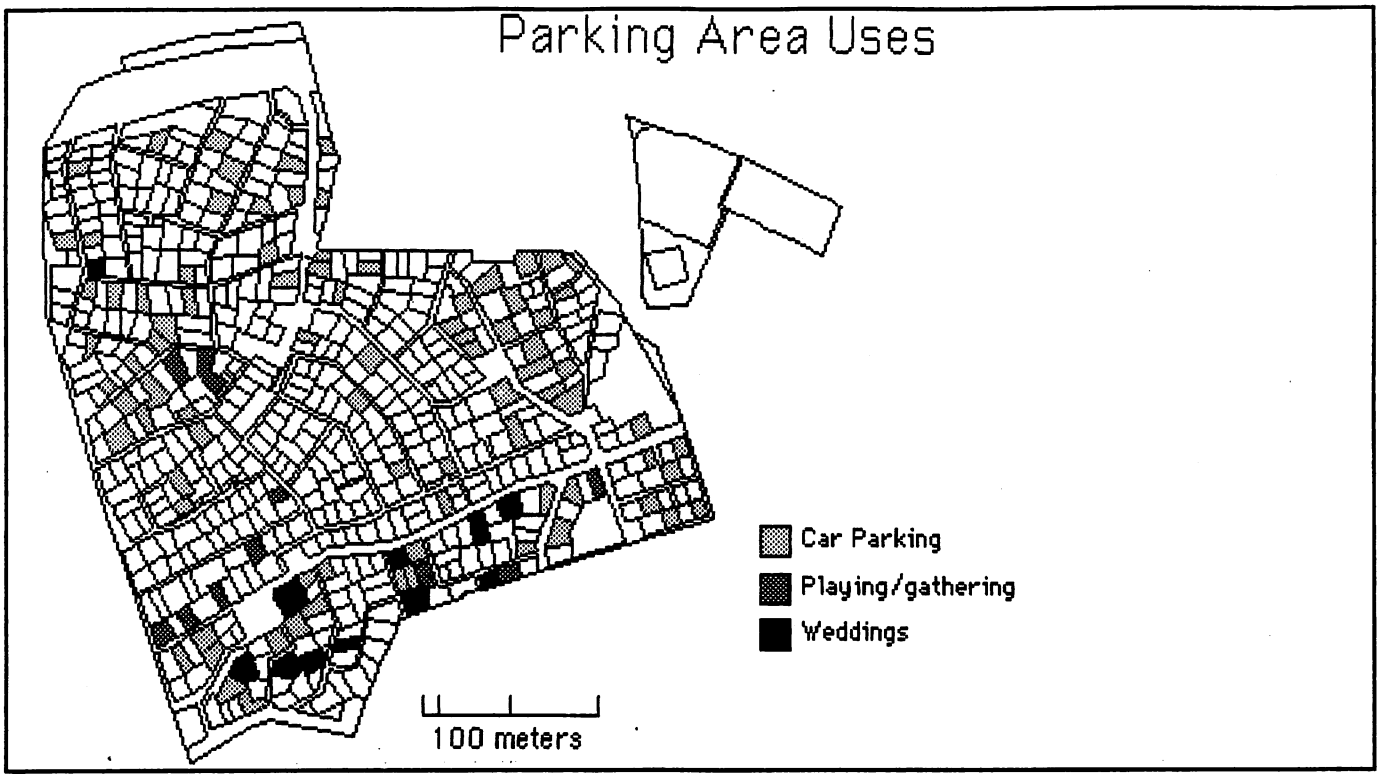
Number of Households per Plot
Households Indicating Accessibility Problems
Who Cleans the Area in Front of Plots
Frequency of Garbage Collection
Location and Condition of Stairs
Social Activities



