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Characteristics of Various Economic Studies

by Anthony Downs

James D. Vernor, ed., Readings in Market Research for Real Estate. Chicago: American Institute of Real Estate Appraisers, 1985.

Characteristics of Various Economic Studies

Anthony Downs

Farmer Jones owned 160 acres of fertile land right on the edge of a fast-growing metropolitan area. For years he had made a decent living raising vegetables; however, he was well aware that the city was creeping out toward his farm. Finally, after new homes and shopping centers began to spring up all around him and a giant super-highway was routed past his back 40, he decided that it was time to make his move.

Being a shrewd twentieth century citizen, he would not accept any offers for his land until he first "had a study made" of its potential. So he called in Appraiser Smith to do the job.

Smith's assignment seemed simple—just appraise the land. But the more he thought about it, the more perplexing it became. Should he start with a market analysis, or a highest and best use analysis, or a land use study? Or should he use a feasibility analysis, or perhaps a marketability study? Or maybe even a cost-benefit analysis? Every time he asked a colleague for advice, he learned another term which he had a hard time distinguishing from the ones he had already heard. Even consulting the textbooks was not much help, since most of these words were not mentioned at all.

Smith's confusion illustrates a growing problem in the appraisal profession. Today more and more real estate appraisers are making studies that go far beyond the bounds of normal property valuation. The complexity of current transactions means that they must devote more attention than ever to general market conditions—sometimes as much as they devote to the characteristics of the particular parcel or parcels being appraised.

As this need for broader studies of markets has grown, a confusing crop of terms to describe them has come upon the appraisal scene. Concepts of "feasibility study," "market analysis," "economic study," and "marketability study" frequently are used as if they all meant the same thing. Moreover, academic economists are further littering the verbal landscape with such terms as "cost-benefit studies" and "land use studies."

To clear a path through this terminological jungle, I propose to set forth definitions of these terms and a few others. These definitions will enable every appraiser and econo-

SOURCE: Reprinted from *The Appraisal Journal* (July 1966), 329-338. © 1966 by the American Institute of Real Estate Appraisers of the NATIONAL ASSOCIATION OF REALTORS®.

mist to distinguish among the terms. The definitions are based upon the application of rigorous logic to the normal meanings of the words involved, augmented by considerable experience of Real Estate Research Corporation in carrying out all of these types of studies.

Even if not all appraisers agree with these definitions, at least they will serve as a focus for debate which, it is hoped, will eventually lead to widespread acceptance of standard meanings.

Specific Kinds of Studies and Their Traits

The terms to be discussed are: appraisal, cost-benefit study, economic study, economic base study, feasibility study, highest and best use study, land use study, land utilization study, market study, marketability study, and reuse appraisal.

To differentiate among these terms, I have identified eleven different characteristics that any given study might conceivably exhibit. . . . Each of these "fingerprint" traits can be described as follows.

Viewpoint

Some studies are conducted from the viewpoint of a private developer or investor; others from the viewpoint of the government, the public at large, or a detached observer. The viewpoint embodied in a study need not be that of the person making the study or the person sponsoring it. Thus, a government agency can sponsor a feasibility study conducted from the viewpoint of a private profit-oriented investor.

Use of a General Supply-Demand Analysis

Some studies concentrate solely upon the characteristics of a particular piece of property; others embody an analysis of the general supply-demand situation for the entire class of properties encompassing the subject property.

Consideration of Multiple Uses

In some studies, the analyst scans the economic horizon for any land uses which might prove practical at the subject site; in other cases, he considers only two or three alternative uses; and in many studies, he confines his attention to a single use—especially if the property is already improved so as to best serve that use.

Use of a Preexisting Development Concept

Many studies require the evaluating or testing of the market for a specific proposed development, such as a 25-story high-rent apartment building, or a shopping center containing 500,000 square feet including two department stores. Others require evaluation of a site for which no particular developments have been proposed, or analysis of the desirability of a general type of land use, such as housing or retail, at the site. Although the latter studies may require the analyst to assume a specific development concept, he is not given a preconceived notion from which he must build the study.

Explicit Calculation of Rate of Return on Investment

In certain studies, the analyst must carry out a complete financial analysis of capital costs, operating costs, and revenue flows in order to determine the financial rate of return that the investor or owner can achieve.

Estimation of Value

Some types of studies require the analyst to make a definite estimate of market value, but most do not.

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Allocation of Costs and Benefits to Different Persons or Groups

Studies conducted from a single viewpoint, such as that of an investor, need not distribute costs and benefits among different persons. But studies involving multiple viewpoints must take into account the fact that the persons who pay the costs do not always receive the benefits, and vice versa.

Calculation of Absorption Rates

In some cases, the analyst must determine how fast the land uses contemplated can be marketed, and convert that rate-of-sales into a schedule of land and improvement absorption over time.

Programmatic Content

Programmatic studies must specify what concrete actions can—or should—be taken at various periods in the future. An example would be a description of the steps to take before marketing a given property. Whereas a plan indicates what should or can be done, a program also provides practical recommendations about how to do it.

Consideration of Nonpecuniary Factors

Whereas some studies consider only financial or monetary costs and benefits, others take into account nonpecuniary factors. Examples of such factors are aesthetic effects, compatibility with surrounding land uses, and employment impacts upon the community as a whole. This is related to whether the study embodies one or many viewpoints.

Focus on a Specific Parcel or Property

Most of the studies which we are considering focus on particular properties, or on a single property. However, some are analyses of entire communities rather than any one part thereof. Still other studies may exhibit either type of focus.

A Short Discussion of Each Type of Study

To define the studies considered herein and to illuminate the differences among them, let us briefly examine each type, placing emphasis on the characteristics set forth above. These definitions, then, will differ somewhat from the more traditional definitions and explanations of each.

Appraisal

An appraisal is an estimate of value—usually market value. Hence it must concern a specific property, and must involve sufficient detailed analysis to arrive at quantitative answers. This means that a specific type of land use must be assumed when an appraisal of land per se is made. In some cases, it is relatively obvious which type of land use is both legal under existing zoning and will produce the highest return on the land. In that case, no detailed highest and best use study must be made. But in other cases, such a study is required as part of the appraisal, since it may not be clear just what type of use would be most profitable. Similarly, many appraisals require a detailed market study; others do not.

Whether or not an appraisal deals with a pre existing development concept depends upon what is being appraised. If the land alone is being appraised without reference to particular improvements, then such a concept should not be used. But if vacant land is being appraised as if already developed in accordance with some concept (including

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cases where the envisioned improvements already exist on the land), then the concept must be used.

An appraisal requires estimates of absorption rates whenever it involves such a large property that marketing it is likely to take a considerable amount of time. This is typical of land on which new improvements are being constructed in units that can be sold or rented individually, such as apartment units, blocks of office space in a single building, or sites in an industrial park.

Since appraisals usually are economic in character, they do not consider nonpecuniary factors except insofar as such factors influence market value; for example, extreme ugliness may reduce the value of a home. Similarly, appraisals estimate the value of a property to a hypothetical well-informed buyer or seller; hence no allocation of costs and benefits among different parties normally is required, unless a partial interest is involved.

Finally, an appraisal per se is a specific estimate of how the market currently values a property, or would do so as of a certain date; hence it usually does not embody recommendations for action, which are essentially a part of a consultation rather than an appraisal. However, in some cases the appraiser's client may ask him to include marketing recommendations along with the appraisal, even though technically they are not part of the appraisal itself. (We will discuss this further under Reuse Appraisal.)

Cost-Benefit Study

Cost-benefit studies generally are used by public agencies to help in their decision of whether or not to construct certain capital improvements, such as expressways, shipping canals, or irrigation systems. Usually, the analysts calculate all of the benefits that a proposed improvement will create (often including nonpecuniary benefits) and weigh them against the cost of creating the improvement. Then they calculate a benefit-to-cost ratio, which must exceed 1:00 for the improvement to be considered "desirable." The benefits and costs considered sometimes include secondary impacts upon surrounding properties, as well as direct user benefits. Since cost-benefit studies reflect the effects upon many people, they embody multiple viewpoints; hence the costs and benefits should be allocated to different groups.

Economic Study

This term encompasses any analysis involving economic variables; hence it is so general that every one of the other eleven studies considered herein could be considered a particular type of economic study. Therefore, when appraisers encounter the term "economic study" in discussions or contracts, they should ask to have it replaced by a less general term, or at least have it defined very specifically to fit the particular situation.

Economic Base Study

This type of study is designed to analyze the entire economy of a given nation, region, or metropolitan area. (A single city within a metropolitan area usually is too integral a part of the whole area to be analyzed separately.) It is most frequently used to establish the framework within which city planners can develop specific comprehensive or community plans. Several approaches can be employed in making an economic base study; however, each involves classifying all of the economic activities carried out in the area into a number of categories which are then utilized in the detailed analysis. The simplest classification distinguishes "basic" activities—those with outputs primarily intended for export to other areas, such as a steel mill—from "nonbasic" or "local" activities—those with outputs mainly consumed within the subject area, such as a grocery store. The most complex classification occurs in the "input-output" approach, which requires a detailed breakdown of activities into specific industries or nonindustry group-

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ings. An economic base study does not focus on particular properties or even on particular industries, nor does it involve market analysis in the usual sense. Moreover, it is always conducted from the viewpoint of the community as a whole or a detached observer. Since it does not usually involve consideration of any specific policies, an economic base study does not describe costs and benefits of various action programs.

Feasibility Study

A feasibility study is any analysis aimed at discovering whether a specific project or program can actually be carried out successfully. Hence, every such study involves a particular development concept on a particular site. The precise nature of the analysis depends upon what is meant by "successful" accomplishment of the proposed development. In almost all situations which the appraiser might encounter, "success" implies a sufficient return on the capital required to attract private investors to carry out the development. Hence, feasibility studies nearly always involve computing the likely rate of return on investment for the one or more uses envisioned on the land involved. In many cases, this implies that a marketability study must be done as part of the feasibility study in order to discover just what uses are plausible, and what revenue flows could be expected from marketing those uses. However, a project can be *marketable* but not *feasible*. For example, analysis might show that 200 apartment units proposed for a given site could be rented quickly at the planned rental levels, but the difficulties, expenses, and time lags involved in purchasing and clearing the site would reduce the profitability of the project below acceptable levels. In some situations, such as broad urban renewal studies, feasibility studies are aimed at discovering whether a given project is "plausible" in concept (that is, seems likely to have a possible chance of success) rather than "successful" as an investment.

Highest and Best Use Study

This type of study seeks to ascertain what particular use of a given parcel will provide the maximum return on investment, within the constraints of zoning laws and other legal limitations. Hence it always involves a particular parcel, and never employs a single pre-existing development concept. In theory, the analyst "scans the horizon" for all conceivable uses and analyzes each to determine its likely rate of return. In practice, analysts mentally consider many uses but immediately reject most of them as inappropriate for relatively obvious reasons, such as incompatibility with surrounding uses, inappropriate parcel size, improper accessibility, etc. Then they study the remaining small set of uses more intensively, perhaps through market or marketability studies. This step usually eliminates several more possibilities, leaving only two or three for detailed feasibility analysis.

The necessity of considering so many uses, and carrying out so many analytic steps, makes highest and best use studies among the most complicated and difficult of all of the economic studies that appraisers must perform. As a result, many highest and best use studies are done in very abbreviated form, containing only cursory consideration of all but one or two uses, and perhaps incomplete feasibility analyses of these. Yet a true highest and best use study requires a complete financial analysis of "prototype" improvements for several uses so as to arrive at probable rates of return on investment. Such studies normally are made from the viewpoint of a single investor and do not take nonpecuniary factors into account.

Land Use Study

A land use study normally is a complete inventory of the parcels in a given community or other area classified by type of use, plus (in some cases) an analysis of the spatial patterns of use revealed by this inventory. It does not embody the viewpoint of

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any particular investor, nor does it focus on any one parcel. Furthermore, no considerations of markets and feasibility normally are included in a land use study, although they may be added as supplements. In some cases, the term "land use study" is used loosely to indicate a highest and best use study, since the latter also analyzes the use of land. Confusion may also arise from the similarity of the terms "land use study" and "land utilization study," as described below. However, the distinction will remain clear if the term "land use study" is used only to denote the type of inventory described above.

Land Utilization Study

This is a specific type of highest and best use study required by the Urban Renewal Administration as part of a land utilization and marketability study, or LUMS. It has all of the characteristics of a normal highest and best use study except two. Whereas a normal highest and best use study takes into account all land uses which appear both legal and economically feasible, a land utilization study considers only those uses approved by the local public agency in charge of the renewal program. The agency may rule out certain economically feasible uses because of nonmarket constraints imposed upon the development of the land, so that it will fit into some larger plan for the surrounding area. The second difference is that a land utilization study may not involve detailed calculations of the rate of return on investment. Such calculations are not essential when the local public agency has narrowed the range of possible uses down to so few alternatives that it is relatively easy to determine whether they are appropriate to the site and which will yield the highest rate of return.

Market Study

Any analysis of a real estate market in general is a market study. Examples are a study of the demand for office space in downtown Cleveland, and an analysis of the demand for high-rise apartments in Beverly Hills. Although every market study is general because it involves more than one piece of property, it also considers only properties within certain geographic boundaries. These boundaries differ in size depending upon the type of property being considered. Usually those which are not directly competitive with some geographic area of focus are excluded. Thus, even a general market study must have some geographic referent, although it is always broader than a single property, as the above examples illustrate.

It is true that some studies that are called "market studies" consider the general market first, and then "zero in" upon the market for a specific property. However, such specifically focused studies really are marketability studies, even though each includes a general market analysis. It is the general analysis which constitutes the market study, not the focus on one property.

Every market study involves an analysis of two items. One is the present and future demand for a certain type of land use. The other is the present and future supply of competitive facilities of that type in the area. It may be conducted from the viewpoint of a detached observer or that of a private investor, but it does not involve calculating return on investment. Nor does it normally involve nonpecuniary factors (except insofar as they affect demand) or any allocation of costs and benefits. A market study often includes a land absorption analysis. It may even involve recommendations about how a certain type of improvement or a particular improvement can best be marketed under existing conditions.

Marketability Study

This type of study involves determining to what extent a particular piece of property can be marketed. Every such study analyzes the likely present or future demand

for that property and the existing and likely future supply of closely competitive facilities. It then formulates three kinds of conclusions:

The first concerns various prices at which the particular property might be sold or rented.

The second estimates the quantity, such as apartment units or square feet of office space, likely to be sold or rented per year, or other time period, at those prices.

The third discusses specific conditions, such as financing terms, sales techniques, or certain amenities, which would encourage relatively rapid sale or rental.

As noted above, almost every marketability study includes a market study of the general class of property being considered. In some cases, particularly those involving vacant land, marketability cannot be determined until some prior analysis indicates which particular possible uses should be analyzed. But such prior determination cannot be made through a complete highest and best use study. That type of study inherently requires a determination of the marketability of the property in each of several possible uses before the "optimal" use can be chosen. Hence, many marketability studies require an initial scanning of possible uses and a narrowing down to a few seemingly feasible ones without performing a full feasibility or highest and best use analysis.

Marketability studies differ significantly from feasibility studies. The former consider only the way in which the property concerned can be marketed. The latter also consider whether such marketing will be sufficiently profitable to make the deal successful. Thus, a marketability study is more complex than a market study since it includes a market study and "zeros in" on one property; it is less complex than a feasibility study since it does not involve calculating likely return on investment.

Reuse Appraisal

A reuse appraisal is an appraisal of a specific parcel based upon some use to which it is assumed the parcel will be put once the existing improvements thereon have been demolished. Reuse appraisals are almost all conducted as part of a federally financed urban renewal program; hence their nature and contents are greatly affected by the regulations and practices of the Urban Renewal Administration and local planning agencies. In most cases, the specific future use or uses assumed are furnished to the appraiser as a result of prior studies—specifically, land utilization and marketability studies. Hence, reuse appraisals generally do not include determining what uses to consider. In fact, the nature of the particular reuses considered is often significantly influenced by nonmarket constraints imposed by local planning agencies, as mentioned earlier. Moreover, reuse appraisal reports generally include specific suggestions for methods of marketing the parcels involved after they have been cleared. Hence, the typical reuse appraisal really combines an appraisal with elements of a marketing consultation. In other respects, it has the same characteristics as any other appraisal.

Characteristics Table

Table 1.1, a summary of the preceding discussion, indicates which of the traits used in this analysis are exhibited by each of the eleven kinds of studies we have considered. A "yes" indicates that a particular type of study always possesses the trait concerned; a "no" means that it never does. The other items cover most of the possibilities between these extremes. "NA" means that the trait concerned is not applicable to that particular kind of study.

Carefulanalysis of this table reveals that each type of study has characteristics different from any of the others. Hence, it is possible to use the table as a dictionary defining the studies and showing their distinguishing features.

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Table 1.1. Characteristics

	Nature of Viewpoint Assumed in the Study	Use of General Supply-demand Analysis	Consideration of Multiple Uses	Use of Pre-existing Development Concept	Calculation of Rate-of-return on Investment	Estimation of Value	Calculation of Absorption Rates	Programmatic Content and Recommendations	Consideration of Nonpecuniary Factors	Allocation of Costs and Benefits to Different Groups	Focus on Specific Parcel or Property	
Appraisal	private owner or investor	yes	not always	not always	yes	yes	not always	no	not always	no	yes	
Cost-benefit Study	general public or government agency	yes	no	yes	yes	no	yes	no	yes	yes	not always	
Economic Study	could be any viewpoint	yes	not always	not always	not always	usually not	not always	not always	no	usually not	not always	general term
Economic Base Study	community as a whole	no	NA	NA	NA	no	not always	not always	no	NA	no	
Feasibility Study	private owner or developer	yes	usually not	yes	yes	no	yes	not always	no	no	yes	
Highest and Best Use Study	private owner or investor	yes	yes	no	yes	no	yes	not always	no	no	yes	
Land Use Study	detached observer or general public	no	yes	no	no	no	not always	not always	not always	no	no	
Land Utilization Study	private investor	yes	yes	not always	not always	no	no	not always	no	no	yes	
Market Study	private owner or detached observer	yes	not always	not always	no	no	not always	not always	no	no	not always	
Marketability Study	private owner or developer	yes	usually not	yes	no	no	yes	not always	no	no	yes	
Reuse Appraisal	private owner or developer	yes	no	yes	yes	yes	yes	yes	no	no	yes	

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Housing Market Analysis

by Michael Sumichrast

James D. Vernor, ed., Readings in Market Research for Real Estate. Chicago: American Institute of Real Estate Appraisers, 1985.

Housing Market Analyses

Michael Sumichrast

Forecasting Housing Demand

The loan application packages typically supplied by builder-developers to mortgage lenders usually include some statement of demand, based on analyses of the strength of the local economy and population projections. Indeed, if there is not an optimistic outlook for local growth in population and income, and hence in housing demand, there is no point in submitting the application.

The difficulty is that lenders may believe the projections without examining the foundation on which the whole structure of analysis is built, or that they may not carefully examine the analyses themselves. There is the tendency for builders to build anything they can mortgage out of, or produce with little or no equity. Thus a builder-developer will commit himself to a parcel of land, possibly subject to getting financing, get a research study-mortgage package on a project, and then submit it to a lender. It is then up to the lender to determine whether the local market really needs more of what the builder-developer or equity investor wants to build.

In looking for a place of strong demand, builders and lenders alike want local economies that have growth potential. They also want a viable community, able to respond to the forces of growth, so that the construction will be feasible. If the community also has stability, so much the better.

The Economic Outlook

The questions asked about the economic outlook consider employment, income, and construction. Naturally, the cost and availability of money are of particular concern. The first question concerns the national outlook; the second concerns the local economy.

A variety of national outlook services are readily available from various sources. DRI, Wharton, and Chase provide the most prestigious national models. A daily reading of

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The Wall Street Journal or a weekly reading of *Business Week*, *Newsweek*, or *Time* provides information on the latest developments.

A regional and state model of housing starts is available at the National Association of Home Builders.

Economic-Base and Other Employment Analyses

An analysis of the local economy starts with a determination of its employment base, using the categories of the standard industrial classification (SIC) codes. An economic-base forecast uses employment rates at a given time to forecast employment changes, which are the basis for a projected change in population.

Other employment analyses can be as simple as identifying the major employers and assessing their future.

The employment opportunity analyses are useful for judging the character and stability of the community and for assessing the potential for development. In essence, both lenders and developers need to be able to judge the quality of the community. Some numbers are usually available for this purpose; the thing to do is look to the numbers and form an independent judgment as to whether there will be jobs in the community, what kind of income they will generate, and what the character and the extent of the demand for housing will be. Table 8.1 gives a summary of where to obtain various types of employment-based information.

Table 8.1. The Economic Base: What Facts to Get and Where to Get Them

Type of Information	How Measured	Where to Get Facts
Employment and unemployment	Number of people Number of men Number of women	State employment agencies Bureau of the Census State departments of economic development Manpower commissions and Federal Housing Administration (FHA)
New industries	Type of industries Number of people to be employed Wages and salaries	Department of Commerce Employment agencies Newspapers Utility companies Councils of government
Business conditions	Retail sales Department store sales Bank conditions	State tax offices *Sales Management* magazine Federal Reserve Board (national and regional) Chambers of commerce

What to look for

Economic-base analysis must not be a static collection of data. The analyst is looking for

1. Trends influencing the demand for homes
2. Changes in spending patterns
3. Changes in employment levels
4. Changes in economic levels
5. Changes in the mix of employment opportunities

What data to consider

1. General business conditions
   a. Bank debits
   b. Department store sales

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Table 8.1. (continued)

c. Opening or closing of facilities providing employment
2. Employment trends by industry
3. Trends in unemployment

Where to get it
The chamber of commerce is a good place to start—but not to stop. *Go for primary source materials.*

Population Projections and Forecasts

Typically, analysts will accept population forecasts done by demographers, which are usually supplied by planning bodies of local political bodies. States also make attempts to forecast population, as do private individuals. No single method of estimating population has shown consistently greater accuracy. Evidence also shows that a lower average error can be obtained by averaging several estimates made by different methods.

Methods. There are probably as many as two dozen methods for small-area population forecasting. Of these, four are the most consistently recommended (see table 8.2).

The summary of forecasts is a very important step in housing analysis, but it should not be an overwhelming issue. The analyst need not become a demographer and go into the great detail that accompanies population forecasting. The methods described in table 8.2 should serve more as a reminder that such methods are available. There are many more than those described, some of which are very complicated.

Table 8.2. Housing Market Data and Sources for Population Forecasts

Method of Estimating	How Measured	Where to Get Data
Housing inventory method	1. Census of Housing 2. Update by a. Completed units by type b. Adjust for net removals c. Adjust for change in vacancies 3. Determine housing by a. Home ownership b. Renters 4. Apply average number of persons per: a. Owner b. Renter	Bureau of the Census Dept. of Housing and Urban Development annual metro surveys Building permit office Lagged relations of permits to completion if completions not available Permit office for removals; check census for trends Census of Population Building owner's association for vacancies
Labor participation rates	1. Employment by industries 2. Projection of employment 3. Trends of employment, men and women 4. Develop participation rates and trend 5. Translate into population	State employment service Planning boards Local economists at banks, industries, etc. Chamber of commerce Utility companies *Sales Management*

Table 8.2. (continued)

School enrollment participation rates	1. School population, past 2. School population, present and expected in future 3. Translate into population using census school enrollment techniques for population 4 through 15 years old	School boards Parochial schools Individual private schools Bureau of the Census
Vital rates	1. Trends in birth and death rates for small area; to estimate, follow trends of the state, metro area, or region 2. Get actual birth and death rates to obtain separate population estimate 3. Average both methods 4. Deduct or add military personnel 5. Allow for in- and out-migration by using census techniques	Bureau of the Census State health departments County clerk Utility companies Planning boards

Before accepting the forecast, the forecaster should

1. Review the numbers for consistency. Do they make sense? Is this forecast possible? What is the record of the forecasting agency?
2. Make sure he is getting the same data from various sources. Sometimes the data base in various forecasts is quite different.
3. No data should be accepted as fact. The data should be verified and the validity of the source assessed.

Household Projections

Population estimates such as those discussed can be translated into demand for new homes. Using an estimated number of persons per household, the raw population data can be translated into a forecast of new household formations (table 8.3).

Table 8.3. Population and Household Growth in Montgomery, Maryland, 1960-1990

Year	Population	Household Size	Households
1960	340,900	3.65	92,400
1970	522,800	3.30	156,700
1975	572,100	3.05	185,600
1980	600,000	2.86	206,000
1985	635,000	2.73	230,400
1990	686,000	2.70	250,000
Increase			
1960-70	181,900	—	64,300
1970-80	77,200	—	49,300

Table 8.3. (continued)

1980-90	86,000	—	44,000
1980-85	35,000	—	24,400
1985-90	51,000	—	19,600
1970-90	103,200	—	93,300

Source: U.S. Bureau of the Census, *Census of the Population*, 1960, 1970; U.S. Department of Commerce, Bureau of Economic Analysis; Metropolitan Washington Council of Governments.

Quantitative Housing Demand

Effective quantitative housing demand uses the household projections as a base from which an annual demand for housing is derived. This procedure is presented in table 8.4.

Table 8.4. Forecast of Quantitative Housing Demand, Montgomery County, Maryland, 1974

Step	Item	Total	For Sale	For Rent
1.	Projected household increase[a]	6,365	3,820	2,545
2.	Net removals (0.68% of the standing inventory of 182,128)[b]	+1,236	+136	+1,100
3.	Gross demand (1 + 2)	7,601	3,956	3,645
4.	Available vacancies[c]	5,040	810	4,230
5.	Normal vacancies (0.8% ownership; 5.4% rental)[d]	4,040	780	3,260
6.	Excess of vacancies (4 − 5)	1,000	30	970
7.	Quantitative demand (3 − 6)	6,601	3,926	2,675
8.	Units under construction[e]	7,500	3,600	3,900
9.	Normal rate of construction[f] Sales, 10 months (4,500 units) Rentals, 12 months (2,500 units)	5,500	3,000	2,500
10.	Excess of new construction (8 − 9)	2,000	600	1,400
11.	Net demand (7 − 10)	4,600	3,326	1,275
12.	Annual demand	4,600	3,326	1,275

a. Between 1960 and 1970, Montgomery County past production activity shows that 46% of all units were single-family units and 64% were multifamily units. During that time 85,388 units were produced, of which 39,054 were single-family units. The high ratio of multiples was due to two years of unusually heavy multifamily activity. In 1966 and 1967, because of redefinition of zoning for apartment hotels, activity just before the cutoff date soared to record levels. These two years, therefore, are not typical. More in line with past activity are the years 1968, 1969, and 1970, when single-family units accounted for about 60% of the total. This share was expected to continue and was used in this table.

b. Net removals have been estimated at 0.68% of the average annual inventory (midpoint in a year). Most of the removals occurred in multifamily units.

c. Vacancies were derived from updating the 1970 census. When the census was taken on April 1, 1970, the data showed a relatively low number of vacancies. The census data were updated for the balance of 1970 and through 1974. There have been rapid increases in vacancies since the April date.

d. The high mobility rate in Montgomery County puts the "normal" vacancy rate at 0.8% for homeowners and at 5.4% for renters.

e. Units under construction derived from FHA, *Unsold Inventory Survey*. Data were adjusted to reflect all inventory, not only inventory in projects as defined by FHA.

f. Normal rate of construction is an estimate derived from past historical relations and the rate of absorption for the period 1970-73.

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

Constraints Affecting Housing Demand. The arithmetic presented in table 8.4 shows a demand for 4,600 new units for 1974. This is substantially below the levels of production in 1971, when 10,554 units were given building permits, or in 1972, when permits accounted for 10,380 units. Even production in 1973 was considerably higher, at 7,625 units.

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Under normal conditions, the forecast of 4,600 units does not seem out of line. But examining the numbers clearly suggests a great deal of overbuilding, slow-moving inventory, and erosion of the economic base. The booming economy was just about to bust.

In addition, Montgomery County had started to experience the impact of a sewer moratorium which began in 1970. This sharply curtailed production had caused builders to move their new-housing efforts to nearby Virginia. Too, the expectation of a tapering of the economic boom brought about a fear of changes in interest rates and a decrease in mortgage funds. This has always had an immediate impact on housing production.

Net demand should be adjusted to such interference with market forces. This, of course, is easier said than done, since to a large extent it involves judgment on how severe an impact these variables may have on production. To put the impacts in a model using regression analysis is not practicable because some of the impacts are difficult to quantify. In addition, not enough experience has been accumulated to come up with a good impact measure as far as sewer moratoriums are concerned. The impact varies from place to place, depending on the enforcement in any particular area.

What is needed is a line item that would translate net demand into net effective demand, or units that will be absorbed, given the local economy and allowing for adjustments in supply. One way of doing this is presented in table 8.5.

Table 8.5. Net Effective Demand, Montgomery County, Maryland, 1974

Item	Number of Units		
	Total	For Sale	For Rent
Net demand	4,600	3,326	1,275
Adjust for 1% increase in mortgage rates	−500	−400	−100
Adjustment for changes in employment, 4,100 × 88% index	3,610	2,575	1,035
Adjust for sewer moratorium, 45%	1,620	1,160	460
Net effective demand for 1974	1,990	1,415	575

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

A Short Method for Determining the Strength or Weakness of Housing Demand

Suppose that an investor wants to verify quickly whether there is a market for, say, 500 new homes, with construction starting in the next three months and spread over the next two years. A few numbers could give a clue to the situation. The quick answer could suggest strongly that a more thorough examination should be made before proceeding, or it may verify what the investor already knows: that the market is viable and that he or she should proceed.

For single-family (for-sale) housing, a short method of demand analysis is shown in table 8.6.

Segmented Analysis

This section breaks down the housing market into site and product analysis. It is designed as a practical application of a market analysis to a specific problem and is illustrated with examples.

Segmented Demand by Income

Housing needs are not synonymous with housing demand. A poor area may have great needs but little demand for the housing that can be supplied. Much demand for new housing is caused by upgrading and mobility.

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Table 8.6. Example of the Short Method for Determining the Market Situation of New For-Sale Housing, Fairfax County, Virginia, January 1, 1975

Ratios	Units	Current Ratio	Ratio Signifying Overbuilding Market	Rating
1. Unsold completed new homes	2,220			
as a percentage of:				
a. For-sale units, annual production	5,328	42%	25%	Too high
b. Houses currently under construction	2,640	119%	100%	Too high
c. Annual starts (not available)			250%	
d. Unsold units under construction	2,297	103%	100%	Too high
2. Unsold houses under construction	2,297			
as a percentage of:				
e. Total houses under construction	2,640	87%	75%	Too high
3. All unsold houses	4,517			
Completed	2,220			
Under construction	2,297			
as a percentage of:				
f. For-sale annual production	5,328	85%	40%	Too high
4. Presold units as a percentage of				
g. All completed new units. (Sample only: 817 presold to 4,628 completed.)		17%	30% or below	Too low

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin. All ratings are negative, signifying a severe overbuilding situation.

Incomes determine the price level of the units that can be absorbed. Combining data on incomes with the price ranges of the new homes being built and the homes being sold should give sufficient detail as to the potential price ranges of the houses that are likely to be in demand. The nine steps below illustrate how this can be done.

Step 1. Get the income distribution of the families of the area under investigation. This can be in the form presented in table 8.7 or another similar form.

How to interpret the data:

1. There was a significant drop in the number of families with incomes under $9,999. This income group decreased from 55,274 in 1970 to 30,600 in 1974—a drop of 45%.
2. The major growth was in the income categories of over $25,000, from 9,888 families in 1970 to 22,400 families in 1974—an increase of 126%.
3. The largest single income category remained between $15,000 and $24,999, 32.1%, or 53,600 families, in 1974. But even this category increased 16% since 1970.
4. Overall, there was a significant improvement in incomes, suggesting a better support for housing purchases in the future.

Step 2. Get a reading on what is being built, by price ranges. This is shown in the first two columns of table 8.8.

Step 3. Get a reading on how well the price ranges of new homes are selling by price range. This is illustrated in the last two columns of table 8.8.

Table 8.7. Distribution of Family Income, Prince George's County, Maryland

	1960		1970		1974		Average Annual Change, 1960-1970		Average Annual Change, 1970-1974	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total families	87,453	100.0%	163,400	100.0%	166,700	100.0%	7,595	8.7%	700	0.4%
Family income										
Under $4,000	10,848	12.4	9,820	6.0	4,700	2.8	−103	−1.0	−1,100	−11.2
$4,000-$4,999	7,276	8.3	4,108	2.5	3,400	2.0	−317	−4.4	−200	4.9
$5,000-$7,999	30,921	35.4	21,224	13.0	9,900	5.9	−970	−3.2	−2,500	−11.8
$8,000-$9,999	15,962	18.3	20,122	12.3	12,600	7.6	416	2.6	−1,700	−8.5
$10,000-$11,999	17,853	20.4	21,925	13.4	16,800	10.1	3,410	19.1	−1,100	−5.0
$12,000-$14,999			30,028	18.4	24,400	14.6			−1,300	−4.3
$15,000-$24,999	3,918	4.5	46,285	28.3	53,600	32.1	4,237	108.1	1,600	3.5
$25,000-$34,999	675	0.8	9,173	5.6	17,200	10.3	921	136.5	2,700	29.4
$35,000-$49,999					4,200	2.5				
$50,000 and over			715	0.4	1,000	0.6			60	8.4
Not reported	—	—	—	—	18,900	11.3	—	—	—	—
Median income	$7,344		$12,450		$15,400					

Note: Family income not adjusted for inflation. Data in boxes are used in table 8.9.
a. Rounded to the nearest 100. Figures under 100 rounded to the nearest 10.
Source: U.S. Bureau of the Census, *Census of the Population*, 1960, 1970; Washington Center for Metropolitan Studies; Metro Metrics, Inc.

Table 8.8. Completed New Single-Family Units, Washington, D.C., SMSA and Prince George's County, Maryland (percentage by price range)

Price Ranges	Washington SMSA	Prince George's Co., Md.		Prince George's Co. Unsold Units	Interpretation
$25,000-$27,499	1.1%				
$27,500-$29,999	5.6				
$30,000-$34,999	7.9	13.9	30.8%	72%	Very slow sales
$35,000-$39,999	11.1	16.9		65	Slow sales
$40,000-$44,999	14.5	22.2	41.7	55	Slow sales
$45,000-$49,999	9.9	19.5		67	Very slow sales
$50,000-$59,999	19.9	15.0		53	Slow sales
$60,000-$69,999	17.0	8.0	27.5	45	Mediocre sales
$70,000 and over	13.0	4.5		40	Reasonably good sales
Total	100.0%	100.0%		60% (average)	Bad sale situation in all categories

Source: FHA, Washington, D.C. Insuring Office, Form 2590S, 1975.

How to interpret steps 2 and 3 for Prince George's County:

1. Over 40% of all new single-family units built were in the middle price range, between $40,000 and $50,000.
2. About 30% of all units built were under $40,000.
3. More than 27% of the units were over $50,000.
4. The cheapest units did not sell as well as the most expensive units.
5. No single price range was selling well. This was a strong indication of a bad market.

Step 4. Recap the changes in families from income groups (extract the data from the boxes in table 8.7), as shown in table 8.9.

Table 8.9. Number of Families with Income over $15,000, Prince George's County, Maryland, 1974

Income Bracket	Families		Average Annual Change in Families, 1970-1974
	Number	Percent	
$15,000-$24,999	53,000	32.1%	+ 1,600
$25,000-$34,999	17,200	10.3	+ 2,700
$35,000-$49,999	4,200	2.5	
$50,000 and over	1,000	0.6	+ 60
Total	76,000	45.5%	+ 4,300

Source: U.S. Bureau of the Census, *Census of the Population*, 1960, 1970. Washington Center for Metropolitan Studies; Metro Metrics, Inc.

How to interpret the data: The income distribution indicates that the lower end of the single-family detached housing market is by far the strongest. At $20,000 income, the midpoint of the $15,000-$24,999 range, with a 2.5 price/income ratio, the market for $50,000 units has the greatest potential. The strong market ranges down to $40,000, if it can be built, and up to $60,000, which is thinning out and approaching the next category.

Step 5. Match incomes to loans (using a ratio of either 2 or 2½ times the family income). This is shown in table 8.10.

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Table 8.10. Conventional Mortgage Loan Ranges, Prince George's County, Maryland, 1974

Income Bracket	Debt-Free Loan Range @ 2 Times Income	Debt-Free Loan Range @ 2½ Times Income
$15,000-$24,999	$ 30,000-$50,000	$ 37,500-$62,500
$25,000-$34,999	$ 50,000-$70,000	$ 62,500-$87,500
$35,000-$49,999	$ 70,000-$100,000	$ 87,500-$125,000
$50,000 and over	$100,000 +	$125,000 +

How to interpret the data: Family incomes in the ranges shown in table 8.10 are considered viable potential new-home purchasers. Most lenders operate within the following guidelines in accepting mortgage loan applicants:

1. Conventional loans are made at two times gross income.
2. The Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation set the guidelines in their underwriting, and 80% to 90% of the lenders use these guidelines so that they can package and sell loans to these two agencies.
3. Another measure used for conventional loans is that 33% of gross family income can be used for PITI (principal, interest, property taxes, insurance) and outstanding debts that have more than six months of payment remaining to be made.
4. FHA and Veterans' Administration (VA) loans are handled under more liberal terms. Loans can be made at 2½ to 3 times gross income.
5. At a $15,400 median family income, a family without debts could qualify for a $31,000 conventional mortgage loan or a $46,000 VA mortgage.

Step 6. Blow up the 45.5% total of income groups considered in table 8.9 to 100%. Table 8.9 shows that 32.1% of all families in Prince George's County had incomes of between $15,000 and $24,999. Altogether, about 45.5% of all families in the country do not have income high enough to be considered potential home buyers. Thus, more than one half of all families do not have income high enough to be considered potential home buyers. Using a universe of families with incomes over $15,000, or 76,000 families (table 8.9), the 45.5% income group is increased to 100%, as shown in table 8.11.

Table 8.11. Conversion of Percentages of Four Categories of Incomes to 100%

Income	Percent of All Families		Converted to Percent
$15,000-$24,999	32.1%	=	70%
$25,000-$34,999	10.3	=	22
$35,000-$49,999	2.5	=	6
$50,000 and over	0.6	=	2
Total	45.5%	=	100%

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

Step 7. Using *Sales Management* data or a finer breakdown of incomes from a county office (or an update from the decennial census), a more detailed breakdown of each income group is derived. The income group and home price (or home loan) ranges have been identified in table 8.10 for either 2 or 2½ times the family income. When the largest group, families making between $15,000 and $24,999 annual income, is broken down, it

is found that the 70% of families in this price range have the potential to qualify for the price range of homes shown in table 8.12.

Table 8.12. Breakdown of $15,000-$24,999 Income Group to Qualify Families for Certain Price Ranges of Homes (using two times income ratio)

Price Range of Homes	Percent of Families in Group Who Could Qualify for These Homes
$30,000-$34,999	23%
$35,000-$39,999	20
$40,000-$44,999	15
$45,000-$49,999	12
Total	70%

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

Step 8. Break down the remaining income groups into various price ranges of homes. The distribution of the price ranges of the homes for which the balance of the income groups could qualify is indicated in table 8.13.

Table 8.13. Percentage of Families Who Could Qualify for Homes in Price Ranges over $50,000 (using two times income ratio)

Income Bracket	Price Range of Homes	Families Who Could Qualify for Homes
$25,000-$34,999	$50,000-$59,999	12%
$35,000-$49,999	$60,000-$69,999	10
$50,000 and over	$70,000 and over	8
Total		30%
Grand total, exhibit 12 and exhibit 13 totals		100%

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

Step 9. Recap the average annual demand and the price ranges. The annual demand for Prince George's County between 1976 and 1980 was estimated at 5,860, or a total of 29,300 for the period. Of this total, the demand for single-family homes was estimated at 19,000, or 3,800 annually. The demand for single-family homes by price ranges is shown in table 8.14.

Table 8.14. Projected Demand for Single-Family Homes by Price Ranges, Prince George's County, Maryland, 1976–1980

Price Range	Percent	Number
$30,000–$34,999	23%	870
$35,000–$39,999	20	760
$40,000–$44,999	15	570
$45,000–$49,999	12	460
$50,000–$59,999	12	460
$60,000–$69,999	10	380
$70,000 and over	8	300
Total	100%	3,800

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

Segmenting the Housing Market by Location

These are the major steps one should undertake to determine the demand for housing in a narrow geographic area.

Step 1. Determine whether or not the market is in balance in the general area in which construction will take place.

Step 2. Determine what types of units are being built and are selling (see table 8.15).

Table 8.15. Types of Units Built and Monthly Sale Rates, 26 Subdivisions, Suburban Township, January 1976

Type of Unit	Percentage Breakdown of Units Built	Cost per Square Foot	Monthly Sale Rates per Subdivision
Two-story	28%	$31.64	4.55
Split-foyer	44	37.36	3.50
Split-level	18	38.59	2.80
Ranch	14	39.78	1.80
Total	100%	$36.36 (average)	3.16 (average)

Source: Michael Sumichrast and Maury Seldin, *Housing Market* (Homewood, Ill.: Dow Jones-Irwin 1977) © 1977, Dow Jones-Irwin.

Step 3. Identify the price range selling (see table 8.16).

Table 8.16. Identification of Price Range Selling, 26 Subdivisions, Suburban Township, January 1976

Average Price	Square Feet in Unit	Cost per Square Foot	Monthly Rate of Sales per Subdivision	Interpretation
$46,933	1,000–1,300	$39.95	4.90	Excellent
$52,200	1,300–1,600	38.58	3.30	Very good
$60,725	1,600–2,000	34.52	4.20	Excellent
$67,740	2,000–2,500	30.48	1.75	Satisfactory
$97,900	2,500 and over	35.92	1.32	Slow

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977) © 1977, Dow Jones-Irwin

Escalating Potential Supply

Analysis of the supply side of the housing market is less complicated than analysis of the demand side. It is not, however, confined simply to the enumeration of the existing structures and their occupancy. Rather, this analysis involves finding out what commitments have been made to development, what constraints there are on future commitments, and what the current market situation is. In analyzing supply, consideration must be given to the general conditions and characteristics of housing and land availability, and to the aspects of supply. Many of these critical components are often ignored in making supply decisions, causing numerous failures.

Most of the information dealing with the general characteristics of housing in a given area is readily available, either through the federal censuses of housing or through local surveys. Overall changes in the total inventory are slow, and the location, size, age, type, and materials used are generally known. As to physical conditions, a personal survey of an area will reveal the degree of deterioration, the condition of streets and public walks, and the appearance of new housing developments.

Housing Starts and Units in the Housing Pipeline

In order to analyze the situation in housing, it is important to have data on the existing inventory. However, it is of little value to know the *exact* status of this inventory. It would also be impracticable; it is too expensive to establish an information system that would continually monitor the exact status of housing. In its Annual Housing surveys the Bureau of the Census now provides information on a sample basis of some 75,000 households.

There are many counties in the United States that, through their planning boards or statistical services, provide some degree of detailed information on the housing inventory. But this still does not answer the question that an investor or a developer must face: What are the chances of being successful in selling or renting new space when the housing to be produced hits the market?

Information on the supply of new housing and on the competition is therefore important. Such information is not shown in either building permits or housing starts. Important as they are, these data represent only a fraction of the actual and projected activity. An excellent illustration of why this is so can be found in table 8.17.

Of the 133,551 proposed housing units, 13,925 were committed construction (8,820 already started and 5,105 in outstanding permits). Another 39,000 could be classified as anticipated production. They fell into the category of the plan review process, had already been approved, or were eligible for sewer and water permits as well as building permits.

Table 8.17. Proposed New Housing Units, Fairfax County, Virginia, January 1975

A. STAGE OF COMPLETION

Stage of Completion	No. of Units	Percentage Distribution of Proposed Units
Under construction	8,820	7.0%
Outstanding building permits, not started	5,105	4.0
Plans approved	12,118	9.0
Plans under review	27,475	21.0
Rezoned recently	7,155	5.0
Rezoning: Likely		0.0
Rezoning: Likelihood uncertain	67,545	50.0
Rezoning: Unlikely		0.0
Rezoning: Recently denied or withdrawn	5,333	4.0
Total units proposed	133,551	100.0%

B. COMPARISON OF PERMIT DATA

	No. of Units
Permits issued, January 1975	104
Permits issued, 1974	4,834
Permits issued, 1975	3,157

Source: A. Fairfax County, Office of Research and Statistics, *Standard Reports*, (May 1975): 1–2. Compiled from the files of the Urban Development Information System, May 1975. B. National Association of Home Builders, Economics Department.

Compare this to the permits actually issued in January 1975 in Fairfax County: 104 single-family units. Or to the 3,157 permits issued for the year 1975, or the 4,834 permits issued for the year 1974.

Thus there is much more in the housing pipeline than the permits or starts data indicate. The analyst wants to know what housing can and will be forthcoming, and when.

Supply Determinants and Constraints. The best statistical series of supply information comes from the building permits office. This, however, is already

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past information, focusing on very near-term construction. The best forward-looking information comes from planning offices, including the county court records of sold land, zoning and rezoning applications, and preliminary submissions of plans for engineering land development work. All of these data are related to future activity and as such are immensely important. They are hard to get and expensive to collect, and they are generally not readily available, but they are valuable.

The market provides a good deal of solid information on what is happening. The most important information is the information on the vacancy of rental units and the inventory of unsold homes. These are the residuals of market forces.

Total Completions versus Unsold Inventory. Another quick look at the current situation uses only two types of data: total completions and unsold new units. These data can be matched up to various parts of a metropolitan area or compared to the data for other areas (see table 8.18).

Table 8.18. Completed and Unsold Units by Geographic Areas, Washington, D.C., SMSA, January 1, 1975

County	Completed Units	Unsold	Percent Unsold	Rating
Fairfax	4,628	1,707	36.8%	High
Loudoun	1,193	573	48.0	Very high
Prince William	760	579	76.2	Extremely high
Prince George's	1,274	609	47.8	Very high
Montgomery	1,551	417	26.8	About normal
Total	9,406	3,885	41.3% (average)	High (average)

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin.

Another way to look at the picture of completed and unsold units is to break down units by type: single family, town houses, and condominiums, as shown in table 8.19.

Table 8.19. Percentage of Unsold Units to Completed Units, Washington, D.C., SMSA, January 1, 1976

Type	Completed Units	Unsold	Percent Unsold	Rating
Single-family detached units	3,756	164	4.4%	Excellent market
Attached units	2,627	473	18.0	Excellent market
Attached condos	750	244	32.5	Medium to bad
Multicondos	3,686	1,689	45.8	Very bad—overbuilding

Source: Michael Sumichrast and Maury Seldin, *Housing Markets* (Homewood, Ill.: Dow Jones-Irwin, 1977). © 1977, Dow Jones-Irwin

The condo market data can be misleading, however. A field examination made it clear that this market was concentrated largely in Alexandria, Virginia (about 80%), but that there was little surplus of condos in Montgomery County.

A good way to measure the strength or weakness of the for-sale market is to examine the time in which the new unsold inventory has been on the market, as in table 8.20.

Measure of the Market by Price Ranges

An analysis of various types of units by price range is presented in table 8.21, which shows the distribution of unsold units by single-family detached units, town

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houses, and condominiums. The condo market in general was in real trouble at the time of the survey, especially in the price categories $27,500-$29,999 and $35,000-$39,999, with a total of 1,368 unsold units. The $22,500-$24,999 category was also very weak, but at least the number of unsold units (236) was relatively low. Even among condos, however, the most expensive ones, selling at over $60,000, did quite well.

Table 8.20. Unsold Inventory of New Single-Family Detached Homes, Washington, D.C., SMSA, 1974-1976

Date	Completions	Unsold Completions	Under 30 Days	30-90 Days	90-180 Days	180-365 Days	Over One Year
1/74	9,284	1,843	375	244	172	542	510
1/75	9,406	[4,368]	958	814	1,239	874	483
1/76	3,756	(235)	23	29	64	48	71
Unsold units as a percent of completions							
1/74		19.9%	4.1%	2.6%	1.8%	5.8%	5.5%
1/75		[46.7]	10.2	8.6	13.2	9.3	5.2
1/76		(6.2)	0.6	0.8	1.7	1.3	1.9

[ ] Weak market. O Strong market.
Source: FHA, *Unsold Inventory Survey* (January 1976).

Table 8.21. Unsold Units, Actual and as a Percentage of Speculatively Built Homes, Washington, D.C., SMSA, January 1975

Price Range	Units			Percent		
	Singles	Town Houses	Condos	Singles	Town Houses	Condos
Under $17,500						
$17,500-$19,999			1			3%
$20,000-$22,499			10			42
$22,500-$24,999			[236]			[92]
$25,000-$27,499	4		320	9%		70
$27,500-$29,999	254	30	[654]	48	22%	[72]
$30,000-$34,999	279	258	969	44	50	76
$35,000-$39,999	[600]	[421]	[714]	[60]	[62]	[81]
$40,000-$44,999	298	281	234	(27)	(33)	67
$45,000-$49,999	356	120	138	53	35	48
$50,000-$59,999	2,094	423	[269]	52	[66]	33
$60,000 and over		193	(145)		46	(24)
Total	3,885	1,726	2,680	49% (average)	48% (average)	63% (average)

O = Good market. [ ] = Weak market. [ ] = Very weak market
Source: FHA, January 1, 1975

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The single-family market was also overbuilt: 49% of all speculatively built units were unsold. However, the $40,000-$44,999 price range was doing quite well, with only 27% of all single-family units unsold. Compare this to the cheaper price range of $35,000-$39,999, which had 60%, or 600, single-family units unsold.

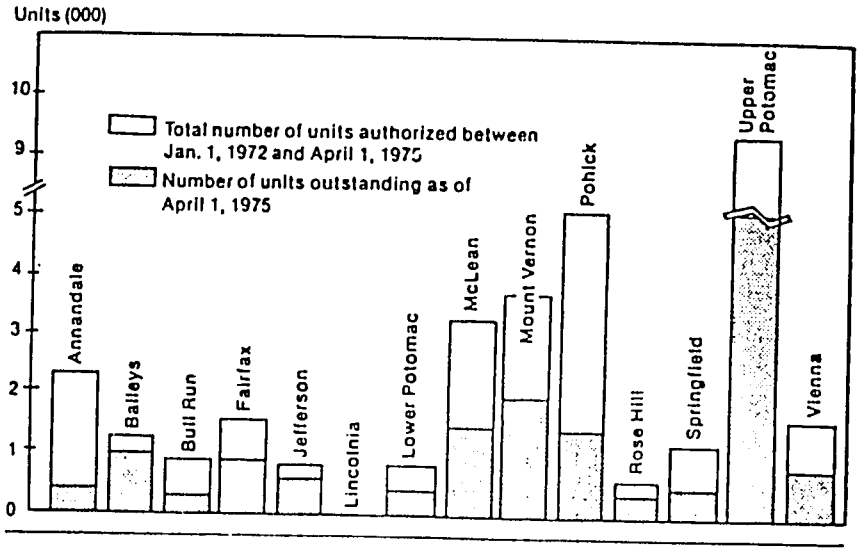
Such a price distribution also gives the analyst a glimpse of the price distribution in the overall market. The absorption rate by price range is a pretty good indication of what should or should not be built. It shows the residual of all market forces.

Pipeline Projections

The projection of units in the pipeline is simply an extension of land-committed analysis. It means getting together in one form all there is to know about the construction and development activity already under way, or in the pipeline.

Units Authorized. Part of this projection shows the number of units permitted in building permits by months, or cumulative for a calendar year. The projection should also show the number of units projected. This information can be presented graphically, perhaps combined with the number of units permitted but outstanding (not used), as shown in figure 8.1 for Fairfax County, Virginia.

Figure 8.1. Building Permit Activity by Planning District, Dwelling Units Authorized and Outstanding, Fairfax County, Virginia, April 1975



Source: Urban Development Information System, series no. 7, vol. 11-13, May 1975

Permits Outstanding. The number of permits authorized but not used is very important in the determination of the total pipeline figure. Figure 8.1 includes this information, and figure 8.2 shows a monthly average of outstanding permits issued in Fairfax County.

Site Plans and Subdivision Plats. Pipeline figures include the number of units in submitted plans that will be competing with the proposed development.

Rezoning Cases Granted and Pending. To round up the total pipeline figure, the rezoning granted must be known, as well as what has been already submitted for rezoning.

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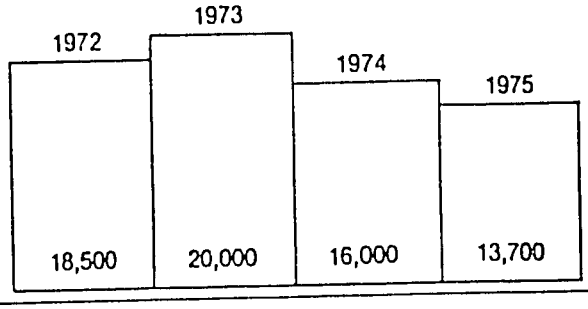
Other Pipeline Indicators. When an area is subject to local, state, or federal restrictions, the whole of future development may be altered. Zoned land cannot be used as an indication of the future, since it may be unusable due to sewer moratoriums or no-growth policies.

Figure 8.2. Monthly Average of Outstanding Units, Fairfax County, Virginia, 1972-1975



Source: Urban Development Information System, October 9, 1975, p. 2-2

Some More Tips on How to Analyze Housing Markets

This section offers some down-to-earth, practical suggestions on what to do and what not to do in undertaking a housing market analysis.

What to Do before Undertaking a Housing Market Analysis

1. **Set up an objective.** Spell out what it is you are trying to accomplish. This objective must be definite, factual, and to the point.
2. **Make a detailed outline.** This outline must be very specific and must include all of the thinking that has gone into setting the objective.
3. **Decide on the scope of the research project.** Here you must decide what data you should get, what information to collect, and what information to leave out.
4. **Determine the time needed to finish the research.** Obviously, time is usually the determining factor in any analysis. If you have only one week, then the outline will reflect that, the amount of data to be collected will depend on it, and so on.
5. **Determine the methodology to be used.** Pick up one or more that you will feel comfortable with. Do you need a "red flag" approach or a full-blown analysis?
6. **Decide who will be doing what.** The distribution of certain tasks is essential. Do not try to do it all yourself. Get some other people to serve as your eyes and ears. This is usually cheaper, and it is many times more fruitful.
7. **Before you start, decide on the format of presentation.** This decision early in the game will save you a lot of headaches later on. You will collect the material with an eye to how it will look in the final paper—instead of deciding on a format at the last minute. Get the information you need, not the information that is easiest to find.

What Kind of Market Analysis to Conduct

Minimum data requirements include

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1. What is selling by type and location
2. What price ranges are selling
3. What is unsold
4. What is head in the pipeline

Time needed to collect: two to four weeks.

This data collection can be done by

1. Relying solely on internal company personnel
2. Using company people plus hiring "scouts" to comparison-shop
3. Hiring a consultant to do it all

When done by the company staff, the cost will involve few, if any, cash outlays. The cost for scouts ranges from under $1,000 to $3,000, and the cost for consultants ranges from $4,000 to $8,000 (both in 1980 dollars). These rates are for relatively typical areas with good public records on pipeline projects. Large or problem projects could double the cost.

Other *essential data* include

1. Economic trends—local
2. Employment opportunities and changes
3. Household formations
4. Income distribution
5. Sale characteristics
6. Buyer characteristics

Time needed: three to six weeks.

The company can collect these data itself, but only if it is already set up to do housing market analysis. If not, a competent analyst should be hired. The cost for a consultant will be $6,000 to $12,000. However, once a basic study has been completed, it is adaptable to other projects, and the cost to update it may be only about half of the initial cost.

Some Points to Remember

1. Do not flood the study with a lot of data.
2. Do not accept any data without checking them. Question all data.
3. Ask: is the source of data questionable? What were the reasons behind the publication?
4. Do not accept press releases without checking further.
5. As a rule, do not accept interpretations of politically oriented groups. If possible, talk to professionals, not politicians.
6. Develop sources that you can trust. Select balanced sources of data.
7. Make sure that the supply, demand, and absorption analyses get a fair share of the study.
8. Use few data rather than many. Make sure you use key information.
9. It is important to get all the critical data. Concentrate efforts on what is really needed, not on what is readily available.

What to Avoid In a Market Research Study

1. Do not attempt to gather more data than you can comfortably digest.
2. Avoid generalities. Do not use flowery words. Make your point clearly and concisely.
3. Do not write a master's thesis. This is not a school exercise.
4. Do not get too ambitious; decide in advance what you really need. It is easy to go on and on without adding to the substance of the report. The researcher does not get paid by the weight of the document; nei-

ther do houses sell or investors get their money back because of a weighty document.

5. Do not spend more than has been budgeted. Keep costs down and under control.
6. Avoid repetitions. Avoid repetitions. Avoid repetitions.
7. Avoid foldout tables; they are costly and hard to read.
8. Spell out the proper source of the data, with clear identification for future reference. Credit the people who supply you with data.
9. Avoid personal references and prejudices.
10. Ask yourself this about the information:
    a. Does it make sense?
    b. Does it fit a pattern?
    c. Is it complete?
    d. Is it a part of an established trend?
    e. Do other data verify this trend?

What to Watch Out for in Collecting Housing Data

1. Permits.
    a. Are permits issued for one unit or one structure of several units?
    b. Are permits issued for residential or nonresidential purposes?
    c. What is the type of housing: single-family detached, attached (town house), condominium, rental?
    d. What is the type of structure: low-rise, midrise, high-rise?
    e. For a large project, was the permit actually used, or is it still outstanding? If it was not used, determine why, and estimate when it will be used.
    f. Check the indicated price. Typically, price figures are incorrect, with a tendency to underestimate the actual price by 30% to 40%.
2. Production.
    a. Starts data can be accepted from the U.S. census or from state o. local governments.
    b. The only *real* way of knowing starts data, however, is by checking the excavations or foundations poured or possibly the clearing of the site or demolition.
    c. Data on units under construction—national and regional—can be accepted as supplied by the Bureau of the Census.
    d. FHA surveys cover only medium and large projects, not total units.
    e. Utility companies may have the best information on both starts and units under construction, as well as completions.
    f. For data on completions, use utility company installations of meters for gas, electric, or water hookups.
3. Vacant units.
    a. Sold signs in the windows may not indicate that the unit has actually been sold. Pins in the sales office indicating sold units may or may not represent the true picture.
    b. Check unsold inventory with the FHA office or lenders; get a feel for the market.
    c. Do *not* trust the FHA post office vacancy survey. Check with FHA personnel and let them explain the problems and pitfalls. Check previous surveys: Do they make sense?
    d. Check with local home builders' associations for unsold homes.
    e. Check with builder-owner management associations for information on rental vacancies. Also, large management companies

know what the situation is.

4. Pipeline figures.
   a. Make sure you know what the "pipeline" means—units which will be coming on the market and competing when a project gets under way and runs through sellout.
   b. Check with a planning board or a county housing expert.
   c. Do not accept generalities such as "X number of units ready to get under construction." Ask for specific names, location, types, and dates.
   d. Check with financial institutions: applications for loans, FHA loan activity, and subdivision plans.
5. Costs and prices.
   a. Check local cost data with local home builders' associations or with the National Association of Home Builders in Washington. NAHB provides cost information broken down to 25 basic cost items for some 400 cities.
   b. The FHA has a great deal of cost information, as does the Farmers Home Administration and the VA.
   c. Know whether you are getting an average price or a median price. There is quite a bit of difference.
   d. Multiple listings and sales figures provide a good information source for the sale of existing homes. Distinguish between offered price, accepted price, and closing price. They are generally all different.
   e. Get price ranges rather than averages. The price distribution is more important than the average or the median, which really mean little to your work. If you need it, figure the median yourself, or make sure that your number is right.
   f. Other cost information is available from the American Appraisal Company, E. H. Boeckh, the FHA, the VA, and others.

Conclusion

These tips on how to analyze housing markets are based on substantial experience and a theoretical framework for understanding how the housing system works. The best advice that can be given to those who have housing decisions to make is to get the proper analyses conducted and to understand thoroughly how these analyses fit into the decision-making strategy. This requires:

1. An understanding of how the housing system works. The decision-makers and analysts should have a sound understanding of the theoretical framework.
2. An understanding of one's own experience. Why did things work out well in the past, or why were there difficulties? Understanding past experience is important if one is to benefit from it.
3. An application of both the experience and the theoretical framework to the new situation. New situations require getting new facts. *Do not stint on getting the data;* it is expensive not to know what is really happening. But in addition to having the facts, it is important to relate them to the current situation and the rapidly changing environment.

Finally, watch the housing market environment. This is best done by forecasting changing conditions and having something to gauge events by. If you have a good idea of what to expect, you will have ample opportunity to make money by serving housing needs. If you watch events as they materialize and compare them with your plans, a proper strategy will keep you from losing your assets.

3

Jordan's Economic Performance and Development Strategy

from USAID Project Paper for HG-004

II. ECONOMIC DEVELOPMENT AND POLICY CONTEXT

A. BACKGROUND

1. Jordan's Economic Performance and Development Strategy

Fuelled by growing levels of remittances from the some 350,000 Jordanians working abroad and by high levels of Arab donor aid, Jordan's economy expanded rapidly in the 1970's and early 1980's. Remittances stimulated both growing levels of consumption plus substantial investments in housing which, in turn, spurred the rapid development of a construction materials industry. Arab donor aid provided budget support for both current expenditure and Jordan's ambitious development budgets. Since the sharp drop in Arab oil earnings in 1981, remittances have become increasingly unpredictable. Unrequited transfers, predominantly Arab grant aid stood at $ 588 million in 1987 as compared with $ 1,338 million in 1980.

In response to reduced Arab donor aid, Jordan at first expanded domestic revenue collections and curtailed growth in overall government expenditures. More recently the government has raised expenditure levels to stimulate the economy. Total government expenditures rose sharply by 12% in 1985 and 22% in 1986. While the 1987 increase was a modest 2.8%, the 1988 budget forecasts 6.6% growth in expenditures a considerable boost to aggregate demand considering that inflation is virtually zero. Increases in domestic revenue collections have not been sufficient to offset rising expenditures and falling foreign donor budget grant aid. As a result, the deficit (after including foreign grant aid) reached some 16% of GNP in 1986 and 1987. The deficit has been largely financed through government (including that from the Central Bank) rose 52% and M2, the broadest measure of money supply, increased by 14% over 1986.

Depressed economic conditions in the region coupled with continued low world commodity prices for Jordan's mineral exports adversely affected the performance of Jordan's external sector which represents 38% of GNP. In the past several years, government spending has provided a key boost to growth, offsetting to some extent the stagnation in exports and lagging workers' remittances. As a result of slowing remittances and poor export performance, GDP annual rate of growth has remained at less than 3% since 1983.

Lower world oil prices, reduced private consumption, lowered investment, and consumers' expectations of continued hard times have all led to a compression in imports. From a peak of $3.2 billion in 1982, merchandise imports fell by a quarter to $2.4 billion in 1986, but exports expanded in 1987 and the downward trend in Jordan's trade deficit was reversed. There is a major structural imbalance in Jordan's external accounts: exports of domestic goods cover only 25-30% of Jordan's merchandise import bill. The need to finance current account deficits in the range of $250-350 million annually not only caused a rapid drawdown on Jordan's foreign exchange reserves but also resulted in a dramatic rise in foreign debt. In 1980, Jordan's external public debt totalled $1241 million equivalent to two-thirds of GNP. A significantly large portion of this increased debt is now on harder, commercial terms. Borrowings from foreign banks and other commercial sources now comprise 37% of total foreign debt as against only 17% in 1982. Debt service is escalating rapidly, and at $564 million in 1987 is more than double the level of $242 million three years ago. As remittances and foreign aid declined, Jordan continues to face a foreign exchange shortage. Official foreign exchange reserves have sunk even further to $186 million. In the face of the dwindling foreign exchange reseves, Jordan has abandoned its official peg to the SDR and allowed the dinar to depreciate some 16% against the SDR since December 1986. Jordan's debt service ratio rose from a level of 7.4% of goods and services exports (including workers' remittances) in 1983 to 17.5% in 1987.

One important measure of Jordan's need for external financing is the goods and services deficit which must be financed by a combination of grant aid, foreign borrowings, and drawdowns on foreign exchange reserves. Between 1982 and 1986 this deficit was reduced very substantially from $1395 million to $726 million. In 1987, due to the reverse in imports and decline in workers' remittances, the goods and services deficit rose by $212 million to $938 million.

Despite the possibility of some increased aid and trade for Jordan from peace between Iraq and Iran, the outlook for the Jordanian economy is gloomy. Unemployment is rising inexorably in the face of labor force increases of 4-5% per annum. Prospects for the exports and remittances remain dim as the recession continues in the Middle East and global overcapacity in phosphates keeps world prices low for Jordan's fertilizer exports.

The policy of bolstering aggregate demand by maintaining high levels of government expenditure cannot be continued, given the liquidity overhang this policy has caused and Jordan's rapidly mounting debt service burden. The leeway once provided by ample foreign exchange reserves has recently greatly narrowed, coupled with rapidly expanding debt, and an increasing portion contracted on harder, commercial terms, Jordan cannot afford to borrow on the international capital market without jeopardizing its external position to reaching irreversible limits. The Housing Guaranty Loan provides free foreign exchange for the Jordanian Government, and at a time of very low levels of reserves, is a welcome prospect. Also the HG loan may be more desirable than a syndicated loan due to the fact that the former has longer maturity. This is particularly true in light of the limited prospects for the Jordanian economy.

2. The Role of the Shelter in Jordan's Development

The widespread distribution of remittances from Jordanians working in the oil producing countries, the importance that Arab families place on homeownership and the lack of viable investment alternatives have translated Jordan's recent economic prosperity into a housing boom that begun in 1973, reached its peak in real terms in 1982 and only recently began to subside. Annual housing investment in current prices rose steadily from JD59.3 million (roughly $160 million) in 1975 to JD160 million ($432 million) in 1984 and then dropped somewhat to JD140 million ($378 million) in 1985. Total housing investment during the 1981-1985 Plan period was JD 792 million ($2,138 million). A total of some 108,000 housing units were built with the private sector responsible for construction of roughly 90% of these units.

In terms of its size relative to total gross fixed capital formation, housing constitutes one of the most (if not the most) important sectors in the Jordanian economy. During the decade from 1975 to 1985, annual investments in housing construction averaged roughly 30% of gross fixed capital formation and comprised 30% of all actual investments during the 1981-1985 Plan period. The importance of housing in the overall economy can also be seen through its multiplier effects, which for low income, owner-built housing is around 1.96, ranking fifth among all sectors.

Slower economic growth, reduced employment opportunities for Jordanians to work abroad and increased output from the educational system will produce increasingly higher rates of unemployment in Jordan in the near future. The 1986-1990 Plan therefore, places great emphasis on employment and wage policies and on the creation of new jobs. Although the housing sector will not be a major creator of new employment the Plan calls for an annual growth of 4% in the construction sector and the generation of 12,300 jobs.

A conservative estimate of future housing needs based on analysis using the Housing Needs Assessment Model shows that the total number of housing units to be produced in 1991 is around 22,380 units. There will be a continued need for significant resources from the GOJ budget to provide necessary tertiary infrastructure to accommodate housing development and to support ongoing government housing programs (eg. UDD, Housing Corporation, Military Housing Corporation, etc.).

3. Consistency of this Program with USAID/Jordan Development Strategy

USAID's early efforts in housing and urban development in Jordan primarily included the funding of advisors to several planning projects, the execution of an Urban Development Assessment, and the formal US-based training of Jordanian professionals in housing and planning.

More recently USAID has made substantial investments in large-scale water and wastewater projects for a number of Jordan's major urban centers. USAID's contributions to these projects during the period 1981 - 1984 represented approximately 60% of its total funding level.

A Housing Guaranty Program was added to USAID's activities in 1986 with a total of $50 million authorized as of September 1987. The purpose of this program is to stimulate the production of low-income housing units by private developers and to support mortgage financing for low-income families by the Jordan Housing Bank.

Most recently USAID has funded the development of a National Housing Strategy which was undertaken in collaboration with the Ministry of Planning.

The proposed sector program approach for the Housing Guaranty Program in Jordan fully supports the current Country Development Strategy Statement (CDSS) which calls for a major shift away from large-scale, capital-intensive public infrastructure projects towards activities that will help the Government restructure its economy to provide greater incentives and resources for private sector investment and domestic job creation.

The sector program approach represents a logical continuation of USAID's recent developmental efforts in both the urban and housing sectors. In particular, it will support and continue the broad-based policy dialogue that has been established with the GOJ as a result of the current Housing Guaranty Program and the development and review of the National Housing Strategy.

A policy-related sector approach will provide additional support to several major policy dialogue initiatives that USAID/Jordan has been conducting with the GOJ. The new program will:

. lend support to land-related policy recommendations that will promote more efficient use of existing urban infrastructure (partially financed by USAID) and better cost recovery,

. help remove some of the existing impediments and/or constraints that small scale private housing developers face in setting up business and/or entering into the low-income market, and

. add support to USAID's efforts to help liberalize financial markets.

Recent policy successes have been achieved in removing constraints to business establishment and in liberalizing financial markets. A package of new measures to simplify business licensing and registration, reduce protectionism, encourage investment and promote exports were introduced in August 1988.

Up until June 6, 1988 a ceiling on lending rates prevailed in Jordan resulting in financial institutions lending only to the most established of clients on a collateral basis. The interest rate policy followed by the Central Bank of Jordan until recently has affected the spreads between borrowing and lending rates and thus profitability of the financial sector. The financial sector operated under a fairly detailed interest rate structure where ceilings on both lending and deposit rates by instruments and institutions were fixed by the Government. Competition for deposits within the sector between banks coupled with the theoretical restrictions on transfer of funds abroad pushed the effective deposit rate close to the ceiling. Together with the ceiling on lending rates, the spread between lending and borrowing rates were reduced, thus curtailing the profitability of the financial system.

On June 6, 1988, the Central Bank of Jordan issued new regulations pertaining to interest rates. Whereas the ceiling on lending rates remained the same, all financial institutions are now at liberty to charge any rate of commission they deem necessary. This has in effect liberalized lending rates. As far as deposits are concerned, ceilings on certificates of deposits of JD 1000 or more and of duration of three months or more have been removed. However, and for the purpose of information, the Central Bank of Jordan requires the banks to submit, at the end of each week, the maximum commission rate taken on direct credit. With these recent changes, banks can charge more for riskier or costlier lending.

4. Existing GOJ Policies and Programs in the Sector

The rapid population growth and urbanization that occured in Jordan during the 1970's created a number of problems in the housing sector that were further exacerbated by the impact of refugee influxes from the West Bank, rapid increases in the prices of urban residential land, higher costs for building materials and a significant rise in the cost of living. While there was considerable investment in housing for middle and higher income families, a widening gap between supply and demand developed for housing for lower income groups. Aware of this situation, the Government enacted several institutional measures to be better able to provide housing opportunities for specific population groups and lower income families:

. The Housing Corporation was established in 1966 and began actual construction of its first housing projects in 1969. Since then it has built some 20000 units mostly for government employees and for lower income families in rural areas. Despite good intentions, the units produced by the Housing Corporation are costly and have required a growing amount of government subsidy in order to be affordable to target group beneficiaries.

. The Housing Bank was established in 1974 to provide finance for housing.

. Housing and in most cases housing finance has been provided by the Military Housing Corporation established in 1969 and by the Jordan Valley Authority which began operations in 1972. The Military Housing Corporation currently provides housing loans to soldiers departing from the Army, Air Force and Public Security after 16 to 20 years of service.

. In 1980 the first Urban Development Project was started with a loan from the World Bank to provide improved shelter and associated services for low income households in the Amman area. Projects are now being planned for other municipalities as well.

. In 1980, a World Bank loan was granted to support the newly created Cities and Villages Development Bank. The CVDB makes loans to municipalities and villages to increase their capacity to provide urban services to their populations.

. Finally, the GOJ has made major investments in many urban areas to improve the availability of potable water, electricity, sewerage and access roads.

Although all of these measures have improved housing conditions and infrastructure for a large number of Jordanian families, the sector continues to be plagued by a lack of institutional coordination and insufficient efforts to assist lower income families. Increases in land and construction costs and inflexibility in the laws and regulations concerning plot subdivisions effectively have excluded a significant portion of poorer families from obtaining affordable shelter.

5. Investment Resources

All evidence suggests that housing investment depends to a great extent on remittances from Jordanians working abroad. Previous studies have shown that up to 25% of these remittance are used to finance the purchase of land and the construction of housing. Given that recorded remittances for the period 1980-1985 reached JD 2,197.2 million ($5,932.44 million), the amount of remittances going into land and housing construction would have been roughly JD 554 million ($1,495.80 million), equivalent to 62% of total housing investment for the same period.

The current Development Plan forecasts housing investments of JD 518 million ($1,399 million). This amount is sufficient to meet projected housing needs provided there are reductions in housing standards and costs to meet demand for low income housing.

No substantial amount of additional investment by the GOJ is required by this Housing Guaranty Program. The intention of the program is to establish a comprehensive set of policy measures that will enable the government to more efficiently use previous investments in infrastructure and to direct private sector investment towards housing for lower income families. A reordering of priorities in the provision of tertiary infrastructure may be required in order to service housing areas where greater demand exists.

6. Target Population

A primary purpose of the Housing Guaranty Program is to support the implementation of the National Housing Strategy. The recommendations of this Strategy are designed to benefit all Jordanians although a particular emphasis is placed on making housing more affordable to low and moderate income families.

Objectives of the National Housing Strategy specifically aimed at low income families include:

. provide adequate affordable housing for all income groups with minimum recourse to direct or indirect subsidies,

. develop a precisely targeted program for serving the minimum shelter needs of the lowest income groups,

. increase the flow of resources to lower income groups through formal and informal channels, and

. improve the efficiency of urban land markets in each major town so that land ceases to be a constraint to lower income households wishing to build the first stage of a complete house.

As for all Housing Guaranty Programs, the target group includes households with less than the median income. Results from the 1986 National Housing Survey indicate that median monthly household incomes for Greater Amman, Other Urban Areas and Rural Areas are JD268, JD201 and JD174 respectively.

The share of household income devoted to housing ranged from 26.5% to 17.8% in Greater Amman, from 26.8% to 17.7% in other urban areas and 20% to 15% in rural areas. Within the last few years, most of the completely new residential buildings have been built on land that was bought several years earlier when land prices were considerably lower. Building additional floors on existing units is also quite common and one way to minimize land costs.

The National Housing Survey found that in Greater Amman, no household earning less than JD 100 per month expressed interest in buying or building a new housing unit. Roughly two thirds of those households between the 10th and 30th income percentile answered that they would be willing to spend JD 10,000 or more on a new unit, while roughly half the households between the 30th and 70th percentiles would be willing to pay JD 15,000 or more. In Other Urban areas, 50% of households earning between 20th and 50th percentile were willing to spend between JD 400 and JD 7,000 for a new unit. These responses point out the willingness of families to pay more for housing than indicated by their incomes and the potential availability of additional financial resources once the prospect of a new housing unit becomes a reality.

Despite these potential resources, the high threshold cost of residential land remains a critical problem for low and middle income households. This Housing Guaranty Program specifically addresses the land cost problem by seeking to have a greater number of smaller sized plots placed on the market.

4

Housing Needs Assessment Model: Annex 1

by the Shelter Unit, Ministry of Planning
National Housing Strategy
Technical Memorandum Number 5

ANNEX I

STRUCTURING DATA FOR USE IN THE MODEL

A. INTRODUCTION

The Housing Needs Assessment Model can treat up to three distinct geographical disaggregations. For Jordan, these have been established as:

- o <u>Greater Amman</u> defined as all urban and rural settlements within geographical boundary of Greater Amman shown by the accompanying map.

- o <u>Other Urban:</u> including all localities identified as "urban" by the Department of Statistics for the 1979 Census; there were 41 of these localities in the East Bank of Jordan at the time of the 1979 Census whose population was 5000 or more; and

- o <u>Rural</u> including all remaining settlements that have not been counted as part of Greater Amman or Other Urban areas.

The year 1986 has been established as the base year for all data inputs.

Any assessment of physical housing needs must include an analysis of two broad categories;

- <u>existing housing needs</u> including housing that requires upgrading or replacement and any additional dwellings needed to reduce existing overcrowded conditions; and

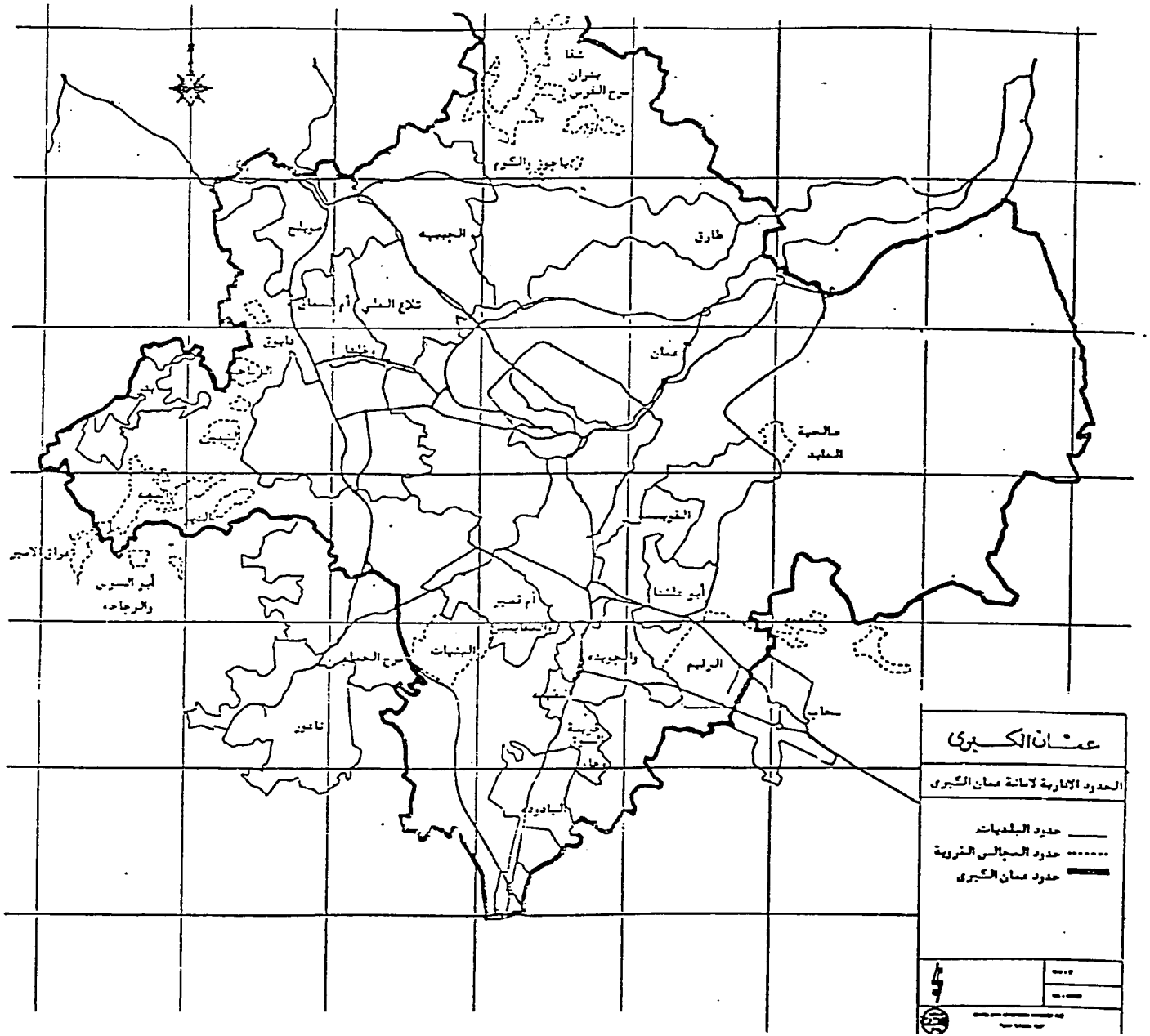
- <u>new housing needs</u> expected to arise during the planning period as the result of population growth and the decay of the existing housing stock.

The Model estimates housing needs from these two categories and the capital investment required to meet them. Calculations are made using variables from the following five data sets:

- o population growth and household formation
- o condition of the existing housing stock
- o household income and its distribution
- o housing affordability and the cost of capital
- o housing standards and costs.

All inputs needed to run the Housing Needs Assessment Model can be found in these data sets.

GREATER AMMAN BOUNDARY



The remainder of this note will deal with each data set in greater detail. The Model can be used continuously throughout the planning process to present a better "picture" of the existing housing situation and projected housing needs. It is a relatively simple tool to help measure performance in the housing sector and to estimate government efforts and subsidies required to improve all housing to minimum standards.

B. POPULATION GROWTH AND HOUSEHOLD FORMATION

Population is the principal element in assessing housing needs. This is based on the fact that the majority of new housing needs and demand are determined by the overall growth in population and the rates of household formation. Since the original Housing Needs Assessment Model technical memorandum, the Shelter Unit has obtained national population projections from the Department of Statistics based on (a) forecasts of natural increase and (b) natural increase plus migration assumptions. These figures are as follows:

	Natural increase only	NI + migration assumption
1986-90	3.3	3.8
1991-95	3.1	3.6
1996-2000	2.9	3.4
2001-2005	2.7	3.2

At this point in time D.O.S. has no information on growth rates by urban/ rural divisions so that the national figures have been used in the model. It has been decided to use the natural increase figures in the Base Case and the higher rates assuming in-migration as a sensitivity test. The Base Case forecasts are as follows, therefore;

Area	Population				
	1986	1991	1996	2001	2006
Greater Amman	974.6	1146.1	1335.2	1540.3	1759.7
Other Urban	1045.2	1229.1	1432.0	1651.9	1887.1
Rural	762.8	897.0	1045.0	1205.6	1377.3
Total	2782.6	3272.2	3812.2	4397.8	5024.1

To establish trends in household formation, an average household size in Greater Amman, Other Urban and Rural areas was determined from the National Household Survey. The 1986 figures are 6.9 for Greater Amman, 7.0 for Other Urban areas and 7.6 for Rural areas. Since these figures indicate an increase in average household size in all areas since the 1979 census, it is difficult to predict changes in average household over the planning period. The 1986 figures are held constant over the planning period in the Base Case, therefore. In a sensitivity test, a lower 1986 household size and declining household size over time is tested.

C. CONDITION OF THE EXISTING HOUSING STOCK

Estimates of the occupied housing stock in the base year 1986 were obtained from the estimated number of households divided by the ratio of households to housing units found in the 1979 census (1.013). The results are as follows:

	Greater Amman	Other Urban	Rural	Total
Population	974.6	1045.2	762.8	2782.6
Household size	6.9	7.0	7.6	
Households	141.2	149.3	99.1	390.84
Occupied Housing Stock	139.4	147.4	99.1	385.8

An assessment of the condition of the existing housing stock was made to estimate both present and future housing needs. Results were provided for each of the three geographic areas; Greater Amman, Other Urban and Rural. Housing stock in the base year 1986 is divided into three principal categories: "Acceptable", Upgradable" and "Non-upgradable". Modifications to the definition of these categories have been made based on the National Household Survey and recommendations of the Rural Housing subcontract. The revised definitions are as follows:

Acceptable Housing Units

These units meet the minimum standards for infrastructure services and housing construction. They are connected to public water supply and sewage/ septic tank facilities and the walls and roof are build of durable and relatively permanent materials such as cut stone, reinforced concrete frame or cement block.

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- Upgradable Housing Units

These units meet the minimum construction standards for acceptable units but fail to meet the minimum standards for infrastructure. In urban areas the housing units do not have piped in water and/or electricity and/or a public sewage line/ septic tank.

In rural areas they include adequately built units that do not have piped in water and/or electricity and/or sewage/septic tank and/or have a zinc or mud roof.

- Non-Upgradable Housing Units

In urban areas these units are either marginal, mobile or made of mud or rubble stones as defined in the 1979 census.

In rural areas it is assumed that only rubble stone units are upgraded, since there are very few traditional mud units and any new mud construction would be of better quality using new techniques. In fact not all rubble stone units would be upgraded since many of the currently vacant rubble stone units have been permanently abandoned or converted to other uses.

1. Distribution of housing units by category for 1986

Tabulation of units by the quality categories listed above, prepared from the 1986 National Household Survey data, and past housing category trends are summarized in Table A.1.

2. Building decay rates

Annual building decay rates for acceptable housing units in each of the three geographic areas were initially estimated based on data from the 1961 and 1979 censuses. For each region, the total decay rate was determined by subtracting the number of housing units existing in 1961 and still standing in 1979, from the existing number of housing units in 1961. The result was then divided by the number of units existing in 1961. To determine the annual decay rate, the total rate was divided by 18, the number of years between 1961 and 1979 and then multiplied by 100 to give a percentage figure.

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TABLE : A1
EAST BANK HOUSING STOCK - DATA FOR 1961, 1979 AND ESTIMATES FOR 1986

Distribution of the housing stock by types of building materials	YEAR 1961 (from census data)		YEAR 1979 (from census data)		YEAR MID-1986 (estimated)	
	Number	%	Number	%	Number	%
PERMANENT						
• Greater Amman	38182	23.73	129642	34.40	157144	34.26
• Other Urban	12492	7.76	75673	20.08	163033	35.54
• Rural	47722	29.66	124888	33.14	111167	24.24
TOTAL	**98396**	**61.15**	**330203**	**87.63**	**431344**	**94.04**
MUD/RUBBLE STONE						
• Greater Amman	2457	1.53	1732	0.46	917	0.20
• Other Urban	10574	6.57	8870	2.35	7906	1.72
• Rural	21226	13.19	22055	5.85	9108	1.99
TOTAL	**34257**	**21.29**	**32657**	**8.67**	**17931**	**3.91**
MARGINAL/MOBILE						
• Greater Amman	1506	0.94	744	0.20	1583	0.35
• Other Urban	1038	0.65	1228	0.33	3369	0.73
• Rural	25721	15.98	11990	3.18	4492	0.98
TOTAL	**28265**	**17.56**	**13962**	**3.71**	**9443**	**2.06**
TOTAL CONVENTIONAL						
• Greater Amman	40639	25.25	131374	34.86	158061	34.46
• Other Urban	23066	14.33	84543	22.44	170939	37.27
• Rural	68948	42.85	146943	39.00	120275	26.22
TOTAL	**132653**	**82.44**	**353865**	**93.91**	**449275**	**97.95**
TOTAL HOUSING						
• Greater Amman	42145	26.19	132118	35.06	158252	34.50
• Other Urban	24104	14.98	85771	22.76	175682	38.30
• Rural	94669	58.83	158933	42.18	124766	27.20
TOTAL	**160918**	**100.00**	**376822**	**100.00**	**458700**	**100.00**

NOTES:

- A permanent housing unit is one which is built of solid materials such as cut stone, reinforced concrete or cement block. (Census definition)
- A marginal housing unit is either a barracks building, hut or cave. (Census definition)
- A mobile housing unit is a tent, hairtent, ship or caravan. (Census definition)
- A conventional housing unit is a villa, apartment unit or dar made of permanent materials, rubble stone or mud block. (Census definition)
- Numbers in the table reflect the change in the Department of Statistics' definition for urban and rural areas that occured between 1979 and 1986.

- Source of information. Census of Population and Housing, Jordan 1961, 1979; 1986 National Household Survey

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Total decay rate is determined is as follows:

$$\text{Total Decay Rate} = \frac{\text{Housing Stock in 1961} - \text{Housing Stock Built Before 1961 and still standing in 1979}}{\text{Housing Stock in 1961}}$$

The annual decay rate is determined as follows:

$$\text{Annual Decay Rate} = \frac{\text{Total decay rate} \times 100}{18 \text{ years}}$$

Annual decay rates for acceptable and upgradable housing in the three geographical areas were calculated for urban and rural areas based on weighted averages. For acceptable housing in Greater Amman and Other Urban areas the rate was determined to be 0.5% and for Rural areas, 2.77 percent. For upgradable units rates were established respectively as 1.87% and 3.30%. The decay rate for acceptable units in rural areas was changed to 1 percent in light of the very substantial improvement in the rural stock in recent years, shown by the results of National Household Survey. No decay rates are presented for non-upgradable units since it is assumed that all of these will eventually be replaced.

3. Overcrowding

The 1979 Census indicated that on the average, 1.013 households lived in each housing unit. This figure was first of all used to make an initial estimate of the 1986 housing stock; the number of households was divided by 1.013 to determine the number of housing units. Additional housing units needs to reduce overcrowding were then calculated as 1.3% of the total.

5. Vacancies

To avoid underestimating the number of housing units to be upgraded, the Model automatically assumes that all the vacant housing units are in the "acceptable" category. In addition, the Model only deals with the occupied housing stock. As a consequence, the 18% of the housing stock indicated by the 1979 Census to be unoccupied is ignored in updating figures to 1986.

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6. Assumptions about improving the housing stock

Substandard units in the base year are assumed to be upgraded or replaced over the 20 year planning period at 5% per annum. The model assumes that there will be no new overcrowded units after 1986 and that no new substandard units will be added to the housing stock after 1986.

D. HOUSEHOLD INCOME AND ITS DISTRIBUTION

Household income data and distribution is taken from the National Household Survey for Greater Amman, Other Urban and Rural areas. It is frequently the case that households do not disclose their full incomes in responding to household surveys. Therefore, a comparison was made with private consumption expenditures as reported in the National Income Accounts in order to double check the above figures. This comparison showed that total private consumption expenditure is substantially greater than the total household income found when the average household income is multiplied by the total number of households. It can be assumed therefore, that income figures from surveys are considerably under reported.

In order to adjust for the under-reporting of income, the following formula was applied:

$$\text{\% under reported} = \frac{PCE - THHY}{THHY} \times 100$$

Where: PCE = Private consumption expenditure in the study area
THHY = Total household income

The degree of under-reporting income therefore was found to be 33.8%. This yields the following adjusted monthly and annual household income figures for 1986:

	Greater Amman	Other Urban	Rural
Monthly income	JD. 375	JD. 283	JD. 223
Annual income	JD. 4500	JD. 3400	JD. 2800

2. Distribution of income shares by quintile for Greater Amman, Other Urban and Rural areas

The distribution of income by quintile was based on the National Household Survey results of 1986 and are expressed as percentages of total household income. In the Base Case scenario it has been assumed that they will remain constant throughout the planning period. The income shares by quintile assumed are as follows:

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Income share by quintile

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Greater Amman	6.5	10.5	14.0	20.2	48.4
Other Urban	6.8	11.2	15.3	21.1	45.5
Rural	8.0	12.5	15.8	21.0	42.7

3. Rural share of GNP

Data for the years 1991-2006 were manipulated in order to arrive at an overall income growth rate for both urban and rural areas that remained relatively constant over the planning period. Values were selected that would maintain the differences between urban and rural incomes present in 1986 and not allow them to increase. The rural share of GNP was determined as follows:

$$Rs = \frac{Ry}{Ry + Gy + Uy} \times 100$$

Where:
- Rs = Rural share (%) of total GNP
- Ry = Total income of Rural households
- Gy = Total income of Greater Amman households
- Uy = Total income of Other Urban households

4. Income projections during the planning period

In establishing the Base Case scenario, national income has been assumed to increase during each respective five-year planning period by 5.0%, based on the Third Five Year Plan, 1986-90.

E. HOUSING AFFORDABILITY AND THE COST OF CAPITAL

Housing affordability during the planning period depends on:

- household incomes in 1986
- projections of national GNP real growth rates over the planning period
- share of household income devoted to housing
- general inflation levels
- minimum housing standards and cost levels for 1986
- construction inflation
- terms of housing finance.

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Household incomes in 1986 and the projections for GNP growth rates have already been discussed in this note. Minimum housing standards and cost levels will be presented in the following section. Consequently this part of the note will now look at the share of household income devoted to housing, general inflation rates, construction inflation and terms of housing finance.

1. Share of household income devoted to housing

The share of income that households actually are or are willing to devote to housing was obtained from the National Household Survey by analysing figures for those moving during the last five years to get better information on home owner mortgage payments.

The rural share of income devoted to housing is adjusted because the National Housing Survey indicated that there is only a small proportion of owners who have mortgages. Since the great majority of rural households are owners, the lack of expenditures on a flow basis for housing causes the expenditures figures to understate the households' ability to pay for housing. Consequently the results were adjusted to be 20% of the lower three quintiles and 15% for the highest two quintiles.

Recurring expenses were taken from the data in the National Household Survey. This includes property taxes and maintenance costs. Results from the survey showed different rates ranging from 9.2% to 38% of total housing expenses.

2. General inflation

The overall annual price inflation was taken to be 5% during of the planning periods, based on the Third Five Year Plan. The sensitivity of the Model's results to these estimates can be achieved by running several simulations with varying inflation rates. Given the present economic situation in Jordan, 5% was considered a good approximation.

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3. Construction inflation

To arrive at a reasonable approximation of construction inflation, information on housing costs was analyzed in terms of its three major elements: land, infrastructure and construction. Changes in costs between 1980 and 1984 were evaluated. In order to calculate a rate for construction, the following formula was used:

$$Rci = (Lp \times S1) + (Cp \times Sc)$$

Where Rci = annual percentage for residential construction inflation
Lp = annula percentage change in the price of serviced land
S1 = weight applied to Lp
Cp = annual percentage change in construction cost per m2
Sc = weight applied to Cp

Note: S1 + Sc = 1
Lp includes land and infrastructure

The relationship between the consumer price index, CPI, and the residential construction index, RCI, is important because projection for the CPI are available from other sources. In most countries, there is a reasonably stable relationship between CPI and RCI. Based on available data, this relationship was determined for the 1980-1984 period which could then be applied to future years. On this basis, a 5.0% rate for construction inflation was set for the planning period. This figure has been corroborated by the findings of the subcontract on "Housing Construction Costs and Technologies", undertaken for the Shelter Unit.

4. Terms of housing finance

The following approach was used to determine interest rates. the interest rate of 8.5% actually used by the Housing Bank for households with modest incomes was applied to the lowest to the lowest four quintiles. The Housing Bank rate of 10.5% for commercial loans was used for the highest quintile.

The loan repayment period for all quintiles was taken to be 15 years, reflecting existing average loan repayment periods.

Concerning downpayments, 25% of the total housing unit cost (including land, infrastructure and construction) has been adopted as a reasonable down payment for all quintiles. Percentage downpayments were based on present requirements of the Housing Bank. Downpayments includes the value of the serviced plot plus 25% of the construction cost.

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F. HOUSING STANDARDS AND COSTS

Minimum housing standards and costs have been established in order to estimate the investments required to improve housing for the entire population to these standards. Minimum standards for an acceptable dwelling unit are however, very difficult to determine. Careful consideration must be given to what is really "minimum". At the same time, projected total housing investment is very sensitive to changes in these definitions.

In establishing inputs for the Base Case, the minimum standards for a "complete" housing unit were defined as a covered area of 70 m2 on a fully serviced plot of 150 m2. All infrastructure services including piped water supply and public sewerage connections are provided. This has been defined as Cost Level 3; (see Figure 1).

A core unit of 15m2 was used in the Base Case which includes the construction of a sanitary core plus one habitable room. The net plot size is 150m2 and the plot is fully serviced. This has been defined as Cost Level 2.

Upgrading a deficient housing unit to a minimum standard requires the installation of infrastructure services, mainly piped-in water, public sewerge or a septic tank in Greater Amman and Other Urban areas. In rural areas the upgrading includes the replacement of a mud roof by a reinforced concrete roof and repairs to external walls, in addtional to meeting the same infrastructure criteria as in urban areas.

G. INPUTS USED IN BASE CASE

The following tables show the inputs used in the Base Case.

DATA INPUT TABLES FOR THE HOUSING NEEDS ASSESSMENT MODEL

POPULATION
(Thousands)

		1 AMMAN	2 URBAN	3 RURAL
A	1986	974.6	1045.2	762.8
B	1991	1146.1	1229.1	897.0
C	1996	1335.2	1432.0	1045.0
D	2001	1540.3	1651.9	1205.6
E	2006	1759.7	1887.1	1377.3

HOUSEHOLD SIZE

		1 AMMAN	2 URBAN	3 RURAL
A	1986	6.90	7.00	7.60
B	1991	6.90	7.00	7.60
C	1996	6.90	7.00	7.60
D	2001	6.90	7.00	7.60
E	2006	6.90	7.00	7.60

HOUSING STOCK IN BASE YEAR
(Thousands)

		1 AMMAN	2 URBAN	3 RURAL
A	Non-Upgradable	1.5	12.7	7.6
B	Upgradable	6.2	6.9	12.2
C	Acceptable	131.7	127.8	79.3

HOUSING TOTAL INVESTMENT, PUBLIC EXPENDITURES, AND DECAY RATE

	1 1986
A Total Housing Invstmt (M)	149.50
B Public Capital Expend (M)	485.00
C Accpt Decay Rt, M / U (%)	0.50
D Upgrd Decay Rt, M / U (%)	1.87
E Accpt Decay Rt, Rural (%)	1.00
F Upgrd Decay Rt, Rural (%)	3.30

ANNUAL CONSTRUCTION TO REDUCE SHARED UNITS
(Thousands)

		1 AMMAN	2 URBAN	3 RURAL
A	1986 / 1991	0.094	0.098	0.063
B	1991 / 1996	0.094	0.098	0.063
C	1996 / 2001	0.094	0.098	0.063
D	2001 / 2006	0.094	0.098	0.063

NUMBER TO BE UPGRADED ANNUALLY & UNIT VALUE BEFORE UPGRADING
(Thousands)

		1 AMMAN	2 URBAN	3 RURAL
A	1986 / 1991	0.310	0.344	0.610
B	1991 / 1996	0.310	0.344	0.610
C	1996 / 2001	0.310	0.344	0.610
D	2001 / 2006	0.310	0.344	0.610
E	Debt before Upgrading (K)	0.000	0.000	0.000

ANNUAL CONSTRUCTION TO REPLACE NON-UPGRADABLE UNITS
(Thousands)

		1 AMMAN	2 URBAN	3 RURAL
A	1986 / 1991	0.074	0.633	0.381
B	1991 / 1996	0.074	0.633	0.381
C	1996 / 2001	0.074	0.633	0.381
D	2001 / 2006	0.074	0.633	0.381

BASE YEAR GNP & AVERAGE ANNUAL HOUSEHOLD INCOME

		1 1986
A	Gross National Product(M)	1950.00
B	Avg. Metro HH Income(K)	4.50
C	Avg. Urban HH Income(K)	3.40
D	Avg. Rural HH Income(K)	2.80

GNP GROWTH AND INFLATION
(Percent)

		1 86/91	2 91/96	3 96/01	4 01/06
A	Country GNP Real Growth	5.0	5.0	5.0	5.0
B	General Price Inflation	5.0	5.0	5.0	5.0
C	Construction Inflation	5.8	5.8	5.8	5.8

INCOME SHARES BY QUINTILE, AMMAN
(Percent)

		1 Q1	2 Q2	3 Q3	4 Q4	5 Q5
A	1986	6.5	10.5	14.4	20.2	48.4
B	1991	6.5	10.5	14.4	20.2	48.4
C	1996	6.5	10.5	14.4	20.2	48.4
D	2001	6.5	10.5	14.4	20.2	48.4
E	2006	6.5	10.5	14.4	20.2	48.4

INCOME SHARES BY QUINTILE, OTHER URBAN
(Percent)

	1 Q1	2 Q2	3 Q3	4 Q4	5
1986	6.8	11.2	15.3	21.1	45.
1991	6.8	11.2	15.3	21.1	45.
1996	6.8	11.2	15.3	21.1	45.
2001	6.8	11.2	15.3	21.1	45.
2006	6.8	11.2	15.3	21.1	45.