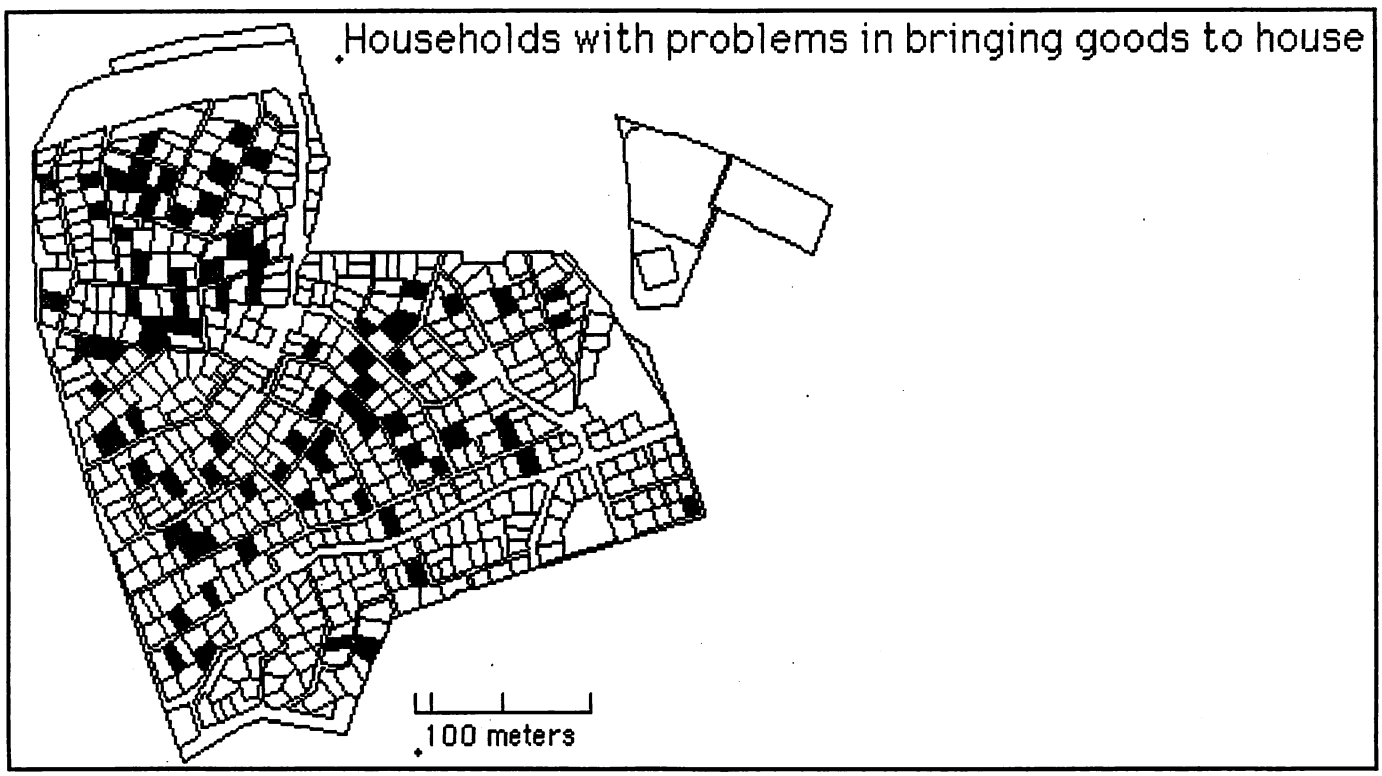
East Wahdat, Plots in 1985 UDD Survey



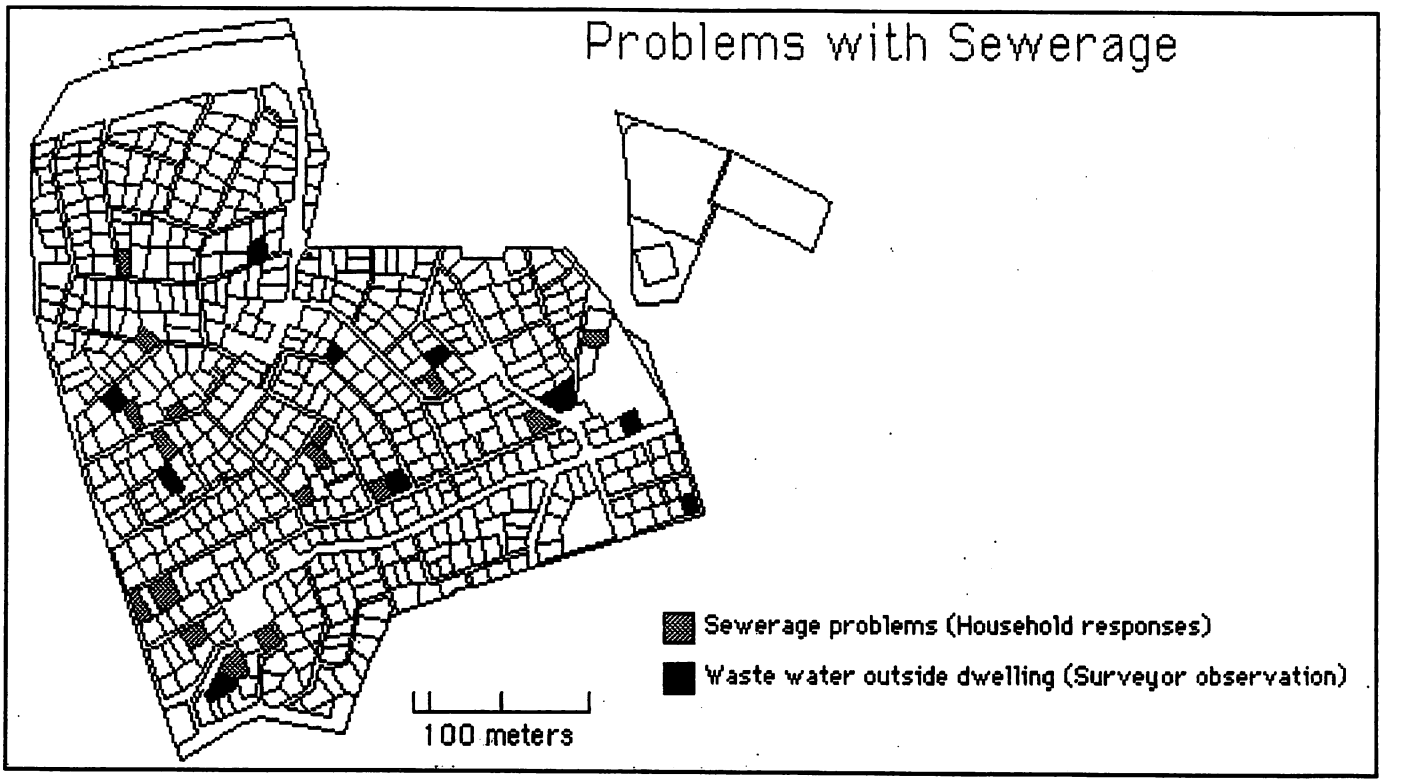
East Wahdat, Plots in 1990 UDD Survey