INCOME SHARES BY QUINTILE, RU
(Percent)

	1 Q1	2 Q2	3 Q3	4 Q4	5 Q5
1986	8.0	12.5	15.8	21.0	42.7
1991	8.0	12.5	15.8	21.0	42.7
1996	8.0	12.5	15.8	21.0	42.7
2001	8.0	12.5	15.8	21.0	42.7
2006	8.0	12.5	15.8	21.0	42.7

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RURAL SHARE OF TOTAL GNP
(Percent)

	1 (%)
1986	14.6
1991	14.6
1996	14.6
2001	14.6
2006	14.6

SHARE OF HOUSEHOLD INCOME DEVOTED TO HOUSING & LAND
(Percent)

	1 AMMAN	2 URBAN	3 RURAL
Q1	26.5	26.8	20.0
Q2	26.3	26.2	20.0
Q3	19.8	20.8	20.0
Q4	16.0	15.6	15.0
Q5	17.8	17.7	15.0

SHARE OF HOUSING EXPENDITURES DEVOTED TO RECURRING EXPENSES
(Percent)

		1 AMMAN	2 URBAN	3 RURAL
A	Q1	19.8	35.0	15.0
B	Q2	17.4	28.9	15.0
C	Q3	35.0	13.4	17.0
D	Q4	37.6	16.0	9.2
E	Q5	32.7	37.8	11.0

TERMS OF HOUSING FINANCE, METRO
(Percent)

		1 Q1	2 Q2	3 Q3	4 Q4	
A	Interest Rate (%)	8.5	8.5	8.5	8.5	10
B	Loan Term (years)	15.0	15.0	15.0	15.0	15
C	Downpayment Share (%)	25.0	25.0	25.0	25.0	25
D	Graduation Rate (%)	0.0	0.0	0.0	0.0	0
E	Graduation Period (years)	0.0	0.0	0.0	0.0	0

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TERMS OF HOUSING FINANCE, OTHER URBAN
(Percent)

		1 Q1	2 Q2	3 Q3	4 Q4	5 Q5
A	Interest Rate (%)	8.5	8.5	8.5	8.5	10.5
B	Loan Term (years)	15.0	15.0	15.0	15.0	15.0
C	Downpayment Share (%)	25.0	25.0	25.0	25.0	25.0
D	Graduation Rate (%)	0.0	0.0	0.0	0.0	0.0
E	Graduation Period (years)	0.0	0.0	0.0	0.0	0.0

TERMS OF HOUSING FINANCE, RURAL
(Percent)

		1 Q1	2 Q2	3 Q3	4 Q4	5 Q5
A	Interest Rate (%)	8.5	8.5	8.5	8.5	10.5
B	Loan Term (years)	15.0	15.0	15.0	15.0	15.0
C	Downpayment Share (%)	25.0	25.0	25.0	25.0	25.0
D	Graduation Rate (%)	0.0	0.0	0.0	0.0	0.0
E	Graduation Period (years)	0.0	0.0	0.0	0.0	0.0

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CONSTRUCTION COST IN BASE YEAR

		1 AMMAN	2 URBAN	3 RURAL
A	Upgrade (K)	0.4	0.4	1.2
B	Core House (K)	4.2	3.2	2.6
C	Standard House, (K)	7.9	6.5	4.2

COST SHARES FOR NEW HOUSE CONSTRUCTION
(Percent)

		1 AMMAN	2 URBAN	3 RURAL
A	Land	36.0	23.0	6.0
B	Infrastructure	7.0	8.0	10.0
C	Superstructure	57.0	69.0	84.0

COST SHARES FOR UPGRADES
(Percent)

		1 AMMAN	2 URBAN	3 RURAL
A	Infrastructure	100.0	100.0	100.0
B	Superstructure	0.0	0.0	0.0

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Household Incomes and Expenses

by the Shelter Unit, Ministry of Planning
National Housing Strategy
Technical Memorandum Number 13

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CHAPTER III: HOUSEHOLD INCOMES AND HOUSING EXPENSES

More often than not, it is quite difficult to obtain reliable measures of household income. Although national income and population estimates can provide some insights into the general level of incomes within a country, the only way to obtain data on how this income is distributed is to go out and collect it at the household level.

Several problems however are encountered in collecting reliable data on household incomes. The first is that household income, in Jordan as well as in other countries, can be an intensely personal matter that includes a strong reluctance to respond truthfully to questions about it. Under reporting of total household income that includes in-kind income and/or contributions from other family members may also occur because survey questions do not specifically enquire about each potential source of income.

Particularly relevant to Jordan are two other important though difficult to measure sources of household income: remittances from workers outside Jordan and inter-household transfers.

It is well known for example that remittances from workers abroad play a very important role in a family's financial status and that these transfer payments are generally under-reported. While remittances have been very beneficial in improving the housing situation in Jordan, the lack of any real knowledge about them makes it considerably more difficult to obtain a clear measure of housing affordability. Households are quite obviously obtaining better housing than they apparently can afford based on their normal incomes. The National Housing Survey therefore made a special effort to obtain up to date information on remittances. There was unfortunately, some definitional confusion in the responses between "remittances" and "savings" that prevented this.

Remittances generally have a very positive influence in creating a more equal income distribution which may provide at least a partial explanation of the relatively high housing standards throughout the country.

Inter-household transfer payments within the extended family constitute an equally important and largely undetermined source of income. This appears to be particularly true for those households with the lowest incomes. Many of these transfers are not only substantial but also relatively stable. Evidence from several countries with very different population and economic conditions, suggests that these types of transfers are in most cases progressive, with the majority of net transfers going to the approximately lowest 65% of the income distribution.

Given that households are generally more willing to reveal how much money they spend than how much they earn, a complementary set of questions on household expenditures was included in the National Housing Survey. Results from these questions provided a useful base for comparison in estimating household incomes.

Most household surveys, including the National Housing Survey, can provide only an idea of current incomes or a "snapshot" of a household's income at the time that the survey is taken. They do not take into account historical incomes or any fluctuations in household income that have occured over time. Some unemployed household heads for example, can quite correctly be recorded as having "zero" income, when in fact, they may have very recently had significant incomes. A good proportion of them may be retired, temporarily unemployed or waiting for another opportunity to work abroad. Current earnings therefore may be significantly different from historic earnings and/or those at the time the housing unit was purchased or built. In addition, many household heads who are not working are often owners of their housing units or other buildings.

A recent UDD survey and in depth study of "D" zoned areas in Amman looked at the hypothetical development of an extended family from the time that the head of household married until his retirement. The intent of the exercise was to obtain a clearer idea of how the evolution of the extended household over time relates to the number of workers in the household, its potential earning capacity, and housing affordability. Table 3.1 shows how this development of a hypothetical family occurs.

A precise identification and evaluation of the components of household income therefore is crucial in making affordability calculations. Total household income, including the earnings of all family members and incomes from all other sources (eg. in-kind, properties, interest and funds, etc.), is generally used as the most appropriate indication and measure of a household's total disposable resources and its inherent purchasing power.

A. Incomes and Poverty Levels

Monthly household income is frequently an important determinant of the type and quality of housing that a family can afford. For this reason it is consistently used as a basis in identifying target groups and beneficiaries for government housing programs, in granting mortgage loans, and in determining affordable cost levels for housing and infrastructure services. In addition, the distribution of income is essential for determining whether government services have been equitably distributed.

Table 3.1: Development of a Hypothetical Family

Year	Age of Head	Family Milestone	Number of Workers in Basic Household	Number of Households
1	25	Household head marries & forms household	1	1
2	26	Birth of first son	1	1
3	27		1	1
4	28		1	1
5	29	Birth of second son	1	1
6	30		1	1
7	31		1	1
8	32	Birth of third son	1	1
9	33		1	1
10	34		1	1
11	35	Birth of last son	1	1
12	36		1	1
13	37		1	1
14	38		1	1
15	39		1	1
16	40		1	1
17	41		1	1
18	42		1	1
19	43	First son starts work	2	1
20	44		2	1
21	45		2	1
22	46	Second son starts work	3	1
23	47		3	1
24	48		3	1
25	49	Third son starts work	4	1
26	50		4	1
27	51	First son marries	3	2
28	52	Last son starts work	4	2
29	53		4	2
30	54	Second son marries	3	3
31	55		3	3
32	56		3	3
33	57	Third son marries	2	4
34	58		2	4
35	59		2	4
36	60	Fourth son marries	1	5
37	61	Household head retires	0	5
38	62		0	5
39	63		0	5

Assumptions:
Males marry at age 25, and enter labor force at age 17. Mature family contains 4 sons with average interval between male births of 3 years

Source UDD survey of "D" zoned areas, 1985

1. Early Surveys

Since the early 1970's, periodic attempts have been made for a variety of reasons to estimate household incomes in Jordan. Major surveys in which information about household incomes was obtained include:

a) Royal Scientific Survey

One of the first national studies on income distribution was carried out by the Royal Scientific Society in 1973/1974. The study included a sample of some 15201 family interviews conducted by the Department of Statistics. While results of this survey are considerably outdated and no longer directly useful, they provide an historical basis for the comparison of present household incomes. Table 3.2 shows for example, that differences in average income (including wages and salaries, self-employment income and property income) are relatively greater in urban than in rural areas.

Results from the study also show that there were substantial differences between average incomes in rural and urban areas within each governorate.

b) Family Expenditure Survey

The Family Expenditure Survey was executed in 1980. The median family expenditure per month according to the results of this survey was JD 211 for urban families. The average family size was determined by the survey to be 7.36 persons per family.

Combining this figure for a typical family size with the 1980 per capita GDP estimate of JD 447 yields an estimate of JD 331 per month for 1980. This figure is consistent with other income estimates for the same period. The Family Expenditure Survey of 1980 also identified monthly expenditures for food items, shelter, other goods and services, and clothing, which made up 42.22%, 35,04%, 16.16% and 6.58% respectively of a family's total expenditures.

As the second most important expense item, the cost of shelter is also a very important determinant of a household's financial lifestyle. Given the high proportion of houseowners in the sample who would have fairly minimal housing costs, and particularly those households who already own their housing unit outright, other households obviously were paying a much greater proportion of their income for housing.

Table 3.2: Some Indicators of the Regional Distribution of Income in 1973

	Average Factor Income for Earners in 1973 prices		Ratio to Average Percentage Income in Amman	
Governorate	Urban	Rural	Urban	Rural
Amman Governorate	603	381	100	63
Irbid Governorate	561	373	93	62
Balqa Governorate	428	308	71	51
Karak Governorate	33	291	55	48
Ma'an Governorate	487	276	46	46
East Bank	572	362	95	60

Income share of top 10% of East Bank earners: rural 27.3%; urban 35.8%
Income share of bottom 10% of East Bank earners. rural 2.4%; urban 2.0%

Source: Royal Scientific Society, Economics Department, the 1973 Income Distribution Survey (unpublished)

c) Urban Development Projects

The 1979 income distributions for three population groups were estimated as part of the World Bank Urban Development Project in Amman. The groups included national urban households, households living in Amman slums, and households living in Zarqa slums.

Among other things, it was found that the richest 20% of households earn 45% of the total income, and that the average income of the richest 10% is 13 times that of the poorest 10%. Table 3.3 summarizes the results from this survey.

2. 1986 National Housing Survey

A National Housing Survey was conducted by the Shelter Unit and the Department of Statistics in the summer of 1986. This survey included some 2246 households in both urban and rural areas. Questions on household expenses and incomes were included at the end of the questionnaire.

a) Results of the Survey

Direct results from the survey, i.e. before any adjustment for under-reporting, show that households at the 20th percentile of the national income distribution earned JD. 120 per month in Greater Amman, JD. 100 in other urban areas, and JD. 90 in rural areas.

Given that households frequently do not disclose their total income in responding to household surveys and that this no doubt occured as well in the National Housing Survey, an attempt has been made to take into account the degree of this under-reporting of incomes. To do so, results from the survey were compared to private consumption expenditures as reported in the National Income Accounts and adjusted accordingly. The degree of under-reporting was found to be 33.8% and the both direct and adjusted income figures are shown in Table 3.4.

Figure 3.1 shows graphically these same monthly income figures for the three geographic regions of Greater Amman, other urban areas and rural areas.

As can be expected, there are substantial differences in household income between the three regions. Comparing Greater Amman with "other urban" areas shows a relatively constant difference in income that ranges from 17% to 23% of the unadjusted income as one goes from the 20th to 80th income percentile. Differences between average household income in Greater Amman and "rural areas" shows greater variation and increases from 25% at the 20th percentile to 43% at the 80th percentile. The difference between other

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Table 3.3: Household Monthly Income Distribution in 1979

Percentile	National Urban		Amman Slums		Zarqa Slums	
	1979	1986 Adjusted	1979	1986 Adjusted	1979	1986 Adjusted
20	60	87	44	63	42	60
40	96	139	56	81	62	89
60	116	168	74	107	78	113
80	175	254	112	163	116	168

Note: The estimates of the Central Bank of Jordan for inflation are as follows: 1980 (11.1%), 1981 (7.7%), 1982 (7.4%), 1983 (5.0%), 1984 (3.9%), 1985 (3.0%).

Source: Halcrow Fox, Jordan Urban Project. Interim Report, May 1979

Table 3.4: Income Distribution from the 1986 National Housing Survey

Income Data Taken Directly from Survey

Percentile by Household Income	Greater Amman	Other Urban Areas	Rural Areas
10	100	75	70
20	120	100	90
30	150	120	100
40	172	135	120
50	200	150	130
60	230	180	150
70	280	200	170
80	350	270	200
90	500	350	270

Incomes Adujsted Upwards by 33.8% for Under-reporting

Percentile by Household Income	Greater Amman	Other Urban Areas	Rural Areas
10	134	100	94
20	161	134	120
30	201	161	134
40	230	181	161
50	268	201	174
60	308	241	201
70	375	268	227
80	468	361	268
90	669	468	361

Source: 1986 National Housing Survey, 1986

Figure 3.1 (a): Income Distribution Directly from the National Housing Survey

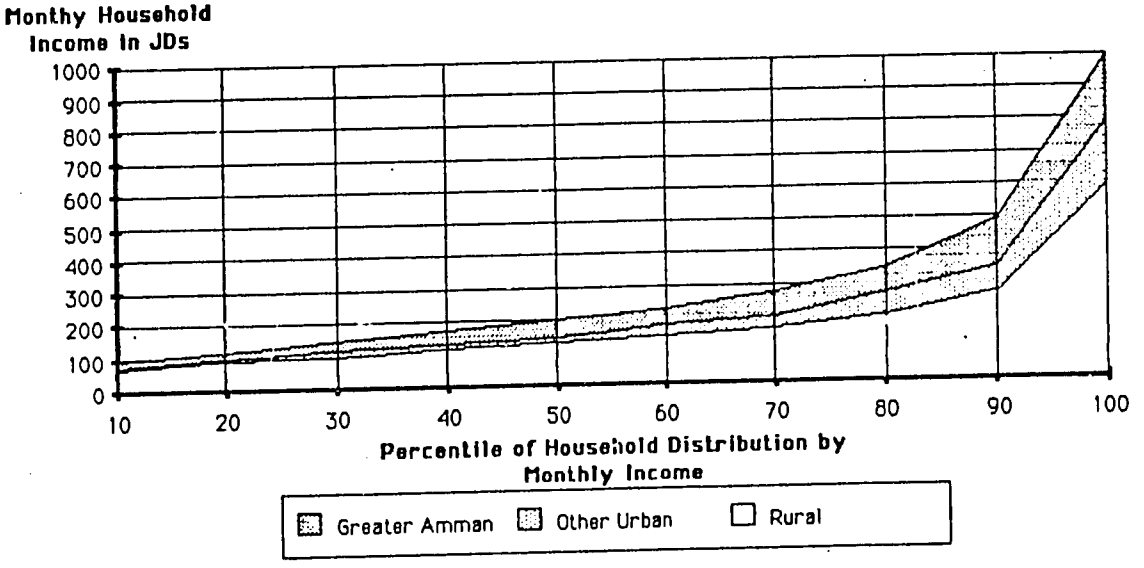
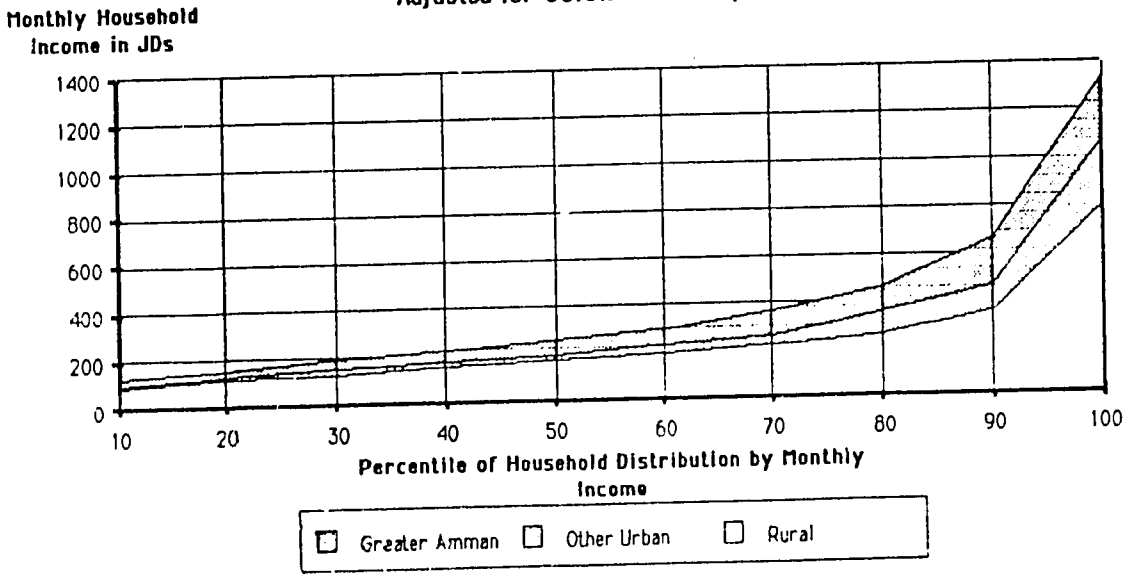


Figure 3.1 (b): Income Distribution from the National Housing Survey Adjusted for 33.8% Under-reporting



urban and rural areas ranges from 10% to 26% going from the 20th to 80th percentiles.

b) Comparison to Other Surveys

Even in light of the substantial difficulties involved in obtaining the best possible estimates of household incomes, there appears to be sufficient consistency in the results of several recent surveys. These surveys include the National Housing Survey, the University of Jordan Survey, and a survey for the Jordan Urban Project. Table 3.5 compares the results of the three surveys after all incomes have been updated to 1986 figures. No additional adjustments however, have been made for under-reporting.

3. Determination of Poverty Levels

In 1978, the World Bank calculated a poverty threshold of JD 720 per household per year. This poverty threshold was based on the estimated costs of a minimum nutritionally adequate diet comprised of locally obtained foodstuffs that were then added to the costs of essential non-food items.

In order to update this poverty threshold figure to 1986, it was assumed that the amount determined in 1978 rose in line with the cost of living index. The World Bank report updated the 1978 figure to 1980 based on the exact same assumption. The 1980 estimate therefore became $2670 per household per year. Applying the 1980-1986 growth factor of 127.1 (1980=100) , the mid-1986 figure can therefore be calculated as US$ 3394. Converted at $2.85/JD, the poverty threshold would be JD 99 per household per month or JD 1188 per year.

In order to apply this threshold to results from the National Housing Survey, the above figure needs to be deflated by 33.8%, which is the estimated percentage for the under-reporting of income in the survey. The reduced figure is therefore JD74.4 per household per month.

Combining this figure with household income data obtained from the National Housing Survey and interpolating between income class intervals, the following percentages of households would appear to fall below the poverty threshold in 1986 in each of the geographic regions:

Greater Amman	7.9%
Other Urban	13.9%
Rural	18.2%

A detailed discussion of disadvantaged groups in regards to housing can be found in Technical Memorandum 7, "Existing Housing Conditions in Jordan".

Table 3.5: Comparison of Income Results from Three Recent Surveys
(Monthly Household Incomes Adjusted to 1986 Figures)

Income Percentile	National Housing Survey		University of Jordan Survey		Urban Project
	Greater Amman	Other Urban	Amman	Other Urban	National Urban
20th	120	100	95	89	87
40th	172	135	138	116	139
60th	230	180	200	164	168
80th	350	270	306	248	254

Note: The figures do not include adjustments for under-reporting

B. Housing Related Expenses

A series of questions were included in the National Housing Survey that concerned monthly household expenses related to housing. These expenses included mortgage payments, rents, maintenance and property taxes.

An analysis of National Housing Survey results for households who had moved during the previous five year period provided information on the share of household income devoted to housing and land. The resulting percentages, which were also used as inputs in the Housing Needs Assessment (see Technical Memorandum Number 5, "Revised Housing Needs and Associated Investment in Jordan (1986-2006)"), ranged (going from low to high incomes) from 26.5% to 17.8% in Greater Amman; from 26.8% to 17.7% in other urban areas; and from 20% to 15% in rural areas.

The rural share of income devoted to housing was slightly adjusted upwards since there was only a very small proportion of owners having mortgages and because the lack of housing expenditures on a regular flow basis caused expenditure figures to generally understate a household's ability to pay for housing.

1. Recurrent Expenses for Maintenance, Taxes etc.

A series of questions were included in the National Housing Survey on recurring expenses related to housing that included property taxes and maintenance costs. Results from the survey showed that these costs generally ranged from 9 % to 38 % of total housing expenses. In Greater Amman, recurring expenses ranged from roughly 20% to 38%; in other urban areas from 13% to 38%; and in rural areas from 9% to 17%.

2. Direct Housing Costs

The National Housing Survey also included several sets of questions addressed to owner occupiers concerning the costs of obtaining a housing unit. Separate indications were requested for the costs for land, construction, the purchase of a housing unit with land and vertical expansions.

Table 3.6 indicates the various ways in which present homeowners have obtained their housing units. The most prevalent approach is to build a housing unit on previously owned land. This accounts for 50%, 44.7% and 65.1% of owner occupied housing units respectively found in Greater Amman, other urban and rural areas. It is interesting to note that in both Greater Amman and other urban areas, approximately 10% of the owner occupied units were new units built as vertical extensions to existing buildings.

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Table 3.6: Method of Obtaining the Housing Unit

House Type by Geographic Area	Unit Bought with Land	Inherited	Unit Built on Owned Land	Extension	Other
Greater Amman					
• Dar (house)	31.2	8.1	43.4	5.8	11.6
• Apartment	17.6	12.2	55.1	13.2	2.0
• Villa	18.2	9.1	72.7	-	-
• Other	100.0	-	-	-	-
Total	**23.8**	**10.2**	**50.1**	**9.5**	**6.4**
Other Urban Areas					
• Dar (house)	11.1	16.0	47.2	3.7	21.9
• Apartment	10.7	9.2	44.3	29.0	6.0
• Villa	25.0	-	25.0	25.0	25.0
• Other	10.0	10.0	-	5.0	75.0
Total	**11.0**	**13.5**	**44.7**	**10.8**	**20.0**
Rural Areas					
• Dar (house)	3.7	22.4	65.7	3.7	4.5
• Apartment	-	31.8	54.5	4.5	9.1
• Villa	-	33.5	66.6	-	-
• Other	-	-	-	-	-
Total	**3.3**	**23.3**	**65.1**	**3.6**	**4.8**

Source: National Housing Survey, 1986, Shelter Unit/DOS

a) Purchase of a Housing Unit with Land

Table 3.7 presents the results of the National Housing Survey concerning the costs of purchasing a housing unit together with the plot of land. In all geographic categories, the cost of the majority of these units (including land) was less than JD 5000. Given generally high land and construction costs, this amount seems surprisingly low. It may be that many of these purchased units are located in multi-unit "dars" or apartments which would significantly lower the share of land costs in the total cost of the housing unit. Only in Greater Amman for example, is there a significant percentage of purchased units costing more than JD. 5000. Roughly 22% of the total number of purchased units in Greater Amman fall between JD. 5000 and JD. 15000.

b) Housing Construction

Table 3.8 provides a distribution of both the cost of land and construction costs based on the results of the National Housing Survey. A brief review of the reported costs of purchasing land and housing unit together (indicated in Table 3.7), as well as the land cost data (presented in Table 3.8) appears to indicate a lower cost for land than what would normally be expected given present land markets etc. The reported cost of a residential plot of land for example, is less than JD 2500 in 83.4% of the cases in Greater Amman, 92.2% of the cases in other urban areas and 85.1% in rural areas. Given an overall average plot size of 500 m2, this would mean that the land price would have to be JD 5 or less in order for this to be true. It may also be the case that the land was bought some time ago when prices were considerably less.

Table 3.8 also shows that while it appears that Amman has a greater proportion of the more expensive units, the majority of units in each of the geographic regions have been built for less than JD 5000.

c) Vertical Expansion

Roughly 10% of the owner built housing units surveyed in Greater Amman and other urban areas were units built as vertical extensions to existing buildings. Table 3.9 shows the cost distribution of these units within the three geographic regions. It is interesting to note that the construction costs expressed for these type of units are higher than for new units built on previously owned land. In the majority of cases, the cost of the expansion unit however is still less than JD. 10000.

Table 3.7: Costs of Housing Units Purchased with Land

Purchase Price of Housing Unit PLus Land	Greater Amman		Other Urban Areas		Rural Areas		East Bank	
	NB. Cases	%	NB. Cases	%	NB. Cases	%	NB. Cases	%
• Lo-5000 JD	62	73.8	44	88.0	11	91.7	117	80.1
• 5001-10000 JD	9	10.7	3	6.0	1	8.3	13	8.9
• 10001 - 15000 JD	4	4.8	1	2.0	-	-	5	3.4
• 15001 - 25000 JD	5	5.9	2	4.0	-	-	7	4.8
• 25001 - 50000 JD	1	1.2	-	-	-	-	1	0.7
• + 50000 JD	3	3.6	-	-	-	-	3	2.1
Total Sample	**84**	**100.0**	**50**	**100.0**	**12**	**100.0**	**146**	**100.0**

Source: National Housing Survey, 1986, Shelter Unit/DOS

Table 3.8: Land and Construction Costs

Land Costs	Greater Amman		Other Urban Areas		Rural Areas		East Bank	
	NB. Cases	%	NB. Cases	%	NB. Cases	%	NB. Cases	%
• Lo-2500 JD	126	83.4	118	92.2	103	85.1	347	86.8
• 2501-5000 JD	10	6.6	6	4.7	12	10.0	28	7.0
• 5001 - 7500 JD	6	4.0	-	0.8	-	3.3	6	1.5
• 7501 - 10000 JD	5	3.4	1	2.3	4	1.6	10	2.5
• 10001 - 15000 JD	2	1.3	3	-	-	-	5	1.2
• + 15000 JD	2	1.3	-	-	2	-	4	1.0
Total Sample	**151**	**100.0**	**128**	**100.0**	**121**	**100.0**	**400**	**100.0**

Construction Costs	Greater Amman		Other Urban Areas		Rural Areas		East Bank	
	NB. Cases	%	NB. Cases	%	NB. Cases	%	NB. Cases	%
• Lo-2500 JD	61	36.8	69	40.6	129	43.1	259	40.8
• 2501-5000 JD	32	19.3	38	22.4	71	23.7	141	22.2
• 5001 - 7500 JD	15	9.0	19	11.2	34	11.4	68	10.7
• 7501 - 10000 JD	17	10.2	19	11.2	32	10.7	68	10.7
• 10001 - 15000 JD	19	11.5	12	7.1	24	8.0	55	8.7
• 15001 - 25000	12	7.2	7	4.1	5	1.7	24	3.8
• + 25000 JD	10	6.0	6	3.5	4	1.3	20	3.1
Total Sample	**166**	**100.0**	**170**	**100.0**	**299**	**100.0**	**635**	**100.0**

Source National Housing Survey, 1986, Shelter Unit/DOS

Table 3.9: Costs of Housing Units Added to Existing Buildings

Construction Costs Of Vertical Expansion	Greater Amman		Other Urban Areas		Rural Areas		East Bank	
	NB. Cases	%	NB. Cases	%	NB. Cases	%	NB. Cases	%
• Lo-2500 JD	5	15.2	9	17.3	7	46 7	21	21.0
• 2501-5000 JD	9	27.3	10	19.2	5	33.3	24	24.0
• 5001 - 7500 JD	1	3.0	10	19.2	1	6 7	12	12.0
• 7501 - 10000 JD	10	30.3	7	13.5	1	6.7	18	18.0
• 10001 - 15000 JD	4	12.1	5	9.6	1	6.7	10	10.0
• 15001 - 25000	2	6.1	3	5.8		0.0	5	5.0
• 25000 JD	2	6.1	8	15.4		0.0	10	10.0
Total Sample	**33**	**100.0**	**52**	**100.0**	**15**	**100.0**	**100**	**100.0**

Source: National Housing Survey, 1986, Shelter Unit/DOS

d) Rents

Table 3.10 provides a summary of the results from the National Housing Survey concerning both initial and present rents based on the type of housing unit and geographic region. Comparing the figures shown in both parts of the table, there appears to be relatively little difference between initial and present rents. This essentially means that the existing rent control regime is effectively being followed in both urban and rural areas.

The clear majority of rents are less than JD 40 for each type of housing unit in each geographic area. Surprisingly however, rents for traditional "dar" type units in other urban areas appear to be higher than those for similar types of units located in Greater Amman.

C. Means of Financing Housing Construction

More complete and detailed information on the ways in which households finance the construction or improvement of their housing units can be found in Technical Memorandum Number 14, "Housing Finance in Jordan" and in Technical Memorandum Number 8, "Housing Delivery Systems".

Table 3.11 indicates the frequency at which various sources of financing are used in the purchase of a housing unit with land, the purchase of land, and the construction of a housing unit on previously owned land. These are expressed for Greater Amman, other urban and rural areas. The table shows that "savings" is clearly the predominant source of housing finance in all cases. It also indicates that most households are using a combination of sources to finance their housing. A more detailed view of how these combinations are made is presented in Table 3.12.

D. Willingness to Pay for Better Housing

The proportion of income that households are able and willing to spend on housing related expenses varies considerably. It is a function not only of income, but of several other variables as well. Some of these may include the perceived cost/value ratio of housing, family size, age and sex of the head of household, available financial assets, whether the household already owns a house or rents their housing unit, etc.

Table 3.10: Data on Rented Housing Units in Jordan

Initial Rent Paid in JD per Month

Monthly Rents	0-20 JD		21-40 JD		41-60 JD		61-100 JD		101-150 JD		150+ JD	
Region-House Type	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%
Greater Amman												
• Dar (house)	40	65.6	11	18.0	6	9.8	4	6.6	-	-	-	-
• Apartment	53	27.7	53	27.7	44	23.0	28	14.7	-	-	-	-
• Villa	11	20.0	2	40.0	-	-	1	20.0	7	3.7	6	3.1
Other Urban Areas												
• Dar (house)	34	40.0	43	50.6	6	7.1	2	2.4	-	-	-	-
• Apartment	17	18.7	42	46.2	25	27.5	6	6.6	1	1.1	-	-
• Villa	-	-	-	-	-	-	-	-	-	-	-	-
Rural Areas												
• Dar (house)	11	55.0	9	45.0	-	-	-	-	-	-	-	-
• Apartment	1	50.0	1	50.0	-	-	-	-	-	-	-	-
• Villa	-	-	-	-	-	-	-	-	-	-	-	-

Present Rent Paid in JD per Month

Monthly Rents	0-20 JD		21-40 JD		41-60 JD		61-100 JD		101-150 JD		150+ JD	
Region-House Type	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%
Greater Amman												
• Dar (house)	33	54.1	17	27.9	7	11.5	4	6.6	-	-	-	-
• Apartment	44	23.1	55	28.8	52	27.2	28	14.7	.6	3.1	6	3.1
• Villa	1	20.0	2	40.0	-	-	1	20.0	-	-	1	20.0
Other Urban Areas												
• Dar (house)	32	37.6	45	52.9	6	7.1	2	2.4	-	-	-	-
• Apartment	16	17.6	44	48.4	24	26.4	6	6.6	1	1.1	-	-
• Villa	-	-	-	-	-	-	-	-	-	-	-	-
Rural Areas												
• Dar (house)	10	50.0	10	50.0	-	-	-	-	-	-	-	-
• Apartment	1	50.0	1	50.0	-	-	-	-	-	-	-	-
• Villa	-	-	-	-	-	-	-	-	-	-	-	-

Source National Housing Survey, 1986, Shelter Unit/DOS

Table 3.11: Frequency at Which Sources of Financing are Used
(% of Households Using Sources of Finance to Obtain Housing Unit)

Sources of Financing by Geographic Area	Purchase of House with Land	Land Purchase	Housing Construction on Owned Land	Expansion Unit on Existing Building
Greater Amman				
1. Savings	87	80	78	86
2. Sale of Jewels	19	24	21	24
3. Sale of Property	12	15	18	16
4. Remittances	5	2	5	11
5. Assistance from Friends/Relatives	9	6	6	8
6. Loans from Banks	11	6	15	27
7. Loans from Friends/ Relatives	16	18	22	27
8. Loans from Employer	9	2	9	14
9. Other Financing	18	3	3	-
Other Urban Areas				
1. Savings	85	88	85	81
2. Sale of Jewels	19	11	16	33
3. Sale of Property	13	13	14	8
4. Remittances	4	1	4	6
5. Assistance from Friends/Relatives	2	1	6	6
6. Loans from Banks	4	-	15	33
7. Loans from Friends/ Relatives	19	3	18	33
8. Loans from Employer	6	2	5	19
9. Other Financing	2	4	5	6
Rural Areas				
1. Savings	56	84	87	89
2. Sale of Jewels	31	16	12	16
3. Sale of Property	25	6	13	11
4. Remittances	6	2	7	5
5. Assistance from Friends/Relatives	6	2	9	5
6. Loans from Banks	-	3	8	11
7. Loans from Friends/ Relatives	31	12	22	21
8. Loans from Employer	6	2	5	11
9. Other Financing	-	3	4	5

Source: National Housing Survey, 1986, Shelter Unit/DOS

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Table 3.12: Number of Borrowers Using Various Combinations of Financing a Housing Unit

	Savings	Sale of Jewelry	Sale of Property	Bank Loans etc.	Friends/ Relatives	Employer
Greater Amman						
Savings	-	16	10	8	12	8
Sale of Jewelry	16	-	5	3	8	3
Sale of Property	10	5	-	3	2	2
Remittances	5	1	2	3	1	2
Help from Friends, etc.	1	2	1	1	1	1
Loans from Banks, etc.	8	3	3	-	2	3
Loans from Relatives	12	8	2	2	-	3
Loans from Employer	8	3	2	3	3	-
Other	1		0	0	0	0
Total	60	19	12	16	15	11
Other Urban Areas						
Savings	-	9	7	15	15	6
Sale of Jewelry	9	-	2	1	6	1
Sale of Property	7	2	-	1	0	0
Remittances	3	0	1	0	1	0
Help from Friends, etc.	3	2	2	0	2	0
Loans from Banks, etc.	15	1	1	-	4	4
Loans from Relatives	15	6	0	4	-	3
Loans from Employer	6	1	0	4	3	-
Other	2	0	0	0	0	0
Total	59	11	9	20	19	8
Rural Areas						
Savings	-	15	8	5	28	4
Sale of Jewelry	15	-	3	1	10	4
Sale of Property	8	3	-	4	7	1
Remittances	4	1	1	0	1	6
Help from Friends, etc.	15	2	0	-	4	0
Loans from Banks, etc.	5	1	4	0	0	0
Loans from Relatives	28	10	7	0	-	2
Loans from Employer	4	4	1	0	2	-
Other	3	0	0	0	0	0
Total	95	18	17	11	33	6

Notes: Total cases: Greater Amman, 75; Other Urban Areas, 70; Rural Areas, 115
Total households reporting use of funds under the column heading, many housholds used multiple sources of finance so that the sum of the entries in the column can exceed the total indicated

Source: Tabulation of data from the 1986 National Housing Survey

A housing unit or dwelling provides a bundle of services to its occupant that among other things, includes protection from the elements, provision of water and sanitation services, locational attributes, pleasing exterior and interior design, and adequate space for daily household activities. A determination of housing affordability therefore not only depends on the amounts that households are financially able to pay for their housing, but also their willingness to pay for housing having different attributes.

"Willingness to pay" is often indicated by the market value placed on each housing attribute or service. Awareness of this "value" for the most significant housing attributes, or for an incremental room or square meter of space for example, can be very important in determining the extra financial effort households would be willing to make in order to obtain better housing.

1. Dwelling Rents and House Values

Households are undoubtedly willing to pay more for what they perceive as a good "value". This applies not only to consumer goods but housing as well. A series of regression analyses were carried out using the results of the Housing Survey that attempted to analyze these housing "values". The primary objective of the analyses was to identify the values that the market, through the interaction of supply and demand, places on various housing attributes and to determine the most important features of the housing unit. The dependent variable in each case was either the contract rent of the unit or the owner's estimate of the value of the property. The independent variables basically described the unit and included its size, number of rooms, services zoning, length of time lived in by renters etc.

Results of these regression analyses showed that unit size, location, finished stone exterior, and the number of floors in the building all had a significant impact in determining rents. For owner occupied units there was more variance although several areas of consistency were found. For one thing, the size of the unit in square meters is highly significant in all three geographic areas although somewhat more prized in Amman than in other locations. The location of the housing unit near various services such as grocery stores, post office, school or health center surprisingly tends to reduce its value.

Zoning categories also have a clear impact on the value or price of a housing unit in Amman. A unit located in an area zoned in the "A" or "B" category for example, carries a premium of about JD. 8,900 compared to those units without any zoning. On the other hand, areas zoned in the "C" and "D" categories carry little or no premium relative to unzoned plots. Zoning in other urban areas however, seems to have very little effect on house prices. In rural areas,

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by contrast, units in areas zoned for agricultural use carry premiums compared to any other zoning categories.

Outside of Amman, a premium is also placed on having a separate bethroom, while within Amman, central heating carries a similarly high premium.

2. Indications from the Housing Survey

Several questions were asked in the National Housing Survey concerning the amount of money that households would be willing to pay to either buy or built a new housing unit, or to simply rent a bigger and/or better unit. Results from these questions for both Greater Amman and other urban areas are graphically shown in Figures 3.2 and 3.3.

Perhaps because of the higher land and construction costs found in Greater Amman, virtually no households earning less than JD 100 per month expressed interest in buying or building a new unit. Roughly two-thirds of those households earning between JD 100 and JD 150 per month however, answered that they could spend more than JD 10000 on a new unit. For households having incomes between JD. 151 and JD 300 per month, roughly half of them indicated that they would be willing to pay JD 15000 or more a new housing unit. This percentage increased to more than 90% of those households earning between JD 301 and JD 500 per month.

In other urban areas, 50% of the households responding to the question and indicating a monthly income between JD. 51 and JD 100 said they could only afford a housing unit if the cost was less than JD 4000. At the same time, roughly 60% of those households with monthly incomes between JD. 101 and JD 150 said they would be willing to spend between JD 4000 and JD 7000 for a unit while slightly less than half the households earning between JD. 151 and JD 200 indicated that they could pay for a unit between JD 7001 and JD 10000.

Households appeared considerably less willing to spend any substantial amounts of money for rent. Figures 3.4 and 3.5 show the rental that households are willing to pay based on their income group.

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Figure 3.2: Willingness to Pay: Maximum Amount to Buy or Build a House
(Greater Amman)

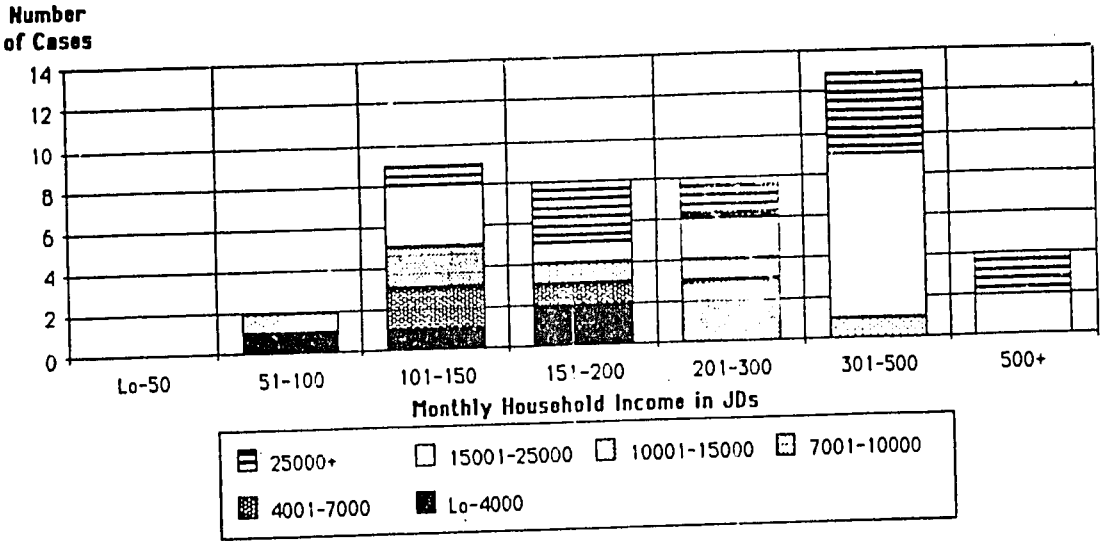

Figure 3.3: Willingness to Pay: Maximum Amount to Buy or Build a House
(Other Urban Areas)

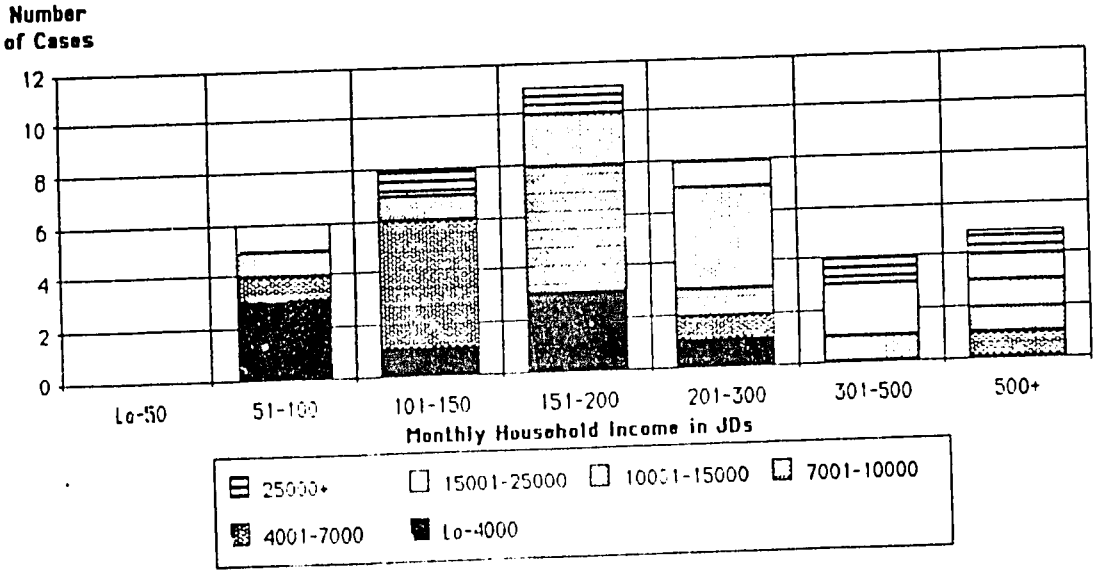

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Figure 3.4: Willingness to Pay: Maximum Amount to Rent a House (Greater Amman)

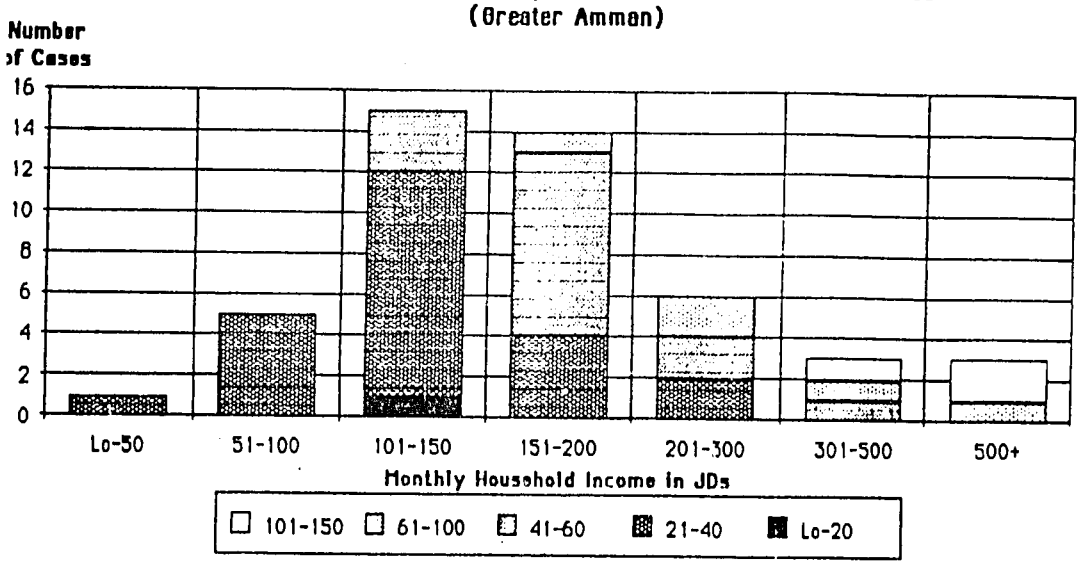
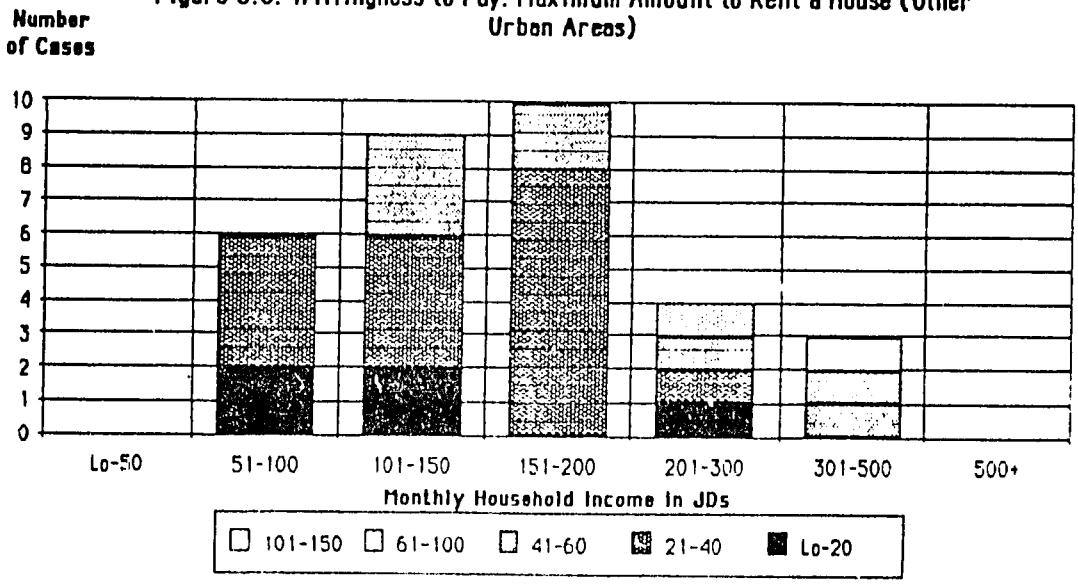


Figure 3.5: Willingness to Pay: Maximum Amount to Rent a House (Other Urban Areas)



Housing Stock and Housing Quality

by the Shelter Unit, Ministry of Planning
National Housing Strategy
Technical Memorandum Number 7

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III. OVERVIEW OF HOUSING STOCK IN JORDAN

A. Distribution of Housing Stock by Type of Building Material

The 1986 National Housing Survey provides figures which enabled the Shelter Unit to update the 1979 Census of Population and Housing. Table 3.1 summarizes the current number of units distributed by main type of unit.

It can be seen that there have been substantial improvements in the country's housing stock with virtually 100% of Greater Amman housing being of permanent building materials compared to 93% in other towns and 89% in rural areas. It should also be noted that a significant proportion of the

mud/rubble stone housing stock in rural areas is composed of vacant units, many of which are in effect abandoned because they are no longer in demand by village residents.

B. Size of Housing Unit

Table 3.2 shows the sizes of housing unit in the three main regions plus the East Bank as a whole.

Table 3.2

Size of Housing Unit

Area	Percent				Cumulative percent			
	Greater Amman	Other Urban	Rural	East Bank	Greater Amman	Other Urban	Rural	East Bank
0-40m2	12.6	14.7	15.5	14.2	12.6	14.7	15.5	14.2
41-60m2	19.3	22.7	20.3	20.8	31.9	37.4	35.8	35.0
61-80m2	22.5	19.2	14.9	19.1	54.4	56.6	50.7	54.1
81-100m2	20.1	18.8	16.6	18.6	74.5	75.4	67.3	72.7
101-130m2	8.0	10.2	11.3	9.8	82.5	85.6	78.6	82.5
131-160m2	8.7	8.2	10.8	9.2	91.2	93.8	89.4	91.7
161m2+	8.1	6.0	10.3	8.0	99.3	99.8	99.7	99.7
No answer	0.7	0.1	0.3	0.3	100.0	100.0	100.0	100.0
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 3.2 shows that there are no major differences in the distribution of housing units by floor area. Key aspects are as follows;

- The largest share of small units (under 60m2) is found in other urban areas (37.4%) compared to 31.9% in Greater Amman and 35.8% in rural areas.

- In the mid-range (61-100m2) there is a higher share in Greater Amman (42.6%) compared to 38% in other urban areas and only 31.5% in rural areas.

- The share of large units, (101m2+) is almost equal in Greater Amman and other urban areas, at some 24.5%, but higher in Rural areas, at 32.4%.

For the purpose of other analyses, the average size of units constructed at any time and those constructed in the past six years is compared in Table 3.3 below:

Table 3.3

Average Size of Housing Unit (m2)

Area	All construction	1980-86 Construction
Greater Amman	85.7	123.0
Other Urban	82.1	84.1
Rural	90.2	96.2
East Bank	85.8	98.1

Source: Shelter Unit

The above figures include occupied and vacant units. It can be seen that there has been a substantial increase in average household size in Greater Amman but relatively little in other towns and rural areas.

Table 3.4 shows the main divisions of the occupied stock by type of building;

Table 3.4

Housing Stock by Type of Building

Area	Detached	Apartment	Villa	Marginal House/stock	Total
Greater Amman	35.8	61.5	2.5	0.1	99.9
Other Urban	61.7	34.3	0.7	3.3	100.0
Rural	87.5	8.6	1.7	2.2	100.0
East Bank	60.4	36.1	1.6	1.9	100.0
East Bank 1979	66.8	29.1	0.2	3.9	100.0

It will be seen that there has been a significant increase in the share of apartments in the total housing stock, concentrated mainly in the Greater Amman region. Marginal and mobile housing has become an insignificant part of the total housing stock.

Table 3.5 shows the distribution of households by size and type of building;

Table 3.5

Distribution of Households by Size and Type of Building

Household	Greater Amman					Other Urban					Rural				
Size	House	Aprt.	Villa	Other	Total	House	Aprt.	Villa	Other	Total	House	Aprt.	Villa	Other	Total
1	38.9	61.1	--	--	100.0	70.0	10.0	--	20.0	100.0	60.0	13.3	--	26.7	100.0
2	20.0	75.6	4.4	--	100.0	59.6	32.7	1.9	5.8	100.0	84.6	5.1	--	10.3	100.0
3-4	29.9	68.9	3.3	--	100.0	53.2	45.2	--	--	100.0	68.8	10.5	--	2.6	100.0
5-6	29.8	67.5	2.0	--	100.0	57.3	41.2	0.8	0.8	100.0	85.7	10.7	1.8	0.9	100.0
7+	42.9	54.5	2.3	0.3	100.0	65.4	29.7	0.8	3.8	100.0	89.4	7.7	2.3	0.6	100.0

Table 3.5 shows that the proportion of households in apartments in Greater Amman is similar across household size except for a significantly higher percentage of 2 person households.

In other urban areas there is more variation by household size. It should be noted that a majority of households living in "other" housing (i.e. marginal or mobile housing) is found in refugee camps.

C. Tenure of Housing Unit

Table 3.6 shows the present tenure of household units in each area.

Table 3.6

Household Units - Present Tenure

Type of Tenure	Greater Amman	Other Urban	Rural	East Bank	East Bank 1979
Owner	56.7	67.1	88.2	69.6	65.6
Renter	37.2	24.7	3.9	22.9	28.4
Free	4.8	7.4	7.1	4.6	4.7
Other	1.3	0.8	0.8	2.9	1.3
Total	100.0	100.0	100.0	100.0	100.0

Table 3.6 shows that the proportion of households owning their housing unit increased in the 1979-86 period for Jordan as a whole. Owner occupation is the dominant mode in rural areas.

Owner occupation is distributed across all income groups, as shown in Table 3.7

Table 3.7

Present Tenure Status by Average Household Income

Tenure Status / Household Income (JD/month)	Greater Amman				Other Urban				Rural			
	Owner	Renter	Free	Other	Owner	Renter	Free	Other	Owner	Renter	Free	Other
0-50	43.8	37.5	12.5	6.3	71.1	18.4	10.5	--	66.7	8.3	20.8	4.2
51-100	52.0	37.3	9.3	1.3	66.7	22.2	10.4	0.7	86.1	5.5	7.3	1.2
101-150	48.3	43.5	6.8	1.4	66.0	23.9	8.6	1.5	87.6	4.1	7.3	1.0
151-200	54.1	38.3	5.2	1.5	60.0	33.1	6.2	0.8	93.4	1.1	5.5	--
201-300	56.8	37.7	4.1	1.4	67.9	27.7	4.5	--	90.0	2.9	7.1	--
301-500	73.0	26.0	--	1.0	76.5	20.6	1.5	1.5	96.4	3.6	--	--
+500	61.7	36.7	1.7	--	79.3	17.2	3.4	--	93.3	--	6.7	--

D. Number of Rooms

The size distribution of housing units, excluding kitchen and bathrooms (i.e number of habitable rooms) is as follows:

Table 3.8

Housing Units: Number of Habitable Rooms

No. of Habitable Rooms	Greater Amman		Other Urban		Rural		East Bank		East Bank 1979	
	%	Cum.%	%	Cum%	%	Cum%	%	Cum%	%	Cum%
1	8.3	8.3	8.1	8.1	9.3	9.3	8.5	8.5	19.1	19.1
2	28.3	36.6	32.2	40.3	27.2	36.5	29.4	37.9	37.5	56.6
3	30.0	66.6	30.5	70.8	27.4	63.9	29.4	67.3	24.9	81.5
4	19.5	86.1	17.6	88.4	21.6	85.5	19.4	86.7	11.6	93.1
5	8.7	94.8	8.2	96.6	8.8	94.3	8.5	95.2	4.2	97.3
6	3.2	98.0	2.5	99.1	3.4	97.7	3.0	98.2	1.7	99.0
7	0.7	98.7	0.4	99.5	0.8	98.5	0.7	98.9 }		}
8	1.2	99.9	0.1	99.6	0.8	99.3	0.7	99.6 }	0.9	}99.9
9+	0.1	100.0	0.3	99.9	0.7	100.0	0.4	100.0 }		}
All	100.0	100.0	99.9	99.9	100.0	100.0	100.0	100.0	99.9	99.9

It may be deduced from Table 3.8 that;

- There are few significant differences in number of rooms per housing unit in Greater Amman and other urban areas: thus 67% of units have 3 rooms or fewer in Greater Amman compared to 71% in other urban areas.

- Rural housing units have slightly higher number of rooms on average.

- The average size of housing unit has increased significantly since 1979 over the country as a whole. Thus 33% of housing units had 4 or more rooms in 1986 compared to 18.5% in 1979. Again, there were 8.5% of housing units with 1 habitable room in 1986 compared to 19.1% in 1979.

E. Number of Households Per Housing Unit

Table 3.9 shows the number of nuclear households per housing unit.

Table 3.9

Number of Nuclear Households Per Occupied Housing Unit

Number H"holds	Greater Amman	Other Urban	Rural	East Bank	East Bank 1979
1	91.9%	90.2%	89.4%	90.5%	89.6%
2	6.8%	8.6%	9.5%	8.3%	9.1%
3	0.9%	0.8%	1.2%	1.0%	1.2%
4	0.4%	0.1%	--	} 0.2%	} --
5	--	0.1%	--	} --	} 0.1%
All	100.0%	99.8%	100.1%	100.0%	100.0%

Table 3.9 shows that the ratios of households to housing units has increased slightly from 1-1.10 to 1-1.12 in the period 1979-1986. However, overcrowding, measured by this ratio, is only a minor problem in Jordan.

F. Age of Housing Units

The high proportion of recent construction among the country's housing stock is shown in Table 3.10 below.

Table 3.10

Year of Housing Unit Construction

	Percent			Cumulative Percent		
Year	Greater Amman	Other Urban	Rural	Greater Amman	Other Urban	Rural
pre-1951	9.1	5.5	3.9	9.1	5.5	3.9
1951-60	24.4	13.5	7.2	33.5	19.0	11.1
1961-67	11.7	13.8	11.1	45.2	32.8	22.2
1968-74	23.5	29.4	22.7	68.7	62.2	44.9
1975-74	13.8	18.9	19.5	82.5	81.1	64.4
1980-86	17.5	18.9	35.6	100.0	100.0	100.0
All	100.0	100.0	100.0	100.0	100.0	100.0

Table 3.10 shows that 31.3% of Greater Amman's housing stock has been constructed since 1975, 37.8% in other urban areas and 55.1 in rural areas.

In fact, in rural areas 35.6% of housing units have been constructed in the period 1980-86.

The youth of the housing stock is reflected in the average period of residence of respondents in the NHS, as shown in Table 3.11. As might be expected, the average period of residence in apartments in urban areas is lower than in detached houses, reflecting the generally more recent construction of apartments in Jordan.

Table 3.11

Residence Period in Present House

Period	House	Apt.	Villa	Other	House	Apt.	Villa	Other	House	Apt.	Villa	Other
0-2	6.5	18.8	21.4	--	11.3	28.8	--	8.3	12.8	12.0	50.0	20.0
3-2	9.1	17.8	28.6	--	15.6	19.5	--	--	18.3	32.0	--	--
6-10	14.3	19.3	21.4	100.0	21.2	22.1	50.0	16.7	21.3	24.0	30.0	40.0
+10	70.0	44.1	28.6	--	51.9	29.6	50.0	75.0	47.7	32.0	20.0	40.0
	99.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.1	100.0	100.0	100.0

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CHAPTER IV. ASSESSMENT OF HOUSING QUALITY

A. Criteria/ Standards Used For Assessment of Housing Quality

A central objective of the National Housing Strategy is to provide basic acceptable shelter conditions for all income groups, judged according to commonly agreed criteria. However, the definition of such criteria is difficult. First, because definitions of acceptable housing vary depending on an individual household's view of social, economic, physical and environmental conditions. Second, because it is difficult to distinguish the effects of investments in housing in achieving improved welfare from investments in improved water supply, provision of sewerage, adequate nutrition, health care and other social programmes.

While the previous chapter has shown that the housing stock in Jordan has substantially improved in the past decade and is now of generally good quality, there remain various deficiencies in both building and infrastructure conditions which can be overcome in the short to medium term. The criteria which can be used at a macro level to measure these deficiencies are as follows:

a. Housing Unit Internal Conditions;

- ratio of people to habitable rooms (defined as any rooms excluding kitchen or bathroom)
- existence of separate kitchen, bathroom and W.C.
- size of housing unit by size of household

b. Housing Unit - Building Conditions

- type of construction material for walls and roofs.

c. Housing Unit - Services Available

- source of drinking water
- type of waste water evacuation
- type of lighting

d. Satisfaction with House/ Neighborhood

- satisfaction with house
- improvements to house required
- number of appliances in household
- satisfaction with neighborhood
- reasons for dissatisfaction with neighborhood

- reason for moving from previous house
- satisfaction with present unit compared with previous unit
- intention to move within next 5 years
- main reasons for moving.

B. Findings

The general findings on housing quality using the above criteria are now described. Unless otherwise stated all date is taken from the National Housing Survey and relates to occupied units only.

1. Ratio of People to Habitable Rooms

The main problem of overcrowding in the country's housing stock is the high ratio of people to habitable rooms. (Overcrowding as measured by the ratio of households to occupied housing units is insignificant). Findings from the National Housing Survey, show a major improvement in the problem of room overcrowding, when compared to the 1979 census, viz:

Table 4.1

Persons Per Habitable Room

Region / Persons Per Habitable room	Greater Amman	Other Urban	Rural	East Bank	East Bank 1979
0-1.999	38.7%	34.6%	32.8%	35.5%	16.3%
2-2.999	28.3%	30.4%	29.4%	29.4%	23.3%
3-3.999	16.5%	15.9%	17.6%	16.6%	21.9%
4-4.999	7.2%	10.3%	10.1%	9.2%	15.5%
5-5.999	4.2%	5.3%	5.4%	5.0%	9.7%
Over 6	5.1%	3.5%	4.7%	4.4%	13.3%
All	100.0	100.0	100.0	100.1	100.0

It can be seen that 35% of Jordan's population is living at densities of less than 2 persons per habitable room, 46% are living at densities of 2-3.99 per room and 18% at densities at an average of 4 or more persons per room. Table 4.1 shows that room overcrowding is slightly higher in other urban areas compared to Greater Amman, and slightly higher again in rural areas compared to urban areas.

Further discussion on the problem of overcrowding is found in Chapter 9.

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2. Existence of Separate Kitchen, Bathroom and W.C.

A measure of housing acceptability is the existence of separate cooking, washing and toilet facilities, as shown in the following tables:

Table 4.2

Existence of Separate Bathroom

	East Bank	Greater Amman	Other Urban	Rural
Yes	72.4%	84.6%	74.7%	55.2%
No	27.6%	15.4%	25.3%	44.8%
	100.0	100.0	100.0	100.0

Table 4.3

Existence of Separate Kitchen

	East Bank	Greater Amman	Other Urban	Rural
Yes	89.1	94.5	92.2	78.6
No	10.9	5.5	7.8	21.4
	100.0	100.0	100.0	100.0

Table 4.4

Existence of Separate W.C.

	East Bank	Greater Amman	Other Urban	Rural
Yes	95.0	97.4	97.2	89.7
No	5.0	2.6	2.8	10.7
	100.0	100.0	100.0	100.0

Table 4.2-4.4 show in general a high quality of provision in urban areas, but significantly lower standards in rural areas in the provision of separate bathrooms and kitchens.

3. Standards of Building:

Information was collected in the NHS on materials used in the construction of walls and roofs. Additional information was collected for rural areas as part of the Rural Housing Survey. The findings are as follows:

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Table 4.5

Materials Used for Wall Construction

Type of Material	Greater Amman	Other Urban	Rural
Finished stone	19.5	6.9	3.9
Reinforced concrete	27.1	20.2	32.3
Cement blocks	52.7	65.8	53.4
Stone + Mud	0.7	4.4	7.2
Zinc metal	--	2.4	2.5
Other	--	0.3	0.7
	100.0	100.0	100.0

Table 4.6

Material Used for Roof Construction

Type of Material	Greater Amman	Other Urban	Rural
Reinforced concrete	98.6	82.2	91.8
Zinc Metal	1.2	11.2	2.9
Mud	0.1	4.2	3.6
Other	0.1	2.4	1.7
	100.0	100.0	100.0

4. Housing Unit Services Available

Information was obtained from the NHS on the provision of four key services: drinking water, waste water evacuation, type of lighting and type of heating. The findings are as follows:

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Table 4.7

Source of Drinking Water

Source	Greater Amman	Other Urban	Rural	East Bank	East Bank 1979*
Public supply	95.2	88.7	82.8	89.2	69.6
Public tap	--	4.7	2.0	2.3	7.0
Tanker	2.6	6.0	4.6	4.4	13.2
Well	1.5	--	7.1	2.6	1.9
Fountain	--	0.1	2.0	0.7	2.6
Other	0.7	0.4	1.5	0.9	5.6
	100.0	100.0	100.0	100.1	99.9

* Source: Housing & Population Census - East Bank 1979

It can be seen that there has been a major improvement in water supply over the past seven years, with high levels of public mains water supply in all areas, thus the supply of drinking water can now be said to be adequate over the country.

Table 4.8

Type of Waste Water Evacuation

Type of Facility	Greater Amman	Other Urban	Rural	East Bank	East Bank 1979
Public sewerage	79.6	4.5	1.7	29.6	11.8
Septic tank	19.0	92.1	85.2	64.8	85.6
Other	0.7	1.7	0.8	1.1	0.4
Nothing	0.7	1.7	12.3	4.5	2.2
Total	100.0	100.0	100.0	100.0	100.0

Source: Housing & Population Census 1979, Volume 1.

The sewerage network is now extensive in the Greater Amman area. In other towns, while septic tanks have been the norm, a very extensive programme of investment in sewerage systems is now in progress, so that within two or three years a dramatic increase in the availability of public sewerage can be expected. The proportion of housing units served by public sewers in rural areas can be expected to remain low, since low densities in many villages and scattered settlements imply that septic tanks are a satisfactory form of waste water evacuation. In summary, the substantial improvement noted in the 1979-86 period may be expected to increase at a rapid rate over the next five years.

Table 4.9

Type of Lighting

Type of Lighting	Greater Amman	Other Urban	Rural	East Bank	East Bank 1979*
Public elect. supply	98.0	98.1	82.3	93.0	71.5
Private elect. supply	0.6	0.6	5.9	2.4	5.6
Gas	1.0	0.1	2.2	1.1	--
Kerosene	0.0	0.8	9.3	3.4	22.8
Other	0.0	0.4	0.2	0.2	--
Total	100.0	100.0	100.0	100.1	99.9
Type of Heating					
Central	9.2	2.1	1.5	4.4	3.0
Natural gaz	0.6	1.0	0.1	0.6	--
Kerosene or solar	89.7	95.0	89.8	91.6	91.3
Wood or Charcoal	0.1	0.8	8.3	2.8	} 5.7
Other	0.3	1.1	0.3	0.6	} --
Total	99.9	100.0	100.0	100.0	100.0

* Source: Housing & Population Census 1979, Volume 1.

Again, the major improvement in lighting over the past 7 years is shown by this table. All urban areas may be considered to have satisfactory lighting. Heating is provided overwhelmingly by kerosene or solar with central heating only significant in Amman.

5. Resident's Satisfaction with House and Neighborhood

Apart from the quantifiable indications of housing conditions already described, a series of questions were asked in the NHS concerning resident's satisfaction with their house and neighborhood. In addition, questions were asked concerning the resident's move from a previous dwelling and his intention to move at some time in the future. Findings and comments are now shown in detail.

i. Improvements required for the housing unit

Table 4.10

Percentage Respondents Indicating Improvement Needed

Item	Greater Amman	Other Urban	Rural
Electrical wiring	7%	7%	6%
Water supply system	7%	7%	5%
Waste water system	11%	11%	10%
Interior finishing	24%	24%	27%
Doors or windows	15%	15%	18%
Exterior finishing	10%	10%	13%
Other	3%	3%	3%

ii. Appliances Available

Table 4.11

Percentage Housing Units With Appliance

Appliance	Greater Amman	Other Urban	Rural
Television	92%	92%	78%
Video/VCR	23%	9%	4%
Refrigerator	88%	85%	57%
Gas oven	67%	56%	53%
Washing machine	87%	86%	69%
Private car	73%	22%	21%
Telephone	45%	25%	15%

It can be seen that there is a very high level of ownership of television, refrigerator and washing machine in all urban areas.

iii. Satisfaction With House

Table 4.12

Percentage Satisfaction With House

	Greater Amman	Other Urban	Rural
Very Satisfied	59.6%	56.4%	66.2%
Satisfied	25.1%	31.3%	27.4%
Not Satisfied	15.4%	12.3%	6.4%
	100.1%	100.0%	100.0%

able 4.12 shows a high degree of satisfaction with existing ousing among respondents, with 85% being satisfied or very atisfied in Greater Amman, 88% in other urban areas and 94% in ural areas.

v. Satisfaction with neighborhood

able 4.13 shows respondents estimation of their satisfaction ith their neighborhood.

Table 4.13

Percentage Satisfaction With Neighborhood

	Greater Amman	Other Urban	Rural
/ery Satisfied	54.5%	61.6%	74.6%
Satisfied	30.3%	27.5%	20.3%
Not Satisfied	15.2%	10.9%	5.1%
	100.0%	100.0%	100.0%

Again, a high proportion of respondents in all areas are satisfied or very satisfied with their neighborhood.

Respondents saying they were not satisfied with their neighborhood gave the following reasons:

Table 4.14

Reasons for Non-Satisfaction With Neighborhood

Reason given	Greater Amman	Other Urban	Rural
General conditions	65%	73%	76%
Poor location	52%	41%	42%
Social environment	72%	60%	21%
Lack of services	32%	54%	79%
Other	22%	18%	33%

It will be noted that the two main reasons given in Greater Amman are the social environment and general conditions. In rural areas, lack of services and general conditions are the main reasons.

v. Reasons for moving from previous house

Respondents were asked to give their reasons for moving from their previous house. The reasons given, in order of priority, were as follows:

Table 4.15

Reasons Given for Moving From Previous House

Reason	Greater Amman		Other Urban		Rural	
	% response	Rank	% response	Rank	% response	Rank
1. To own a house	30	(1)	39	(1)	43	(1)
2. Change in family size	25	(2)	18	(2)	16	(2)
3. Move close to work	10	(3)	7	(4)	3	(7E)
4. Move to better environment	9	(4)	9	(3)	8	(4)
5. Change in social status	5	(5)	6	(5E)	[illegible]	(3)
6. Need for larger house	4	(6E)	2	(8)	1	(9)
7. Move closer to family/ friends	4	(6E)	6	(5E)	6	(5)
8. House demolished	3	(7)	5	(6)	3	(7E)
9. Improved income	2	(8)	4	(7)	4	(6)

The following points emerge from the above table:

- The five most common reasons for moving from the previous house are the same for Greater Amman and other urban respondents.

- In rural areas, change in social status ranks third compared to urban areas, while the need to move closer to work drops to seventh ranking.

- The desire for owning a house and the impact of a change in family size are the dominant reasons given in all areas.

79% of respondents who had moved in Greater Amman said that they were more satisfied with the present unit than the previous unit, 12% were less satisfied and 9% considered there was no change. The equivalent figures for other urban areas were 81%, 11% and 8% and for Rural areas, 88%, 9% and 3%.

5. Intentions to Move in the Next Five Years.

17% of respondents in Greater Amman intended to move house in the next 5 years, compared to 12% in other urban areas and 5% in rural areas.

The two main reasons given for such a move were as follows:

Table 4.16

Main Reasons Given for Move in Next 5 Years

Reason	Greater Amman				Other Urban				Rural			
	1st		2nd		1st		2nd		1st		2nd	
	%	R	%	R	%	R	%	R	%	R	%	R
1. Move to large house	28	(1)	28	(1)	32	(1)	21	(2)	31	(1)	19	(2)
2. To own a house	27	(2)	2	(7)	28	(2)	3	(6)	31	(1)	4	(6)
3. Move to house with more rooms	12	(3)	16	(3)	15	(3)	16	(3)	--		33	(1)
4. Nicer environment	12	(3)	25	(2)	8	(4)	36	(1)	9	(3)	15	(3)
5. Pay lower rent	10	(4)	3	(6)	8	(4)	3	(6)	--		--	
6. To line outside Jordan	6	(5)	1	(8)	2	(6)	1	(7)	19	(2)	7	(5)
7. Change in social status	2	(6)	11	(4)	--		7	(5)	--		--	
8. Improved income	2	(6)	2	(7)	1	(7)	--		--		4	(6)
9. To benefit from public housing	1	(7)	5	(5)	1	(7)	3	(6)	--		4	(6)
10. To live closer to work	1	(7)	1	(8)	3	(5)	8	(4)	6	(4)	11	(4)
11. Move to healthier house	--		2	(7)	1	(7)	--		--		--	
12. Move nearer to family	--		1	(8)	--		3	(6)	--		4	(6)
13. Other	--		--		--		--		3	(5)	--	

R = Ranking

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The following points emerge from the above table;

- As with the earlier question concerning reasons for moving from the previous house, the most common first reasons given for a future move are similar in Greater Amman and other urban areas.

- The aim of paying lower rent ranks fourth among first reasons to move in Greater Amman and other urban areas.

- The aim to live outside Jordan ranks second among respondents first reasons in rural areas; (although it should be noted that the sample responding in rural areas is small). The same aim ranks fourth in Greater Amman and other urban area respondents' first reason to move.

- The need to move to a larger house was given as the most common second reason for moving in the future, followed by the need to move to a house with more rooms and a nicer environment.

Those households who are intending to move within the next 5 years were asked what arrangements by were making for such a move. The findings are as follows:

Table 4.17

Arrangements Made to Move

Arrangement	Greater Amman	Other Urban	Rural
1. Constructing new unit	19%	16%	46%
2. Actively seeking to buy unit from private sector	11%	12%	13%
3. Waiting to receive a house from public sector	8%	8%	13%
4. Actively looking to rent a unit	47%	42%	13%
5. Other	16%	22%	17%

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It may be seen from Table 4.17 that:

- the largest share of Greater Amman and other urban households wishing to move are seeking rental housing.

- the largest share of rural households wishing to mover are currently constructing a new unit, (which from other data in the NHS is likely to be on land they already own). Although only a small percentage of existing rural households are looking to move in the next 5 years, this figure suggests that the major transformation shown by the high proportion of new housing stock in rural areas is continuing.

7. Ability to Pay for New Housing Units

Further data is available in the National Housing Survey concerning the amount respondents who are planning to move consider they can pay for buying, building or renting a new housing unit. However, this is more appropriately analysed under the general question of affordability (see Technical Memorandum 13, "Housing and Land Affordability").

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C. General Data on Owner Occupied and Rental Housing Units

Further information on the existing stock of owner occupied and rented housing stock is contained in Annexes 1 and 2 to this Technical Memorandum.

D. Definition of Upgrading Used in Housing Needs Assessment Model.

The previous section has shown that the main shortcomings in housing conditions which can be met by physical investment are as follows:

- elimination of households having to share a dwelling
- reduction or elimination of room overcrowding
- provision of water supply, electricity and sewerage to units currently lacking these services
- improvement of proportion of rubble/stone structures in rural areas by means of wall rendering and/or replacement of existing substandard roofs.

It is emphasized that the National Housing Strategy will make recommendations on policies and investment programmes related to housing units and housing land. Naturally there is a variety of improvements which can be made at the local community levels, e.g. provision of improved education, health, social and other facilities, as well as further infrastructure improvements such as road, water supply and sewerage investment. However the Shelter Unit assumes that such investments fall within the jurisdiction of other line agencies. As proposed elsewhere, the proposed structure and organization of the Shelter Unit will allow proper coordination concerning area priorities, sectoral priorities and responsibilities between the unit and such line agencies.

Housing stock in the base year for the model, 1986, is divided into three principal categories; "Acceptable", "Upgradable" and "Non-upgradable". These categories are defined as follows:

Acceptable Units

These units meet the minimum standards for infrastructure services and housing construction. They are connected to public water supply and sewage/septic tank facilities and the walls and roofs are built of durable and relatively permanent materials such as stone, reinforced concrete frame or cement block.

Upgradable Housing Units

These units meet the minimum construction standards for acceptable units but fail to meet the minimum standards for infrastructure. In urban areas the housing units do not have piped in water and/or electricity and/or a public sewerage line/ septic tank.

Non-upgradable Housing Units

In urban areas these units are either marginal, mobile or made of mud or rubble stones as defined in the 1979 census.

In rural areas it is assumed that only rubble stone units are upgraded, since there are very few traditional mud units and any new mud construction would be of better quality using new techniques. In fact not all rubble stone units would be upgraded since may of the currently vacant rubble stone units have been permanently abandoned or converted to other uses.

A summary of the existing housing stock according to these categories is as follows:

Table 4.18
Categories of Existing Housing Stock

Category	Greater Amman		Other Urban		Rural	
	No.	%	No	%	No	%
Non-upgradable	1480	1.1	12650	8.6	7620	7.7
Upgradable	6200	4.4	6870	4.7	12196	12.3
Acceptable	131700	94.5	127830	86.7	79264	80.0
Total	139380	100.0	147350	100.0	99080	100.0

7

Marketability Analysis

by Stephen Pyhrr and Stephen Cooper

MARKETABILITY ANALYSIS

Stephen A. Pyhrr and James R. Cooper, Real Estate Investment: Strategy, Analysis, Decisions. New York: John Wiley & Sons. 1982.

MARKETABILITY ANALYSIS

"I get people to invest by selling them the depreciation"

a nationally known syndicator

WHAT IS MARKETABILITY ANALYSIS?

A marketability analysis is a micromarket study. The micromarket is the specific site that is being considered for possible investment.

The marketability of a particular unit of space implies the ability of the market to accept the transfer, sale, or exchange of some or all of the rights in that space. A marketability study usually considers a specific use or uses of the space. This use may or may not represent the highest and best use, but focuses on what is *marketable*.

A marketability analysis has been defined as a

> study to determine to what extent a particular piece of property can be marketed or sold under current or anticipated market conditions. It is inclusive of a study (analysis) of the general class of property being considered. Thus, a marketability analysis goes one step further than a market study by identifying the number of units that can most probably be absorbed within that specific trading area (market) and over a specified time period. Thus, the marketability analysis is not a project feasibility analysis in that it does not take into consideration development costs or profitability. In effect a marketability study is

sandwiched in between the market study, on the one hand, and a basic financial feasibility analysis on the other.[1]

The usual conclusions of a marketability analysis are the following:

1. *Quality*, which in economic terms means the price or rent levels at which the market might accept the space.
2. *Quantity*, or absorption schedule within the defined time period.
3. *Specific conditions*, such as terms of financing, sales techniques, and amenities, which will enhance the acceptance of the property or encourage its acceptance by the market.[2]

A marketability analysis should forecast gross cash revenue and project the market share to be captured. Specifically, in an existing property situation (rather than development) the market analyst must project the gross possible income and vacancy rate under different economic scenarios for each year of the ownership life cycle. Preliminary property value and operating expense estimates might also be derived as an output of a marketability analysis; although this is cost efficient, it is not commonly done.

Location, Neighborhood, and Site

In Chapter 5 we noted that the location of an investment is influenced by the investor's overall philosophy and strategy, by the negotiation process, by the state of the capital markets, and even by nonpecuniary objectives. For the purposes of marketability analysis, a *location* is defined as the geographic area within which a real estate product could produce adequate income without suffering undue loss because of the absence or inadequacy of some particular factor that is usually necessary for such a use. Obviously, this is a pragmatic recognition of the imperfect efficiency of real estate markets. The same practical approach is taken in defining the limits of a neighborhood when doing a site analysis.

GUIDELINES FOR A MARKETABILITY ANALYSIS

As we have noted before, the investor is a coordinator of a process designed to maximize returns and accumulate wealth. Since micromarket analysis is quite location specific and requires extensive field survey work, the investor will most likely contract with a qualified real estate appraiser or counselor, such as an SREA or MAI, to perform the marketability analysis. One of the most valuable qualities of such an expert is the fact that he or she may have access to data that are not generally available. Especially for out-of-town investors, it is important that whoever performs the marketability analysis be knowledgeable about the local real estate markets.

[1] Byl N. Boyce, *Real Estate Appraisal Terminology* (Cambridge, Mass.: Ballinger, 1975), p. 137.
[2] Stephen D. Messner, Byl N. Boyce, Harold G. Trimble, and Robert L. Ward, *Analyzing Real Estate Opportunities* (Chicago, Ill.: National Association of Realtors, 1977), p. 43.

Because the uncertainty in much real estate investment is greater than one encounters with ordinary business risks, we believe that a marketability analysis should generate "optimistic," "most likely," and "pessimistic" levels of data.

The following is a list of the components of a thorough and complete marketability analysis:

1. Establishing the boundaries of the neighborhood
2. Neighborhood analysis
3. Site analysis
4. Survey of competition, with interpretative analysis
5. Marketing strategy and management plans
6. Capture and absorption rate analysis
7. Revenue and operating expense forecasts
8. Summary and conclusions

All of these components are interrelated: The economic–demographic profile, the competitive survey, the analyses of market absorption and capture rates, and the revenue and expense forecasts are based on the marketing strategy and management plans that the investor expects to adopt for the specific site use.

Establishing the Boundaries of the Neighborhood

As we have noted, a location may have more than one neighborhood within its boundaries. Since time and budget constraints do not permit an analysis of all the possibilities, the market study should provide sufficient information to select the neighborhood that best conforms with the investor's philosophy and strategy.

Neighborhood boundaries are often established by *natural barriers*, such as hills or bodies of water, or *legal/political barriers*, such as city limits, zoning boundaries, or school districts, or other *artificial buffers*, such as highways, rail lines, or green belts. The key to practical neighborhood delineation is to keep in mind that it is the competitive forces of users and lenders that establish and change neighborhoods, and not the decisions of analysts, planners, or statisticians. On the other hand, time and budget constraints compel the investor to define a neighborhood to fit available primary data, such as census tracts, blocks, or ZIP code areas

In summary, one should delineate the neighborhood with due regard for natural and political barriers, competitive forces, and the best available fit to data sources.

Neighborhood Analysis

Neighborhood analysis should provide detail on the quality of access to public transportation, utilities, shopping centers, schools, religious and civic organizations, hospitals, community facilities, and recreational facilities, to the extent that they are pertinent to the use contemplated. Detailed information should be provided on the socioeconomic level of the neighborhood by income, education,

occupation, age, and population trends. There should be descriptive data on geological, topographical, climatological, and other environmental influences. There should be a narrative description of the history and nature of the neighborhood, how it came into being, and past, present, and future trends. It is reasonable for the investor to require a map pinpointing the location of the neighborhood (and the site) within the metro area (locality map). Generally, the report should provide the following:

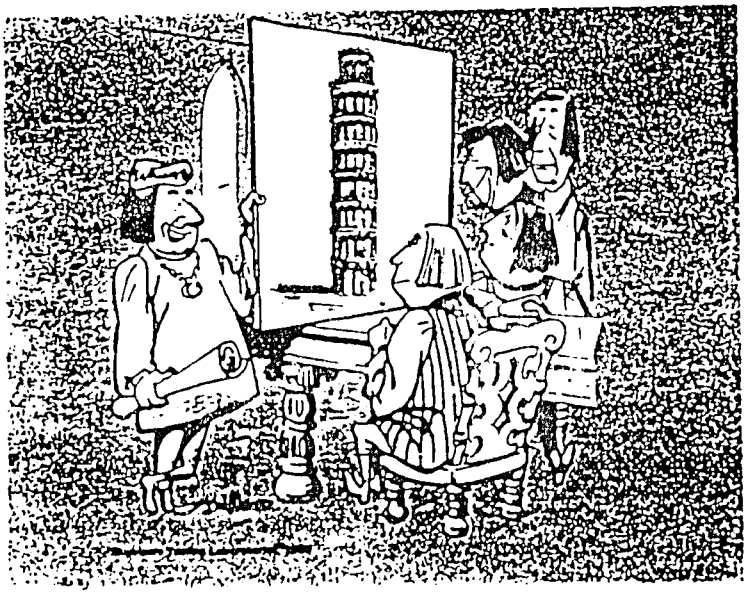
1. A statement of *what type of use predominates in the area*, the degree of conformity or diversity, and the extent of inharmonious uses.
2. *An evaluation of the area's reputation.*
3. *The representative range of sales and rentals*, and the *quality of improvements* relative to competitive and comparable submarkets.
4. An *informed opinion on the general remaining economic life* of the *typical* properties in the neighborhood area. Signs of spot blight should be observed.
5. A comment on the *extent of neighborhood maturity and degree of neighborhood sprawl.* Is the location built up? Is it stable? Is it on the decline? Is it being rehabilitated? Is there pride of ownership? What is the quality of routine maintenance?
6. A report on the typical source of financing and refinancing in the neighborhood. An evaluation of the attitude of lenders toward the future of the neighborhood.
7. An evaluation of *how accessible the neighborhood is* to the municipal infrastructure, the urban economy, and essential services and amenities.
8. A report on *planning, zoning, and code controls*. Are there any restrictive covenants? Are occupancy permits required for new owners? Is code compliance activity adequate or overzealous? Is there any illegal or nonconforming use in the area? Is a zoning variance, exception, or change necessary for the contemplated use?
9. An analysis of the *nature and adequacy* of available utilities and necessary amenities and other essential facilities *for the planned use*
10. A report on the *vacancy and occupancy rates* that exist in the neighborhood as a result of current and/or long-term conditions. This report should be stratified as to tenure (owner/renter) and price/income categories.
11. A report on the *turnover rate* of ownership and/or occupancy.
12. A comment on any known hazards, nuisances, noise, air or water pollution, traffic congestion, etc.
13. A *comment on possible positive or negative effects of nearby major facilities*, such as schools, major complexes, regional shopping centers, convention facilities, stadiums, and industrial districts
14. An evaluation of future trends for the neighborhood. The analysis should provide a factual and objective opinion of both positive and negative influences, free from speculative bias based on prejudices of any sort.

Site Analysis

Site analysis is an in-depth extension of neighborhood analysis. However, it focuses more narrowly on physical and geological conditions and terrain. It reviews zoning, land use controls, and other economic, legal, political, and sociological factors that might affect the use and, hence, the value of the site. If the neighborhood analysis has made some reference to hazards, nuisances, amenities, and the like, then this part of the report should discuss their effect on the site.

Generally, one should expect a site analysis to contain the following site-specific commentary:

1. The dimensions, shape, and area of the site.
2. Topography.
3. Soil and subsoil conditions.
4. Quality of drainage.
5. Quality and adequacy of utilities.
6. The nature of on-site landscaping, paving, etc.
7. Is the site typical and representative in nature? If not, what is the extent of its nonconformity?
8. Quality, adequacy, and level of maintenance of the municipal infrastructure (streets, curbs, sidewalks, etc.). (*Note:* The neighborhood analysis should have provided information on the quality and level of police and fire



"...and we can save 700 lira by not taking soil tests."

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protection, urban transportation, and sanitary hauling and sewage. However, some special comment may be necessary for a specific site. In a built-up area, the very reason for nondevelopment may often be the inaccessibility of some such service.)

9. Time and distance to urban services and amenities.
10. Comparison of the site with other competitive sites, using appropriate units of comparison (i.e., ratios such as real estate taxes per square foot or rents per square foot).

In addition to the foregoing, the investor must continuously assess potential users' and lenders' attitudes toward all of these factors, for user preferences have the greatest influence on current and future values. Exhibit 6–1 shows a segment of the appraisal form developed by the Federal Home Loan Mortgage Corporation (FHLMC) and the Federal National Mortgage Association (FNMA), which effectively summarizes neighborhood/site characteristics as evaluated by a skilled appraiser.

Site analysis can be extended by the use of *earth science maps.*[3] Covering anything from a city block to the entire planet, the calibrated scales of these maps are appropriate for urban applications. (The camera resolution is so high that one can see even the height of curbs.) These maps provide the investor with valuable information on, for example, ease of excavation, landslide susceptibility, slope stability, seismic susceptibility, percolation rates, mineral potential, and solid waste disposal. Neglect of site condition variables can be dangerous.

The Environmental Impact Statement

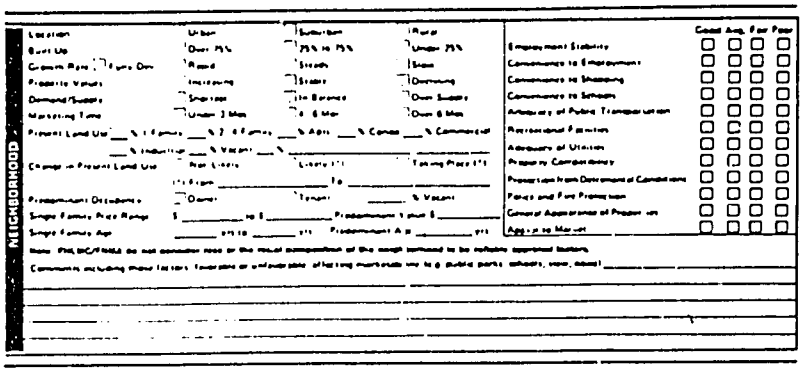
Today developers and investors must also keep in mind the need to comply with environmental laws and regulations, for the cost of such controls can make a large difference in profit potential. A site analysis, therefore, should consider the effect of such regulations. Under the National Environmental Policy Act (NEPA), Section 102 (2)(c), environmental impact statements must be filed on some projects that set forth, among other matters, the following:

1. The environmental impact of the proposed project.
2. A report on its adverse consequences
3. Alternative uses that might be made of the environment.
4. Methods by which the proposed use can be better adapted to the environment.
5. The impact of the proposed use on long-term efforts to maintain or enhance the environment.
6. A report on the irreversible and/or irretrievable commitment of resources required to carry out the project.[4]

[3] G. D. Robinson and A. M. Spieker (eds.), "*Nature to be Commanded . . .*" Earth-Science Maps Applied to Land Use and Water Management, Geological Survey Professional Paper no. 950 (Washington, D.C.: GPO, 1978).

[4] Jane A. Silverman, *Environmental Impact of Real Estate Investments*, Real Estate Review Portfolio no. 17 (Boston, Mass.: Warren, Gorham & Lamont, 1973).

EXHIBIT 6-1. A Portion of an FHLMC/FNMA Residential Appraisal Form


NEIGHBORHOOD

SOURCE: Federal National Mortgage Association, Form no. 1004, rev. 7/79.

Highest and Best Use

Many investors feel that a highest-and-best-use analysis should be part of the site analysis. This concept, developed by appraisers, is a useful method for preliminary site use analysis. Since an investor seeks the most profitable use of capital, the site use should meet the following criteria:

1. It is *reasonably probable*.
2. It is *legally permissible*.
3. It is *physically possible*.
4. It is adequately and appropriately *supported by the market*.
5. It is *financially feasible*.

A properly executed marketability analysis must address each of these preliminary determinations regarding the feasibility of the contemplated site and use, except for financial feasibility.

Is the Site Use Reasonably Probable? The determination of what is reasonably, prudently, and likely to succeed is largely dependent on the separation of fantasy from what is likely to occur. Many raw land deals have been sold at exorbitant prices because buyers failed to consider when in the immediately foreseeable future urban fringe land would actually be converted into suburbs. In effect, whether the use contemplated is likely to occur is determined largely by its current accessibility to the essential services of the metro area. The determination of what is reasonably probable depends on the screening tests to be set forth shortly. The key to successful highest-and-best-use analysis is to select the use that is *the next most probable* profitable use in the short-term future.

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Is the Site Use Legally Permissible? Do subdivision regulations and zoning, housing, and building codes permit the use intended for this location? Even if the codes do permit that use, is it the most productive for that location? If the intended use is now illegal, should zoning changes be sought? What is the estimated cost of obtaining the change, and what is the probability of success?[3]

Is the Proposed Use Physically Possible? Architects, builders, and engineers have developed construction technology to a point at which almost anything can be built anywhere at any time. But what is economically feasible to the investor may be a quite different thing.

The investor needs architectural, planning, and engineering services for many situations. Engineers and architects can estimate the cost of siltation management, which might require the removal of trees and ground cover and the construction of water retention ponds. Subsoil conditions can be estimated prior to purchase. Engineering studies also are often useful in determining the quality and adequacy of heating plants, air conditioning, elevators, and roofs. Failure either to have the seller cure defects or to take them into consideration in price negotiations can prove disastrous to the investor.

Is the Site Use Appropriately Supported by the Market? The market for any use—a new development or improvements at an existing location—must be thoroughly known to the investor, or else the supply and demand characteristics of the contemplated use must be thoroughly explored. A site may be in the path of growth, but expansion of the urban fringe or the filling in of urban sprawl may take another ten years before it reaches the site. For example, in one case county planners had zoned an area near a regional airport for industry, but the acreage available constituted a 200-year supply at the expected rate of growth. In another type of situation, there may in fact be a demand for 2000 additional units of multifamily rental housing in the $250–350 per-month range, but a survey would reveal that ten developers were already building 2000 units *each* for the forecast period. During the 1970s most major SMSAs had begun to signal obvious potential distress due to overbuilding long before the overbuilding itself occurred.

Is the Proposed Use Financially Feasible? Since all investors seek profitable use, an investigation of financial feasibility is mandatory. An appraiser makes such a study part of a highest-and-best-use analysis. However, this book defers discussion of financial feasibility until Chapters 10–13, since we feel that it warrants a separate study.

Economic and Demographic Profile of the Neighborhood/Site

Markets can be delineated in various ways: geographically, by political jurisdiction, or by time and distance radii. However, because of time and budget constraints we feel that the preferred choice is geographic delineation. A geographically oriented, areal, economic–demographic data base report can be conveniently

[3] Hinds, Dudley, et al., *Winning at Zoning* (New York: McGraw-Hill, 1979)

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produced at low cost by using a proprietary, computer-based, data retrieval system like CACI's. We will use CACI's Siteline® and Site · Potential® systems to demonstrate the type of marketability report that is now available.[8]

In 1970 the Census Bureau provided the Census of Population Housing Summary in computer readable form for the first time. Several organizations were formed to process the tapes and make them available to users.

In the Siteline system 98 key variables were selected. They include:

- Total population
- Population by race, age, and sex
- Family income
- Median income
- Home values and rental prices
- Major appliances
- Occupation
- Units in structure, including mobile homes
- Automobiles
- Education
- Household and family composition

The system provides a demographic data base covering 63,000 unique administrative or political units. In addition, special computer programs provide geographic cross-reference files for very small areas, such as block groups, census tract districts, and ZIP code identifiers, thereby enabling users to define areas of any size and shape required. To use a program, the user selects a *site*. A site is a physical landmark, such as the intersection of two streets, that serves as a reference point around which a number of area boundaries may be geometrically defined. The populations of these subareas, called *cases*, are equal in sum to the total population of the site area. CACI enables the user to define up to 20 possible cases in any one computer run. Exhibit 6–2 illustrates a few of the ways in which a market might be defined. In addition, the user can define a market as composed of one or more of the following: (1) the entire United States, (2) states, (3) counties, (4) SMSAs, (5) ZIP code districts in SMSAs, (6) census tracts, or (6) minor civil divisions.

CACI provides another example of proprietary data retrieval system with Site · Potential®. With this system, users simply define a trading area of any size or shape. The system scans the CACI demographic base to determine the demographic characteristics of the residents of the trading area and then computes sales potential information. Though the Site · Potential® system is most useful for retail

[8] We gratefully acknowledge the cooperation of George Moore, Vice-President, CACI, 1815 Fort Myer Drive, Arlington, Virginia, 22209, for making this CACI material available.

Scholarly sources for the concepts imbedded in models such as CACI's are: David E. Bell, Ralph L. Keeney, and John D. C. Little, "A Market Share Theorem," *Journal of Marketing Research*, (May 1975), pp. 136–141; Thomas J. Stanley and Murphy A. Sewal, "Image Inputs to a Probabilistic Model: Predicting Retail Potential," *Journal of Marketing*, (July 1976), [illegible] 53; and Stanley and Sewall, *Metro Markets* (with teaching notes and program listings) (Boston: Harvard Business School Clearinghouse, 1977).

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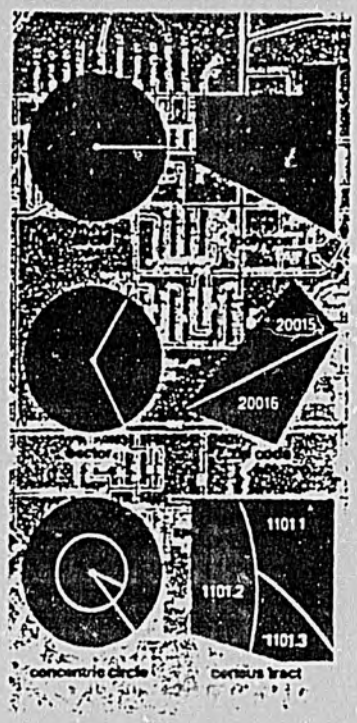
EXHIBIT 6–2. Defining Geographic Market Boundaries

Choose an area of any size or shape anywhere in the USA.



. . . Or, any combination of cities, townships, counties, ADIs, DMAs, and SMSAs.

SOURCE: Courtesy of CACI, Inc., Arlington, Va.

or commercial investments, the methods and techniques of analysis are appropriate, with modifications, for all kinds of real estate investments.

The older, now outmoded, methods of developing such sales potential for an area were of only marginal value for smaller trading areas because the procedures did not take into account many factors that influence expenditures, such as ethnicity, occupation, income, family size, education, household composition, and regional effects. CACI and other computer data retrieval systems, however, analyze

the relationship between consumer expenditures and their demographic and socioeconomic characteristics. The Site · Potential® system can generate both a market growth index (MGI) and a market potential index (MPI) for the trading area, as well as for each line of merchandise. The market growth index compares the growth rate of total sales potential in the trading areas with the growth rate of the economic region in which the trading area is located. This is very similar to the technique of economic base analysis. If the MGI of the trading area is 106, then the total sales potential of the area has grown at a rate that is 6 percent *greater* than the potential for the economic region. The market potential index compares weekly per capita sales potential of the trading areas with that of the economic region in which the trading area is located. When, for example, the market potential index is 123, the potential of the area is 23 percent higher than the average potential of the economic region. This information, covering over 74 lines of merchandise, is currently organized into 29 standard reports. (See Exhibit 6–3.)

The presentation of the CACI information systems has enabled us to review the nature of economic–demographic data base profiles and provided a brief study of how they are developed and made available. Obviously, proprietary systems of this kind are relevant primarily to commercial and service real estate uses. However, once a neighborhood and site have been selected, such data retrieval systems can provide the demographic and socioeconomic characteristics that must be reviewed for any contemplated use within that geographic area.

In addition to site evaluation, such data retrieval services might be used for market share analysis, customer profiling, and tenant mix decisions, and as an aid in forecasting market absorption and capture rates. The Siteline® reports are available by phone, and access to various subsidiary programs such as Site II® and Site · Potential® is available on nine time-sharing networks.

Keep in mind that such services do not offer only simple linear projections. The projections are controlled by the most recent estimates for census tracts and minor civil subdivisions. Some projections are adapted for information from utility companies, the construction industry, and environmental groups.

A major shortcoming of such profiles must also be kept in mind. The projections provided are based on past activities; they are not predictions of what will *actually* occur. No model can take into consideration changes like the following:

1. Rapid changes to higher and better land uses as a result of private or governmental action, such as demolition, highway construction, construction of public facilities, new industry in the area, conversions from old to new uses, etc.
2. Changes in technology or material shortages that are not yet reflected in consumption activities like mass transit, energy use, etc.
3. Rapid changes in consumer buying patterns, such as those brought about by Kentucky Fried Chicken and MacDonald's.
4. On an individual case basis, such statistics are necessarily silent on the effects of competitors' plans.

Field Survey of the Competition

This is a survey, by competent professionals, of *existing and planned* real estate that will compete with the investment under consideration. Before proceeding with an acquisition, it is essential for an investor to discover how competitors are currently serving the area and how *additional* competitors are *planning* to serve it in the immediate future. With this information the investor can refine and improve the merchandising plan during the preacquisition stage. It is also possible that an investor will find that new construction contemplated is of such quantity and quality that interest in the particular site should be abandoned. An investor must verify the accuracy of information gained from competitors' representatives. Such information can be cross-checked with utility engineers, other building contractors, mortgage lenders, and government agencies.

The data gathered from an appropriate competitive survey will provide direct market comparisons with alternative sites that are being offered to the tenants the investor seeks to capture. Competitive data will sharpen the investor's definition of customer profiles, potential rents, vacancies, and expenses, and can test the kinds of amenity packages that competitors are providing. These critical data will enable the investor to test his or her plans against what the market is already providing to tenants, and make it possible to identify what lenders have recently approved.

The following are factors that should be covered in various kinds of competitive field surveys.[7]

Residential Competitive Survey

1. Map showing location of various competitive projects.
2. Number of existing or planned units in project.
3. Unit mix (i.e., number of bedrooms).
4. Square feet per unit (including balconies, patios).
5. Amenities of unit (carpets, drapes, appliances, security).
6. Nature and quality of project amenities (recreational facilities, clubhouse).
7. Price or rental range (sales price per square foot, expenses per square foot)
8. Tenants' lease terms
9. Sales and financing terms of recent sales.
10. Vacancy and occupancy rates (stratified by unit mix).
11. Quality and nature of management and merchandising strategy (advertising, models, signs).
12. Rate of absorption of new or vacant units in recent months.
13. Nature of occupants (income, occupation, place of employment).
14. A judgmental rating of the overall competitiveness of the project on a scale from 0 to 10.
15. Date of field survey.

[7] These guidelines were adapted from ideas presented by John McMahan, *Property Development* (New York: McGraw-Hill, 1976). A recommended book.

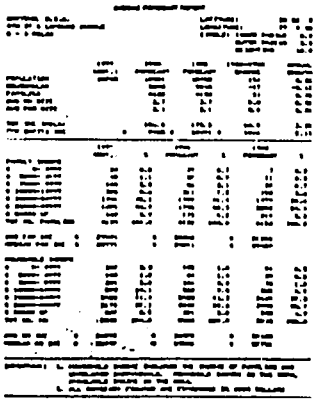
EXHIBIT 6-3. CACI Standard Market Reports

Choose any of 29 standard reports.

Demographic Reports:
1. Income Forecast
2. Demographic Forecast
3. Income Update
4. Demographic Update
5. Demographic Profile
6. Demographic Summary
7. Columnar
8. Comparison
9. Growth
10. Component Area

Sales Potential Reports:
11. Shopping Center
12. Grocery
13. Drug
14. Apparel
15. Footwear
16. Department Store
17. Automotive Aftermarket
18. Home Improvement
19. Optical Center
20. Hair Salon
21. Bakery
22. Dry Cleaners
23. Photo
24. Appliances
25. Ice Cream
26. Restaurant
27. Commercial Bank
28. Savings & Loan
29. Consumer Finance

. . . or call us if you have a requirement not listed here.