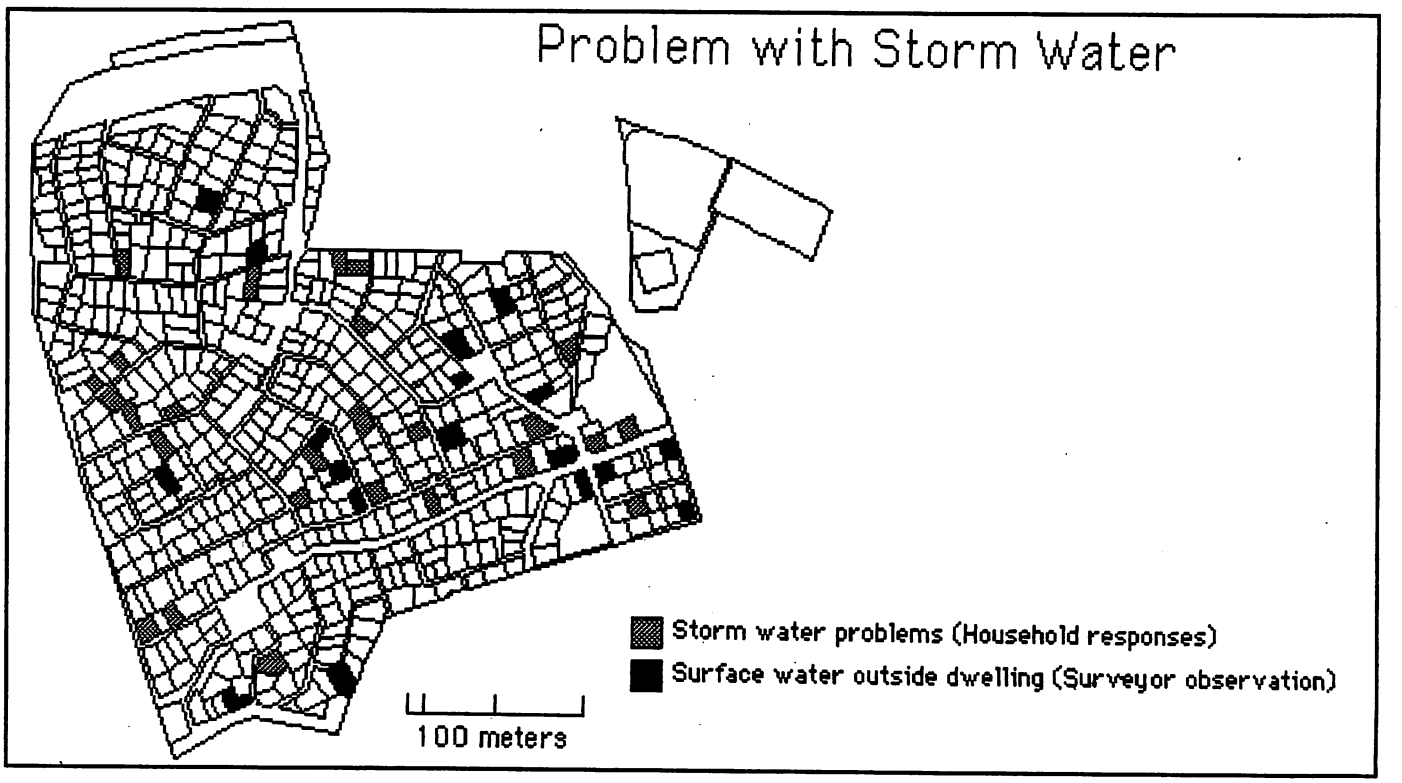
East Wahdat, Parking Area Uses



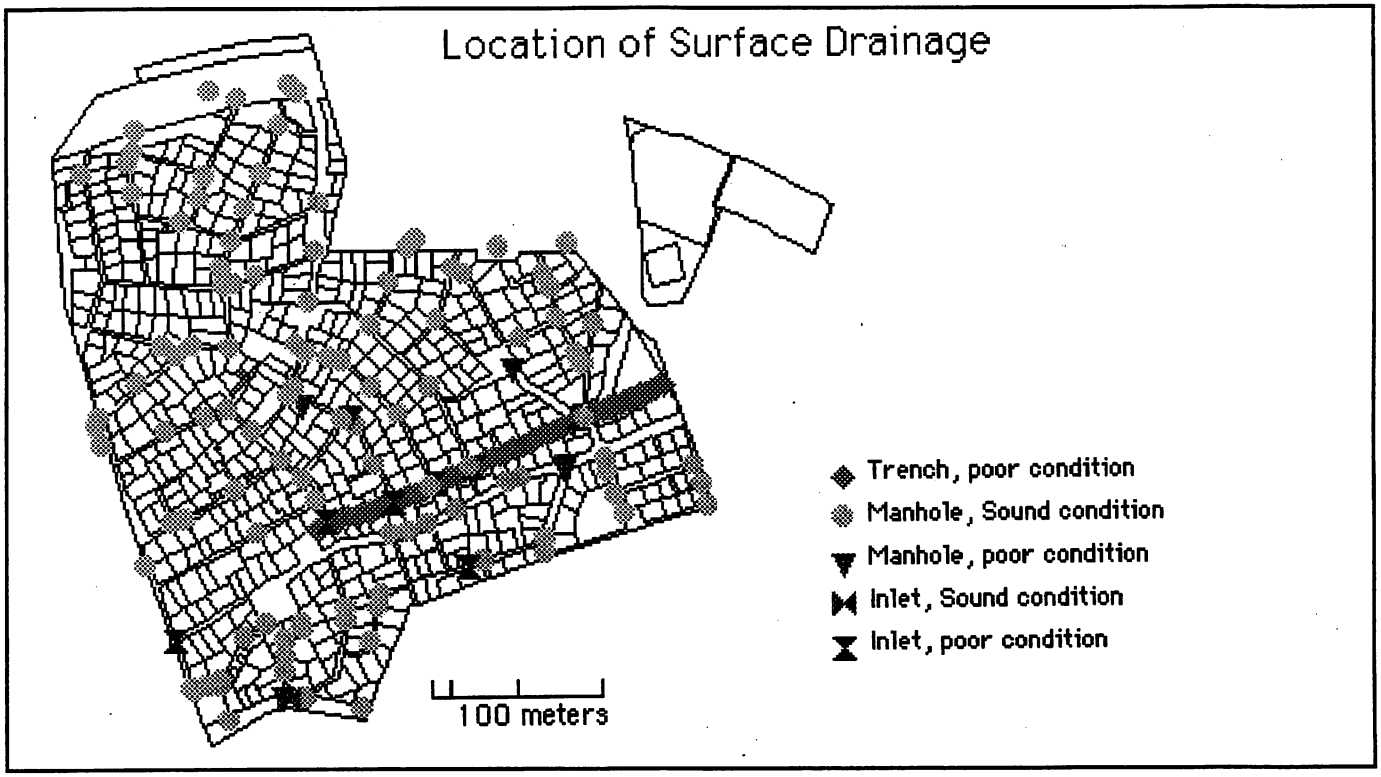
East Wahdat, Households Indicating Accessibility Problems