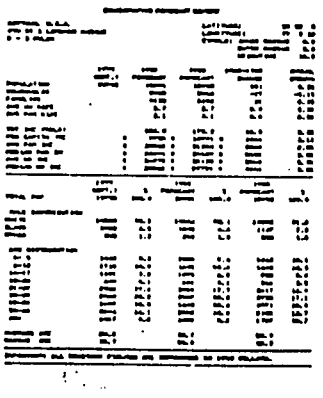


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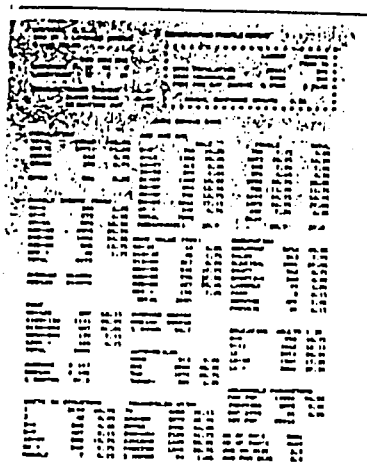
EXHIBIT 6-3. (Continued)



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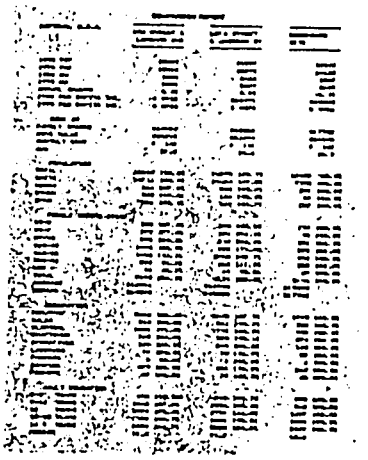

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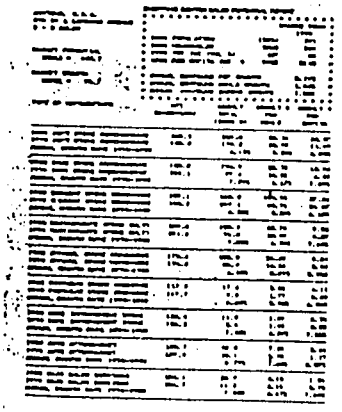

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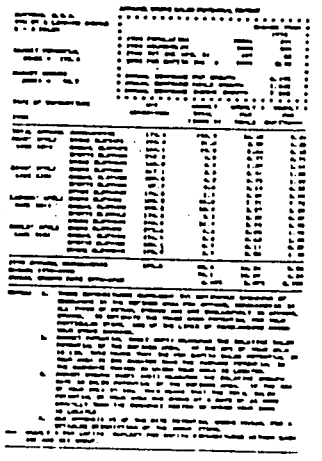

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SOURCE Courtesy of CACI Inc Arlington Va

BEST AVAILABLE DOCUMENT

Retail/Commercial Competitive Survey

1. Map showing location of competitive projects (including time and distance indicators).
2. Gross leasable area (GLA) of competitive projects, broken down into major categories of goods and services.
3. Parking index—number of parking stalls or square feet of parking area per square foot of GLA.
4. Sales or rents per GLA, broken down into categories of goods and services.
5. Identification of major anchor tenants and competitive stores.
6. An evaluation of directly competitive users (comments on stores, appearance, personnel, advertising, and promotional techniques).
7. Opinion of the overall quality of the competitive center. This should be a consideration of merchants' association, maintenance, shopping atmosphere, etc.
8. An analysis of the area surrounding the center (presence of buffers, nearby uses, transportation, type and quality of nearby uses, growth trends). A rating scale of 0– 10 should be used.
9. Date of field survey.

Office Competitive Survey

1. Map showing location of competitive office buildings; the name of the office activity nodes where office uses cluster in the SMSA.
2. Gross building area, net rentable area, net rented area, net occupied area of competitive buildings.
3. Schedule of rents per square foot, broken down by tenant and floor location of tenant categories.
4. Minimum lease duration.
5. Items normally included in tenant finish allowance (partitions, utility outlets, lighting, carpets, drapes).
6. Lease terms (building services included in base rent, escalation clauses, maintenance duties, risk of loss in the event of casualty).
7. Parking (provided, how, monthly charge).
8. Other building amenities (function rooms, restaurants).
9. General profile of major and minor tenants.
10. An evaluation of the overall competitiveness of the project (maintenance and management, appearance, locational advantages/disadvantages). A rating scale of 0– 10 should be used.
11. Date of survey.

Industrial Land Use Competitive Survey

1. Map showing location of competitive projects
2. Accessibility to various transportation modes (air, highway, rail, public transit), with time, distance, and frequency indicators

3. Nature, quality, adequacy of various utilities (capacity, limits on ut. ation, surcharges, tap-in charges).
4. Development controls imposed.
5. Alternative site developments permitted (build-to-suit, general purpose only, sale/leaseback).
6. Acreage sold or rented to date, with annual absorption rate.
7. Acreage vacant or remaining to be sold or rented.
8. Profile of major and minor occupant firms.
9. Price or rental terms, per square foot, for various uses.
10. Lease terms (duration, escalation clauses, risk of loss in the event of casualty, renewal options).
11. Project amenities provided by owner (landscaping, street maintenance, snow removal, lighting, conference facilities, recreational facilities, restaurants).
12. An evaluation of the overall relative competitiveness of the project. A rating scale of 0– 10 should be used.
13. Date of survey.

The material listed here is schematic in nature and lacks detail. In Part IV we provide detailed definitions of many of the technical terms plus greater detail on the techniques of competitive analysis.

Sound marketability analysis requires the development of a logical merchandising plan early in the prepianning stage. A better competitive survey will result if the marketing strategy and management plan have been developed, at least on a preliminary basis, for the contemplated site use. This will lead to greater accuracy in the market absorption and capture rate analyses.

Marketing Strategy and Management Plan

Each of these terms covers a separate, but essential, management function.

Marketing Strategy Marketing strategy is defined as the investor's policy concerning the merchandising of the property This policy is designed to achieve or maintain an adequate level of occupancy within acceptable market absorption rates, and to produce a minimum rate of return at an acceptable level of risk. Although this definition differs from many, it is our belief that investment strategy, marketing strategy, property management, and so forth are all parts of a continuous process directed toward the goal of maximizing returns relative to risks. The functions should not be separated.

The original market study identified market areas in an SMSA where possible investment opportunities could be found. Once the site has been targeted for the contemplated use, a merchandising program must be devised to exploit the opportunity at the site.

A merchandising program varies with the neighborhood/site, the nature of the location, the degree and nature of the competition, special advantages or disadvantages of the subject site, and the investor's evaluation of the effectiveness of other merchandising programs. Although a market analyst is sometimes asked

to develop the merchandising program, generally the investor devises the plan with the assistance of a qualified property manager and/or real estate broker.

In order to develop a merchandising plan, the characteristics and preferences of the target market must be described as precisely, simply, and definitively as possible. For example, the target market for an industrial park may be small business firms, young or mature, that require a combination of office space and/or warehousing, nonpolluting manufacturing, or a laboratory. An apartment building might be aimed toward singles and empty-nesters earning $20,000 or more who are interested in security, limited health facilities, and close proximity to hospitals and shopping. The target market for a boutique shopping center may be described as young executives and older couples with high disposable income who are interested in gourmet foods, art objects, high-fashion clothes, and other specialty items.

Definition of the target market early in the preacquisition stage forces the investor to ascertain whether or not the market currently exists in the targeted SMSA market area. Clear characterization serves another valuable function in that it requires the investor to formulate a merchandising plan that is consistent with the needs and resources of the target market. When purchasing an existing project with apparently adequate gross rents, this exercise is quite useful as a way of evaluating the representations made by the seller regarding the occupation, income, and the like of the users.

Although we cannot fully develop a general model of a merchandising plan here, we will note various decision points that are important in evaluating and estimating market absorption and capture rates, given the merchandising plan.

1. Once the typical space-user has been defined, a shopping service might be engaged to compare the target with its competition.
2. Having considered the comparative advantages and disadvantages of the targeted use, one might consider what design, repairs, or improvements might be necessary. This could require amendment of the capital budget or renegotiation with the seller.
3. Every real estate project tends to develop an image in the marketplace, even if it is so desirable that it is rented by word of mouth. Generally, however, it is necessary to promote a project in order to maintain high occupancy levels throughout the building cycle.
4. Careful attention should also be given to the signage program, to the way prospective user traffic will be handled, how sales models will be shown, and to the sales/lease closing rooms.

The Management Plan A management plan is defined as the tactical system that implements investment, marketing, and merchandising strategy in accordance with the investor's philosophy. It is the investor's supervisory control system over the property manager.

In Chapter 16 there is a detailed discussion of the property management function. Here we simply list the functions of the property manager, who acts as

an agent of the owner. In general, the supervisory control system requires the property manager to provide the following:

1. Space use planning to meet user preferences
2. Market promotion policies, merchandising, tenant selection
3. The maintenance and replacement policy
4. Policies for control of major construction and contractors
5. Accounting policies and control of reserves
6. Management policies for operation of the property

The investor separates management of the property from investment management, which is concerned with acquisition, investment, and market analysis; risk/return evaluation; financing and refinancing; tax planning; and disposal, or terminating the property interest. Although the investor may use an independent property manager to manage the property, control of the investment function should be retained.

The Market Absorption and Capture Rates

The Market Absorption Rate This is the rate at which the market is capable of using space for a specified use. Sometimes the market absorption rate is stated as a percentage, but more often it is given as the ratio of the number of units absorbed over the time it will take to absorb them into the market. Since real estate is relatively inelastic in the short run, it is quite possible that a market absorption rate of 100 units per month could result in a queue of eager customers until new units were built and brought on the market to satisfy the demand. For example, at 100 units per month the absorption rate for 1200 units for the entire year (including both new and previously sold units coming back onto the market) would be 8.5 percent. But to say that the absorption rate is 100 units per month or 1200 units per year is not enough. To be practical, the market absorption rate should be related to both demand and supply. In addition to knowing the standing inventory for any given period, one needs to know how many units are expected to come onto the market during the same period.

A marketability analysis should provide absorption rates for *stratified* markets in small geographic areas, and should do so with a low rate of error. Because users can exercise a wide choice as to location—which is loosely defined as time and distance from home to work—the market absorption rate for, say, apartment space for an entire SMSA can be forecast with more accuracy than the effective demand for apartment space within a small geographic area. Under such conditions the usefulness of a proprietary type of demographic/economic data base profile for small areas is apparent, since it provides the means for matching estimates of absorption rates with historical trend comparisons. Since the estimation of market absorption rates is more an exercise in human judgment than an objective process of quantification, the investor should forecast data under: optimistic, most likely, and pessimistic conditions.

Capture Rates A capture rate is an estimation of market share. An *existing* capture rate is the percentage of the total potential market that is *currently retained* by existing competition. A *potential* capture rate is the percentage of the total potential market represented by an excess of demand over supply. To the extent that the existing capture rate is less than the total demand for space, there exists an opportunity for the development of a real estate product to serve the need.

Existing capture rates can be determined by comparing the total potential for the market area with the total number of existing units for the specified type of activity. An existing capture rate of less than 100 percent in retail sales, for example, indicates that consumers are traveling outside the local market to acquire the necessary goods or service. This leakage can be captured by an attractive local retail source. Using the *summation estimating technique*, the marketability analysis would first establish the potential of dollar expenditures for the particular use that would be originated in the market area. To estimate a reasonable market share for an existing site, one would allocate the appropriate share of potential dollars expenditures among the existing and planned competitive uses. The balance, divided by the site's revenue units (e.g., apartment units or gross leasable area of retail space), will provide an estimate of the reasonableness of achieving this level of market share.

A variation of this technique uses information produced by the field survey of the competition. Having identified the number of competing facilities within the market area, one proceeds to estimate the share of the market that the target site and the competitors have captured and/or are expected to capture in the case of new facilities. This is a judgmental estimation; it takes into account competitive locational advantage, attractiveness of facilities, and the like. At this point the capture rates can be multiplied by the expenditure for this type of consumption activity to provide an estimate of the sales that could be captured in this market area. When compared with estimates produced by the competitive survey, this acts as a check on the reasonableness of estimates.

In the case of a planned facility, the best available means of estimating a capture rate is to conduct primary behavioral research to supplement information on consumer expenditure patterns arising out of the data base profile. This is accomplished through personal interviews, phone interviews, or mail questionnaires. Attitudinal surveys of this kind are fraught with the possibility of error when conducted by amateurs. Such surveys probably should be done by a market research analyst because of the special skills required. A crude measure of the potential demand for the contemplated use can be provided by an enumeration of how the respondents would want to use the facility. With a scientific sample, it is possible that an adjusted capture rate can be derived for the total projected population during the rent-up or sell-off period. Certainly such projections should be judgmentally adjusted for the effects of competitive changes. One should also keep in mind that consumer surveys are an expression of wishes and desires; they are not measures of actual demand for the real estate product.

Unfortunately, formal methods for the determination of capture rates have yet to be developed Therefore, the investor should use more than one of the

methods indicated here. In addition, a range of capture rates should be estimated so that the reasonableness of the estimates can be assessed more effectively.

Revenue and Expense Forecasts

For existing properties the conclusion of a marketability analysis is a forecast of (1) gross possible rental income and (2) vacancy rates for each year over the expected holding period of the investment. Risk is taken into account by projecting data for alternative economic scenarios, defined above as optimistic, most likely, and pessimistic conditions. These data outputs from the marketability study will be used as input to the investor's return and risk analysis. We noted previously that some investors also seek additional information from a marketability analysis: estimates of future property value, and expected range of operating expenses (as inferred from the study of comparable properties). Estimating property value is an especially crucial issue in investment analysis and is addressed more thoroughly in Chapter 7.

SUMMARY

A marketability analysis is a micromarket study of the specific site being investigated for possible investment. Generally, marketability analysis requires the services of people who have technical qualifications beyond those of the typical equity investor.

The components of a marketability analysis include definition of the boundaries of the neighborhood, neighborhood analysis, site analysis, survey of the competition, development of a preliminary marketing strategy and management plan, identification and estimation of the market absorption and capture rates, and revenue and expense forecasts.

A careful, subjective analysis of the highest and best use of capital at the site must be made. To carry out such an analysis the investor can use proprietary data retrieval computer services that generate economic–demographic trends for a chosen site. While such data are essential, the dynamics of the urban environment are such that field surveys are also an essential part of a marketability analysis. Competitive surveys should be tailored to the type of site use contemplated and must discover not only existing but also planned competition. Because competitive surveys generate comparative data, the investor should develop a preliminary marketing strategy and management plan so that decisions can be made about how the site will be used.

Though the techniques for estimating market absorption and capture rates are still crude, the investor should press the analyst for such data for the specific submarket. Capture rates should be stratified by user profile and limited to appropriate time and distance radii.

In conclusion, a real estate marketability analysis estimates the amount of a specific real estate use that will be needed by the localized market within the forecast period. Much judgment enters into the making of marketability analyses because the techniques, concepts, and applications are not yet well developed, and because they deal with the uncertain future.

8

Market Study + Financial Analysis - Feasibility Report

by John Bailey, Peter Spies and Marilyn Weitzman

James D. Vernor ed., Readings in Real Estate Market Research. Chicago: American Institute of Real Estate Appraisers, 1985.

Market Study + Financial Analysis = Feasibility Report

John B. Bailey
Peter F. Spies
Marilyn Kramer Weitzman

Introduction

When property owners (corporate, institutional, financial, or individual) perceive a need for real estate consulting services, they generally believe an appraisal will help solve myriad problems. The word "appraisal" is universally understood, and obtaining an independent estimate of property value is considered a logical foundation in making important real estate-related decisions. In many instances, an appraisal serves as an invaluable contribution in the decision-making process associated with a real property asset, but in other cases an appraisal (in the classical sense) is unresponsive to a client's needs. Unfortunately, many property owners are oriented towards seeking appraisals when they actually need other consulting services.

The result of an "appraisal" is the single, "magic" number sometimes defined as the highest price in terms of money that a property will bring if exposed for sale in the open market, allowing a reasonable time to find a purchaser who buys with knowledge of all the uses to which it may be adapted and for which it is capable of being used. There are other variations of that definition, but they all boil down to the single figure called "price" at which a change of ownership would be justified, with neither buyer nor seller acting under undue compulsion. It is an idealized market situation presuming a prudent buyer and a prudent seller, both fully and equally informed.

A *feasibility study* is an analysis aimed at discovering whether or not a specific project or program can be carried out successfully—with success usually implying a sufficient return on capital required to attract investors to carry out the development. In other words, *feasible* means sufficiently profitable for somebody to want to do it and *feasibility study* means an analysis to estimate whether or not it's going to be profitable. But how does that differ from an appraisal? Isn't a good appraisal a feasibility study? It can be, but the two are not synonymous.

SOURCE: Reprinted from *The Appraisal Journal* (October 1977): 550-557. © 1977 by the American Institute of Real Estate Appraisers of the NATIONAL ASSOCIATION OF REALTORS®.

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How To Differentiate an Appraisal From a Feasibility Study

Several differences distinguish an appraisal from a feasibility study. First the appraiser by definition must look at a project from the standpoint of a typical prudent buyer or prudent seller. In a feasibility study, the consultant looks at a project from the standpoint of the specific client or such other point of view as the client would like assumed. If we appraise a project, we will give an opinion of what a typical buyer will pay for it. If we do a feasibility study, we will tell the client what we think the project is worth to potential investors.

Second, an appraisal is a specific estimate of how the market values a property as of a certain date. It usually does not embody a recommendation for action, which is essentially a function of the consultant rather than the appraiser. A feasibility study normally should go beyond determining profitability and advise the client on actions he or she might take to maximize profitability over the long term. A property can be appraised at any point in its life span, but a feasibility study is needed only when something's happening—new construction, changing use, renovation, remodeling, and so on.

Furthermore, an appraisal will estimate land value and hypothetical proper costs less functional and economic obsolescence, while a feasibility study is more concerned with land cost and actual improvement costs, proper or improper, functional or not. The question is what the real dollar investment is, not what the investment should be or should have been.

Basically, the consultant should be more responsive to the client's needs than the appraiser, who is ethically bound to a more static role as a measurer of the market rather than the dynamic role of adviser and counselor.

To illustrate the basic components and analytic techniques of a feasibility study, we shall review an actual case study. A high-rise residential condominium development is used for demonstration purposes, but the techniques (with modest adjustments) can be applied in conducting a feasibility study involving most property uses.

A feasibility study requires two basic and interdependent analyses, including both a market study and a review of relevant financial considerations. The following pages will address the two major considerations separately. First, a market study will be carefully defined and illustrated. Next, the steps associated with the financial analysis will be explored. Finally, we shall summarize the basic ingredients inherent in a feasibility study.

Market Research

Market research can provide necessary orientation when entry into a new market is under consideration. It can update information on areas in which one is currently working or provide direction in a land use study of a specific site. The contemplated use of the site can be residential, industrial, office, commercial, or a combination of the above in an integrated planned unit development. The market analyst can be asked to determine the highest and best use of the site, in which case both a land use and market study are required, or the use of the site may be predetermined. In the case study we shall examine, the site is intended for multi-family residential units under condominium ownership.

Residential Case Study

Residential market research consists of the following general steps: 1) definition of the market area, 2) analysis of housing demand factors, 3) analysis of housing supply factors, 4) analysis of the physical and locational aspects of the site if a specific property has been designated, and 5) marketing recommendations with reference to the specific site, including type of development, size of units and unit mix, price levels, amenity package and product features, and an absorption schedule. The emphasis of the market research program, however, will differ depending on the proposed use of the site

under investigation and on factors peculiar to the area under analysis. The depth and scope of market analysis should be tailored to each individual situation. Any statistics mentioned should be cited in the context of how they relate to the property under consideration.

Definition of the Market Area

The first step in analyzing housing demand or supply is to define the primary housing market area. This is the area of primary draw of potential purchasers to a site. The general parameters for determining the primary market area are that it usually lies within a five- to ten-mile radius of the site and that it is usually based on municipal boundaries to make data aggregation possible. The primary housing market area becomes the basis for competitive housing analysis and for general impact analysis. For purposes of demographic analysis, our fictional market area in the case study has been defined as Central City and the two adjacent suburban areas of Gardenville and Sands Point, as noted on the area map (figure 23.1). The subject site is located in an exclusive residential area of Central City, somewhat similar to Boston's Beacon Hill, New York's Upper East Side, Philadelphia's Society Hill, or Washington, D.C.'s Georgetown. Essentially, the prime market is expected to be drawn from those households who either live in Central City, or work in Central City and live in Gardenville or Sands Point.

Housing Demand Factors

The second step in residential market research is to analyze the housing demand factors. When a specific site has been located, as in the case study, the housing market analyst can relate the demand of the area to the specific site and proposed use. These housing demand factors include a study of the current economic and demographic background of the primary housing market area, analysis of four specific demand indicators, and a projection of housing market demand.

Economic and Demographic Components of Demand

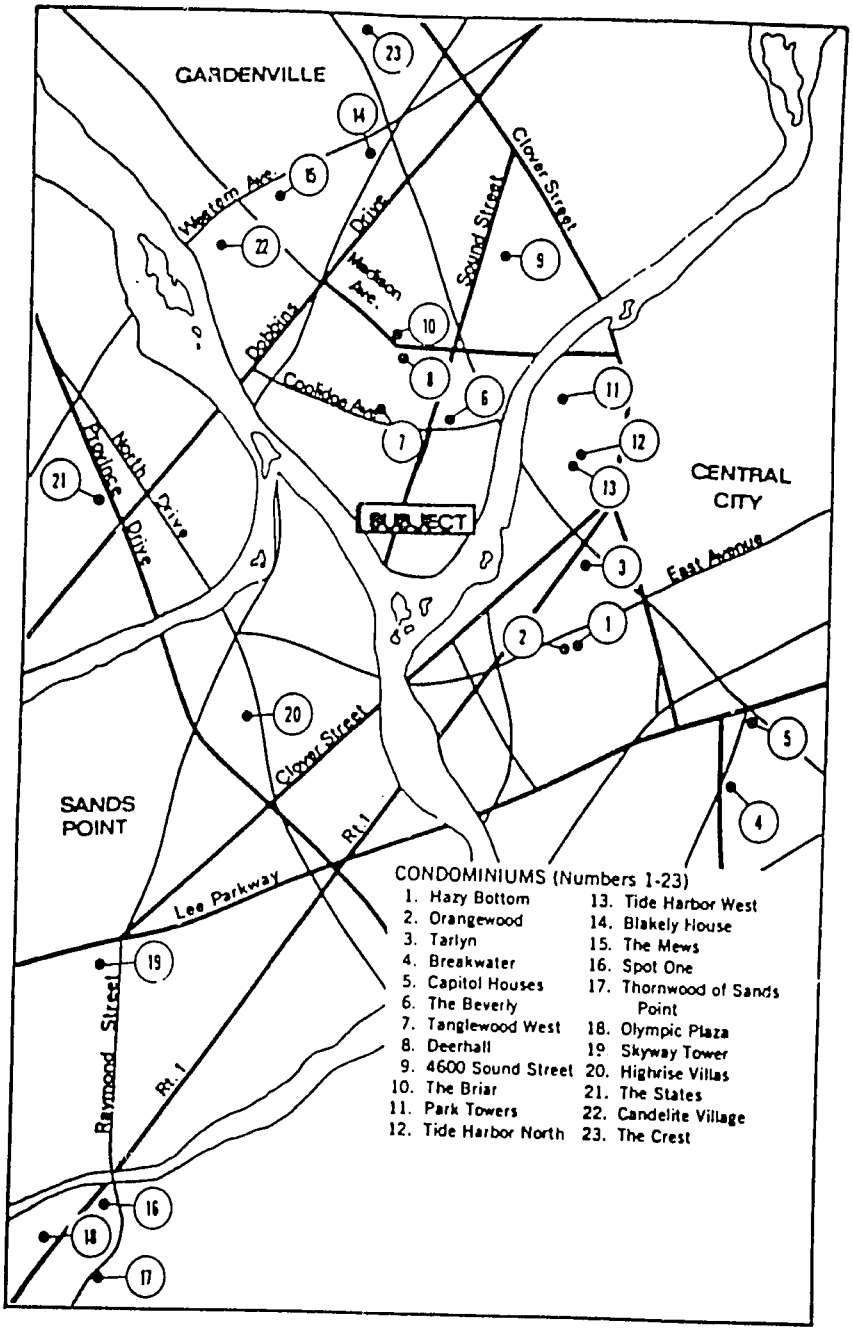
The study of the economic and demographic background of the primary housing market area indicates if the market is growing and can support development. This encompasses a population analysis including projections, past trends of total population, age distributions and migration patterns, and a household analysis including projections, history, size, tenure, and age distributions. It also includes a study of employment opportunities, with emphasis on the strength and diversity of the employment base and future expectations, as well as an analysis of the income distribution among various groupings in the market area. Any other factors peculiar to the area under analysis also should be cited.

The four specific indicators of housing demand that should be analyzed include 1) the year households in the market area moved into their present housing, 2) vacancy rates of housing in the market area, 3) the absorption rate of competitive units currently available, and 4) the financing practices of local lenders.

The projection of housing market demand will show total demand for new and existing housing units throughout the forecast period and also can be allocated to type and price of unit. Specific projections of housing demand should be made only if the proposed number of units to be built represents a significant share of the total housing market or if evidence of housing demand (based on past trends) shows a particularly weak market. In this case study, it is not necessary to project housing market demand, because the total number of proposed units is small (about 200) and preliminary analysis indicates an exceptionally strong housing market.

Analysis of Demand in Primary Housing Market Area. To analyze housing market demand in the case study, we first looked at the economic and demo-

Figure 23.1. Location Map for Comparables



graphic background of the primary housing market area. We focused on determining the size of the potential market of high-income, small-sized households in the city proper as well as those in the more affluent surrounding suburbs that could be attracted to a multi-family residential development on the subject site.

From census data we learned that there were 491,603 households in the total market area in 1970. We then looked at the income characteristics of these households. Using the normal relationship between income and house value, we estimated that households earning $20,000 or more could afford the condominium units provided in the subject development. We also have included data for the number of households earning between $15,000 and $20,000 in 1970 to reflect the rapidly rising incomes during recent years, which should now cause the households to be in the $20,000 category. We found that 1) 208,500 households (42%) have annual incomes over $15,000, 2) 114,600 households (23%) have annual incomes over $20,000, and 3) 66,300 households (14%) have annual incomes over $25,000. This means that there are more than 200,000 households in the market area that are within the income range that can afford to buy one of the 200 units on the subject site.

Income Characteristics of Neighborhood. We also wanted to determine the income characteristics of the neighborhood in which the subject property is located. The average annual household income in 1970 was $31,800, or three times the average income for Central City as a whole. This indicated that the area is a highly desirable section of the city, and that luxury housing units would be compatible with the neighborhood.

Household Size Characteristics. Household size data from the 1970 census were analyzed to determine the size of the high-income, small-sized household—the prime market for urban mid-rise residential units. As of 1970, 66.4% of all households in the market area contained three persons or less. We have found in similar studies that focusing on the one- to three-person household size reduces the market potential between 45% and 50% of the previously outlined figures describing households by income. Thus, the size of the high-income, small-sized household in the designated market area is estimated to be 1) 100,000 one- to three-person households with annual incomes over $15,000, 2) 55,000 one- to three-person households with annual incomes over $20,000, and 3) 30,000 one- to three-person households with annual incomes over $25,000.

In conclusion, we have identified 100,000 households that are potential customers for the 200 units on the subject site. In technical terms, the capture rate of the subject property would be 0.2% (200 units ÷ 100,000 = .2%) of the designated households in the market area.

Age Mix of Households By Income Category. The age mix for those households in the market area earning more than $15,000, as shown in table 23.1, is summarized as follows:

Under 30	7% earn $15,000 or more
30-44	37% earn $15,000 or more
45-64	51% earn $15,000 or more
65 and over	5% earn $15,000 or more

Table 23.1 includes data for all-size households and does not apply only to one- to three-person households. Because a much higher percentage of the smaller-sized households traditionally fall within the 45 to 64 age grouping, we tend to place more emphasis on the market demand from these high-income households than from other age groupings. In other words, many high-income households with heads in their 30s have school-age children, and not until they are in their 40s do the households shrink in size sufficiently to be attracted to an urban mid-rise residential development. These data tend to confirm that the largest segment of the potential market is expected to be those high-income households of three persons or less, headed by people in their 40s and 50s.

Table 23.1. Age Groupings of Households with More Than $15,000 Incomes in Market Area, 1970

Husband-Wife Families	Total Market Area					
	Total		Owner		Renter	
	Number	%[a]	Number	%[a]	Number	%[a]
Under 30 years old						
$15,000-$24,999	12,450		4,085		8,365	
$25,000 or more	1,322		560		762	
Total $15,000 +	13,772	(7%)	4,645	(3%)	9,127	(19%)
30-44 years old						
$15,000-$24,999	55,838		40,840		14,998	
$25,000 or more	16,211		13,468		2,743	
Total $15,000 +	72,049	(37%)	54,308	(37%)	17,741	(36%)
45-64 years old						
$15,000-$24,999	58,303		45,559		12,744	
$25,000 or more	41,485		35,079		6,406	
Total $15,000 +	99,788	(51%)	80,638	(55%)	19,150	(39%)
65 years and over						
$15,000-$24,999	6,477		4,565		1,912	
$25,000 or more	4,079		3,053		1,026	
Total $15,000 +	10,556	(5%)	7,618	(5%)	2,938	(6%)
All ages						
$15,000-$24,999	133,068		95,049		38,019	
$25,000 or more	63,097		52,160		10,937	
Total $15,000 +	196,165	(100%)	147,209	(100%)	48,956	(100%)

a. Figures in parenthesis are the percentage of all age households

Year Households Moved into Present Housing. In an attempt to determine the type of housing the desired households currently are occupying, we reviewed market area census data pertaining to the year in which households moved into their housing, as shown in table 23.2. Even though we found that much publicity has been given to the transient nature of families in the market area, the data in table 23.2 indicate that a fairly high percentage of households (particularly owner-occupied) moved into their existing housing in the early 1950s and 1960s. This would be particularly true for those households whose heads are between 45 and 65 years of age. Most younger households with heads between 30 and 45 years of age, as one might expect, moved into their present housing during the early and mid-1960s. The significance of these data to our analysis is that a large number of potential buyers are living in housing that was built 15 to 25 years ago and probably has design and functional deficiencies. Some of these families can be expected to move into new units, such as the proposed mid-rise in Central City, that will provide the types of design and amenities that may not be available to them in their present housing.

Vacancy Rates. Another factor that indicates strong housing demand is low vacancy rates. As seen in table 23.3, the overall vacancy factor in the metropolitan area was 1.8% as of early 1972. Such a low rate is a strong indication of the need for additional housing units because a normal vacancy rate should approach 5%. In the subject neighborhood the vacancy rate for both apartments and residences was even lower, at 0.4%, which is further support of the strong housing demand and indicates additional housing units could be absorbed readily.

Table 23.2. Year Moved Into Unit by Tenure of Household in Market Area

	Total Occupied	Owner Occupied	Renter Occupied
1969-1970	244,386 (27%)	48,107 (12%)	196,279 (41%)
1965-1968	323,745 (36%)	123,123 (30%)	200,622 (41%)
1960-1964	139,940 (16%)	91,289 (22%)	48,651 (10%)
1950-1959	128,366 (14%)	100,459 (24%)	27,907 (6%)
Before 1950	62,059 (7%)	50,567 (12%)	11,492 (2%)

Source: U.S. Census of Housing, 1970.

Table 23.3. Vacancy Rates of Housing in Market Area, December-January 1972

	Total Units	Residences	Apartments
Subject city	2.7%	1.9%	3.3%
Subject neighborhood	0.4%	0.4%	0.4%
Metropolitan survey area	1.8%	1.2%	2.6%

Source: HUD Postal Vacancy Survey, May 1, 1972

Table 23.4. Absorption Rate (Pace) per Month of Condominiums in Market Area

Project	Total No. of Units	Absorption Rate Per Month	Date of Sales Opening
CENTRAL CITY			
Hazy Bottom	51	4	May 1973
Deerhall East	124	5	November 1971
Park Towers*	161	49 units sold—absorption rate not established	February 1973—Tenants May 1973—Public
4600 Sound Street*	265	25-30	December 1972—Tenants March 1973—Public
Breakwater*	32	4	January 1973
Capitol Houses*	269	15	January 1973
The Briar*	138	Tenants bought 108 units	August 6, 1973
Tide Harbor North	108	All units sold	—
SANDS POINT			
The Olympic Tower	255	77	May 19, 1973
Spot One	300	20 (trailer only)	January 1973
Skyway Plaza	North–468 South–472	468 (10 days) 472 (3 weeks)	June 1972 August 1972
Thornwood of Sands Point	152	12	December 1972
Highrise Villas	252	18	September 1972
The States	459	36	January 1973
GARDENVILLE			
The Crest	67	2	September 1972
Candelite Village	394	28	Winter 1972
The Mews	36	4	February 1973
Blakely House	289	15	February 1972

*Conversion

Absorption Rates of Competitive Units. The high absorption rate of condominiums currently on the market is a further indication of strong housing demand. Table 23.4 details absorption rates of the individual new projects we surveyed. The range is from a low of four units per month to a high of 468 units per month. The two most expensive projects have experienced low absorption rates of four to five units a month. In addition, we found that most condominiums are being sold from model apartments before the structures are built and, in certain cases, are even being sold, without models, from sales offices located in trailers.

Other Factors Affecting Housing Demand. A sewer moratorium in effect since 1970 in Gardenville, coupled with a decline in issuance of sewer permits in Sands Point, contributes to the tight housing market in the metropolitan area by reducing the supply of available units. The net effect should be increased demand for new multi-family residential units in Central City itself, where sewer permits still are available.

In summary, the data analyzed to assess housing demand indicate that the demand for condominium units in the designated market area is generally very strong. Approximately 100,000 households are potential customers for the 200 units on the subject site.

Housing Supply Factors

The third step in residential market research is to analyze the housing supply factors. The housing market analyst must study the housing supply in the primary housing market area and relate it to the proposed use of the specific site. These housing supply factors include an analysis of 1) building permit authorizations, 2) resale housing market price levels, 3) competitive housing developments, including those in the planning stages, and 4) an inventory of available vacant land for residential units.

Housing growth patterns define the current housing situation and give an indication of short-term growth direction. These growth patterns can be analyzed by reviewing the historical trend of building permit authorizations; this indicates the magnitude of annual construction.

Resale housing market analysis is a further indicator of the strength of the market. This can be done by reviewing deed transfers and interviewing brokers. The results can be shown in terms of price, location, and volume.

A detailed competitive analysis of existing residential projects in the primary housing market area helps to qualify market depth and show areas that may be overbuilt or underbuilt. This usually entails a visit to individual projects to determine the detailed characteristics of the competition, including unit types, price, size, financing, maintenance, and value ratio. Comparative data must be assembled and evaluated concerning annual absorption, best-selling units, and the amenity package and product features offered in each project. This shows which items are necessary to any residential development and which are optional. Recommendations about the amenity package and product features that result from this study could give a developer a marketing advantage.

It is useful to obtain information on residential projects currently in the planning stage, including their status, size, and probable market-entry timing. These projects on the drawing boards probably will be directly competitive with the future development being analyzed; they are good indicators of the direction of growth.

In addition, an inventory of other vacant land in the market area is useful to determine the availability of competing sites on which future residential projects could be built. This should include land value in terms of price per unit.

Housing Supply Factors in a Residential Case Study

To analyze housing supply factors in the case study, we first analyzed building permit authorizations, which showed a steady annual increase over the last 10 years. We then compiled a list of asking prices for resale single-family townhouses in the neighborhood of the subject property.

Resale Housing. The neighborhood is primarily residential in character and dominated by older three- to four-story townhouses. We felt that the marketability of residential multi-family units on the subject site would be influenced by the market values attainable for nearby attached townhouses. We studied these market values by noting the range of asking prices for resale townhouses as reported by local real estate brokers. Townhouses in the vicinity range from $60,000 to $335,000, with the greater number priced around $100,000. Based on these market data, the recommended condominium units should be priced well below $100,000 so that they do not compete directly with these resale townhouses.

Table 23.5. Condominium Project Summary

Project and Location	Total Units	Sq. Ft.	Price	Price PSF
Orangewood Central City	—	904-1563	$ 54,000-145,000	$67-93[a]
Deerhall East Central City	124	837-2656	56,000-174,000	64-68
Hazy Bottom Central City	51	1606-2450	113,000-169,000	68-70
4600 Sound Street* Central City	265	556-1227	23,800- 48,000	37-42
Breakwater Condominium Apts.,* Central City	32	842-1044	32,000- 43,000	38-42
Park Towers* Central City	161	981-2963	45,000-160,000	41-54
The Briar* Central City	138	1350-1900	48,000- 78,000	36-41[b]
Park Houses* Central City	269	946-1481	42,000- 55,000	36-48
Tide Harbor North* Central City	108	978	55,000- 60,000	61
Thornwood of Sands Point Sands Point	152	946-1900	33,000- 75,000	35-40
The Olympic Plaza Sands Point	255	810-1370	30,000- 55,000	37-39
Spot One Sands Point	300	900-1493	32,000- 60,000	34-44
Highrise Villas Sands Point	252	940-3940	41,000-123,000	39-44
Skyway Tower Sands Point	940	992-1842	34,000- 59,000	32-41
The States Sands Point	459	585-1291	35,000- 67,000	51-60
Blakely House Gardenville	289	? -1674	32,000- 86,000	41-46*
The Mews Gardenville	36	1560-1990	85,000- 99,000	50-57
Candelite Village Gardenville	394	1360-2185	50,000-100,000	36-46
The Crest Gardenville	67	2400	85,000- 95,000	35-40*

* Conversion
a. Asking price on selected units
b. Selected units only

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Competitive Housing Developments. A list of 23 condominium developments completed or under construction in the market area was compiled from local real estate brokers and lawyers, housing specialists, builders, and advertisements in the local newspaper, among other sources. We personally inspected all of these projects and summarized much of our data in tabular form. Each project listed in table 23.5 also is located on the area map (figure 23.1)

Of the 23 comparable projects, 13 are located in Central City, four in Gardenville, and six in Sands Point. The projects range from 32 to 459 units; the units range from 556 square feet to 3,040 square feet; the sales prices range from $23,800 to $174,000; and the prices range from $32 per square foot to $93 per square foot. We analyzed the 23 comparables to try to determine which ones would be most competitive with units on the subject site.

Eight of the projects in Central City are older rental buildings that are being converted to condominiums. We do not consider them to be directly comparable to what is envisioned for the subject site. Four new projects in Gardenville and Sands Point are townhouse or garden apartment-type condominiums and have more suburban-oriented locations. They are not directly competitive, either.

The eight most comparable condominium developments are found in table 23.6. They are two projects in Central City, five in Sands Point, and one in Gardenville. All of these projects are currently under construction. We have compared the prices and square footage area for the full range of units in these comparable properties, as seen in table 23.6. For the two well located luxury projects in Central City, the price per square foot ranges from $65 to $75; for the six projects in more outlying locations, the range is from $32 to $46 per square foot. This dichotomy by the type of unit is summarized as follows:

	Sales Price per Sq. Ft. of Comparable Condominiums				
Location	1 Br.	1 Br./den	2 Br.	2 Br./den	3 Br.
Central City	$65-70	$70	$66-70	$65-69	$66
Suburban	35-44	34-41	33-43	32-46	31-43

Recommended Pricing of Subject Housing Units. We b ieve that there is a gap in the market for the new condominium units in Central Cit, priced between $50 and $60 per square foot, or roughly between $55,000 and $85,000. The price range for condominium units on the subject site should be established above the level received for the condominiums in the more outlying locations and below the level received for the more luxurious, centrally located projects of Hazy Bottom and Deerhall East. The subject units would be properly priced in the $55 to $60 per square foot price range.

Absorption Rates of Competitive Units. As previously seen in table 23.4, the absorption rates of the comparable condominiums ranged from 4 to 472 units per month, with large-scale developments typically ranging from 15 to 20 units monthly. The absorption rate for the subject units is expected to fall within this 15 to 20 units per month range, presuming that a temporary building is put up with model apartments to facilitate advance sales.

Amenities in Competitive Units. Amenities typically offered in the comparable condominiums surveyed include a swimming pool, exercise facilities and sauna, security guards, 24-hour switchboard service, community room, individual storage areas, and convenience shops. Only those projects in more suburban areas have sufficient land for tennis courts, putting greens, and paddle tennis. Unit features typically offered include balconies, individually controlled heating and air conditioning, marble baths and entrance foyers, parquet floors and/or carpeting, walk-in closets, eat-in kitchens or breakfast rooms, washer-dryer located in separate pantry, dishwasher, dis-

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posal, trash compactor, no-frost double-door refrigerator, self-cleaning double oven, and wood kitchen cabinets.

Competitive Developments in the Planning Stage. To analyze housing supply thoroughly, we also have compiled a list of three condominium projects in the planning stage, all of which are in Sands Point. They will have a price per square foot range of approximately $50 to $60. Furthermore, two additional buildings are planned for the Deerhall East condominium project in Central City; the next building is two to two-and-one-half years off. Two additional condominium high rises are planned for the Thornwood of Sands Point project.

We thus have identified roughly 2,500 condominium units that are scheduled for completion in the mid-1970s; under 300 of these units will be built in Central City proper. None will be built in the subject neighborhood.

Site Analysis

The fourth step in residential market research is to analyze the physical and locational aspects of the property from a marketability point of view. This helps to establish the limits on the use of the property. It includes the identification of opportunities for and major constraints on development such as 1) the availability and capacity of the transportation system, including existing and proposed highways, the availability of mass transit, and commutation patterns and their relationship to the site, 2) the availability of sewer and water hookups, 3) the zoning and building code regulations applicable to the site, such as building coverage and height, 4) the location of services as they relate to the property, and 5) adjacent land use.

In the case study, we found residential usage was well suited to the site. The pertinent locational and physical aspects of the property that we considered follow:

- Public transportation is readily available to the site and highway accessibility is excellent.
- The site is located several blocks from a convenience shopping center.
- Surrounding land use is compatible with residential development. It includes small retail stores, a parking lot, townhouses, a heating plant, and a canal. Office and retail space soon will be developed nearby.
- Although the subject property is irregular in shape and the grade slopes downward, these factors will not hinder proper site development.
- The current zoning of the site is residential multi-family. It provides a 75% maximum lot coverage and a 90-foot maximum building height.
- Sewer and water permits are readily available.

Marketing Recommendations and Conclusions

The last step in residential market research is to specify marketing recommendations with reference to the specific site. Such recommendations should give the builder a summary of the area dynamics as they relate to the site, as well as detailed guidance on the initial offering. It should include an absorption schedule for the proposed units based on the relationship of overall demand to the subject property. From this evolves an overall annual development program. It also should include specific recommendations on unit type, price, size, and mix, based on the economic and demographic composition of the primary housing market area, the existing competitive projects and their experience, the proposed competitive projects, and the demand for various units. In addition, detailed recommendations on the amenity package and product features are necessary to enhance marketability and to give guidance to the design team. A description of the characteristics of the prospective buyer in terms of age, income, and lifestyle expectations also is useful.

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BLAKELY HOUSE* Gardenville	2½	1,674	--	$46	$129	2½	—	86	—	$145	Occupancy Jan 1974, 16 stories, 2 parking spaces included; storage areas, exercise and sauna; community room, pool, putting green, receptionist, washer-dryer.
HIGHRISE VILLAS* Sands Point	—	—	—	—	—	2	1,710	728	543	105	Occupancy Sept 1974; 18 stories, $15/mo parking, balcony; individual control central a/c; pool; sauna; putting green, shuffleboard, convenience shops, center hallways each unit, 24-hour switchboard; washer-dryer
THORNWOOD OF SANDS POINT* Sands Point	2 2½	1,400	46 57	40 41	92 105	den 2½	1,900	75	59	139	Under construction; 15 stories, parking $3,000 per space; pool, tennis court, putting green; carpet, balcony, individual control a/c, concrete floors; breakfast area, washer-dryer, two additional buildings planned
THE OLYMPIC PLAZA* Sands Point	—	—	—	—	—	2	1,370-1,410	52-55	88-89	114-117	Under construction; parking $3,500 per space or $30 month, balcony, individual control a/c, pool, tennis courts, party room, free outdoor parking; foyer in units, washer-dryer
SPOT ONE* Sands Point	2½	1,493	53-60	36 40	135	—	—	—	—	—	Occupancy Mar 1974; 16 stories, parking $3,500 per space; pool; sauna and exercise rooms; convenience shops and services in lobby, no models yet (trailer), washer-dryer
SKYWAY TOWER* Sands Point	2	1,712	54-59	32-34	96-120	2	1,842	58	51	129	Under construction; 26 stories, part of Skyway Plaza mall, hotel, theatre, security guards; exercise and sauna, pool, putting green; ice skating, party room; extra storage, breakfast room, washer-dryer, two additional buildings planned

*Prices have been rounded slightly
a Selected units only
b Monthly maintenance includes utilities

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Case Study Conclusions

In the case study, we have made the following recommendations and conclusions. The subject site is an excellent location for a mid-rise residential building in condominium ownership. The recommended unit mix, size, and price are as follows:

	Unit Mix	Unit Size (Sq. Ft.)	No. of Baths	Price/ Sq. Ft.	Price
1 Br.	20%	1,000	1½	$60	$60,000
1 Br./den	50%	1,250	2	57	72,000
2 Br./den	30%	1,600	2½	55	88,000

We recommend that 80% of the units be one bedroom-den and two bedroom-den condominiums because they sell most readily in the subject market. The units should range in size from 1,000 to 1,600 square feet. We recommend pricing the units at $55 to $60 per square foot, or in the $60,000 to $88,000 range, depending on final determination of unit sizes. We estimate that between 15 and 20 units per month can be sold.

Suggested project amenities should include (at a minimum) a swimming pool, security guards, switchboard service, and ample storage areas. We feel that one-and-one-half to two parking spaces per unit are necessary in a luxury building.

The typical buyer of an urban mid-rise residential unit will be between 45 and 64 years old, have an income of $20,000 or more, be a member of a small household, and be living in housing that was built 15 to 25 years ago.

In summary, we have found that there is a strong demand for a luxury condominium development on the subject site. A 210-unit, eight- to ten-story mid-rise, priced at $55 to $60 per square foot, should be absorbed readily by the market within two years from the opening of a sales office with model apartments.

Use of Market Study Information

A builder or developer must be geared to utilize the information from a market study such as the one we have just finished. The completed analysis gives the architect specific recommendations as to unit concept and establishes cost parameters. The absorption analysis helps the builder or developer plan the development program realistically. The description of the prospective buyer gives direction to the advertising agency and interior decorator in the development of the marketing strategy. Most important, the market study, which represents a fraction of the total project cost, can minimize downside risk by preventing the developer from making costly errors, such as offering a product that is inappropriate for a given market. Market study recommendations also must be correlated with an investment analysis. The development may be marketable, but if the arithmetic does not work out it may not be economically feasible.

Financial Analysis Section of Feasibility Study

The market analysis provides invaluable data concerning product acceptance. People make real estate values. Because our market study has examined the various population characteristics found within a well defined market area, we can conclude that we can generate more than $16 million of gross sales revenue if 210 condominium units are produced in the recommended mix.

We have not answered the question of profitability. What concomitant costs will be incurred, and will those costs, with all their inherent risks, justify the capital investment? These are the two basic questions that will be addressed through financial analysis.

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Four steps are involved in the financial or economic investigation. First, we must provide two raw ingredients including: 1) the total cost incurred during the entire development project, and 2) a projection of reasonable sales revenue. Next, a year-by-year pre-tax cash flow analysis is prepared, comparing anticipated revenue with projected expenses. The resulting series of annual profits and/or losses then is equated to a specific internal rate of return by a discounting process. The fourth and final step is an after-tax cash flow analysis, resulting in another yield calculation. We no longer can hide our heads in the sand. After-tax cash flows are the standards our clients are demanding relative to their initial and subsequent capital investments. We shall follow our case study by presentation and discussion of the four basic steps involved.

Table 23.7 shows a typical cost pro forma indicating a project budget of $13,350,000. Several important factors warrant consideration. First, land value may or may not be a misnomer. We are concerned primarily with actual cost. If the land has been acquired recently or if it is currently under contract, then we are dealing with historical price. The land may have a greater or lesser value than its acquisition price, but the sophisticated developer wants to know what the return will be on the actual cost. The exception to this rule occurs when the land has been held for many years in the same ownership and the acquisition price is unrealistically low; then we might estimate current land value and use this estimate in the cost summary.

Table 23.7. Pro Forma 1974 210-Unit, 450,000 Sq. Ft. Condominium

	Total	Per Gross Sq. Ft. of Bldg.
Land value—55,500 sq. ft. @ $40/sq. ft.	$ 2,220,000	$ 4.93
Construction field costs— 450,000 gr. sq. ft. @ $20/sq. ft.	9,000,000	20.00
Architects and engineers— 3.5% of $9,000,000	315,000	.70
Construction loan interest— $9,000,000 x 11% x 45% x 1½ years	668,250	1.49
Financing fees—2%	180,000	.40
Real estate taxes	100,000	.22
Accounting, legal, and supervisory	300,000	.67
Sales costs	400,000	.89
Contingency—2% of $9,000,000	180,000	.40
	$13,363,250	
(say)	$13,350,000	$29.67

The second major consideration is the allocation between direct and indirect construction costs. Direct or field costs refer to "brick and mortar" expenditures and include profit and overhead paid to a contractor required to supervise the construction project. The indirect expenses include architecture and engineering fees, interest on the construction loan, financing fees, real estate taxes during the construction period as well as during the sales program, accounting, legal, supervision and consulting fees, sales costs, and a contingency reserve. Not many years ago indirect expenses ran approximately 18% to 20% of the direct construction costs. At the time of our analysis, they were running closer to 25% to 30%, with long-term leasehold development reaching the upper limit of this range. (With limited construction activity, it is difficult to estimate what portion of the budget indirect costs would consume currently.) Clearly, these indirect expenses are a significant share of the total cost basis and must be recognized in a proper and thorough financial analysis.

In completing the cost pro forma section, two comments are necessary. First, the feasibility of any construction project is based on both the availability and the cost of financ-

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Table 23.6. Comparable Condominiums

Project and Location	Total Units	Absor Rate/ Month	One-bedroom Type Unit (# Bath)	One-bedroom Sq. Ft.	One-bedroom Price* ($000)	One-bedroom Price/ Sq. Ft.	One-bedroom Month. Maint.	One-bedroom/Den Type Unit (# Bath)	One-bedroom/Den Sq. Ft.	One-bedroom/Den Price* ($000)	One-bedroom/Den Price/ Sq. Ft.	One-bedroom/Den Month Maint.	Two-bedroom Type Unit (# Bath)	Two-bedroom Sq. Ft.	Two-bedroom Price* ($000)	Two-bedroom Price/ Sq. Ft.	Two-bedroom Month. Maint.
HAZY BOTTOM* Central City	51	4	1½	1,606	113	170	$365	2	1,949	135	170	$458	2½	2,111-2,169	146.5-151	169-70	$474-488
DEERHALL EAST* Central City	124	5	1½	857-1,175	56.4-76.2	67-65	96-132	—	—	—	—	—	2 2½	1,569-1,868	104.1-128.1	66-69	— 222
BLAKELY HOUSE* Gardenville	289	15	1	—	31.5	—	55	1½	—	42.25	—	76	2	1,358	56.6	41	94
HIGHRISE VILLAS* Sands Point	252	18	1	910 1,110	41-43.8	44-40	80	—	—	—	—	—	2	1,320-1,540	52.2-61.5	39-40	90
THORNWOOD OF SANDS POINT* Sands Point	152	12	—	—	—	—	—	1½	946-982	33-38	35-38	69-83	—	—	—	—	—
THE OLYMPIC PLAZA* Sands Point	255	22	1	810	30.45	38	68	1½ 2	1,070-1,110	40-43	37-39	90-92	2	1,090-1,250	41-46	39-37	90-101
SPOT ONE* Sands Point	300	20	1½	900-954	32-41.4	36-44	75-85	—	—	—	—	—	2 2½	1,241-1,273	42-52.5 44-54.5	34 43	115 120
SKYWAY TOWER* Sands Point	940 (2 bldgs.)	468 (10 days) 472 (3 wks)	1½	992	34.5-39.5	35-40	70	1½	1,069-1,777	38.5-45.5	34-41	75-83	2	1,321-1,398	44-50.5	33-37	92-96

Project and Location	Two-bedroom/Den Type Unit (# Bath)	Two-bedroom/Den Sq. Ft.	Two-bedroom/Den Price* ($000)	Two-bedroom/Den Price/ Sq. Ft.	Two-bedroom/Den Month. Maint.	Three-Bedroom Type Unit (# Bath)	Three-Bedroom Sq. Ft.	Three-Bedroom Price* ($000)	Three-Bedroom Price/ Sq. Ft.	Three-Bedroom Month. Maint.	Comments
HAZY BOTTOM* Central City	2½	2,450	169	$69	$548	—	—	—	—	—	Occupancy Feb. 1974; high-rise building; parking included; valet parking; pool; roof terrace; security guards; concrete floors; central a/c; storage area; washer-dryer.
DEERHALL EAST* Central City	2½	2,129	137.8	65	237	3½	2,656	174.2	$66	$325	Occupancy Sept. 1973; 10 stories; parking $5,000 per space; gateman and doorman; 2 tennis courts; 2 saunas; pool; roof garden, storage area; individual control central a/c; washer-dryer; 2 additional buildings planned

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ing, i.e., construction as well as permanent mortgages. In this example, construction loan interest rates were approximately 11% and funds were available. All real estate consultants must have a thorough and intimate understanding of current financing markets. If reasonable financing terms and conditions are not obtainable, a feasibility study becomes a useless and time-consuming exercise; without proper mortgages the project is not feasible.