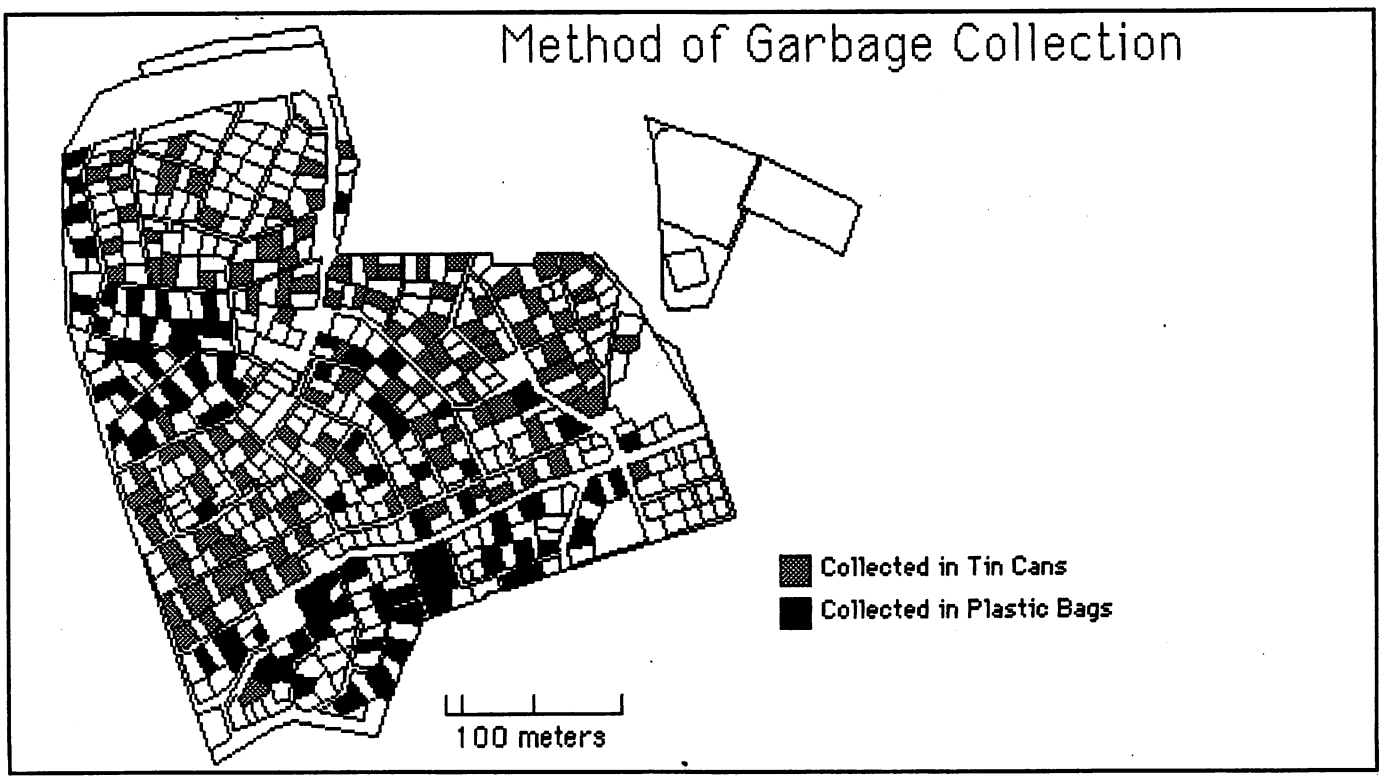
East Wahdat, Location of Sewerage Problems



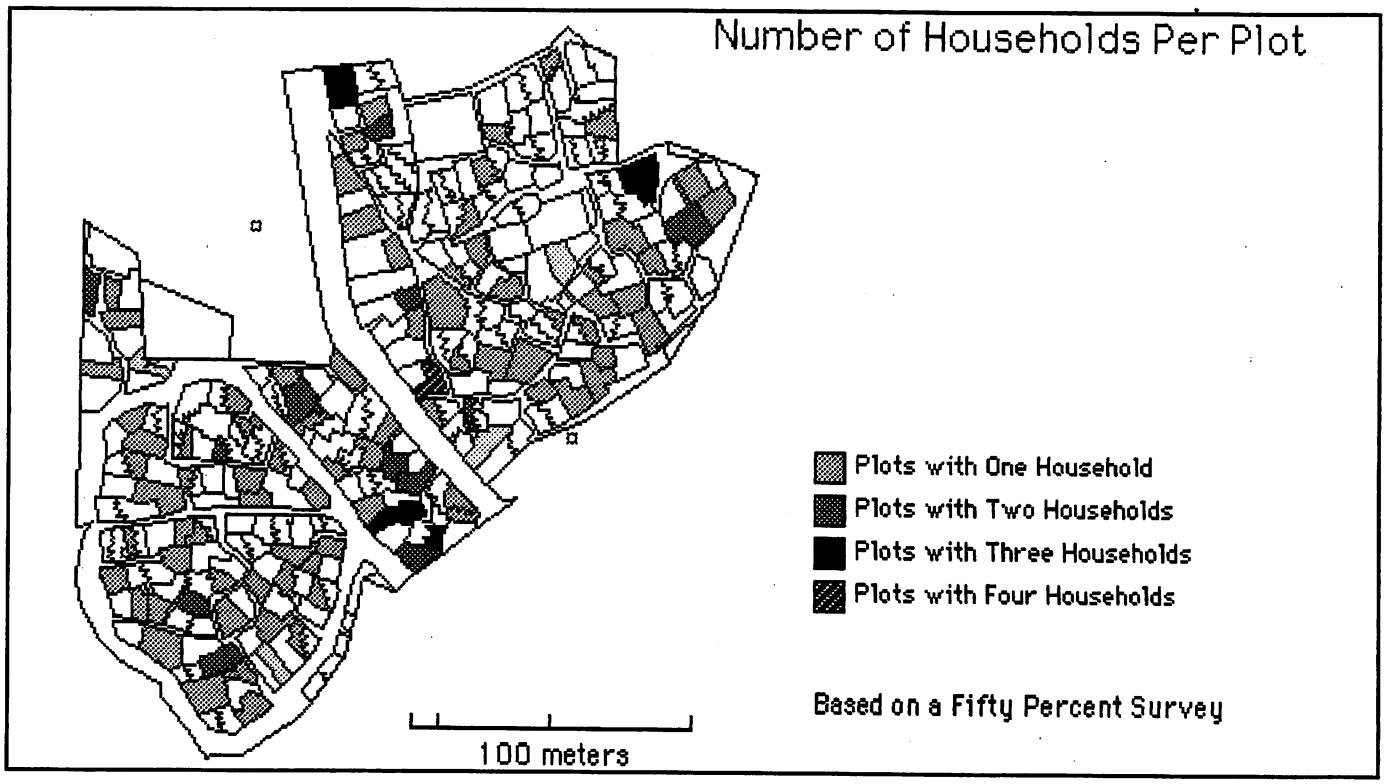
East Wahdat, Location of Storm Water Problems



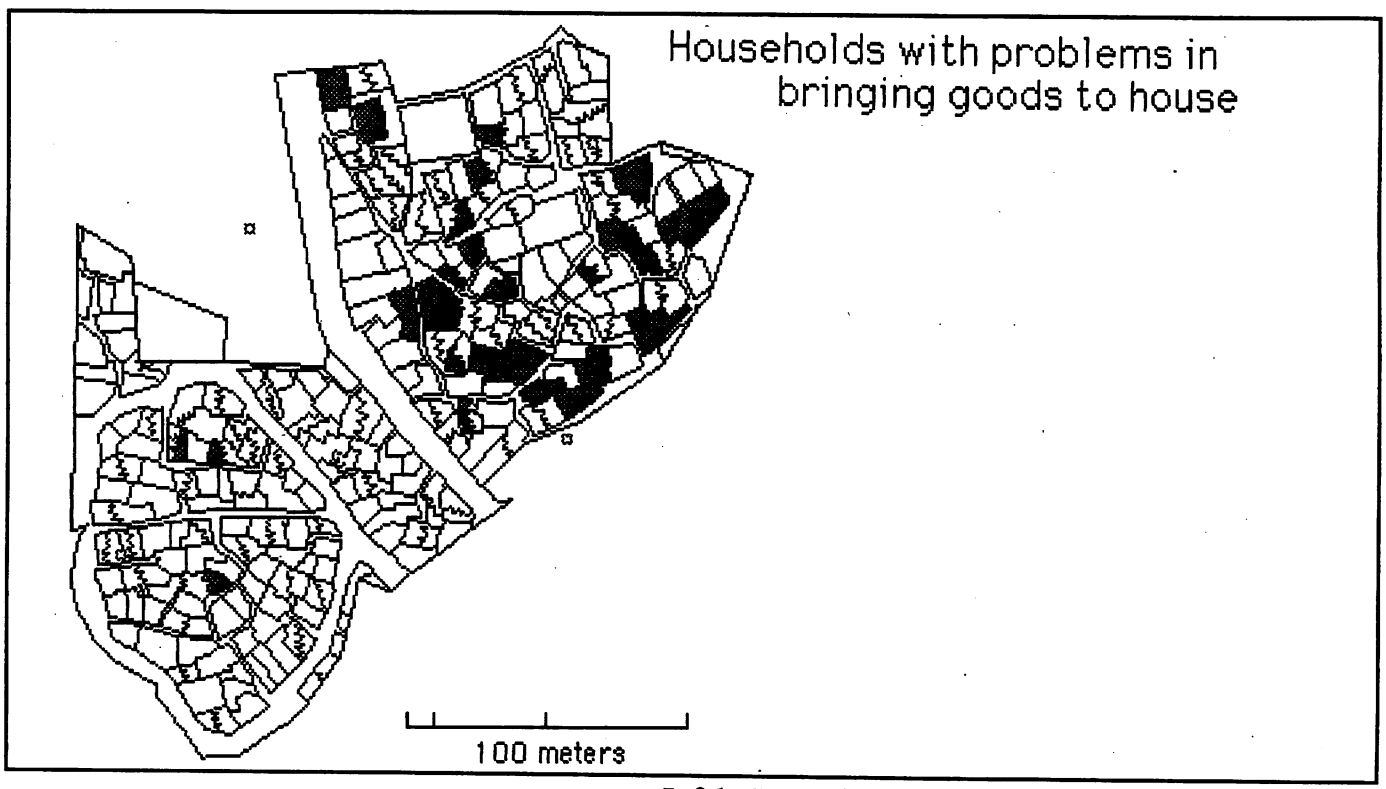
East Wahdat, Location of Surface Drainage