The second factor implicit in the cost analysis concerns architectural plans. Despite the existence of elaborate drawings signifying large investments in both time and money, the real estate consultant must review all plans, particularly with reference to product marketability; we are charged with this responsibility. Exterior architectural design and interior room layout specifically fall within our purview. Changes must be recommended if the existing concepts are incompatible with market dictates.

We rely heavily on the findings documented within the marketing section in projecting anticipated sales revenues. Table 23.8 shows an allocation among the 210 units between the three recommended unit sizes. The areas (in terms of net salable space) for each unit also are shown, and the suggested sales revenue per square foot is reflected. As shown, projected revenue from all sources is expected to equal $16,100,000.

Table 23.8. Estimated Revenue

42 1-Br.	1,000 sq. ft. units @ $60/sq. ft. =	$ 2,520,000
105 1-Br., den	1,250 sq. ft. units @ $57.50/sq.ft. =	7,546,875
63 2-Br., den	1,600 sq. ft. units @ $55/sq. ft. =	5,544,000
210 Units	Average sale price—$57/sq. ft.	$15,610,875
Sale of parking spaces—105 spaces @ $5,000 each =		525,000
Total revenue		$16,135,875
	(say)	$16,100,000

What is the best unit of comparison to use in ascertaining gross sales? We do not use a sales price per room or a sales price per apartment unit of comparison when analyzing prices of competitive units. Unit sizes vary widely and the mix between the various unit types distorts resulting conclusions. Also, a per-room unit of comparison is unreliable because rooms vary significantly in size. In urban locations, with projects requiring large capital outlays, we are obligated to be as refined as possible, and a price per square foot of rentable or salable area meets this criterion. It is true that the typical apartment renter or condominium buyer does not measure the unit to compare it against other available units, but he or she is at least subconsciously aware of the greater light and air generated by a larger unit and will base his or her "buy" or "rent" decision partially on the amount of space offered.

Is the Project Feasible?

Now we have the two basic ingredients with which a preliminary conclusion concerning project feasibility may be made. We have estimated a gross revenue of $16,100,000 and a cost of $13,350,000. We would be remiss if we simply divided the almost $3 million profit by the $13,350,000 cost basis to devise a crude profitability index. The arithmetic would show approximately a 25% return on investment capital, but to conclude that this project yields a 25% return would be grossly inadequate.

Pre-Tax Cash Flow

The time value theory of money states that a dollar in hand is more desirable (and valuable) than a dollar to be received at a future date. Applying this principle to our financial analysis (because the revenues will be received over a period of years and the expenses will be spent over that same time period), we must analyze our profit pic-

ture on a year-by-year basis. A pre-tax cash flow analysis compares anticipated revenues with corresponding expenses. The resulting profit will serve as foundation in calculating a more accurate depiction of investment yield.

Table 23.9 is illustrative of a simplified pre-tax cash flow analysis. We have anticipated a one-and-a-half-year period from the time the project is conceived to the time ground can be broken to initiate construction. The construction period should take about one year, and the sales program should take approximately a year-and-a-half. We have anticipated that approximately 70% of the sales revenue will be received in the first year of the sales program (which is the third year of the development program) and the remaining 30% will be received in the final year.

Table 23.9. Cash Flow Study, Pre-Tax

Years	($000s omitted) 1	2	3	4
Revenue	$ —	$ —	$11,300	$4,835
Financing proceeds	—	3,000	6,000	—
Total available cash	$ —	$3,000	$17,300	$4,835
Expenses				
Land costs	2,200	—	—	—
Field costs	—	3,000	6,000	—
Architect and engineer	—	220	95	—
Construction loan interest	—	198	470	—
Loan prepayment	—	—	9,000	—
Financing fees	90	90	—	—
Taxes	10	20	30	50
Accounting, legal, and supervisory	50	100	100	50
Sales costs and commissions	—	—	280	120
Contingency	—	—	125	55
Total	2,350	3,628	16,100	275
Profit or (loss)	(2,350)	(628)	1,200	4,560
Cumulative net profit or (loss)	(2,350)	(2,978)	(1,778)	2,782
Pre-Tax Yield Analysis				
Equity requirement	2,350	628	—	
Equity return			1,200	4,560
Pre-tax equity yield = 21%				

On the revenue side of the ledger we have included the proceeds of the construction loan. These funds will be disbursed at various times to pay certain expenses. Specifying the period in which these funds are to be received is a necessary and helpful process.

Of course, on the expense side of the ledger we have shown repayment of the construction loan, which helps to ascertain our pre-tax cash position accurately. An important aspect of a pre-tax cash flow is the highlighting of those years when infusion of additional capital may be required, or when significant profits can be expected.

The first year experiences a significant loss of $2,350,000, but that loss is attributed primarily to the land purchase for $2,200,000. We have presumed that the developers paid cash for the land. Owning the land on a free and clear basis permits the developer to obtain a $9 million construction loan. In the second year $628,000 of additional capital is required, but in the third year a $1,200,000 profit is realized, and in the final year a very substantial $4,560,000 profit results. The cumulative net profit over the four-year period is $2,782,000. How does this equate with our capital investment? We have seen an investment of $2,350,000 in the first year and $628,000 in the second year. We have received $1,200,000 in the third year and $4,560,000 in the fourth year. What is the in-

ternal rate of return that will equate our capital in-flows with our capital out-flows? By use of the discount tables or one of the more advanced desk-top calculators, we find a pre-tax equity yield of about 21%. This 21% appears to be an excellent return. If all factors contributing to the investment decision were considered, we would have little apprehension in advising anyone to proceed with the proposed development.

After-Tax Cash Flow

The last critical step involves an after-tax cash flow study. It is time we consider the implications of federal, state, and local income tax rulings on ultimate profitability.[1]

The after-tax cash flow study (table 23.10) is very similar to the pre-tax study; however, a few major differences exist. First, proceeds from and repayment of the construction loan are nontaxable events and cannot be included. Secondly, the cost basis of a condominium comprises both direct costs and architectural and engineering outlays. Furthermore, even though these expenses were incurred primarily in the second and third years, for tax purposes they can be reported only in the years in which sales are generated, i.e., the third and fourth years. Because 70% of the revenue is received in the third year, 70% of these expenses serve as a cost basis in reporting profit to IRS. The remaining 30% of the cost basis is accounted for in the final year.

Table 23.10. After-Tax Cash Flow Analysis

Year	($000s omitted) 1	2	3	4
Sales revenue	$ —	$ —	$11,300	$4,835
Deductible expenses				
Cost basis of condos (field costs, arch. and eng.)	—	—	6,500	2,800
Land basis	—	—	1,540	660
Construction loan interest	—	198	470	—
Financing fees	90	90	—	—
Taxes	10	20	30	50
Accounting, legal, and supervisory	50	100	100	50
Sales cost	—	—	280	120
Contingency	—	—	125	55
Total	150	408	9,045	3,735
Taxable income or (loss)	(150)	(408)	2,255	1,100
Taxes payable—assume 55% tax bracket	None	None	(1,240)	(605)
After-tax income or benefits	83	224	1,015	495
After-Tax Yield Analysis				
Equity investment	2,350	628	—	—
Capital return				
Profit	—	—	1,200	4,560
Tax benefits (or payments)	83	224	(1,240)	(605)
Net	83	224	(40)	3,955
End of year (investment) or return	(2,267)	(404)	(40)	3,955
After-tax yield = 10.8%				

The first year has a total expense of $150,000; no revenue is received. Presuming a 55% tax bracket, the $150,000 can offset other income and represents a credit of

1. The implications of the Tax Reform Act of 1976 have not been considered.

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$83,000. From table 23.9 we see a capital requirement at the end of the first year of $2,267,000. It is important to appreciate the effects of the $83,000 after-tax credit. In this case, the amount is small, but appreciation of the theory is paramount.

The second year has little significance. The third year is interesting. With a total revenue of $11,300,000 we observe a taxable income of $2,255,000, of which $1,240,000 must be paid in taxes. On the pre-tax basis, we had a capital return of only $1,200,000, so we still have a capital outflow on an after-tax basis of $40,000.

The fourth year contributes all the after-tax profit. Sales of $4,835,000 result in taxes payable of $605,000. The cash basis shows a $4,560,000 profit, and subtracting $605,000 worth of taxes results in a net profit of $3,955,000.

Calculating an internal rate of return (pitting three capital outflows for the first, second, and third years of $2,267,000, $404,000, and $40,000, respectively, to a profit of $3,955,000 in the fourth year) results in about a 10.8% after-tax equity yield.

What After-Tax Yield is Appropriate?

Is a 10.8% after-tax yield sufficient to warrant proceeding with this development project? Will sufficient equity capital be attracted to such a development, with all of its inherent risks, that promises about an 11% annual return?

To answer these questions, we must evaluate various competitive yields generated from substitute investment alternatives, including certificates of deposit, municipal bonds, stocks, treasury notes and bills, and competitive real estate developments.

Too often the real estate consulting community has keyed into a single number, be it an equity yield to the investor or a fair market value estimate. This is misleading in consulting assignments. The permutations and combinations of variables make it ludicrous to accept the reliability of one estimate from a single set of circumstances. Changing the input data provides a broader spectrum on which a sound decision may be made. For example, what is the downside risk caused by decreasing the total projected sales revenue by perhaps 10% and extending the absorption period over a two-and-a-half year period? This yield calculation would be most helpful to know. What would be the upside parameters if all sales revenues were received in the third year and if the projected revenue were increased 5% or 10% above the original levels? The knowledge of the upside potential would serve as a tremendous inducement if it were attractive enough. Costs should be increased and decreased in a series of projections indicating a realistic range of yield potentials. Nothing is static. A client wants to know where his or her investment stands under varying economic conditions. As consultants, we must provide these answers.

Feasibility Study: Summary

The process of conducting a feasibility study is subdivided basically into two distinct but interrelated disciplines, including a market study and financial analysis.

A market study analyzes supply and demand factors (area dynamics) and aids in determining whether or not a particular property type is marketable. The necessary steps include

1. Proper definition and delineation of the market area.
2. Analysis of the demand factors. Quantitatively, through the use of demand studies and demographic data, answer the questions concerning how much demand might be experienced. Qualitatively, the number of persons comprising the potential market are further qualified by focusing on buyers capable (dependent upon disposable income levels) of bidding for the property types involved.
3. Study of supply factors, including a catalog of existing competition, a survey of projects currently under construction, and an understanding of projects actively under consideration or in various stages of planning. (Generally, the appraiser is well versed in surveying existing

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competition but is sometimes negligent in considering projects under construction or in the planning stages.)

4. Careful review of the site regarding its compatibility with projected land uses as to size, shape, topography, zoning regulations, and suggested density requirements.
5. Marketing recommendations. After considering all of the ramifications associated with the above data accumulation and analysis, judgment must be exercised and conclusions formed concerning:
   a. The type of product most marketable.
   b. The number and size of units and unit mix.
   c. The quality of units, emphasizing primary market segments to be served and degree of amenities.
   d. Pricing structure involving unit prices, differentiation between floors, distinctions between attractive views and less attractive locations, and varying unit layouts.
   e. Absorption periods and sales pace (or rental pace) are important considerations, particularly as they relate to the financial analysis.
   f. Other recommendations concerning the marketing program, such as a profile of the most likely user and the anticipated amenity package to be offered.

The market study informs the client about the degree of effective demand associated with a product and allows the client to accept realistic price levels that ultimately will dictate how much he or she can afford to pay for the land and allocate for the construction budget. In addition, the market study provides basic data needed to proceed with an investment analysis necessary to evaluate overall project feasibility. A project may be marketable, but it may not necessarily be feasible.

After determining the type, price level, amenity package, sales pace, and degree of effective demand, a reasonable estimate of overall sales may be computed; however, knowledge of gross sales revenue is insufficient by itself to form a meaningful profitability index.

The financial analysis portion of the feasibility study follows four basic steps.

1. A summary of anticipated sales revenue.
2. A complete understanding of the total construction budget, properly allowing for direct and indirect expenses.
3. A year-by-year pre-tax cash flow projection.
4. A year-by-year after-tax cash flow projection.

Each of the four steps has been carefully illustrated in prior paragraphs. A major caveat is reiterated for emphasis: a single set of projections is insufficient. Recognizing the existence of an imperfect market and acknowledging the myriad of possible unanticipated events (in a long-term construction project), we cannot imply a false sense of precision by proffering a single set of projections. All variables within a logical spectrum must be considered and their effects on overall profitability must be computed, with the resulting implications carefully analyzed.

Conclusions

We receive many inquiries about potential appraisal work, when the client actually needs a feasibility study (but does not know what to call it). An appraisal will tell the client what a seller should be able to get for a piece of property at a particular point in time (presuming the seller is prudent and can find a prudent buyer). A feasibility study will recommend

1. What to build—in terms of product type.

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2. How to build—in terms of unit mix, size, amenity package, and degree of luxury.
3. When to build—including on-line production and absorption schedules.
4. What reasonable range of profitability can be expected.

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Housing Affordability

by the Shelter Unit, Ministry of Planning
National Housing Strategy
Technical Memorandum Number 13

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CHAPTER IV: AFFORDABILITY ANALYSIS OF RESIDNETIAL DEVELOPMENT

The affordability of housing development for both infill and new residential sites can be analyzed using simple spreadsheet computer models such as the Bertaud Model. Although it is impossible to present all the possible trade-offs and/or ways in which households make their existing housing situations affordable, the tables presented in this memorandum are intended to provide a reasonable basis for discussion. They have been set up based on inputs for average costs and the most commonly observed situations.

A. Methods of Analysis

Two methods of analyzing affordability are presented in this memorandum. Both have been developed using a computer spreadsheet as a base. This allows a large number of inputs to be defined by the user and a series of "what if" simulations to be run. The value in this approach is that the actual analytical "tools" will remain with the Shelter Unit and allow continual analyses of housing and housing land affordibility to be carried out in the future.

The two methods of analysis described in this memorandum have been developed to relate to:

- the "in-fill" development of individual plots, which is by far the most common situation in Jordan, and

- "sites and service" type projects similar to those implemented by the Urban Development Department.

B. Individual Housing on In-fill Plots

The analysis of different housing "options" prevalent in both "C" and "D" zoned areas provides a clearer idea of the effect of land prices on housing affordability. The spread sheet for this analysis is shown in Table 4.1 (a) and (b). The selected housing options employed in this analysis are based on zoning regulations and those building practices and "house types" most frequently found in lower and middle income neighborhoods. For the purpose of the analysis, the built up area per unit has been set at 70 m2. This area has also been used as the minimum "complete" housing unit in running the Housing Needs Assessment Model (see Technical Memobrandum Number 5, "Revised Housing Needs and Associated Investment in Jordan (1985-2006)"). An area of 70 m2 is sufficient to include three habitable rooms of about 13 m2 each, a kitchen, private bathroom, hallway and a small store room or stairway to the roof. In reality, the 70 m2 housing unit, as well as the different housing options evaluated in the analysis, are more modest than the majority of units actually being built in "C" and "D" zoned areas.

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Table 4.1(a): Impact of Land Costs and Zoning Regulations on Housing Costs
Affordability of Housing Options in "D" Zoned Areas of Greater Amman

CITY OF AMMAN	OWNER BUILT UNITS IN "D" ZONES				
	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5
PLOT CHARACTERISTICS					
Serviced land cost / net m2	15.00	15.00	15.00	15.00	15.00
Net plot size in m2	300	300	300	300	300
Plot frontage in meters	15.00	15.00	15.00	15.00	15.00
Plot Depth in Meters	**20.00**	**20.00**	**20.00**	**20.00**	**20.00**
Plot Ratio Depth to Width	**1.33**	**1.33**	**1.33**	**1.33**	**1.33**
Front setback in meters	3.00	3.00	3.00	3.00	3.00
Rear setback in meters	2.50	2.50	2.50	2.50	2.50
Side setback in meters	2.50	2.50	2.50	2.50	2.50
Side setback in meters	2.50	2.50	2.50	2.50	2.50
Calc. Plot Coverage (%)	**48.33**	**48.33**	**48.33**	**48.33**	**48.33**
Allowable coverage by code	52.00	52.00	52.00	52.00	52.00
BUILDING CHARACTERISTICS					
Buildable Area per Floor	**145**	**145**	**145**	**145**	**145**
Common area per floor	0	20	0	20	20
Apartments per floor	1	2	2	2	2
Number of floors per building	1	1	1	2	3.5
Maximum Apartment Size	**145**	**63**	**73**	**63**	**63**
Actual ave. apartment size	70		70		
Construction cost in JD per m2	60	60	60	60	60
Fees and other fixed costs					
Cost of Construction	**4200**	**8700**	**8400**	**17400**	**30450**
Construction & Plot Costs	**8700**	**13200**	**12900**	**21900**	**34950**
Const.& Plot Cost per Unit	**8700**	**6600**	**6450**	**5475**	**4993**
Const.& Plot Cost/M2	**124**	**106**	**92**	**88**	**80**
BUILDING FINANCING					
% Downpayment Construction	0.00	0.00	0.00	5.60	13.92
Land & Const.Downpayment	**4500**	**4500**	**4500**	**5475**	**8738**
Equity as % of Total Cost	**51.72**	**34.09**	**34.88**	**25.00**	**25.00**
Amount to be Borrowed	**4200**	**8700**	**8400**	**16425**	**26213**
Amount Borrowed per Unit	**4200**	**4350**	**4200**	**4106**	**3745**
Annual interest rate				11.00	11.00
Repayment period in years				5.00	5.00
Financing Costs	**0**	**0**	**0**	**5002**	**7983**
% profit on total cost				15	15
Total Cost of Project	**8700**	**13200**	**12900**	**30937**	**49373**
Total Cost per Unit	**8700**	**6600**	**6450**	**7734**	**7053**
AFFORDABILITY OF UNITS					
% Downpayment	51.72	34.09	34.88	25.00	25.00
Amount Borrowed	**4200**	**4350**	**4200**	**5801**	**5290**	
Annual interest rate	8.5	11.0	11.0	8.5	8.5
Repayment period in years	15	10	10	15	15
Monthly Payment	**41**	**60**	**58**	**57**	**52**
Monthly Recurring Expenses					
Total Monthly Housing Costs	**41**	**60**	**58**	**57**	**52**
Ratio:payment to income	25.00	25.00	25.00	25.00	25.00
Monthly income required	**165**	**240**	**231**	**228**	**208**
Income percentile	**20**	**40**	**40**	**35**	**30**

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Table 4.1 (b). Impact of Land Costs and Zoning Regulations on Housing Costs
Affordability of Housing Options in "C" Zoned Areas of Greater Amman

	OWNER BUILT UNITS IN "C" ZONES				
	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5
PLOT CHARACTERISTICS					
Serviced land cost / net m2	20.00	20.00	20.00	20.00	20.00
Net plot size in m2	500	500	500	500	500
Plot frontage in meters	18.00	18.00	18.00	18.00	18.00
Plot Depth in Meters	**27.78**	**27.78**	**27.78**	**27.78**	**27.78**
Plot Ratio Depth to Width	**1.54**	**1.54**	**1.54**	**1.54**	**1.54**
Front setback in meters	4.00	4.00	4.00	4.00	4.00
Rear setback in meters	4.00	4.00	4.00	4.00	4.00
Side setback in meters	3.00	3.00	3.00	3.00	3.00
Side setback in meters	3.00	3.00	3.00	3.00	3.00
Calc. Plot Coverage (%)	**47.47**	**47.47**	**47.47**	**47.47**	**47.47**
Allowable coverage by code	42.00	42.00	42.00	42.00	42.00
BUILDING CHARACTERISTICS					
Buildable Area per Floor	**210**	**210**	**210**	**210**	**210**
Common area per floor	0	20	0	20	20
Apartments per floor	1	2	3	2	2
Number of floors per building	1	1	1	2	3.5
Maximum Apartment Size	**210**	**95**	**70**	**95**	**95**
Actual ave. apartment size	70	70		70	70
Construction cost in JD per m2	60	60	60	60	60
Fees and other fixed costs					
Cost of Construction	**4200**	**9600**	**12600**	**19200**	**33600**
Construction & Plot Costs	**14200**	**19600**	**22600**	**29200**	**43600**
Const.& Plot Cost per Unit	**14200**	**9800**	**7533**	**7300**	**6229**
Const.& Plot Cost/M2	**203**	**140**	**108**	**104**	**89**
BUILDING FINANCING					
% Downpayment Construction	0.00	0.00	0.00	0.00	2.68
Land & Const.Downpayment	**10000**	**10000**	**10000**	**10000**	**10900**
Equity as % of Total Cost	**70.42**	**51.02**	**44.25**	**34.25**	**25.00**
Amount to be Borrowed	**4200**	**9600**	**12600**	**19200**	**32700**
Amount Borrowed per Unit	**4200**	**4800**	**4200**	**4800**	**4671**
Annual interest rate				11.00	11.00
Repayment period in years				5.00	5.00
Financing Costs	**0**	**0**	**0**	**5847**	**9959**
% profit on total cost				15	15
Total Cost of Project	**14200**	**19600**	**22600**	**40304**	**61592**
Total Cost per Unit	**14200**	**9800**	**7533**	**10076**	**8799**
AFFORDABILITY OF UNITS					
% Downpayment	70.42	51.02	44.25	34.25	25.00
Amount Borrowed	**4200**	**4800**	**4200**	**6625**	**6599**
Annual interest rate	8.5	11.0	11.0	8.5	8.5
Repayment period in years	15	10	10	15	15
Monthly Payment	**41**	**66**	**58**	**65**	**65**
Monthly Recurring Expenses					
Total Monthly Housing Costs	**41**	**66**	**58**	**65**	**65**
Ratio payment to income	25.00	25.00	25.00	25.00	25.00
Monthly income required	**165**	**264**	**231**	**261**	**260**
Income percentile	**20**	**45**	**40**	**45**	**45**

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The cost of construction in each case has been set at 60 JD/m2, which also represents a very economical type of construction and finishings (see Technical Memorandum Number 13 "Construction Costs and Technologies" and Technical Memorandum Number 9, "Private Housing Suppliers Survey").

1. Description of the Most Frequently Encountered House Types

The house types described below are those most frequently encountered in "C" and "D" zones. Figure 4.1 shows the plot configurations and corresponding built up areas for each of these different house types.

a) House Type 1: Single Unit on a Plot

House Type 1 consists of a single, 70 m2 unit on either a "C" or "D" sized plot. This situation can be considered as the "minimum" legal housing solution for a single, detached housing unit on a plot. It essentially represents what the private sector could provide based on the UOD approach of only one unit per plot. In reality, this option is not very prevalent since most buildings include more than one housing unit in order to make the best use of the maximum allowable built up area per plot under the existing zoning regulations. This type of housing unit is included in the analysis simply to show the affordability implications of building one unit per plot under existing conditions.

b) House Type 2: Two Semi-Detached Units on a Plot

House Type 2 consists of two ground level units per plot that are linked by a 20 m2 common entry/stairway to the roof which makes it possible to add future units on upper floors. The original plot can be "shared" by unrelated owners or owned by a single, extended family. Overall plot coverage limitations and setbacks are respected. Reducing effective plot sizes through agreed upon co-ownership of land is increasingly used by households to "bend" existing regulations to provide more suitable and affordable housing in the light of high land prices (see Technical Memorandum Number 10, "Residential Land Analysis"). On a "D" zone plot, the average built up area of each unit would have to be reduced to 63 m2 however, in order to conform to existing plot coverage regulations. This type of housing also requires closely coordinated construction efforts between the owners of the different units.

c) House Type 3: Shared Plot or Row Houses

In House Type 3, plots are "subdivided" or shared in row house fashion between 2 and 3 units for "D" and "C" zoned plots respectively. Each housing unit is "semi-detached" and has 70 m2 of constructed area. Once again, plot coverage limitations and setbacks are respected for the overall plot. As in Housing Type 2, this type of housing

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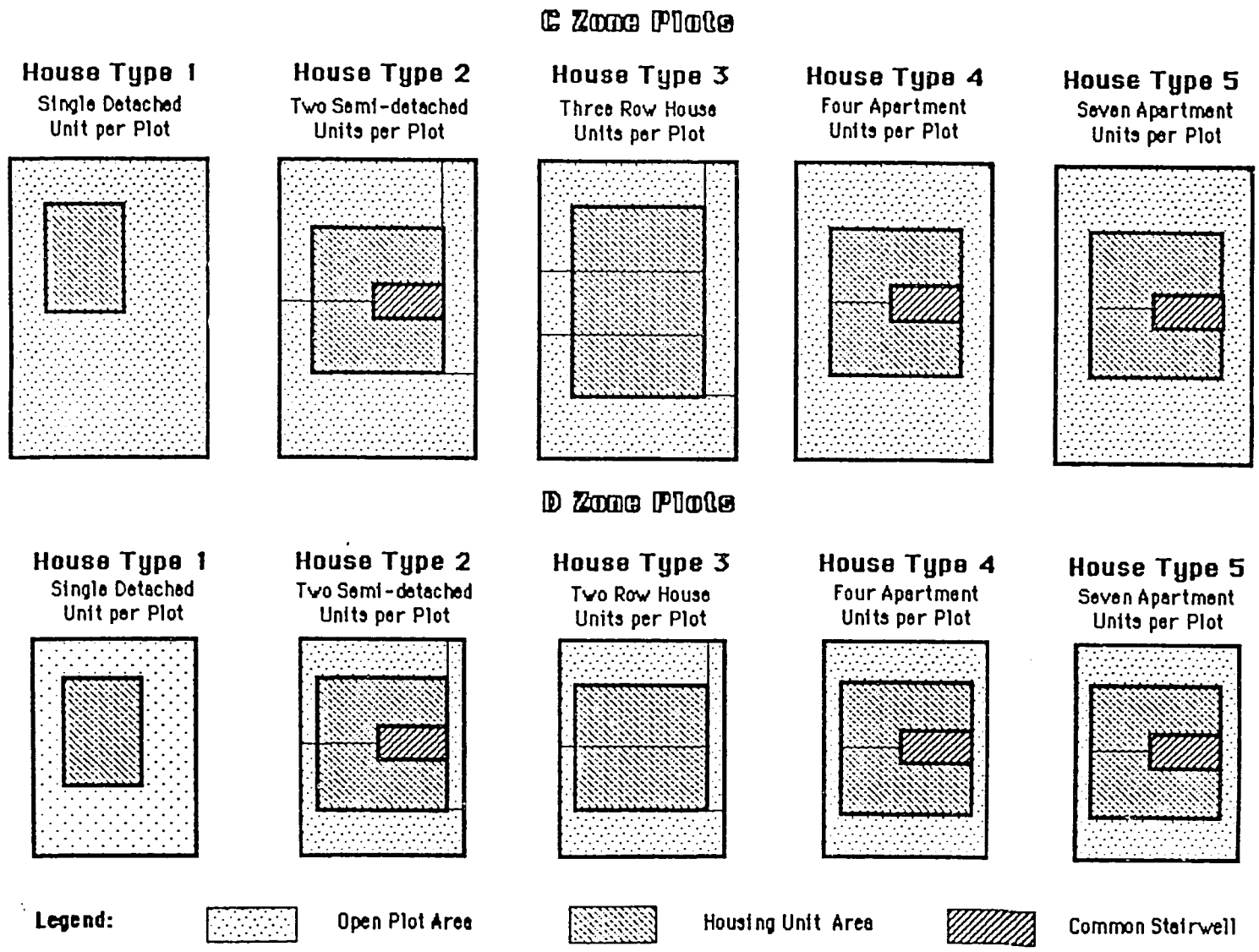
Figure 4.1: House Types Used in the Affordability Analysis of Infill Plots



unit is also becoming more frequent. Plot subdivision, housing design and certain construction elements however, need to be carefully coordinated between individual owner builders in order to produce satisfactory results.

d) House Type 4: Small Apartment Building

House Type 4 consists of a small apartment building having two units per floor, a common entry/stairway of 20 m2 connecting units on each floor, and two floors. Altogether there are four apartment units. In most cases, this type of building is built by a small scale developer/contractor and the individual housing units put up for sale or rent. For "D" zoned plots, each unit has a constructed area of only 63 m2 in order that plot coverage regulations be respected. For "C" zoned plots, the built up area per apartment could be as high as 95 m2, although it continues to be limited to 70 m2 in the present analysis.

e) House Type 5: Apartment Building

House Type 5 represents the maximum legal housing development that can take place on a "C" or "D" zoned plot based on existing regulations for plot coverage, building heights and required setbacks. Again, there are two units per floor and a common entry/stairway of 20 m2 connecting each pair of units. The height of the building is 3 1/2 floors which makes a total of 7 apartment units. Again, for "D" zoned plots, each unit would have a constructed area of only 63 m2 compared to 70 m2 used as the standard in the analysis. This type of apartment building would most likely be built by a developer.

2. Additional Inputs Used in the Analysis

The analysis is set up on a computer spreadsheet which enables a large number of "what if" type simulations to be executed based on a wide range of inputs to be determined by the user. Since the analysis is primarily concerned with evaluating the affordability of individual owner built construction on "infill" type plots in both "C" and "D" zones, the inputs used in the analysis have been chosen to be representative of general conditions in these areas. They do not represent extreme costs or conditions, although they can be modified to do so if desired.

To simplify the analysis, it is assumed that the net land price already reflects any costs of existing infrastructure (eg. roads, water supply and electricity) and that there are no additional infrastructure costs other than the normal connection charges for water, sewerage and electricity, and taxes.

It is also assumed that individual plot development will respect the existing zoning regulations in each case. This applies to all requirements concerning minimum plot sizes, plot frontage,

setbacks and maximum plot coverage. Housing types chosen as examples represent initial construction and not necessarily the full potential development of the plot.

A construction cost of 60 JD/m2 is used as one of the basic assumptions throughout the analysis. This amount reflects the very simple and economical construction methods and finishings found in owner built construction. Some sensitivity of affordability to the cost of construction is also studied by varying this cost.

Financial terms used in the analysis are those currently offered by the Housing Bank for both construction and mortgage financing. Loans for amounts under JD 7000 are given out a 8.5 % annual interest rate over a repayment period of 15 years, while those for more than JD 7000 have an 10.25 % annual interest rate over 10 years. These repayment periods can however be varied in order to evaluate the impact of changes in financial conditions on housing affordability.

For construction financing, it is estimated that the repayment period will be an average of 5 years. In all cases, the borrower is required to put up 25% of the total value of the housing unit to be completed under the loan. This total value includes both land and construction costs. The percentage downpayment on construction for builders has been varied in order to attain 25% of total cost including land required as the down payment.

The possibility of introducing a builder's overhead and/or profit is also included in the analysis. For simplicity, it has been set at 15% for all cases in which housing units are assumed to be built by developers. This percentage can also be varied for each type of housing unit or situation as desired.

As a starting point, it has also been assumed that households can pay 25% of their monthly income to repay a loan for housing.

The income percentile is based on the income distribution for Greater Amman as determined by the results of the 1986 National Housing Survey and adjusted upwards by 33.8% for under reporting.

3. Calculations

The calculations in the table are done in exactly the same way across each row. Most of them are quite easy to understand and the analysis is not a "model" in the sense that it attempts to simplify any part of the real world. It simply provides a way of linking together a series of calculations that would otherwise have to be done individually by hand Table 4.2 provides a brief indication of how these calculations are made. More detailed descriptions follow.

Table 4.2: Explanation of Inputs and Outputs Used in Analyzing the Affordability of Infill Plots

	TYPE	NOTES ON INPUTS AND OUTPUTS
PLOT CHARACTERISTICS		
Serviced land cost / net m2	40.00	---- Variable: sales price for plot including most infrastructure costs.
Net plot size in m2	500	---- Variable: plot size required by zoning regulations or in design.
Plot frontage in meters	15.00	---- Variable: frontage require by regulations or design.
Plot Depth in Meters	**33.33**	---- **Calculated: net plot size / plot frontage**
Plot Ratio Depth to Width	**2.22**	---- **Calculated: plot depth / plot frontage**
Front setback in meters	4.00	---- Variable: existing or revized zoning regulations; design decision.
Rear setback in meters	4.00	---- Variable: existing or revized zoning regulations; design decision.
Side setback in meters	3.00	---- Variable: existing or revized zoning regulations; design decision.
Side setback in meters	3.00	---- Variable: existing or revized zoning regulations; design decis on.
Calc. Plot Coverage (%)	**45.60**	---- **Calculated: buildable area from setbacks / net plot size.**
Allowable coverage by code	42.00	---- Variable existing or revized zoning regulations; design decision.
BUILDING CHARACTERISTICS		
Buildable Area per Floor	**210**	---- **Selected: lesser % of calculated or code plot coverage**
Common area per floor	0	---- Variable: area for stairs, common hall; design decision; building codes.
Apartments per floor	1	---- Variable design decision; plot size; building regulations.
Number of floors per building	1	---- Variable: design decision; zoning regulations.
Maximum Apartment Size	**210**	---- **Calculated: (buildable - common area) /#aparts. per floor**
Actual ave. apartment size	70	---- Variable: design decision
Construction cost in JD per m2	60	---- Variable: based on construction cost data
Fees and other fixed costs		---- Variable: includes connection charges, building permit fees etc.
Cost of Construction	**4200**	---- **Calculated: m2 cost X (apart.size X #apts/floor + common**
Construction & Plot Costs	**24200**	---- **Calculated: cost of construction + (net plot size X price)**
Const.& Plot Cost per Unit	**24200**	---- **Calculated: construction and plot cost / number of units**
Const.& Plot Cost/M2	**346**	---- **Calculated: cost per unit / apartment size**
BUILDING FINANCING		
% Downpayment Construction	0.00	---- Variable: % of construction cost required to have 25% of total cost.
Land & Const.Downpayment	**20000**	---- **Calculated: land + (% downpayment X cost construction)**
Equity as % of Total Cost	**82.64**	---- **Calculated: (land cost + downpayment) / total cost X 100**
Amount to be Borrowed	**4200**	---- **Calculated: total cost - (land + construction downpayment)**
Amount Borrowed per Unit	**4200**	---- **Calculated: amount borrowed / number of units**
Annual interest rate		---- Variable Housing Bank requirements or others
Repayment period in years		---- Variable Housing Bank requirements or others.
Financing Costs	**0**	---- **Calculated: interest to be paid based on rate and period.**
% profit on total cost		---- Variable: developer's decision; other knowledge.
Total Cost of Project	**24200**	---- **Calculated: total land + construction + financing costs**
Total Cost per Unit	**24200**	---- **Calculated: total project cost / number of units**
AFFORDABILITY OF UNITS		
% Downpayment	82.64	---- Variable: land + construction downpayment; Housing Bank terms
Amount Borrowed	**4200**	---- **Calculated: cost of unit - (land cost + downpayment)**
Annual interest rate	8.5	---- Variable Housing Bank terms or others.
Repayment period in years	15	---- Variable Housing Bank terms or others.
Monthly Payment	**41**	---- **Calculated: amount borrowed, rate and repayment period.**
Monthly Recurring Expenses	25	--- Variable average monthly costs for taxes, maintenance, utilities etc.
Total Monthly Housing Costs	**66**	---- **Calculated: Monthly payment + recurring expenses**
Ratio:payment to income (%)	25.00	---- Variable based on surveys; knowledge of local population.
Monthly income required	**265**	---- **Calculated: monthly payment / payment to income ratio**
Income percentile	**45**	---- **Selected: compared to table of income distribution.**

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a Plot depth

The "plot depth in meters" is found by dividing the "net plot size in m2" by the required plot frontage. In the case of "C" zones, the minimum plot size of 500 m2 is divided by a plot frontage of 18 m to give a plot depth of 27.78 m.

b) Plot ratio of Depth to Width

The "plot ratio of depth to width" is found simply by dividing the plot depth by the plot frontage. For a "C" zoned plot having a minimum area of 500 m2, the ratio of 18 m to 27.78 m would be 1.54. This ratio is often a good indication of the efficiency of plot dimensions. A ratio of around 1.5 is generally acceptable.

c) Calculated Plot Coverage

The "calculated plot coverage" is found by subtracting the sum of the side setbacks from the required plot frontage and the sum of the front and rear setbacks from the plot depth, then multiplying together the two results to obtain the area that can legally be built upon. This area is then divided by the net plot size and multiplied by 100 to give a percentage figure. Again using the "C" zone plot as an example, the calculated plot coverage would be equal to 18.00 less (3+3) times 27.78 less (4+4) divided by 500 with the result multiplied by 100. The result is 47.47%.

d) Buildable Area per Floor

The "buildable area per floor" is found by taking the lesser value between the calculated (47.47%) and legally allowed plot coverage percentages (42%) and then multiplying this percentage by the net plot size. In this case 42% times 500 m2 would be 210 m2.

e) Maximum Average Apartment Size

The "maximum average apartment size" is found by subtracting the common area per floor (eg. 20m2) from the buildable area per floor (eg 210m2) and dividing the result by the number of apartments per floor. For house type 2 this would be 210 m2 less 20 m2 and divided by 2. The result would be 95 m2.

f) Total Cost of Construction

The "total cost of construction" is found by multiplying the apartment size (eg. 70 m2) by the number of apartments per floor (2) and adding the common area (20 m2) to get the total area per floor (eg. 160 m2). This area is then multiplied by the number of floors (eg. 2) to obtain the total built area which is then multiplied by the cost per m2 to obtain the total construction cost, (JD 19200). Added to

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this cost would be the amount for fees and other fixed costs.

g) Total Construction and Plot Costs

The "total construction plus plot cost" is equal to the total construction cost (eg. JD 19,200) plus the result of multiplying the serviced land cost per m2 by the net plot size (eg. 500 x 20 or JD 10000). In this case the total cost would be JD 29200.

h) Construction plus Plot Cost per Unit

The "construction plus plot cost per unit" is equal to the construction and plot cost (eg. JD 29200) divided by the product of the number of apartments per floor and the number of floors (4). The results would be JD 7300 per unit.

i) Construction and Plot Cost per m2 of Built Area

The "construction and plot cost per m2 of built area" is equal to the construction plus plot cost per unit divided by the maximum apartment size or by the actual average apartment size if this is included as one of the inputs. In this example it would be JD 7300 divided by 70 m2 which equals JD 104/m2.

j) Land and Construction Downpayment

The "land and construction downpayment" is found by first multiplying the serviced land cost per m2 by the net plot size and adding to it the result of the product of multiplying the percentage downpayment for construction costs by the total cost of construction. In this case it would simply be JD 10000 or the cost of land.

k) Equity as a Percentage of Total Cost

The "equity as a percentage of total cost" is found by dividing the amount for land and construction downpayment (eg. JD 1000) by the sum of construction and plot costs (eg. JD 29200) and multiplying the result by 100 to obtain a percentage value. The result would be 34.2%.

l) Amount to be Borrowed

The "amount to be borrowed" is equal to the sum of construction and plot costs minus the amount for land and construction downpayment. In this case it would be JD 29200 minus JD 10000 which would be equal to JD 19200.

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m) Amount to be Borrowed per Unit

The "amount to be borrowed per unit" is equal to the total amount to be borrowed divided by the product of the number of apartment units per floor and the number of floors. This would be JD 19200 divided by 4 equals JD 4800.

n) Financing Costs

The "financing costs" are determined by the amount to be borrowed, the annual interest rate and the repayment period in years. They represent the amount of interest to be paid on the sums borrowed based on calculations for constant loan repayments. They are determined based on the formula for constant mortgage payments.

o) Total Project Cost

The "total project cost" is equal to the sum of land costs, construction costs and financing costs, all multiplied by the sum of (one plus a percentage for profit).

p) Total Cost per Unit

The "total cost per unit" is equal to the total project cost divided by the product of the number of apartments per floor and the number of floors.

q) Amount Borrowed per Unit

The "amount borrowed per unit" for individual owners is equal to the total cost per unit less the downpayment per unit.

r) Monthly Payment per Unit

The "monthly payment per unit" is determined by the amount borrowed, the annual interest rate for the loan, and the length of the repayment period expressed in years. The monthly payment is based on calculations for constant monthly payments.

s) Monthly Income Required

The "monthly income required" is equal to the monthly payment divided by the ratio of monthly payment to income expressed as a percentage value, with the result multiplied by 100.

t) Income Percentile

The "income percentile" is found by comparing the monthly income required with the income distribution for Amman from the 1986 National Housing Survey presented in a "lookup"

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table. The income distribution may be altered as necessary for different areas or time periods.

4. Results of the Analysis

Affordability considerations for owner built housing involve two very clearly distinct elements or "steps" along the path towards obtaining an acceptable housing unit. These include the purchase of a suitable parcel of land and housing construction. Each of these steps presents a very different environment in terms of potential constraints and difficulties, financial means available to the household etc. The two actions are also frequently separated by a period of time that can be several years. In any test of affordability therefore, it may be more accurate and realistic to consider each of the steps separately. Either one may present a serious hurdle to households trying to obtain an acceptable and afforadable housing unit. Under recent conditions, this has been particularly difficult for first time owners who have not built up any housing equity and/or who do not already own some residential land in urban areas.

a) Land Costs

The first step to affordable housing involves the purchase of a suitable residential plot. Legal ownership of a plot of land on which to build is presently one of the major conditions in obtaining a mortgage loan from the Housing Bank (see Technical Memorandum Number 14, "Housing Finance in Jordan"). With the exception of UDD projects, and perhaps some developer built multi-unit apartments, no mortgage loans are made in Jordan that cover both the purchase of land and the construction of a housing unit.

As a result, the combination of very high land costs with the large minimum plot sizes prescribed by existing zoning regulations means that in most cases, households presently desiring to build a new house must come up with a considerable amount of cash to first purchase the land. The share of land costs in the total value of the housing unit can therefore turn into a very substantial down payment. As shown in Table 4.3 this required downpayment can easily reach 65% or more of the total value of a single 70 m2 housing unit on a "C" zoned plot.

Land cost also has a significant impact on the total cost per square meter of the built area of the housing unit. Table 4.4 shows that the total cost per m2 of built area for a House Type 1 unit in a "C" zone area increases by 223% from JD 96 per m2 if the cost of land is JD 5 per m2 of plot, to JD 310 per m2 if the cost of land is JD. 35 per m2 of plot. For every dinar increase in the m2 cost of land therefore, the m2 total cost of the housing unit increases by JD. 7.1. This drops to JD. 3.6 per m2 for House Type 2 with two units plot. For House Type 5 which involves a 70 m2 unit in a fully developed apartment building, the m2 cost per unit increase proportionally with the cost of land.

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Table 4.3: Impact of Land Costs on Required Downpayments Expressed in JD Amounts and as a Percentage of Total Housing Cost

"D" Zoned Areas

.and	House Type 1		House Type 2		House Type 3		House Type 4		House Type 5	
·ices	Down	% Total	Down	% Total	Down	% Total	Down	% Total	Down	% Total
)/m2	Payment	Cost	Payment	Cost	Payment	Cost	Payment	Cost	Payment	Cost
2.5	1238	25.01	1181	25.00	1144	25.00	1603	25.00	1574	25.00
5.0	1500	26.32	1275	25.00	1238	25.00	1669	25.00	1612	25.00
7.5	2250	34.88	1369	25.00	1331	25.00	1735	25.00	1650	25.00
0.0	3000	41.65	1500	25.64	1500	26.32	1802	25.00	1688	25.00
2.5	3750	47.17	1875	30.12	1875	30.86	1867	25.00	1726	25.00
5.0	4500	51.72	2250	34.09	2250	34.88	1933	25.00	1763	25.00
7.5	5250	55.56	2625	37.63	2625	38.46	2000	25.00	1813	25.00
0.0	6000	58.82	3000	40.82	3000	41.67	2116	25.64	1859	25.00
2.5	6750	61.64	3375	43.69	3375	44.55	2367	27.95	1877	25.00
5.0	7500	64.10	3750	46.30	3750	47.17	2615	30.12	1915	25.00
7.5	8250	66.27	4125	48.67	4125	49.55	2862	32.16	1953	25.00
0.0	9000	68.18	4500	50.85	4500	51.72	3106	34.09	1990	25.00

"C" Zoned Areas

and	House Type 1		House Type 2		House Type 3		House Type 4		House Type 5	
ices	Down	% Total	Down	% Total	Down	% Total	Down	% Total	Down	% Total
/m2	Payment	Cost	Payment	Cost	Payment	Cost	Payment	Cost	Payment	Cost
2.5	1363	25.00	1356	25.00	1154	25.00	1806	25.00	1758	25.00
5.0	2500	37.31	1513	25.00	1258	25.00	1916	25.00	1821	25.00
7.5	3750	47.17	1875	28.09	1363	25.00	2026	25.00	1885	25.00
0.0	5000	54.35	2500	34.25	1667	28.41	2137	25.00	1948	25.00
2.5	6250	59.81	3125	39.43	2083	33.16	2247	25.00	2011	25.00
5.0	7500	64.10	3750	43.86	2500	37.31	2628	28.09	2074	25.00
7.5	8750	67.57	4375	47.68	2917	40.98	3042	31.31	2137	25.00
0.0	10000	70.42	5000	51.02	3333	44.25	3451	34.25	2200	25.00
2.5	11251	72.82	5625	53.96	3750	47.17	3856	36.95	2269	25.08
5.0	12500	74.85	6250	56.56	4167	49.80	4256	39.43	2609	27.11
7.5	13750	76.60	6875	58.89	4583	52.18	4655	41.73	2747	29.04
0.0	15001	78.13	7501	60.98	5000	54.35	5050	43.86	2983	30.86

This analysis is based on Table 4.1 (a and b). All inputs are kept constant except the price of land.
The cost of construction is estimated to be 60 JD/m2.

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Table 4.4: Impact of Land Costs on the Total Housing Cost Per M2 Built up Area of the Unit

"C" Zones

Land Cost JD/m2	House Type 1	House Type 2	House Type 3	House Type 4	House Type 5
5	96	86	72	78	74
10	131	104	84	86	79
15	167	122	96	95	84
20	203	140	108	104	89
25	239	158	120	113	94
30	274	176	131	122	99
35	310	194	143	131	104

"D" Zones

Land Cost JD/m2	House Type 1	House Type 2	House Type 3	House Type 4	House Type 5
5	81	82	70	76	73
10	103	94	81	82	76
15	124	106	91	88	80
20	146	118	101	94	83
25	167	130	112	100	87
30	189	142	122	106	90
35	210	154	132	112	94

Note: This analysis is based on Table 4.1 (a and b). All inputs have been kept constant except the price of land.

b) Construction Costs

The second element involves the actual constructinon of the housing unit. In this case, formal housing finance is generally available from the Housing Bank and as a result, housing affordability can be evaluated using the more traditional approach based on monthly payments. Monthly payments can then be compared/related to monthly household income to determine affordability.

Table 4.5 presents comparative cost estimates for different types of low income housing units and approaches. As can be seen from the table, the cost per m2 is lowest for owner built units, ranging from 46JD. per m2 for a 165 m2 unit to approximately JD. 66 per m2 for a small 35 m2 core unit. Units with the most expensive costs per m2 are those built by private developers at roughly JD 90/m2.

Table 4.6 shows what happens to the affordability of owner built units when the land price is held constant at JD 20 per net m2 and the cost of construction is varied. In performing this analysis, it is important to keep in mind that research on construction costs has shown that there are only rather limited opportunities to reduce costs (see Technical Memorandum Number 11, "Housing Construction Costs and Technologies"). Table 4.7 presents some of the ways in which costs might be reduced with the indicated results. Using these reduced costs in the analysis produces only a slight improvement in housing affordability.

C. New Sites

The Urban Development Department is at present the only housing supplier in Jordan involved in the design and development of new housing sites for lower income households. The UDD has implemented these projects with the assistance and collaboration of the World Bank. Even though lower income households are the intended beneficiaries of the UDD projects, there is a strong emphasis placed on the virtual full recovery of project costs (see Technical Memorandum Number 15, "Housing and Residential Land Subsidies"). It follows that the total project costs to be recovered per household must therefore be closely related to what beneficiary households can afford based on their low incomes and limited financial assets.

What can be "afforded" by the target beneficiaries therefore sets an effective upper limit on project costs and expenditures. Given that such a limit exists, more of one project component or benefit essentially means less of another. As a result, there is a wide range of potential "tradeoffs" between project elements. There can in fact be no "correct" or "incorrect" solutions related to optimum project design. Final project decisions also require a great deal of sound professional and cultural judgement and may often be highly political as well.