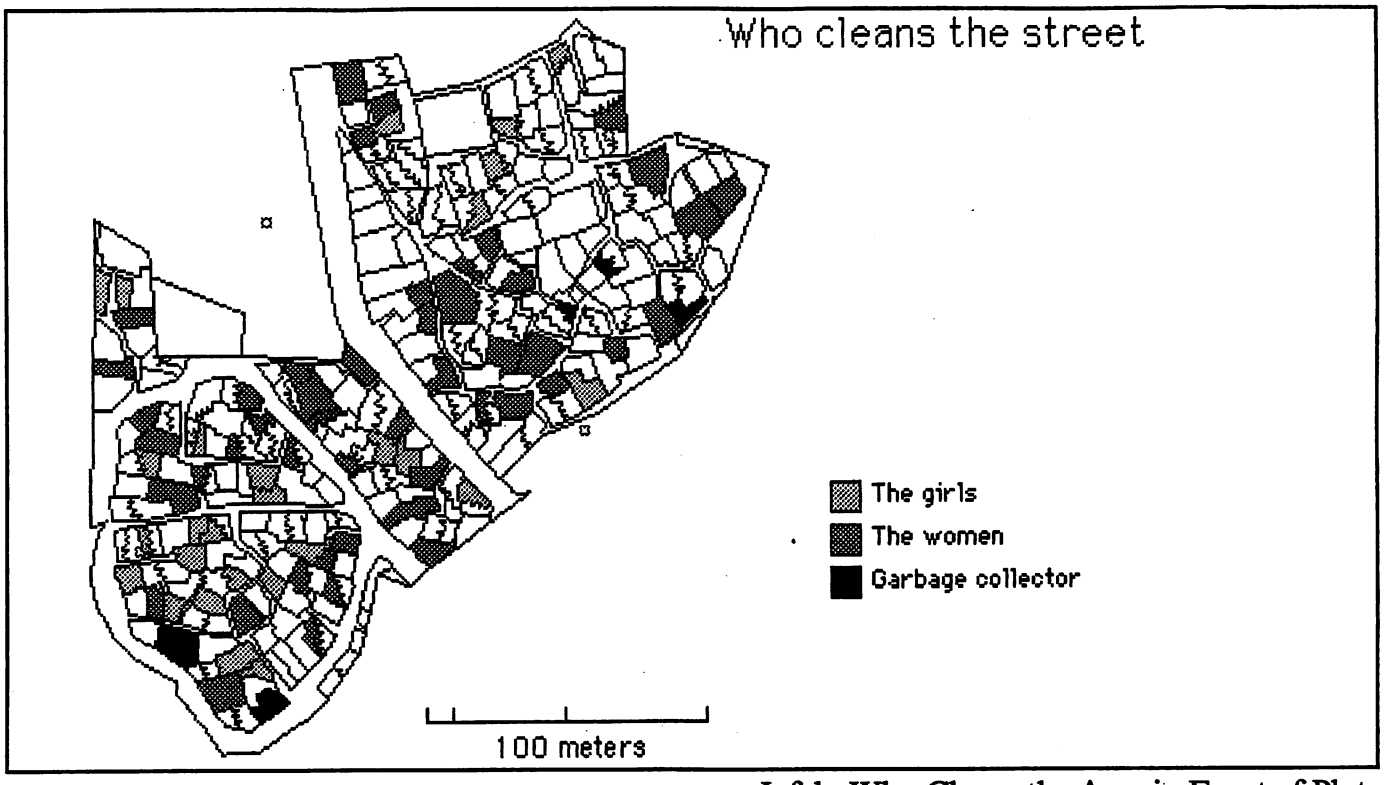
East Wahdat, Method of Garbage Collection