Table 4.5: Comparative Costs of Construction for Low Income Housing

	ITEM COST	165M² HOUSE-FULLY EXPANDED CORE UNIT			90M² HOUSE-DETACHED			60M² HOUSE-SEMI DETACHED			35M² CORE HOUSE		
		BY U.D.D.	BY CON-TRACTOR	BY OWNER	BY PRIVATE DEVELOPER	BY CON-TRACTOR	BY OWNER	BY PRIVATE DEVELOPER	BY CON-TRACTOR	BY OWNER	BY U.D.D.	BY CON-TRACTOR	BY OWNER
A	DESIGN AND SUPERVISION	200	150	150	150	150	150	200	200	200	200	200	150
B	INDIRECT COSTS												
1	SITE SUPERVISON	580	328	200	470	470	200	529	529	90	216	139	90
2	MOBILIZATION/ DEMOBILIZATION	76	76	0	92	92	0	144	134	0	47	47	0
3	RUNNING COSTS	25	25	110	45	45	110	35	35	110	8	8	110
4	SHOPE AND AS-BUILT DRAWINGS	139	39	0	65	65	0	40	40	0	40	40	0
5	INSURANCES	25	25	0	40	40	0	50	50	0	8	8	0
6	TAXES	25	25	90	20	20	90	20	20	20	8	8	20
7	PREPID COSTS	0	0	0	5	5	0	5	5	0	0	0	0
8	COST OF CAPITAL	50	50	0	40	40	0	40	40	0	16	16	0
9	OVERHEADS	804	110	0	380	30	0	408	50	0	155	25	0
10	WASTE	35	35	58	32	32	38	30	30	40	30	30	40
	SUB TOTAL	1959	863	608	1339	989	588	1501	1133	460	728	521	410
C	DIRECT COSTS												
11	MATERIALS	4394.66	4394.66	4394.66	2908.00	2908.00	2908.00	2193.40	2193.40	2193.40	1180.53	1180.53	1180.53
12	LABOUR	2471.99	2471.99	2471.99	1635.75	1635.75	1635.75	1233.78	1233.78	1233.78	664.05	664.05	664.05
	SUB TOTAL	6866.65	6866.65	6866.65	4543.76	4543.76	4543.76	3427.18	3427.18	3427.18	1844.58	1844.58	1844.58
13	CONTINGENCIES	552.99	484.31	137.00	229.20	209.42	88.75	234.09	196.32	71.25	120.69	110.98	72.11
14	PROFITS	1681.08*	1472.31	0	1164.18	1013.33	0	997.96	852.58	0	482.76*	443.91	0
	GRAND TOTAL	11059.72	9686.28	7611.62	7276.14	6755.51	5220.51	6160.23	5609.08	3958.43	3176.03	2920.47	2326.71
	UNIT COST J.D/M²	67.03	58.71	46.13	80.85	75.06	58.00	90.59	82.49	58.21	90.74	83.44	66.48

Note: The UDD is a non-profit organization. The figures for profit in this table represent the profits of the contractor who is building on behalf of UDD

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Table 4.6: Total Housing Unit Cost and Monthly Payments Based on Variations in Construction Costs

"C" Zones

Construction Cost in JD/m2	House Type 1		House Type 2		House Type 3		House Type 4		House Type 5	
	Total Unit Cost	Monthly Payment	Total Unit Cost	Monthly Payment	Total Unit Cost	Monthly Payment	Total Unit Cost	Monthly Payment	Total Unit Cost	Monthly Payment
50	13520	34	9000	55	6833	48	6500	54	4143	43
55	13850	38	9400	61	7183	53	6900	60	4543	47
60	14200	41	9800	66	7533	58	7300	65	4943	52
65	14550	45	10200	72	7883	63	7700	99	5343	56
70	14900	48	10600	77	8233	67	8100	107	5743	60
75	15250	52	11000	83	8523	72	8500	115	6143	64

"D" Zones

Construction Cost in JD/m2	House Type 1		House Type 2		House Type 3		House Type 4		House Type 5	
	Total Unit Cost	Monthly Payment	Total Unit Cost	Monthly Payment	Total Unit Cost	Monthly Payment	Total Unit Cost	Monthly Payment	Total Unit Cost	Monthly Payment
50	9500	34	6625	50	6625	50	5125	50	4485	47
55	9850	38	6988	55	6988	55	5488	55	4845	51
60	10200	41	7350	60	7350	60	5850	60	5207	54
65	10550	45	7713	65	7713	65	6213	65	5570	58
70	10900	48	8075	70	8075	70	6575	69	5932	62
75	11250	52	8438	75	8438	75	6938	101	6295	66

Note: This analysis is based on Table 4.1 (a and b). All inputs are kept constantexcept the cost of construction.
The cost of serviced land per net m2 of plot is estimated to be 20 JD/m2.

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Table 4.7: Unit Construction Costs vs. Material Unit Rates
Cost Savings

DESCRIPTION	TYPE OF HOUSE / AREA	FULLY EXPANDED CORE UNIT TWO STOREYS 165 m²			DETACHED ONE FLOOR 90 m²			SEMI-DETACHED SINGLE FLOOR 68 m²			CORE HOUSE 35 m²		
	BUILDER -	U.D.D.	CONTRACTOR	OWNER	DEVELOPER	CONTRACTOR	OWNER	DEVELOPER	CONTRACTOR	OWNER	U.D.D.	CONTRACTOR	OWNER
	BASIC CONSTRUCTION COSTS JD/m² FROM TABLE No. 3.1 UNIT RATES (LAST ROW)	67.03	58.71	46.13	80.85	75.06	58.00	90.59	82.49	58.21	90.74	83.44	66.48
CEMENT: FOR 15% DROP IN CEMENT PRICE	REDUCED UNIT COST	65.30	56.98	44.40	79.12	73.33	56.27	88.86	80.76	56.48	89.01	81.71	64.[illegible]
	(% SAVING)	-2.6	-3.0%	-3.9%	-2.2%	-2.4%	-3.1	-1.9	-2.1	-3.1	-1.9	-2.1	-[illegible]
CEMENT: FOR 10% DROP IN CEMENT PRICE	REDUCED UNIT COST	65.88	57.56	44.98	79.70	73.91	56.85	89.44	81.34	57.06	89.59	82.29	65.[illegible]
	(% SAVING)	-1.7	-2.0%	-2.6%	-1.4%	-1.6%	-2.0%	-1.3	-1.4	-2.0	-1.3	-1.4	-1.8
REINFORCEMENT: FOR 15% DROP IN STEEL PRICE	REDUCED UNIT COST	66.30	57.98	45.40	80.12	74.33	57.27	89.86	81.76	57.49	91.01	92.71	65.[illegible]
	(% SAVING)	-1.1	-1.2	-1.6%	-0.9%	-1.0%	-1.3	-0.8	-0.9	-1.3	-0.8	-0.9	-1.1
REINFORCEMENT: FOR 10% DROP IN STEEL PRICE	REDUCED UNIT COST	66.54	58.22	45.64	80.36	74.57	57.50	90.10	82.00	57.72	90.25	82.95	66.25
	(% SAVING)	-0.7	-0.8	-1.0%	-0.6%	-0.6%	-0.9	-0.5	-0.6	-0.8	-0.5	-0.6	-0.7
FOR IMPORTED SANITARY (+20% PRICE INCREASE)	% INCREASE IN CONST. COST	0.6	0.8	1.0	0.6	0.6	0.8	0.4	0.6	0.8	0.4	0.6	0.6
FOR IMPORTED SANITARY (+10% PRICE INCREASE)	% INCREASE IN CONST. COST	0.12	0.14	0.18	0.10	0.10	0.14	0.8	1.0	1.4	0.8	1.0	1.2
FOR 15% DROP IN PRICE OF CEMENT AND STEEL USING LOCAL MAT.	REDUCED UNIT COST	64.55	56.24	43.59	78.34	72.51	55.45	88.14	80.02	55.65	88.29	80.94	63.95
	TOTAL % SAVINGS	3.7 %	4.2 %	5.5 %	3.1 %	3.4	4.4	2.7 %	3.0 %	4.4 %	2.7	3.0	3.8 %
FOR 10% DROP IN PRICE OF CEMENT AND STEEL USING LOCAL MATERIALS ONLY	REDUCED UNIT COST	65.42	57.07	44.50	79.23	73.41	56.32	88.96	80.85	56.58	89.11	81.77	64.82
	TOTAL % SAVINGS	2.4	2.8	3.6	2.0	2.2	2.9	1.8	2.0	2.8	1.8	2.0	2.5

Note: All the above unit costs are based on locally manufactured sanitary fixtures, electric fittings, wires and materials

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1. Description of the Bertaud Affordability Model

The Bertaud Model is a relatively simple mathematical analysis that can prove useful in determining the affordability of "sites and services" type projects in which the beneficiaries will pay for on-site infrastructure and construction costs within some form of mortgage loan. The model provides decision makers with an immediate and more thorough understanding of the possible trade-offs between project parameters within the financial constraints surrounding a project. It enables the effects of changes in plot size or available monthly payments for example, to be easily analyzed as well as how the type of land, infrastructure and construction of the housing unit can be varied within given financial constraints.

The model is most valuable in the project planning and preliminary design phases because it can help reduce tedious, long hand calculations and provide a quick consistency test for the actual values and layouts being considered for alterntive sites. As a project develops, more and more precise data can be inputed to the analysis and a continual check on project affordability maintained. The model can also be used to analyze the impact of land use standards and regulations on plot development costs.

The model has a basically simple structure which can be progressively extended to include greater detail as desired. A simple graphic representation of the model is shown in the nomogram in Figure 4.2. Affordable monthly payments and mortgage terms determine the capital available on the one hand, while land and infrastructure costs, on-plot construction cost, and areas for public facilities, including open and circulation space, determine the capital needs on the other. The link between the two sides is provided by population density expressed as the number of households per hectare. Multiplying the required population density by the average individual household contribution should therefore equate to the total capital sum of the project assuming that no subsidies are to be involved.

The model can be of considerable help in investigating a wide range of shelter options and in determining their affordability. It can be used in policy discussions, project identification and preparation, project appraisal, and project monitoring and evaluation. It does not however identify optimal projects, or generate data on the demand for housing or residential land.

A complete description of how the model works using an IBM/PC computer can be found in the document "A Model for the Preparation of Physical Development Alternatives for Urban Settlement Projects (The Bertaud Model)", Affordability Submodel Part II, by Marie-Agnes Bertaud for the World Bank. The most important information contained in this document, as well as the formulas used in the model have been included in this memorandum as Annex 1.

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Figure 4.2: Graphic Representation of Bertaud Model:
Relations Between Monthly Payments, Density and Plot Size

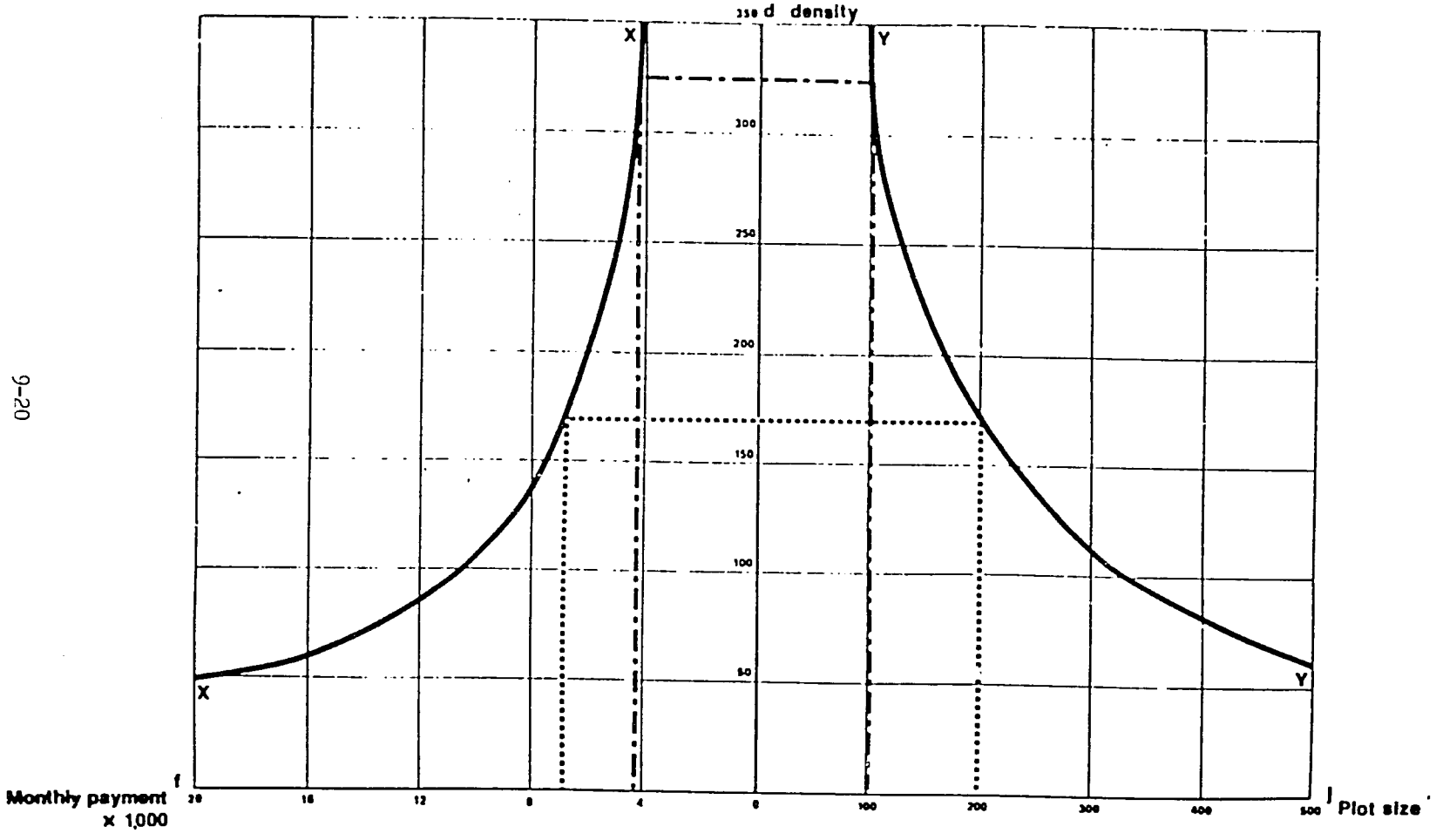

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Table 4.8: Affordability Analysis of Sites and Services Type Project

MASTER:	UDD or Developers				Project	Sites and Services		Date		May-87
AND USE CHARACTERISTICS										
ite area in dunums		150	Non-developable area in m2				Developable area in m2			150000
ultural ocilities	Net area in m2	Sales price/m2	Commerce facilities	Net area in m2	Building Cost/m2	Sales price/m2	Net residential area in m2 from program or meesured from plans			
chools	3000		Retail sales	7500		40	Non-marketable land	%	m2	
lealth	800		Bulk sales				Circulation areas	30.00	45000	
losques	600		Crafts				Parking areas	0.30	450	
enter	4000		Services				Green spaces	3.00	4500	
ther	7000		Other				Public spaces	1.70	2550	
otal	15400	0	Total	7500	0	300	Total	35.00	52500	
12 Non-resid.land	35231		M2 total residential land			114769	M2 net residential land			74600

AND AND INFRASTRUCTURE COSTS		Land price	Site prep.	On-site infrastr	Off-site infrastr.	Other costs	
esic development costs		10.00	0.75	1.50	0.20		
ontingencies and unforseens	(%)		5.00	5.00	5.00		
ees and supervision	(%)	10.00	10.00	10.00			
inancing costs	(%)		11.00	11.00			
omplete item cost/gross m2 of site		11.00	0.96	1.92	0.21	0.00	
otal developed land cost/gross m2 of site		14.09	Developed land cost/net m2 of site				25.75

LOT SIZES AND HOUSING UNIT CONSTRUCTION									
lousing unit type	Total	Type #1	Type #2	Type #3	Type #4	Type #5	Type#6	Type#7	Type#8
% of total plots/type	100.00	15.00		50.00		20.00		15.00	
lot size in m2		112.00		150.00		200.00		300.00	
lb.of plots/type	422	63	0	211	0	84	0	63	0
lb.housing units/plot		1		1		1		1	
lb.units/type	422	63	0	211	0	84	0	63	0
lb. plots/ha.	37	Nb. units /ha.		37	Density / ha.		239	Pop.	2743
12 builded area		25.00		25.00		40.00		50.00	
onstruction cost/m2		55.00		55.00		50.00		60.00	
ontingencies	(%)	15		15		15		15	
inancing costs	(%)	11		11		11		11	
12 cost+contingencies		1581	0	1581	0	2300	0	3450	0
12 cost+contin.+finance		1755	0	1755	0	2553	0	3830	0
% developed land cost/unit		100		100		100		100	
eveloped land cost/unit		2884	0	3863	0	5150	0	7725	0
otal cost/unit		4639	0	5618	0	7703	0	11555	0
ales price or % profit		-10		-5		0		5	
alculated % profit		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ales price/unit		4175	0	5337	0	7703	0	12133	0
ales price/m2 built		167	0	213	0	193	0	243	0

PROJECT COSTS	JDX1000	%	REVENUES	JDX1000	%	RATE OF RETURN		
and	1650	54.04	Housing units	2808	90.35	Year	% Exp.	% Rev.
nfrastructure	464	15.20	Facilities	300	9.65	1	30	20
onstruction	939	30.76	Total project	3108	100.00	2	55	30
Housing	939					3	15	30
Facilities	0					4		20
otal project	3053	100.00	Developer profit	55	1.79		% IRR	2.81

AFFORDABILITY	Type #1	Type#2	Type#3	Type#4	Type#5	Type#6	Type#7	Type#8
ownpayment	10.00		10.00		10.00		10.00	
early interest rate	8.50		8.50		8.50		11.00	
epayment period	18		18		18		15	
onthly payment	34.03	0.00	43.49	0.00	62.77	0.00	124.11	0.00
atio to monthly income	33		33		33		33	
equired monthly income	103	0	132	0	190	0	376	0

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2. Application of the Model to a UDD type project

As previously stated, the model can be very effective as a planning tool in the development of "sites and service" types of projects. An abbreviated and somewhat modified version of the model has been used in this memorandum to analyze the affordability of a hypothetical UDD type project based on data presently available to the Shelter Unit. The results of two of the many posible runnings of the analysis are shown in Tables 4.8 and 4.9.

One of the key relationships that the Affordability Model can thoroughly analyze is the relationship between the amount or percentage of "non-marketable" land (i.e circulation and open space) and the affordability of residential plots based on their size. Reductions in circulation space increases the total net plot area and the number of plots included within a given site. This obviously has a positive effect on affordability. Table 4.10 shows how the required monthly income is affected as the percentage of circulation and open space increases from 35% to 50% of the total site area. If circulation and open space equal 35% of the total site area for example, the required monthly income for a 150 m2 plot and basic core unit under UDD type conditions as shown in Table 4.8 is JD 132. If circulation and open space increases to 50% of the total site area, the required monthly income for the same plot and core unit becomes JD 166. In this case, each percentage point for circulation and open space adds JD 2.3 to the monthly income required.

Under the same changes in circulation and open space, the monthly income required by the 300 m2 plot would increase from JD 376 to JD 471. For every percentage increase in non-marketable area, the monthly income required increases by 6.3 JD/m.

3. Impact of Zoning Regulations and Physical Planning Standards

In general, the affordability of infrastructure development to local authorities has been of relatively little concern in Jordan. Outside of UDD projects in which the beneficiaries pay the full cost of on-site infrastructure development, limited interest has been paid to the potential impacts of existing standards and regulations on development costs.

The primary objective of planning regulations has always been to enhance the built environment and to ensure that development occurs in a desired way. Regulations for residential land development in urban areas within Jordan attempt to acheive this by specifying minimum plot sizes, frontages, maximum building heights, minimum road widths etc. The cost and affordability implications of these development regulations however have generally been overlooked.

Table 4.9: Affordability Analysis of Sites and Services Type Project

MASTER: U.D.D. or Developers | Project: Sites and Services | Date: May-87

LAND USE CHARACTERISTICS

Site area in dunums: 150 | Non-developable area in m2 | Developable area in m2: 150000

Cultural facilities	Net area in m2	Sales price/m2	Commerce facilities	Net area in m2	Building Cost/m2	Sales price/m2	Net residential area in m2 from program or meesured from plans		
Schools	3000		Retail sales	7500		40	Non-marketable land	%	m2
Health	800		Bulk sales				Circulation areas	45.00	67500
Mosques	600		Crafts				Parking areas	0.30	450
Center	4000		Services				Green spaces	3.00	4500
Other	7000		Other				Public spaces	1.70	2550
Total	15400	0	Total	7500	0	300	Total	50.00	75000

M2 Non-resid. land: 45800 | M2 total residential land: 104200 | M2 net residential land: 52100

LAND AND INFRASTRUCTURE COSTS

	Land price	Site prep.	On-site infrastr.	Off-site infrastr.	Other costs
Basic development costs	10.00	0.75	1.50	0.20	
Contingencies and unforseens (%)		5.00	5.00	5.00	
Fees and supervision (%)	10.00	10.00	10.00		
Financing costs (%)		11.00	11.00		
Complete item cost/gross m2 of site	**11.00**	**0.96**	**1.92**	**0.21**	**0.00**

Total developed land cost/gross m2 of site: 14.09 | Developed land cost/net m2 of site: 35.47

PLOT SIZES AND HOUSING UNIT CONSTRUCTION

Housing unit type	Total	Type #1	Type #2	Type #3	Type #4	Type #5	Type #6	Type #7	Type #8
% of total plots/type	100.00	15.00		50.00		20.00		15.00	
Plot size in m2		112.00		150.00		200.00		300.00	
Nb. of plots/type	295	44	0	147	0	59	0	44	0
Nb. housing units/plot		1		1		1		1	
Nb. units/type	295	44	0	147	0	59	0	44	0
Nb. plots/ha.	28	**Nb. units /ha.**		28	**Density / ha.**		184	**Pop.**	1915
M2 builded area		25.00		25.00		40.00		50.00	
Construction cost/m2		55.00		55.00		50.00		60.00	
Contingencies (%)		15		15		15		15	
Financing costs (%)		11		11		11		11	
M2 cost + contingencies		1581	0	1581	0	2300	0	3450	0
M2 cost + contin. + finance		1755	0	1755	0	2553	0	3830	0
% developed land cost/unit		100		100		100		100	
Developed land cost/unit		3973	0	5321	0	7095	0	10642	0
Total cost/unit		5728	0	7076	0	9648	0	14471	0
Sales price or % profit		-10		-5		0		5	
Calculated % profit		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sales price/unit		5155	0	6722	0	9648	0	15195	0
Sales price/m2 built		206	0	269	0	241	0	304	0

PROJECT COSTS	JDX1000	%	REVENUES	JDX1000	%
Land	1650	59.56	**Housing units**	2459	89.12
Infrastructure	464	16.76	**Facilities**	300	10.88
Construction	656	23.68	**Total project**	2759	100.00
Housing	656				
Facilities	0				
Total project	2770	100.00	**Developer profit**	-12	-0.42

RATE OF RETURN		
Year	% Exp.	% Rev.
1	30	20
2	55	30
3	15	30
4		20
	% IRR	0.00

AFFORDABILITY	Type #1	Type #2	Type #3	Type #4	Type #5	Type #6	Type #7	Type #8
Downpayment	10.00		10.00		10.00		10.00	
Yearly interest rate	8.50		8.50		8.50		11.00	
Repayment period	18		18		18		15	
Monthly payment	42.01	0.00	54.78	0.00	78.62	0.00	155.44	0.00
Ratio to monthly income	33		33		33		33	
Required monthly income	127	0	166	0	238	0	471	0

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Table 4.10: Impact on Required Monthly Payments Due to Variations in Project Parameters

% Non-marketable Area (i.e. circulation and open space)	Required Monthly Income			
	Plot Type 1 112 m2	Plot Type 3 150 m2	Plot Type 5 200 m2	Plot Type 7 300 m2
35.0	103	132	180	376
37.5	106	136	196	388
40.0	110	141	203	401
42.5	113	146	210	416
45.0	117	152	219	432
47.5	122	159	228	451
50.0	127	166	238	471

Note: In this part of table, land cost is 10 JD/m2 of the total site area, and infrastructure cost is 1.5 JD/m2 of the total site area.

Gross Land Cost in JD/m2	Plot Type 1 112 m2	Plot Type 3 150 m2	Plot Type 5 200 m2	Plot Type 7 300 m2
10	110	141	203	401
15	137	180	258	509
20	165	219	312	617
25	192	258	367	725
30	220	297	421	833
35	247	335	476	941

Note: In this part of table, non-marketable land is 40% of the total site area, and infrastructure cost is 1.5 JD/m2 of the total site area.

On-site Infrastructure Cost in JD/m2	Plot Type 1 112 m2	Plot Type 3 150 m2	Plot Type 5 200 m2	Plot Type 7 300 m2
1.0	106	136	197	389
1.5	110	141	203	401
2.0	113	145	209	414
2.5	116	150	216	427
3.0	119	150	222	439

Note. In this part of table, non-marketable land is 40% of the total site area, and land cost is 10 JD/m2 of the total site area.

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Assuming that developrent costs are to be recovered directly from the beneficiaries, the legal development of land under existing regulations is already too costly for many households and in particular for low income households many of whom are subsequently forced to look for housing opportunities in unauthorized and unserviced areas. This type of development has been occuring on a fairly large scale in the Ruseifa area (see Technical Memorandum Number 10, "Residential Land Use Analysis"). One can argue therefore, that while the present standards and regulations have generally been effective, they have not been fully able to protect the physical environment. They may even have led to its deterioration in some cases by forcing lower income families to become "squatters" and/or to completely disregard any zoning regulations or controls. In order for land subdivision regulations to be effective therefore, it is essential that they be affordable by the population group for whom they are designed.

Standards and regulations affect the costs of development in many ways. Existing land use regulations for minimum plot sizes, road widths and required areas for public space determine the amount of privately owned, saleable and taxable land. In Jordan, the Government can claim up to 25% of the area of a parcel of land in urban areas as compensation for roads and public facilities. This percentage is generally insufficient to meet land use needs for any circulation and open space. In many cases, the relation between plot boundaries and roads does not allow this percentage to be taken equitably from each plot. As a result, the government becomes involved in paying compensation for a good part of the land it needs. The result of these procedures is that only a small part of the capital costs of roads and other infrastructure networks are recovered (see Technical Memoranda Number 10 "Resedential Land Analysis" and Number 15, "Housing and Residential Land Subsidies").

Higher standards for roads also translate into more and infrastructure costs for the government. To give an indication of how these costs can vary, a simple analysis was developed and has been presented in Table 4.11. As expected, simulations using the data in Table 4.11 have shown that overall infrastructure costs increase as plot sizes become smaller. This is due to the reduced block depth and the need for a greater number of roads or footpaths to provide access to a all plots. Carefully considered reductions in site development standards could however, offset these increases in overall infrastructure costs. They could also reduce the infrastructure cost per plot with an accompaying improvemnt in affordability.

The results of Table 4.11 are based on a total site area of 200 dunums with 40% "C" zoned plots and 60% "D" zoned plots. All plots are served by roads having rights-of-way and paved areas as shown in the table. Based on the inputs for these road, the area for circulation is calculated to be 34.2%. The total percentage for n0n-marketable land including open spaces is 42.20%.

Table 4.11: Impact of Land Use Standards on Infrastructure Costs

Site Characteristics		Non-marketable Areas		%	M2
Total site area in dunums	200	Green space		5.00	10000
		Public spaces	(1st est)	3.00	6000
		Circulation area	45.00	34.11	68220
Total Residential Area in M2	115780	Total non-marketable area		42.11	84220

Residential Land Use							
Residential plot type	Total	#1	#2	#3	#4	#5	#6
Percentage total plots	100.00	40.00	60.00				
Plot size in m2		500.00	300.00				
Number of plots	305	122	183	0	0	0	0
Plot frontage in meters		18.00	15.00				
Number of plots / block		6	7				
R.O.W. of access street		16.00	14.00				
Vehic. street (1), footpath (2)		1	1				
Width of pevement		9.00	7.00				
R.O.W.of secondary street		26.00	18.00				
Vehic. street (1), footpath (2)		1	1				
Width of pavement		16.00	12.00				
Network length / land use		2263	2640	0	0	0	0
M2 footpaths / land use		0	0	0	0	0	0
M2 paved footpath/land use		0	0	0	0	0	0
M2 street / land use		36483	31920	0	0	0	0
M2 paved street / land use		21522	18078	0	0	0	0
Total m2 circulation area		68403	Percentage circulation		34.20	Units/ha.	15.25

Infrastructure Costs	Unit Cost	Quantity	Total Cost	% Cost	JD/net m2	JD/tot.m2
Footpath Area	5	0	0	0.00	0.00	0.00
Paved Footpaths	2	0	0	0.00	0.00	0.00
Vehicular Street Area	6	68403	410418	55.60	3.54	2.05
Paved Vehicular Streets	3	39600	118800	16.10	1.03	0.59
Water Supply	15	4903	73545	9.96	0.64	0.37
Electricity	3	4903	14709	1.99	0.13	0.07
Sewage	25	4903	122575	16.61	1.06	0.61
Total Costs			**740047**	**100.00**	**6.40**	**3.69**
Residential plot type	#1	#2	#3	#4	#5	#6
Cost per plot	**3200**	**1920**	**0**	**0**	**0**	**0**

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The total number of plots within the area is calculated to be 304. Unit costs for infrastructure are rough estimates obtained from a local engineering firm. Based on these land use and cost inputs, the cost per m2 of overall site area is JD 3.69 /m2 and per net m2 of plot, JD 6.39 /m2. The average cost per plot is JD 3195 for the "C" zoned plots and JD 1917 for the "D" zoned plots. Reducing the right-of-way for secondary roads from 26 meters to 18 meters and that for access roads from 16 meters to 14 meters, increases the number of plots to 318 and reduces the cost per m2 of total site area to JD 5.76 /m2 and per net m2 of plot to JD 3.48. The cost to a "C" zoned plot is JD 2880 and to a "D" zoned plot is JD 1728.

The point to be made from all of this is that more careful consideration of the need to conserve and more efficiently use available resources could result in considerable savings in land and development costs that would benefit the government and still provide adequate value to inhabitants and protection of the physical environment.

CHAPTER V: PROBLEMS FACED IN OBTAINING AFFORDABLE HOUSING

Urban households in Jordan face several significant problems in obtaining affordable housing. These include the high cost of land, the high downpayment requirements for housing finance and high standards and construction costs.

A. High Land Prices

High land prices and large minimum plot sizes required by existing zoning regulations have resulted in very high "threshold" costs for the purchase of legal sized residential plots in urban areas. Equally important, they have had a very significant impact on the way in which people build and the type of housing units produced. It is an important reason for example, why most housing units in Jordan are found in multi-unit buildings.

Since no financial institution provides loans for the purchase of land, households are obliged to rely on inheritance, savings, remittances, inter-family loans and other cashed-in financial assets to obtain residential land on which to build.

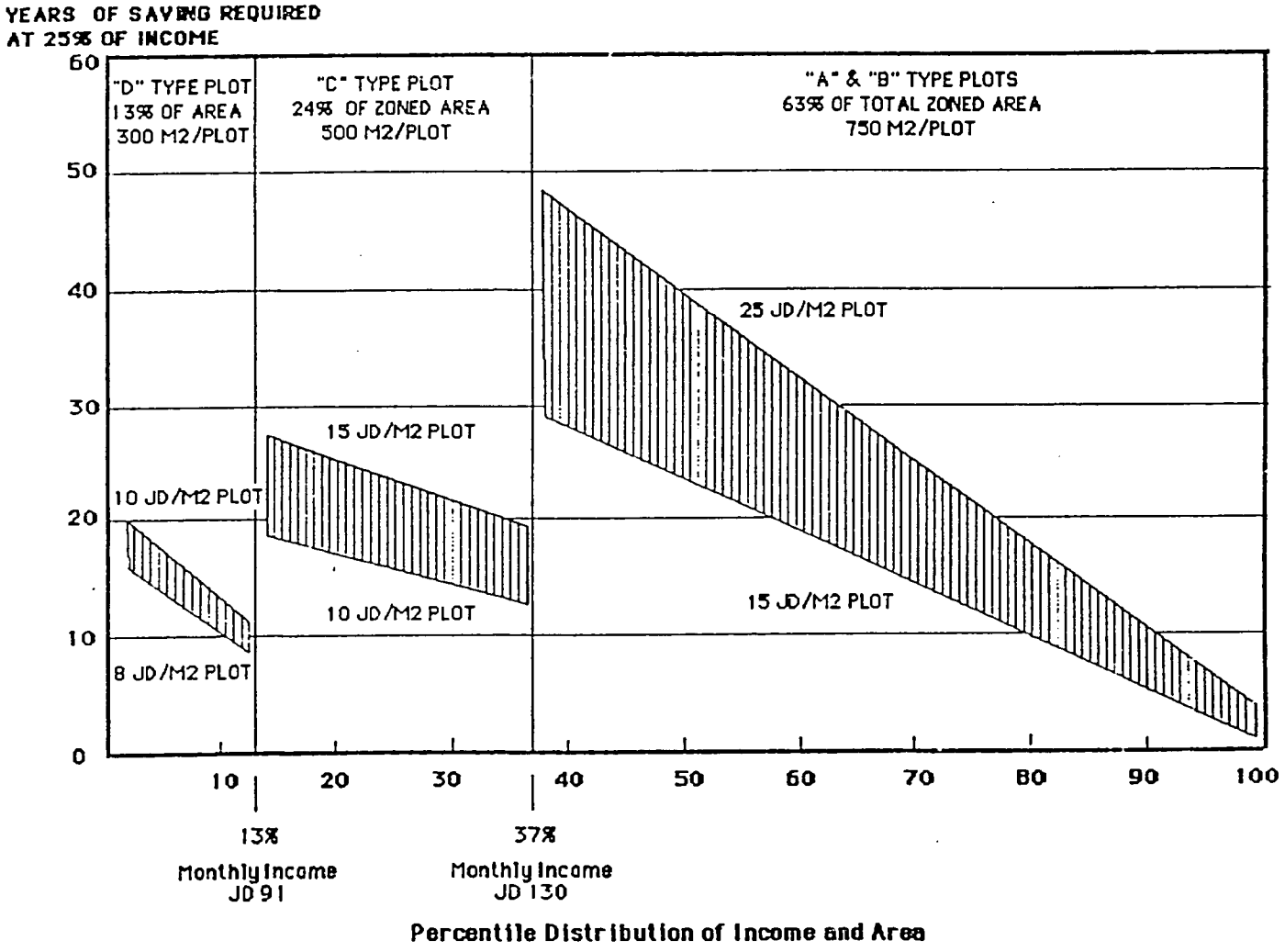
Figure 5.1 shows exactly how difficult it is to obtain a suitable plot if the only source of funds for financing the purchase of land comes from savings of a part of monthly household income. To simplify the analysis it is assumed:

- that households will settle in different residential zones according to their income;
- that the population densities in these different zones will be relatively the same, given the lack of any density controls in the existing zoning regulations, and that as a result
- the percentage of zoned residential land by type can be measured along the same line as income distribution.

The example used in Figure 5.1 is based on the distribution of residential zones, household income and estimated land prices found in Amman in 1986. In this very brief analysis, 13% of Amman households, mainly those with the lowest incomes, will live in "D" zones which in turn include 13% of the zoned residential land area; 24 % of households higher up the income distribution will live on the 24% of the land zone "C"; and the remaining or highest income households will live on "A" and "B" zoned land. To make the analysis even simpler, "A" and "B" zoned land are grouped together under the lower zoning requirements of "B" zoned areas. While the assumptions used in the analysis are considerably simplified, the result reflects reality in that a household"s financial situation will greately determine the location and size of land it will be able to purchase for housing.

Figure 5.1: Estimated Level of Savings Required to Obtain a Legal Sized Plot at 1985 Prices

(Analysis for Amman Based on Income Data from the 1985 Jordan University Survey)



The purpose of Figure 5.1 therefore, is simply to point out some of the implications that present zoning regulations and land costs have on affordability and the threshold costs of land. This is expressed by the number of years required to purchase a legal sized plot based only on household savings of 25% of a household, monthly income. The diagram clearly shows the difficulty that even middle income households have in purchasing "B" type plots at present land prices. It would take a family at the 40th percentile for example, almost 50 years of saving to obtain a "B" zoned plot costing 25 JD/m2 and almost 30 years if the same plot cost only 15 JDs/m2. Clearly, land affordability to families who do not already own land or who do not have considerable supplementary financial resources in addition to their incomes is a serious constraint to obtaining decent and legal housing.

B. High Downpayments Required under Existing Financial Conditions

As a condition for all housing loans (except those offered to beneficiaries of UDD and Housing Corporation projects), the Jordan Housing Bank requires that the land on which any building is to be built already be in the legal possession of the borrower. The market value of this land is valued by the Housing Bank and counts toward the 25% downpayment on the total value of the house required by the Bank. As seen in the results of the National Household Survey and in the previous analyses, the share of land cost in the total cost of the housing unit is generally greater than 25% and may even reach as high as 65%. This presents a very difficult burden for those households who do not yet own any land.

C. High Standards and Construction Costs

As underlined by the results of the National Housing Survey, Jordan's housing stock has experienced a significant overall improvement during the recent period of economic boom. General housing standards and aspirations have now become quite high.

As previously pointed out, the average unit size of recently built housing in Greater Amman is close to 123 m2. For other urban areas, the average size is roughly 90 m2. In both cases, these sizes represent very ample space standards. Virtually all new housing units (including units being built in newly forming and unauthorized subdivisions) are now built out of reinforced concrete, include modern plumbing and electricial facilities, and are quite often faced with stone. Both the political and social pressures to continue these rather high housing standards are at the moment quite strong.

In addition the 1979 zoning and planning regulations require very large plot sizes that encourage a maximum development of the allowable plot coverage area by building multi-unit buildings. This encourages households to literally build over their heads while considerably increasing the amount of cash and / or equity that is required.

Technical Memorandum Number 11, "Housing Construction Costs and Technologies" in reviews construction costs and trends in some detail. These do not need to be repeated here. Simply stated, the cost of construction essentially includes two major elements: materials and labor.

The costs of materials depend on a large number of factors including quality, market availability, whether or not materials are locally made or imported, transportation costs, etc. Certain ways in which construction costs might be reduced were indicated earlier in this memorandum, although their actual impacts on reducing costs was not very significant. These included reducing the prices of cement and steel. A 10% reduction in the cost of cement would result in about a 2.6% reduction in the total cost of a house. For steel reinforcing, a 10% reduction in cost would result in a 1.1% reduction in the total cost of the unit. Other ways in which material costs could be reduced might include the standardization of some building components, limited prefabrication of certain small sized elements, stockpiling of materials etc.

The cost of labor is largely supply and demand dependent. At the moment, labor costs have been declining due to the general slow down in the economy. There are also official measures being considered that are aimed at limiting the number of foreign workers, many of whom are working in the construction sector. If implemented, these restrictions would have an effect on raising construction labor costs in the future.

10

Housing Developers Survey

by the Jordan Housing Bank and CDG
[Community Development Group]

GENERAL

The first part of the questionnaire was designed to obtain general information about housing developers in Jordan. Its intent is to develop "profiles" of the major types of housing developers based on indicators such as: size of the firm, ownership, registration, volume of activities, location of activities, size and price of housing units, size of capital, and the types of construction activity.

Based on the results of the survey, there appears to be four principal types of developers:

1. Individuals who are unregistered with a small output and rely on relatively limited capital.
2. Companies registered as trading companies with housing as part of their activities, small output and adequate capital.
3. Contractors who build housing in order to keep their equipment and staff operating.
4. Formal housing developer companies, some of whom have their savings programs.

The survey was successful in capturing information on each of these different types of developers.

The first few survey questions include company name, the date of the interview, the person interviewed and his position in the company. This information is useful for maintaining future contacts and updating information. This data is also significant if a database of housing developers is to be compiled and periodically updated. It is suggested, however, that future questionnaires include the Department of Statistics' standard discretion statement referring to Law number 34, of 1950. Clearance from the DOS may also be desirable to obtain increased and more open responses.

Although the distribution of developers is not statistically significant, it appears that the survey was successful in reaching a good number of smaller individual developers. The survey showed for example that 27.3% of the developers responding to the questionnaire were individuals and also the same percentage were unregistered. Roughly 50% of all developers produced an average of less than 10 units per year. Given as well that the smaller developer would be less likely to contact the Housing Bank and the fact that most of the known larger developers were deliberately included in the survey, the real number and proportion of smaller developers should be considerably higher than indicated in the survey. These could only be identified over a period of time and with active involvement of the Housing Bank. This task would be facilitated the institution of an association for housing developers.

The size of developer companies varied from the single owned and operated companies (10%) to companies having over 15 permanent employees (29%). Fifty percent of companies were registered in the Amman governorate and with the Ministry of Trade nd

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Industry. There was a significant number of unregistered companies (31%) indicating operating companies outside the formal market. The majority of companies (27%) were individually registered while an equal number were not registered.

Another characteristic of developers in Jordan is their relatively young age. Almost 60% of the developers responding to the survey began their operations after 1980. The majority of companies (36%) started their practice before 1980, while the next large group (34%) began between 1980 and 1982. This means that most of them started during the housing boom in Jordan when it was relatively easy to build and sell housing units to middle and upper income families.

Many developers alternate between periods of construction and the commercialization of their units. They will not embark on a new project until previous units are sold. Since most of the developers use their own capital for construction, the pattern is to build and sell units and start to build again.

Not surprisingly, the main geographical area for the housing developers activity was found to be the Amman Balqa Governorates. While this makes sense in terms of population concentration and housing construction activity, it may also reflect the fact that Housing Bank branch offices nearer to the central office were most active in following up and executing the survey. The distribution of the questionnaire by branch offices does not entirely reflect the wide distribution of Housing Bank branch offices throughout Jordan.

The average size of housing units ranged from 125 to 140 m2 this compares to the results of the National Housing Survey of 1986 which showed that the average size of the housing units built in the Greater Amman over approximately the same period was 125 m2. It is another indication that developers were building in the mid-range of the housing units produced during this period.

Most companies produced an average of over 30 housing units in the years between 1979-1987. The annual average number of units for the same period wa mostly between 6 and 10 units. The average cost of these units ranged between 13,000-20,000 JD. This clearly indicated that the majority of units sold by the developers interviewed were not for lower income families.

The main geographical area for developers housing activities was in the Amman-Balqa Governorates. While this is clearly a reflection of opportunities to build housing units for sale related to the large population concentration, it may also be due at least in terms of the Survey results to the fact that more developers in these Governorates received and/or responded to the questionnaires. Since the total sample size of the targeted developers is unknown, it is difficult to make any statements about the location of their activities. Although it makes sense that most would be working in the Greater Amman area.

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Although the survey question dealing with the level of capitalization of the company did not yield good results for detailed items, it offered satisfactory results for the total. The majority of respondents (37%) claimed levels of capital between 50,000 and 150,000 JDs.

Table G1
BRANCH BANK LOCATION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AMMAN	1	27	54.0	56.3	56.3
ZARQA	2	5	10.0	10.4	66.7
IRBID	3	4	8.0	8.3	75.0
BALQA	4	12	24.0	25.0	100.0
NO ANSWER	0	2	4.0	MISSING	
TOTAL		50	100.0	100.0	

Table G2
POSITION IN COMPANY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
GENERAL MANAGER	1	14	28.0	35.9	35.9
EMPLOYER	2	5	10.0	12.8	48.7
OWNER	3	9	18.0	23.1	71.8
AGENT	4	1	2.0	2.6	74.4
INDIVIDUAL OR FREE	5	4	8.0	10.2	84.6
GENERAL MANG.& OWNER	6	6	12.0	15.4	100.0
NO ANSWER	0	11	22.0	MISSING	
TOTAL		50	100.0	100.0	

Table G3
NUMBER OF PERMANENT EMPLOYEES

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
alone	1	4	8.0	10.8	10.8
[1-4]	2	6	12.0	16.2	27.0
[5-9]	3	9	18.0	24.3	51.3
[10-15]	4	7	14.0	18.9	70.2
[>15]	5	11	22.0	29.8	100.0
NO ANSWER	0	13	26.0	MISSING	
TOTAL		50	100.0	100.0	

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Table G4
DATE OF STARTING OPERATION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
PRE-80	1	18	36.0	42.9	42.9
80-82	2	17	34.0	40.5	83.4
83-85	3	5	10.0	11.9	95.3
86-88	4	2	4.0	4.7	100.0
NO ANSWER	0	8	16.0	MISSING	
TOTAL		50	100.0	100.0	

Table G5
WHERE THE COMPANY IS REGISTERED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AMMAN	1	25	50.0	55.6	55.6
ZARQA	2	2	4.0	4.4	60.0
IRBID	3	2	4.0	4.4	64.4
NOT REGISTERED	4	14	28.0	31.2	95.6
MINISTRY OF TRADE & INDUSTRY	5	2	4.0	4.4	100.0
NO ANSWER	0	5	10.0	MISSING	
TOTAL		50	100.0	100.0	

Table G6
TYPE OF COMPANY REGISTRATION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
TRADING	1	4	8.0	9.1	9.1
INDIVIDUAL	2	12	24.0	27.3	36.4
CONTRACTOR A	3	5	10.0	11.3	47.7
CONTRACTOR B	4	1	2.0	2.3	50.0
CONTRACTOR C	5	6	12.0	13.6	63.6
EQUIPMENT COMPANY	6	1	2.0	2.3	65.9
UNREGISTERED	7	12	24.0	27.3	93.2
REAL ESTATE INVESTMENT	8	3	6.0	6.8	100.0
NO ANSWER	0	6	12.0	MISSING	
TOTAL		50	100.0	100.0	

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Table G7
AVERAGE NUMBER OF UNITS PRODUCED (1979-1987)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
[1-5]	1	6	12.0	14.3	14.3
[6-10]	2	23	46.0	54.7	69.1
[11-20]	3	7	14.0	16.7	85.8
[21-30]	4	2	4.0	4.8	90.6
[>30]	5	4	8.0	9.5	100.0
NO ANSWER	0	8	16.0	MISSING	
TOTAL		50	100.0	100.0	

Table G8
AVERAGE NUMBER OF UNITS SOLD (1979-1987)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
[1-5]	1	10	20.0	23.8	23.8
[6-10]	2	18	36.0	42.9	66.7
[11-20]	3	9	18.0	21.4	88.1
[21-30]	4	2	4.0	4.8	92.9
[>30]	5	3	6.0	7.1	100.0
NO ANSWER	0	8	16.0	MISSING	
TOTAL		50	100.0	100.0	

Table G9
AVERAGE COST OF UNITS (1979-1987)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
LESS THAN 8000	1	2	4.0	5.9	5.9
[8001-10000]	2	7	14.0	20.6	26.5
[10001-13000]	3	7	14.0	20.6	47.1
[13001-20000]	4	10	20.0	29.4	76.5
[OVER 20000]	5	8	16.0	23.5	100.0
NO ANSWER	0	16	32.0	MISSING	
TOTAL		50	100.0	100.0	

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Table G10
GEOGRAPHICAL AREAS OF HOUSING CONSTRUCTION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AMMAN	1	16	32.0	39.0	39.0
ZARQA	2	5	10.0	12.2	51.2
IRBID	3	4	8.0	9.8	61.0
BALQA	4	16	32.0	39.0	100.0
NO ANSWER	0	9	18.0	MISSING	
	TOTAL	50	100.0	100.0	

Table G11
PRESENT AVERAGE SIZE OF HOUSING UNIT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
[75-90]	1	1	2.0	9.4	9.4
[91-100]	2	10	20.0	15.6	25.0	
[101-120]	3	15	30.0	12.5	37.5
[121-140]	4	5	10.0	31.2	68.7
[>140]	5	3	6.0	31.3	100.0
NO ANSWER	0	16	32.0	MISSING	
	TOTAL	50	100.0	100.0	

Table G12
PRESENT AVERAGE COST OF HOUSING UNIT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
[8000]	1	2	4.0	5.9	5.9
[8001-10000]	2	7	14.0	20.6	26.5
[10001-15000]	3	7	14.0	20.6	47.1
[15001-20000]	4	10	20.0	29.4	76.5
[20000]	5	8	16.0	23.5	100.0
NO ANSWER	0	16	32.0	MISSING	
	TOTAL	50	100.0	100.0	

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Table G13
PRESENT TOTAL CAPITAL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
[0-50000]	1	16	32.0	35.5	35.5
[50001-150000]	2	17	32.0	37.8	73.3
[150001-250000]	3	4	8.0	8.9	82.2
[250001-500000]	4	3	4.0	6.7	88.9
[500001-1000000]	5	2	4.0	4.4	93.3
[1000000]	6	3	10.0	6.7	100.0
NO ANSWER	0	5	10.0	MISSING	
TOTAL		50	100.0	100.0	

Table G14
CONSTRUCTION ACTIVITIES

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
TURNKEY	1	25	50.0	52.1	52.1
SUBCONTRACTORS	2	10	20.0	20.8	72.9
MIXED	3	13	26.0	27.1	100.0
NO ANSWER	0	2	4.0	MISSING	
TOTAL		50	100.0	100.0	

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LAND ACQUISITION

This part of the survey concerns land characteristics and the process through which developers acquire land. Questions included the characteristics of land being sought for housing projects, preferred zoning categories, descriptions of recent land purchases, perceptions of land price trends and how much time in advance of a project developers purchase land.

Results from the survey showed that the majority of developers were looking for serviced plots between 500 m2 and 750 m2. Most developers build only one building on a plot. Plots having an area between 500 m2 and 750 m2 would allow between roughly 250 m2 and 375 m2 of built area per floor under present zoning regulations. This would translate into two apartments per floor ranging in size from 110 m2 to 175 m2.

Survey results also showed that the average size of plot that developers were looking for was actually smaller than what they had acquired. This is what one would expect given the fact that plots within zoned areas are larger than the minimum. The fact that developers attempt to optimize the building construction on a plot by building as much area as allowed by zoning regulations means that apartments become even larger than indicated above. This makes it even more difficult to build for low income families given current "design" practices of developers, and the fact that the high cost of land demands maximum use of land.

Developers look for land with basic infrastructure such as roads, water supply, electricity already in place. They are essentially housing developers and few if any develop serviced plots or sites. Most look for land on the edge of urban areas although a few look for infill sites. Given that they deal mostly with motorized clients, a location on the edge of urban areas where roads are adequate and there is less congestion, may be more desirable than infill areas where densities are higher.

The survey indicated that the cost of land is quite high. Not enough questionnaires were available for analysis to develop some basic trends in land prices. Given that plot prices generally ranged between 10 and 40 JD/m2, it is only by building the maximum number of units per plot that developers can reduce the amount and percentage of land cost per unit to a point where the project becomes affordable.

In summarizing the current situation, the system is designed to encourage developers to build for moderate income families in order to get maximum benefits and profit. Prices for land and housing units seem to be declining according to the laws of supply and demand. A very essential result from this survey is that developers do not buy land in advance and do not benefit from the rise in land prices. There is no land banking and/or increased profits from the appreciation in land prices.