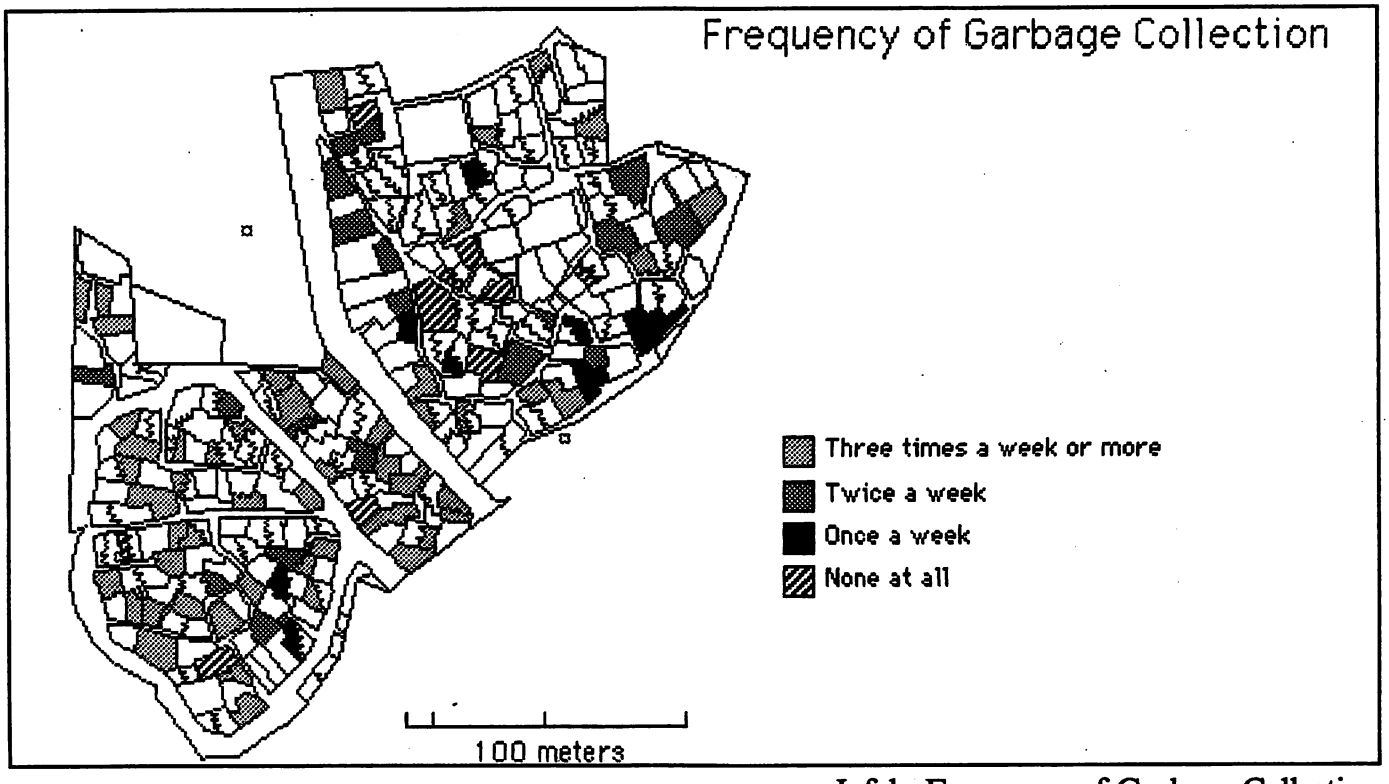
Jofeh, Buildout, Number of Households Per Plot



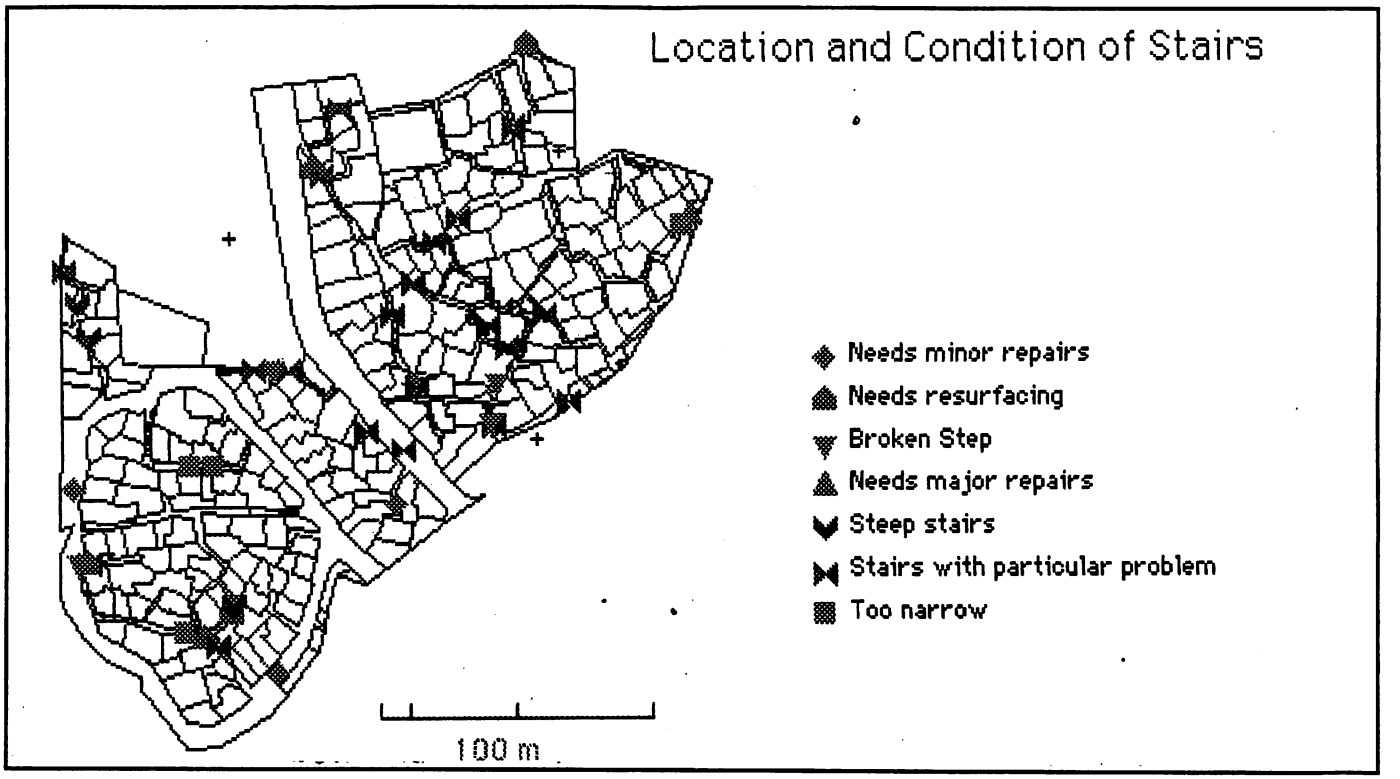
Jofeh, Households Indicating Accessibility Problems



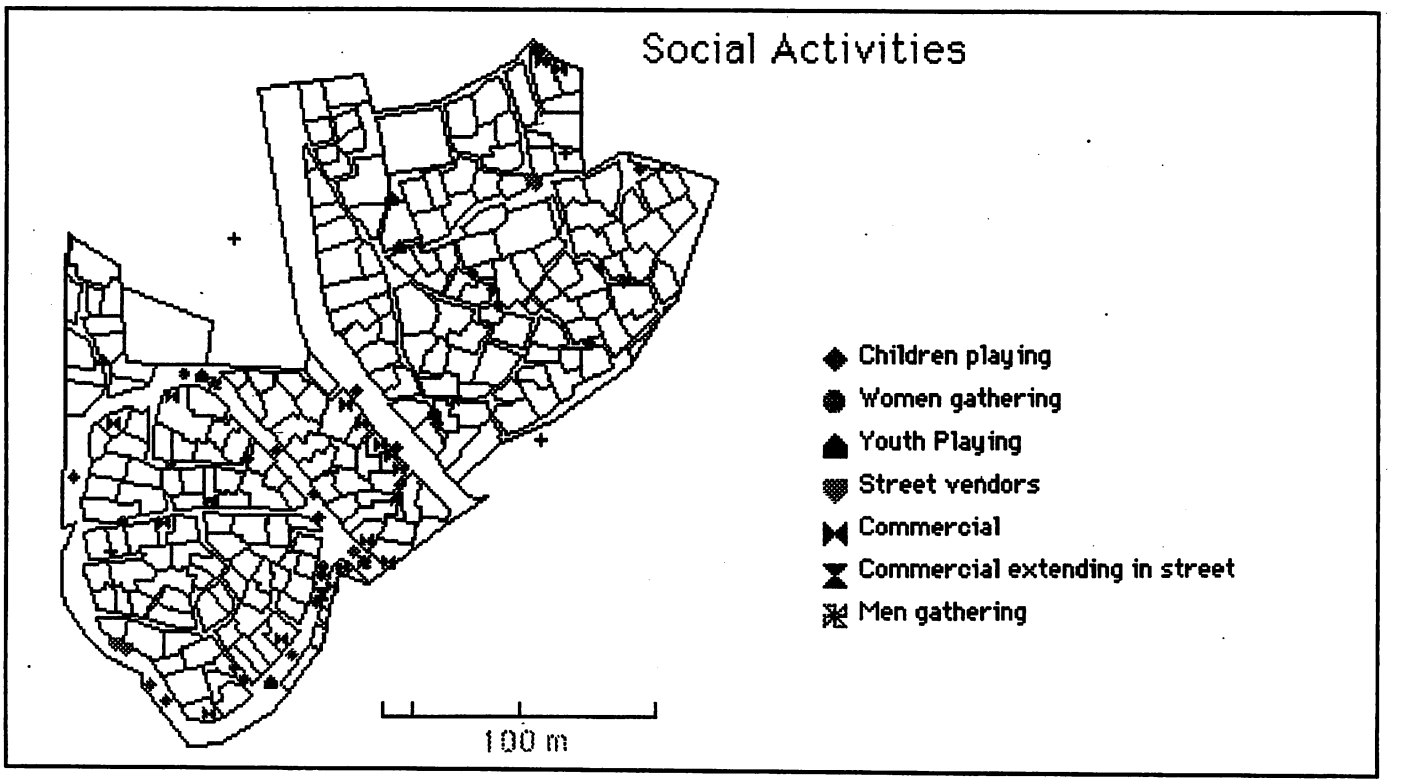
Jofeh, Who Cleans the Area in Front of Plots



Jofeh, Frequency of Garbage Collection



Jofeh, Location and Condition of Stairs



Jofeh, Social Activities

APPENDIX F

Background studies and survey results are presented in the following documents:

- *First Draft Report Socio-Economic and Physical Survey, East Wahdat and Jofeh*
  UDD Study Team,Urban Development Department
  December 1990

- *Nataej AlDirasah Alijtimaiyah Wal Iqtisadiyah Wal Fiziaiyah Lmawqiay Sharq Al Wahdat, Al Jofeh (Results of the Social, Economic, and Physical Study for East AlWahdat and AlJofeh Sites)*
  UDD Study Team, Urban Development Department
  January 1991

- *Assessing Sustainability in East Wahdat with Companion Atlas*
  Study Team, Unit for Housing and Urbanization
  October 1991

- *Assessing Sustainability in Jofeh with Companion Atlas*
  Study Team, Unit for Housing and Urbanization
  November 1991

Working papers and selected documentation on file include:

- *Sustainability of Public Spaces, A Working Document (draft)*
  Howard Trett
  December 1990

- *Preliminary Outline of Research Agenda for Reassessment of Amman Upgrading Projects*
  Dr. Seteney Shami
  June 1990

- *General Survey Design Issues & Questions*
  Lucine Taminian
  August 1990

Photographic documentation of both sites, including photographs in this report were drawn from three sources:

- The Aga Khan Award for Architecture (March 1989)
- Urban Development Department (November 1991)
- Unit for Housing and Urbanization (November 1991)