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Table L1
SIZE OF LAND TO ACQUIRE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
[<300]	1	2	4.0	4.5	4.5
[301-500]	2	12	24.0	27.3	31.8
[501-750]	3	14	28.0	31.8	63.6
[751-1000]	4	9	18.0	20.5	84.1
[>1000]	5	7	14.0	15.9	100.0
NO ANSWER	0	6	12.0	MISSING	
	TOTAL	50	100.0	100.0	

Table L2
LOCATION OF LAND TO ACQUIRE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
AMMAN	1	33	66.0	73.3	73.3
ZARQA	2	6	12.0	13.3	86.7
IRBID	3	3	6.0	6.7	93.3
JORDAN VALLEY	4	1	2.0	2.2	95.6
NOT APPLICABLE	9	2	4.0	4.4	100.0
NO ANSWER	0	5	10.0	MISSING	
	TOTAL	50	100.0	100.0	

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Table L4
TYPE OF LAND TO ACQUIRE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
INFILL	1	3	6.0	9.1	9.1
NEW TRACTS	2	28	56.0	84.8	93.9
MIXED	3	2	4.0	6.1	100.0
NO ANSWER	0	17	34.0	MISSING	
TOTAL		50	100.0	100.0	

Table L5
INFRASTRUCTURE AND AMENITIES NECESSARY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
PARKING	1	2	4.0	4.4	4.4
GENERAL SERVICES	2	16	32.0	35.6	40.0
MIXED	3	27	54.0	60.0	100.0
NO ANSWER	0	5	10.0	MISSING	
TOTAL		50	100.0	100.0	

Table (L6-L9)
PREFERRED ZONING CATEGORIES

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Zone A		10			
Zone B		20			
Zone C		32			
Zone D		18			

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Table L10
REASON FOR PREFERENCE OF ZONING CATEGORY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
TO SELL IT QUICKLY	1	2	4.0	4.5	4.5
PLOT COVERAGE	2	17	34.0	38.6	43.2
LAND PRICE	3	2	4.0	4.5	47.7
LAND LOCATION	4	7	14.0	15.9	63.6
CLIENT PREFERENCE	5	1	2.0	2.3	65.9
MIXED	6	15	30.0	34.1	100.0
NO ANSWER	0	6	12.0	MISSING	
	TOTAL	50	100.0	100.0	

Table L11
AVERAGE SIZE OF LAND PURCHASE PER DEVELOPER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
[300-500]	1	6	12.0	14.0	14.0
[501-750]	2	14	28.0	32.6	46.6
[751-1000]	3	13	26.0	30.2	76.8
[1001-1500]	4	1	2.0	2.3	79.1
[1501-2000]	5	6	12.0	14.0	93.1
[>2000]	6	3	6.0	7.0	100.0
NO ANSWER	0	7	14.0	MISSING	
	TOTAL	50	100.0	100.0	

Table L12
AVERAGE PRICE OF LAND PURCHASE PER DEVELOPER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
[<10]	1	4	8.0	9.3	9.3
[11-20]	2	10	20.0	23.3	32.6
[21-30]	3	8	16.0	18.6	51.2
[31-40]	4	12	24.0	27.9	79.1
[41-50]	5	8	16.0	18.6	97.7
[>50]	6	1	2.0	2.3	100.0
NO ANSWER	0	7	14.0	MISSING	
	TOTAL	50	100.0	100.0	

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MARKETING AND CLIENTS

The third part of the questionnaire deals with the ways in which developers find their clients and determine the marketability of their units. Questions address marketing strategies, client identification, required advance payments, client profiles, client sources of finance, activities in low-income housing, obstacles facing marketing, and attitudes towards the rental of units.

Most of the developers (39%) estimated the marketability of their units based on their personal knowledge. Only (13%) stated that they relied on any kind of systematic studies. The predominant marketing strategy for selling units (56%) was a combination of direct contact, advertisements, reliance on the developer's reputation, and other means. Similarly, the majority of respondents (83%) used a combination of methods to find clients. (75%) of the respondents tried to secure their clients prior to beginning construction.

Unfortunately a series of questions concerning the profiles of typical clients were not included in the Arabic translation and therefore remained unanswered. It would however be useful in follow up contacts to obtain this information on client profiles.

The question regarding the clients' sources of financing for housing was tabulated twice. Table M6, indicates that the majority of client financing (37%) come from a combination of at least three sources. Table M7, on the other hand indicates that individual loans from the Housing Bank (91%) are the single most important source of financing. This is to be expected given that developers responding to the survey are in contact with the Housing Bank and would promote their beneficiaries for loans.

In the absence of a clear definition of low income housing, developers responding to the questionnaire were not sure whether they build units for households with lower incomes or not. However, there is no defined group of developers primarily dedicated to the construction of units for low-income families. The single dominant reason stated for not building low-income housing was the lack of liquidity. The questionnaire did not determine whether this concerned the down-payment requirement or the over all cost of the unit. In addition, the majority expressed a combination of reasons for not building low-income housing including demand for larger units, unaffordable installments, and government competition. The lack of liquidity was identified in another question as an important obstacle (28.6%), and a majority of (35%) identified the current economic recession as a major obstacle.

The majority (86%) of respondents thought that the guaranty of a Jordan Housing Bank mortgage for purchasers of low cost housing units would increase demand.

The majority of respondents occasionally found difficulties in selling their units in the past, due to clients' demands for larger units.

Most of the respondents' housing units were for sale; they were virtually unanimous against renting. The preference to sell rather than rent was primarily related to the developers' need to turn-around their capital as quickly as possible and secondarily to the adverse aspects of renting.

Table M1
MARKETING DETERMINATION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
PERSONAL KNOWLEDGE	1	18	36.0	39.1	39.1
PREVIOUS PROJECTS	2	9	18.0	19.6	58.7
SYSTEMATIC STUDIES	3	6	12.0	13.0	71.7
INTERVIEWS	4	7	14.0	15.3	87.0
1 PLUS 2	5	6	12.0	13.0	100.0
NO ANSWER	0	4	8.0	MISSING	
TOTAL		50	100.0	100.0	

Table M2
MARKETING STRATEGY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DIRECT APPROACH	1	3	6.0	8.8	8.8
ADVERTISEMENTS	2	8	16.0	23.6	32.4
REPUTATION	3	1	2.0	2.9	35.3
OTHER MEANS	4	3	6.0	8.8	44.1
COMBINATIONS OF ABOVE	5	19	38.0	55.9	100.0
NO ANSWER	0	16	32.0	MISSING	
TOTAL		50	100.0	100.0	

Table M3
FINDING CLIENTS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DIRECT APPROACH	1	1	2.0	2.1	2.1
ADVERTISEMENTS	2	2	4.0	4.2	6.3
REPUTATION	3	3	6.0	6.2	12.5
OTHER MEANS	4	2	4.0	4.2	16.7
COMBINATION OF ABOVE	5	40	50.0	83.3	100.0
NO ANSWER	0	2	4.0	MISSING	
TOTAL		50	100.0	100.0	

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Table M4
SECURE CLIENTS PRIOR TO CONSTRUCTION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	35	70.0	74.5	74.5
NO	2	10	20.0	21.3	95.8
SOMETIMES	3	2	4.0	4.2	100.0
NO ANSWER	0	3	6.0	MISSING	
TOTAL		50	100.0	100.0	

Table M5
AMOUNT OF ADVANCE PAYMENT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
[0%-10%]	1	3	6	8.8	8.8
[11%-20%]	2	5	10	14.7	23.5
[21%-30%]	3	17	34	50.0	73.5
[31%-40%]	4	6	12	17.7	91.2
[>40%]	5	3	6	8.8	100.0
NO ANSWER	0	16	32	MISSING	
TOTAL		50	100.0	100.0	

Table M6
NUMBER OF SOURCES OF CLIENT FINANCING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
ONE SOURCE OF FIN.	1	5	10.0	10.9	10.9
TWO SOURCES OF FIN.	2	11	22.0	23.9	34.8
THREE SOURCES OF FIN.	3	15	30.0	32.6	67.4
FOUR SOURCES OF FIN.	4	4	8.0	8.7	76.1
FIVE SOURCES OF FIN.	5	3	6.0	6.5	82.6
MORE THAN FIVE	6	6	12.0	13.0	95.6
NO ANSWER	0	6	12.0	MISSING	
TOTAL		50	100.0	100.0	

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Table M7
SOURCES OF CLIENTS FINANCING

Value Label	Value	Frequency	Percent	Valid Percent
REMITTANCES	1	37	74.0	80.4
FAMILY TRANSFERS	2	10	20.0	21.7
SAVING	3	17	34.0	36.9
HOUSEHOLD INCOME	4	16	32.0	34.8
INDIVI. LOANS FROM JHB	5	42	84.0	91.3
LOANS FROM OTHER BANKS	6	12	24.0	26.1
LOANS FROM COOPERATIVES	7	8	16.0	17.4
LOANS FROM GOVERNMENT	8	10	20.0	21.7
OTHER	9	2	4.0	4.3
NO ANSWER	0	4	8.0	MISSING

Table M8
UNITS FOR HOUSEHOLDS WITH LOWER INCOMES

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	24	48.0	50.0	50.0
NO	2	24	48.0	50.0	100.0
NO ANSWER	0	2	4.0	MISSING	
TOTAL		50	100.0	100.0	

Table M9
WHY NOT BUILDING UNITS FOR LOWER INCOMES

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NO LIQUIDITY	1	7	14.0	15.2	15.2
DEMAND FOR LARGER UNITS	2	4	8.0	8.7	23.9
INSTALLMENTS PROHIBITIVE	3	2	4.0	4.3	28.3
MIXED	4	8	16.0	17.4	45.7
GOVERNMENT COMPETITION	5	1	2.0	2.2	47.8
NOT APPLICABLE	9	24	48.0	52.2	100.0
NO ANSWER	0	4	8.0	MISSING	
TOTAL		50	100.0	100.0	

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Table M10
MAIN OBSTACLES FACING LOW INCOME HOUSING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NO LIQUIDITY	1	4	8.0	28.6	28.6
DEMAND FOR LARGER UNITS	2	1	2.0	7.1	35.7
INSTALL. PROHIBITIVE	3	1	2.0	7.2	42.9
OTHERS	4	3	6.0	21.4	64.3
ECONOMIC RECESSION	5	5	10.0	35.7	100.0
NO ANSWER	0	36	72.0	MISSING	
TOTAL		50	100.0	100.0	

Table M11
HOUSING BANK GUARANTEE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	39	78.0	86.7	86.7
NO	2	6	12.0	13.3	100.0
NO ANSWER	0	5	10.0	MISSING	
TOTAL		50	100.0	100.0	

Table M12
DIFFICULTIES IN SELLING UNITS IN THE PAST

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	33	66.0	71.7	71.7
NO	2	13	26.0	28.3	100.0
NO ANSWER	0	4	8.0	MISSING	
TOTAL		50	100.0	100.0	

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Table M13
REASONS OF DIFFICULTIES

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
NO LIQUIDITY	1	6	12.0	14.3	14.3
DEMAND FOR LARGER UNITS	2	12	24.0	28.6	42.9
INSTALLMENTS PROHIBITIVE	3	1	2.0	2.4	45.2
MIXED	4	5	10.0	11.9	57.1
GOVERNMENT COMPETITION	5	2	4.0	4.8	61.9
ECONOMIC RECESSION	6	3	6.0	7.1	69.0
NOT APPLICABLE	9	13	26.0	31.0	100.0
NO ANSWER	0	8	16.0	MISSING	
TOTAL		50	100.0	100.0	

Table M14
ARE ALL OF YOUR HOUSING UNITS FOR SALE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
YES	1	36	72.0	87.8	87.8
NO	2	5	10.0	12.2	100.0
NO ANSWER	0	9	18.0	MISSING	
TOTAL		50	100.0	100.0	

Table M15
DO YOU PREFER SELLING OR RENTING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
SELLING	2	44	88.0	100.0	100.0
NO ANSWER	0	6	12.0	MISSING	
TOTAL		50	100.0	100.0	

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Table M16
REASONS FOR PREFERRING SELLING

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
OBTAIN MONEY FOR PROJECT	1	31	62.0	79.5	79.5
NEGATIVE ASPECTS OF RENT	2	8	16.0	20.5	100.0
NO ANSWER	0	11	22.0	MISSING	
	TOTAL	50	100.0	100.0	

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Making Land Development Work: The Process and Critical Elements for Success

by David E. Dowall

INTRODUCTION

Around the world, urban development professionals are discussing ways to improve urban land development and management. Many commentators suggest that the public sector can more effectively deliver land for housing development by emulating the private sector real estate practice [see Dowall, 1987, Durand-Lasserve, 1987 and Kitay, 1987]. This paper attempts to further this dialogue by presenting a description of the land development process and outlining the critical institutional and organization elements needed for successful land development.

The process outlined below is universal in that it equally applies to both public and private agencies. As such, it is useful for determining how to best structure and staff land development agencies. This paper argues that given the dynamic character of the land development process, successful land development entities must: 1) have clear and simple goals; 2) incorporate incentives which reward high performance and risk-taking; 3) be small-sized; 4) be flexible and responsive to changing market conditions; and 5) have access to sufficient financial resources and highly talented staff.

This paper consists of three sections. The first part describes a step-by-step process of land development. The second, discusses the institutional and technical elements necessary for carrying out successful land development projects in the context of both public and private land development entities. Finally, the paper offers guidelines for establishing public land

development agencies. For purposes of clarity and brevity, the discussion in the paper is limited to residential land development. The provides examples from both developed and developing countries.

THE LAND DEVELOPMENT PROCESS

Land development is an extremely complex process involving numerous decisions and actors. Essentially, it is a production process: where land is purchased as an input to the production of either finished residential lots or completed residential units. However, the actual process is not as simple. Land developers are faced with problems unlike other manufacturers. While they must produce a product (a finished homesite or house), it cannot be produced at the factory and shipped to the buyer; it must be developed in a specific city, at a specific site. Thus the process of finding a site, that is land acquisition, is the key element of the land development process [Kenney, 1972].

Regardless of whether the developer is public or private, the process of land development is extremely complex and involves a series of tests. Based on the work of Wheaton [1964], Kenney [1972] and the author's research on public land development agencies [Dowall, 1987], the following land development process is defined:

1). General assessment of development environment;

2). Assessment of specific parcels;

3). Finalizing land purchase;

4). Project production and marketing; and

5). Ongoing project management.

Each of these phases is described in more detail, including an enumeration of the specific steps and actions critical for completing each phase.

PHASE 1: GENERAL ASSESSMENT OF DEVELOPMENT ENVIRONMENT

The purpose of this phase is to identify the specific types of land development opportunities which can earn the developer a profit, or, in the case of the public sector, achieve a public policy objective. For large, national-level developers, this phase will result in the identification of specific metropolitan areas or towns offering development potential. The developer normally undertakes the following assessments:

0 Determine housing demand by type of product, price- range and location. Estimates of current and short-term (one-to-two years) housing demand are made. These are based on projections of population, household formation, income growth, savings and employment. The projections are subdivided according to location (specific metropolitan areas or regions), by the type of housing (e.g. two room flats, townhouses, detached units), and price of units [Sumichrast, 1985].

A private sector example of this step is the ongoing market research carried out by the Arizona-based RECORP, to determine which metropolitan areas of the U.S. offer the most potential for suburban land development [RECORP, 1988]. In the public sector, the government of Sri Lanka estimates future housing demand and needs for its urban areas [Struyk, 1987]. In Singapore, the Housing Development Board closely monitors housing demand [Goh,

1987]. These estimates provide a first-cut determination of the potential demand for land development projects. If trends are promising, the developer continues.

0 Assess the supply of housing and finished residential plots, by type and size, price range and location. In conjunction with the demand assessment, completed projects in the market area(s) are surveyed and tabulated according to: location, number of housing units or plots, and the type of units (size, number of rooms, and stories). The survey should also provide a price or rental rate for each type of unit in each project, an estimate of how well the units are selling, and a listing of amenities (swimming pools, tennis courts, football fields, bus stops and public markets, etc.).

In most cases, private land and housing developers around the world carefully survey other competitive projects [National Association of Home Builders, 1981 and Housing Management & Construction, 1986]. However, there are cases where land developers have ignored competition and gone ahead and built projects even when housing supply exceeds demand. In Valencia, Venezuela in 1982, there were an estimated 10,000 vacant private dwelling units [Gilbert and Healy, 1985]. In Jordon, there is a substantial oversupply of housing units, as construction has out-paced demand [World Bank, 1983].

In the public sector, many housing agencies have tended to discount the necessity of systematically gauging supply because they produce "lower cost housing" and assume that the demand for such housing is limitless. However, many public housing agencies have drifted up-market and are producing housing that is directly

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competitive with the private sector [Bangkok Land Management Study, 1987, and Kitay, 1987]. In such cases competitive surveys are obviously needed.

0 Project future demand and supply conditions given mortgage interest rates, employment and population growth and overall economic outlook. The previous steps concentrated on current demand and supply conditions. This one projects the future demand for and supply of housing by type, price and location. The analysis should seek to gauge the strength of the housing market to absorb additional housing and land development projects [Struyk, 1987]. This step usually identifies specific segments of the overall housing market where demand exceeds supply.

0 Determine land and construction costs associated with land development projects. In order to determine whether the market offers profitable or cost-recoverable land development opportunities, the cost of developing projects, (land, land development and construction costs) must be estimated. These costs can be determined by surveying land prices and consulting contractors and engineers.

By comparing his or her "supply cost" to the competition, the developer can gauge whether there is a profit or cost-recovery potential associated with producing a specific development project. Frequently, private sector projects are modified to increase profits. Most private sector developers constantly "shop" the market to evaluate the competition. These assessments are constantly made in light of changing conditions in the land and housing markets. As land prices change,

developers seek ways to cut costs to maintain profits. Alternatively they may conclude that they must raise prices to cover rising land and construction costs [Dowall, 1988]. Informal developers are no exception; they also constantly shop the market and gauge the willingness and ability of low- and moderate-income households to purchase plots or dwelling units [Carroll, 1980 and Yonder, 1988].

In contrast, most public land development agencies devote little time to gauging housing market conditions. Most land agencies intermittently purchase land and they only periodically shop the land market [Baker and Kampholpan, 1987]. As a result they are not fully informed about land prices, construction and site development costs. Furthermore, by not closely following what developers build and market, public land developers frequently set standards which are not matched by the competition or are simply too expensive for households to purchase or rent, if costs are to be recovered [Swan, et. al., 1983 and Keare and Parris, 1982]. As pressures for cost-recovery increase, public land developers are starting to carefully assess the costs of land development in relation to sales and rental income [World Bank, 1981].

0 Assess the current pattern of land use and development controls. Of special importance to private sector land development firms is the current status of land use controls such as zoning and subdivision regulations. These controls can make land development difficult or impossible if they are too stringent. Lengthy controls can slow the development process and create financial drains on projects. Regulations increase land

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and construction costs, and can add an additional 20 to 30 percent to the cost of housing [Dowall, 1984].

In countries with complex land use controls, many developers devote considerable time to assessing their impacts on development and determining whether they can secure needed approvals. In the U.S. for example, where, in many cases, government approval of land development projects is uncertain, developers frequently rely on full-time staff to obtain development approvals. In other cases, where the permission of development is freely given or controls are ignored, such reviews are less important [Carroll, 1980, Yonder, 1988].

At the end of this process, the land development entity should have a clear notion of the current demand for and supply of housing or residential lots in a metropolitan area. This demand assessment should also identify specific locations in the region ripe for land development. The developer should have an estimate of the annual demand for housing or plots by type, price range and location. By comparing demand projections with current and future supply of housing and lots, the developer will be able to identify specific opportunities or development needs.

After completing the above steps, the developer should be able to frame a specific project in terms of type of housing or plots, price-range, location and size [National Association of Home Builders, 1981]. The project should be designed to effectively compete in the marketplace, that is, quickly sell and generate an adequate return on investment. (A fully elaborated example of such an assessment prepared for a public sector client

is reported in Dowall and Kritayanavaj, [1987].) In the next cycle of decision-making, the land developer looks for specific parcels to test his or her concept.

PHASE 2: ASSESS SPECIFIC PARCELS

In this phase the land developer searches for a feasible development project. The developer concentrates on finding one or more parcels which are located in an area where housing demand exceeds current or projected supply, and priced low enough to ensure a profitable housing product.

As a prominent U.S. residential land developer stated, "The key to successful merchant building was, and still is, picking the right location and offering the right product at the right price" [Eichler, 1982, p.79]. For the small developer, this task may be highly constrained -- limited to small lots for sale in the neighborhood where he or she operates. On the other hand, larger developers, have wider, although more complex choices. In either case making the correct choice is difficult, and requires careful assessment of the marketplace. As one large Bangkok housebuilder recently told me, "I don't really pay much attention to the actual construction and marketing of our projects anymore. My full attention is devoted to acquiring land" [Dowall,1988].

Depending on the size of the firm, whether it is public or private, and on a myriad of social, political and cultural factors, the land development agency may use a real estate broker in its search for land. The process usually proceeds as follows:

o Identify sites for sale and those which might be purchased (obtain asking price and terms of sale offer). Small firms will usually scour the market for parcels for possible purchase [Gilbert and Healy, 1985]. They will drive around the metropolitan area searching for parcels which are located along or near main roads, and frequently work directly with the current owners of parcels. Most experienced developers will have a clear profile of the type of parcels they are looking for in terms of size, location and price. At this stage, they may also consider the possibility of combining several small parcels into one assembly, although this normally is difficult.

Larger developers will frequently work with one or more real estate brokers to identify land parcels. Often, these large developers are well-known and they do not want landowners to know that they are "in the market" [Eichler, 1982].

Public agencies will often advertise their desire to purchase land to attract sellers. Most often they purchase or option land intermittently. Because they don't routinely go out into the field to look for land, public land development agencies do not have accurate or up-to-date knowledge of the marketplace As a result, they may pay too much for land, or buy sites which are less than desirable [Kitay, 1985].

o Check with public agencies regarding zoning, land use and subdivision controls. For each site under consideration, the land developer determines the actual permitted development for the site, given local land use and zoning controls. At this initial stage the land developer usually calculates a "rough" holding capacity of the site in terms of units or plots.

This assessment is critical for private land development firms if they must closely follow public zoning and land development controls. In contrast, public land development entities may be exempt from such controls or able to easily obtain necessary modifications. In the later case the assessment is less important, and such exemptions certainly facilitate the development process.

0 Assess the availability of water and sewer systems or potential for the construction of wells and septic systems, and gauge the availability of electrical power to the site. Here the developer determines whether the site can receive water, sewage treatment and electrical service at a reasonable cost, or that wells and septic systems can be constructed. Because of their access to information, public land developers usually have excellent knowledge of the infrastructure development plans and can use this information to identify and evaluate sites.

0 Conduct preliminary physical assessment of site to determine developability. The physical characteristics of parcels have enormous implications on the cost of land development. If the site is too steep or too low, a substantial amount of earth moving may be necessary, adding to land development costs. In low-lying areas, earthfill can double land costs for housing projects. In other cases, hillsides, floodplains and unstable soils limit a site's development potential.

0 Estimate land and housing development costs for each specific site under consideration. Based on the preliminary capacity estimate of the parcel, the land developer now can more

precisely calculate the costs of building a housing project on the site. The calculation provides estimates of land cost, site preparation and dwelling unit construction costs.

0 Estimate preliminary profit level and development risks for site. By combining the results of the cost analysis with the market information gathered earlier, the land developer next gauges the potential feasibility of building a housing or land subdivision project on a site. By comparing potential sales revenue with development costs, the developer can determines the maximum price to pay for a parcel [Dowall, 1985].

0 Select most attractive site or sites for optioning. Based on the preceding analyses, sites are ranked for acquisition according to: developability, location, marketing potential, access to infrastructure, and profit or cost-recovery potential.

Once the sites have been ranked, the developer "ties up" the top-ranking sites and continues to refine his or her analysis and makes a final go/no-go decision. In the private sector, the analysis of candidate sites may be more limited until the site has been optioned for possible purchase. Thus some of the steps outlined in this phase may actually take place in the next.

Phases 1 and 2 are largely analytical. They require careful gathering of market and cost information, as well as rigorous analysis. The process is continuous, and due to shifting market conditions, the approach and strategy of the land developer may change frequently. Essentially, this means that developers must be flexible and well-informed about market conditions. Staff must be capable of completing quick assessments as conditions change.

PHASE 3: FINALIZING THE PURCHASE OF THE LAND

After securing site options, the land developer concentrates on removing all site development uncertainties. Formal commitments are obtained from the land seller, the water and sewer district, electrical utility district, government planners (for zoning and subdivision approval) and lenders for construction and permanent financing. Before devoting considerable effort to finalizing the purchase, the developer ties up the parcel, usually by way of taking an option, or entering into a joint development agreement. In this phase the following steps are normally taken:

0 The site is optioned by the developer for a set period of time. The option gives the developer the right to purchase the parcel at or before some certain date at a set price at set terms. If the developer is going to enter into a joint development agreement with the landowner, then the option is for the right to enter into the joint development agreement [Northrup, 1986]. Entering into an option or joint development agreement presupposes that the developer has estimated a reasonable offer price for the site. Obviously, this offer should be based on the market information gathered above in phases 1 and 2. Options can be expensive to negotiate, particularly in high inflation environments. It is therefore important to correctly estimate the necessary amount of time required to arrive at a go/no-go decision: Failure to do so may result in renegotiation of options and payment of additional option fees.

For large parcels of land, purchase agreements normally call for land releases, where the seller agrees to periodically convey

to the land developer a portion of the site. In this way the developer does not have to acquire the entire site at once, and he or she can time payments to match the sales of houses or plots [Eichler, 1982]. In the public sector, land releases are unusual; once the government agrees to purchase or exercise its option to purchase a parcel, it acquires the entire site.

0 A specific development plan is prepared for the site In this step the land developer prepares a detailed plan for the subdivision and development of the site. It should reflect current market conditions in terms of the types, sizes and prices of dwelling units or plots, subject to applicable regulations. The plan is sufficiently detailed to provide the basis for obtaining public sector development approvals and estimating the costs of development.

0 The plan is submitted to water, electrical, sewer departments for review and approval. To the extent required by local, provincial and national governmental agencies, plans for the parcel should be submitted for review and approval.

0 Prepare final assessment of the project's costs, sales revenues, and cashflow. Based on precise estimates of land and housing development costs, and housing prices and rental rates, the land developer prepares an estimate of the financial performance of the project. This estimate determines the likely flow of funds required and generated by the project given all assumptions. It provides an estimate of profits or surplus (or subsidy) generated by the project.

0 Submit formal financing proposal to lenders for approval. Based on the project's estimated financial performance, a formal proposal is prepared and submitted to lenders for approval. Lenders include banks, equity partners, multilateral and bilateral donor agencies, and governmental agencies.

0 Assuming the project is awarded all approvals, the land developer exercises the option for the site and development of the project starts.

This phase is extremely complex, requiring sophisticated staff to negotiate options and development agreements, and secure all necessary approvals and commitments. During this phase the planned projects go through continuous change, as the actors in the process insist on modifications. This is where private land developers, because of their small size and entrepreneurial style, have an edge over their public counterparts [Dowall, 1987].

PHASE 4: PRODUCTION AND MARKETING

Exercise of the option or joint development agreement permits preparation of detailed construction and building plans. Based on these plans, the construction of roads, utilities, and residential units can be put out to bid and let to the best bidder. With construction underway, developers can initiate marketing efforts and sales of units. In most cases the land developers pre-sell as many units as possible, frequently, using "model" homes to assist in the marketing effort.

This phase incorporates the following steps:

o Prepare detailed engineering drawings for infrastructure and buildings and project bidding.

o Project construction. For large projects, build-out normally occurs in phases, and is geared to the sales rate of plots or housing units.

o Prepare and execute marketing plan to sell dwelling units or plots. This plan outlines the target buyer group and specifies the various strategies to attract buyers. The plan is reviewed periodically to determine if it is working. If it is not, modifications to it and the product are made [National Association of Home Builders, 1981]. This continual modification requires great flexibility.

PHASE 5: ONGOING PROJECT MANAGEMENT

In many cases, the land developer is responsible for managing the project's common areas after sales have been completed, ensuring that owners and renters abide by the rules set forth in the purchase agreement. It also means that the developer must collect fees from residents to pay for services.

CONCLUSIONS ON THE PROCESS

The land development process outlined above is applicable to both private and public sector land developers operating in developed and developing countries. The key trait of the process is that it is complicated, requiring passage through a chain of steps and decision-points, and subject to constant change. In no way does the actual process operate in the tidy and linear manner

suggested above. Instead, developers are forced to constantly cycle through the process over and over again until good sites are identified, developed and marketed. While it is difficult to predict whether a land development agency will effectively achieve its objectives, five key attributes are frequently reflected in successful operations. These are presented below.

LAND DEVELOPMENT IN PRACTICE: THE INSTITUTIONAL AND TECHNICAL CAPACITY OF THE PUBLIC AND PRIVATE SECTORS TO CARRY OUT PROJECTS

Over the past ten years I have worked with both public and private developers, and while there are many subtle differences between them, there are essentially five major elements which determine land development capacity:

1. goal clarity;
2. performance and risk-taking incentives;
3. scale of operation;
4. operational and strategic flexibility; and
5. resources and talent.

An agency's past or future capacity to successfully complete land development projects can be predicted by characterizing it according to each of these five elements. In this section, I will examine the capacity of both private and public land development entities according to these factors.

Goal Clarity

There is a direct relationship between goal clarity and performance. The clearer and simplier an organization's goals, the easier they will be to achieve. This simple notion, validated

over and over again in countless research studies, applies to land development. When the land developer has a simple goal or set of goals such as profit maximization and risk minimization, successful projects are easier to find and develop.

In the private sector, land developers usually focus on return on equity invested. They also consider limiting the amount of time and risk they need to take to achieve their result. These are relatively simple and clear goals to attempt to achieve: find sites and projects that generate the highest rate of profit for the minimum amount of time and risk. This might mean building a certain type and price of housing in an area where the demand for such units greatly exceeds supply. By assessing the potential costs and prices of marketable units in different areas, the developer can focus on profitable, quick-turnaround projects. Some developers, to limit their risk, do not "pioneer." They do not build in areas where other developers have not already built and tested the market [Eichler, 1982]. By focusing on these three goals (profit, time, and risk), developers can clearly assess alternatives, rank them and choose the most desirable one. Goal clarity facilitates decison-making and action.

When the goals of the land development organization become more complex, deciding the proper course of action becomes more difficult. In the private sector, the clarity of goals can turn fuzzy. For example, when large U.S. corporations moved into real estate in the 1960s and 1970s, many land development projects resulted in spectacular financial failures. ALCOA's Century City project in Los Angeles performed poorly because ALCOA was

concerned with both corporate image and financial performance [Sigafoos, 1976]. Many privately executed planned residential communities resulted in economic failures (Reston, Virginia; Eastwick, Pennsylvania; and Park Forest South, Illinois to name a few) because social and political goals became enmeshed with profit-making objectives [Sigafoos, 1976].

Unclear and often conflicting goals are most common in the public sector. Quite often, when legislation or national policies are drafted to establish public land development authorities, policy-makers mix together contradictory objectives in an effort to achieve consensus, and fail to grasp the operational implications of the policies they promulgate [Schoen, 1987]. When the agency is put into operation, the conflict inherent in simultaneously pursuing contradictory policies quickly surfaces. Even if the policies are not in direct conflict, too many objectives can severely limit the capacity of public land development authorities [Keare and Parris, 1982].

> ...projects should be kept simple, striving for realistic design and speedy implementation. Key elements, such as appropriate locations, reasonably secure tenure and efficient credit mechanisms, must be present in some measure....[the process of identifying potential land development projects] should lead in turn to more accurate <u>choices</u> as to what to do first in a given set of circumstances.

The public sector does not have the luxury of focusing on such relatively simple and clear-cut goals as profit-maximization and time- and risk-minimization. Instead public agencies are called on to tackle complex "messy" problems. Unfortunately, this usually reduces their capacity for effective action.

Performance and Risk-taking Incentives

One of the most serious problems associated with large organizations is that it is difficult to encourage employees to maintain high levels of performance and to take risks to achieve goals. While the reasons for this are complex and beyond the scope of this paper, it is generally due to the administrative style of large institutions and the patterns of rules and regulations which act to shape behavior. Since large institutions need stability, rules are set to insure constancy of action. These rules limit performance to that required, and stifle risk-taking.

Land development is full of risks and uncertainty and change. Land development personnel need to be entrepreneurial and aggressive, they have to work quickly to capitalize on emerging opportunities. In most cases, large organizations, whether they are public or private, are not well-equipped to be land developers. Large organizations do not attract entrepreneurial professionals, and they have limited tolerance for independent actions.

In the private sector, most land developers, regardless of whether they are "formal" or "informal", are highly entrepreneurial. In the U.S., for example, most land and housing developers employ fewer than 25 professionals and produce fewer than 50 units per year. These pattern is found in developing countries as well. As Eichler has vividly described, most early attempts by homebuilders to profitably expand their operations failed because they did not design an institutional structure that rewarded branch managers for high performance and for risk-

taking. Large private sector corporations have had the same problem with their real estate divisions as well.

In the public sector, most land development agencies are quite large, frequently having thousands of employees. Obviously, these agencies are much more bureaucratic in structure and style of operation. Professionals working in these operations will tend to be concerned about following the rules and playing it safe. They aren't interested in taking risks because there is no incentive to do so. Ultimately, given the possibility of conflicts arising in the execution of policies and programs, staff may opt for inaction. This pattern of inaction, produced by conflicting goals or contradictory directives from central and provincial managers has been well-documented [Amos, 1984].

The larger the organization, the more difficult it is to encourage high performance and risk-taking. However, if land development is decentralized, and branch managers given broad latitude for achieving objectives and rewarded for taking risks, staff will be more entrepreneurial. These systems are more difficult to design for the public sector than the private sector. But they are not impossible to create.

Scale of Operation

In the previous section, incentives and risk-taking were discussed in the context of the institutional style, size of the operation, and how it influences staff performance. In this section the size issue is taken up again, but in terms of the economies of scale of operation. In most cases there are diseconomies of scale in the production of land and housing

developments. That is, as the agency gets larger, the per unit cost of production increases. This is because the overhead cost of the operation increases faster than any reduction in the direct cost of production of units. Available economic research in the U.S on the economies of scale on house building suggests that there are no economies of scale beyond the production of 500 to 1,000 dwelling units per year-- a level well below what most public land development agencies produce [Masiel, 1953, Herzog, 1963 and U.S. Congress, Office of Technology Assessment, 1986]

This suggests that large land development entities have more limited capacity to produce housing efficiently. Furthermore, these larger firms are much less flexible. It is harder for them to respond to changing market conditions.

Operational and Strategic Flexibility

The capacity to respond to change requires three things: The knowledge that change is necessary. The ability to change. And the desire to change.

In many cases land development entities simply do not know that the marketplace has changed. Unless they are constantly gauging the market, most agencies will not notice shifts in demand or supply. Both private and public land development entities are subject to this oversight. In fact, many large corporations have poured millions of dollars into projects that should have been halted or radically redesigned. In many of these cases, project managers failed to properly inform executive staff about deteriorating market conditions [Sigafoos, 1976].

Lack of knowledge is more likely in the public sector, where project cashflows are not closely monitored and where it is usually assumed that they face no competition from the private sector. Without the pressure of competition, there is no incentive to constantly monitor market conditions. As a result many public agencies are blissfully ignorant about housing conditions [Baker and Kampholpan, 1987].

But even if they recognize that the market has shifted, they may not be able to adjust their course of direction because of regulations or policies. For example, a public land development agency may have to follow a regulation that it must produce plots or dwelling units at or above a minimum size, which, given current market conditions, is inappropriate. Unless the rule can be changed, the agency cannot adjust to new conditions. While most rules can ultimately be changed, it may take several months or years to do so. In the meantime the agency is out of the market.

Finally, the agency must be motivated to make necessary changes. Sometimes, decision-makers are reluctant to make changes because they are concerned that others will interpret them as corrections of mistakes. In other cases, agency staff may resist changes because of the uncertainty, turmoil and diminished political and administrative power they often create.

To be flexible, the land development entity must: 1) know that change is necessary; 2) be legally permitted to make needed changes; and 3) have the desire to change. These conditions can be found in both private and public entities, but are less prevalent in large public agencies.

Resources and Talent

The final factor shaping the capacity of the land development agency is resources and talent. Land development operations are normally multi-year ventures, and they need to be well-capitalized to be successful. Financial flows need to be constant and structured to meet the development needs of programmed projects. Private land development efforts have gotten into serious trouble because the flow of resources was not sufficient in terms of annual amounts or time commitment [Sigafoos, 1976]. Similar problems have occurred in Tunisia and Lagos where the financial supports for development actions receded [Kitay, 1985].

The staffing of land development agencies is a difficult matter worldwide. As the description of the overall land development process illustrates, land development is extremely difficult and requires analytically and politically sophisticated professionals. Finding, attracting and retaining such staff is a major challenge in both the private and public sector. In developed countries, private formal sector salaries for project managers of land development projects range from $60,000 to $200,000 per annum, and frequently include additional incentive compensation ranging from between one and five percent of the profit generated by the project.

Public sector salaries rarely approach these levels. As a result, it is difficult to attract and retain the best staff. One method to increase compensation is to create a separate development entity outside of government. In such cases, staffing

occurs outside of the purview of government civil service regulations and higher wages can paid and incentive plans offered.

CONCLUSION: DESIGNING SUCCESSFUL PUBLIC LAND DEVELOPMENT AGENCIES

If governments truly wish to make public land development work, they should consider the following seven design guidelines:

1. Create the institutions necessary to produce timely and accurate information on land and housing market operations. No land development agency, whether it is public, private or non-profit can successfully develop land without market information.

2. Find well-trained and experienced real estate development professionals to manage public land development agencies. In the long term, increase the supply of land development professionals. This means producing professionals trained in economics, housing finance, real estate market research, land planning, architecture, construction engineering and management, and land development techniques.

3. When setting up public land development agencies, governments must avoid the temptation of burdening them with too many policy and program goals. Instead, public land development agencies should have limited and precise objectives that are easy to understand and evaluate.

4. To the extent possible, establish the public land development agency outside of existing governmental institutions and design into it the capacity to reward professionals for high

performance and risk-taking. This is much easier to do when the agency's mission is clearly defined and limited.

5. Do not create large land development agencies. Recognize the diseconomies of large-scale land development. Instead, set up several smaller land development agencies or autonomous branches to focus on specific geographic areas, target groups or types of projects. Give each smaller agency autonomy to achieve goals and reward the ones that are successful.

6. Design the agencies to be flexible; do not encumber them with too many rules and regulations. Instead, have the head of each agency or branch prepare annual development plans which outline production goals and describe strategies for achieving targets. Institute a review of plans and activities each year, and require agency managers to alter plans to meet goals and increase efficiency.

7. Accurately estimate the financial costs associated with starting a public land development agency. If the agency is created, provide financial resources necessary to underwrite its operation for at least the first three years. Later, the agency should be self-financing. Compensate staff at levels commensurate with the private sector.

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Case Studies

URBAN DEVELOPMENT DEPARTMENT

FIRST URBAN DEVELOPMENT PROJECT

CASE STUDY

MARKA

(SITES & SERVICES)

SEMINAR FOR TRAINING OF TRAINERS TO CONDUCT MARKET ANALYSIS FOR HOUSING DEVELOPERS

PREPARED BY

KHALDOUN JAYOUSI OSAMA RABIE

1989

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I INTRODUCTION

The increase in the population of the east bank of Jordan from 600,000 inhabitants in 1952 to about 2,500,000 inhabitants in 1985, in addition to other factors such as rural/urban immigration along with forced immigration, have aggravated housing needs in general .

High urban land prices, large plots sizes, restrictive planning and building regulations, inadequate access to established financial markets and the absence of a comprehensive housing strategy for Jordan, all combined, have denied access of low income households to land and housing they can afford, and have forced groups to squat on government owned or private property.

To tackle this problem, following an agreement between the World Bank and the Government of Jordan, the Urban Development Department (UDD) was established in late 1980 to be held responsible to the Mayor and the City Council of Amman. The UDD started with 20 employees and the number has now reached 200. The Professional Staff amounts to 165 of the total number of employees.

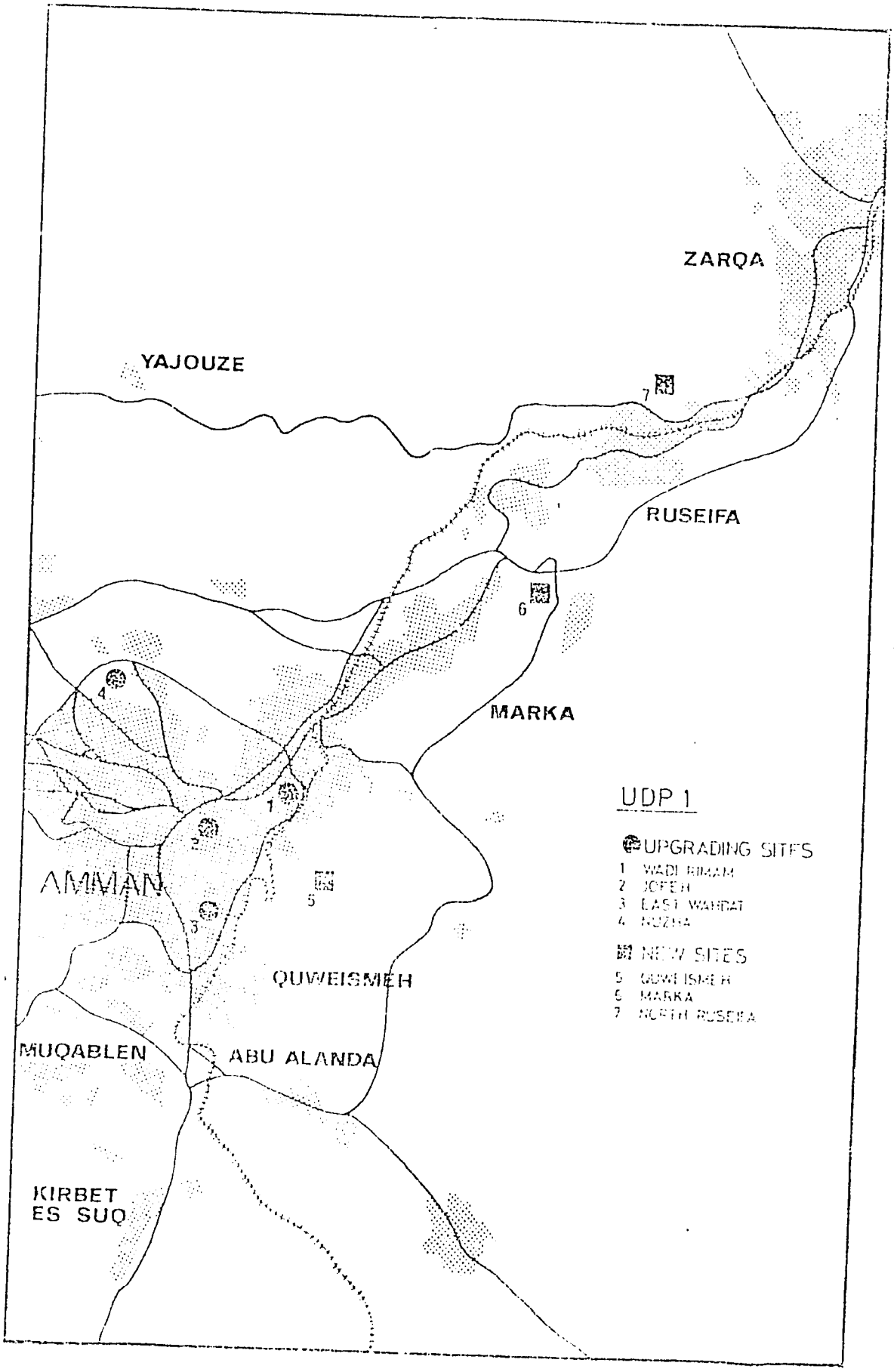
The UDD is playing an important role in creating a new approach to the treatment of squatter and shelter needs for the lowest income groups of urban dwellers. Under UDD projects, shelter, related infrastructure and community facilities are made available to the lower income groups at prices which they can afford, with minimal subsidies to ensure replicability.

An upgrading site is a low income settlement in which the UDD benefits people through the provision of secure tenure, roads and footpaths, water supply, sanitation, electricity, community facilities, and building material loans.

Site and services involves the provision of plots with on-site infrastructure and a variety of on-plot development options. All community facilities, schools, clinics, women training centers and community centers are provided besides a building materials loans.

During the last five years the average annual housing production by UDD was about (900) plots in the new sites and about (350) plots in the upgrading sites.

BEST AVAILABLE DOCUMENT



Marka (the case study site) is one of six sites that make up the First Urban Development Project (UDP1). UDP1 consists of three Upgrading Sites and another three Site and Services. All sites of the First Urban Development Project were sold and allocated to the target groups within reasonable time after completion.

The rate at which UDP1, units were allocated exceeded the Department expectations.

II DESCRIPTION OF THE PROJECT

1. Marka site (Site and Services)

The site is located in the north east of Amman about (15)Km from the town centre. It is adjacent to the ring road and Amman - Zarqa highway.

The site covers (22.28)ha and provides (680) residential plots serving (4760) persons at the preliminary stage and (7140) persons at the final stage, after the final vertical and horizontal house extensions are completed by beneficiaries.

The land was acquired in March 18th, 1980. UDD staff directly started preparing the detailed design drawings and contract documents. Because of some tendering problems and the Governments decision not to proceed with the scheme as originally designed, the implementation of the site did not start till a year later due to redesign of the project at more generous standards of plot size, roads and footpaths. Plot sizes were increased by (50) percent and circulation areas by (200) percent over appraisal standards.

The marketing started directly after the completion of phase I construction and infrastructure works in Sept. 1984. By the end of 1987, more than 90% of plots were allocated.

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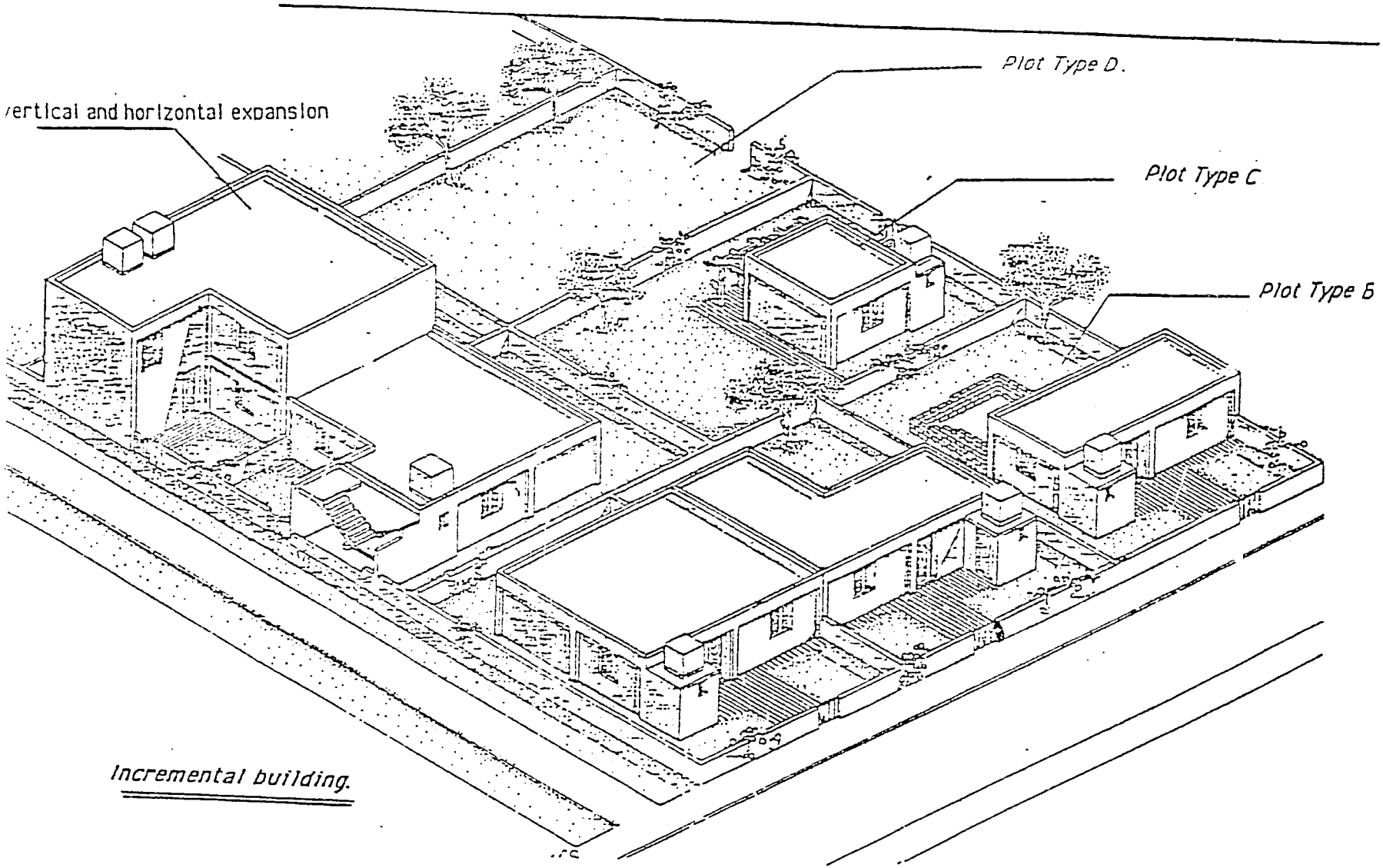

Urban Development Department (UDD)
Urban Development Project I (UDPI)

BEST AVAILABLE DOCUMENT

2. Plot Types

A Market Plots

* **Plots Type A:**
Plot type A is a vacant plot. Its area is around 200 square meters. It is provided with water and sewer house connections and can connect directly to the electrical network. It is located on asphalt roads. These are being sold at market prices to those who can afford them. Revenue made from the sale of this type is used as cross-subsidy to beneficiary plots.

* **Plots Type (H)**
Plot type (H) is a vacant plot with a shop built in front of it. The area of the plot is (106)sq.m. (H)Plots are sold at market prices. They are provided with water and sewer house connections and can connect directly to the electrical network in front of plot boundary. The market plots comprise 27% of the total residential plots.

B. Beneficiary Plots

* **Plot Type (B)**
The area of plot type (B) is 150sq.m. It consists of two rooms and a latrine of a total built area of 36.64m^2. It is designed for a future extension both horizontally and vertically. It is located on an asphalt road or footpath. If two B type plots are built attached, then each of them is called type B2, and if the plots are built separately each is called type B1. These plots are connected directly to water, sewer, and electricity lines.

* **Plot Type (C)**
The area of plot type (C) is 150sq.m. It consists of one room and a latrine of a total built up area of 20.18m^2.. It is designed for future extension both horizontally and vertically. It is located on a footpath. These plots are connected directly to water, sewer, and electricity lines.

* **Plot Type (D)**
Plot type (D) is a vacant plot and its area is 150sq.m. provided with water and sewer house connections and can connect directly to the electrical network in front of its boundary. It is located on a footpath.

* Commercial Areas and Community Facilities

Commercial areas include, shops and workshops are provided within the site to fulfill the beneficiaries shopping needs without having to go to the town centre; besides helping in the subsidy of beneficiary plots.

Community facilities like girls and boys schools, women training center, community center, health center and mosque are also provided within the site

3. PLOT PRICES

PLOT TYPE	STANDARD AREA/M^2	PRICE/PLOT J.D.	MONTHLY PAYMENT JD
Marketing/Housing Plots			
A	200	3719	
Coreshop	106	5789	
Beneficiary Plots			
(B1+B2)	150	5049	46
C	150	3890	36
D	150	2299	26

Beneficiary Loan Conditions

* Down payment 5%
* Interest rate 8.5%
* Loan Period 18 years
* Building material loan is available.

4. Financing

Marka site, as all the sites in the First Urban Development Project (UDP1) was financed by the World Bank and the Housing Bank as a loan with 8.5% interest rate, and by the Jordanian Government as a grant. The total investment cost of UDP1 is around 21 million Jordanian dinars, out of which a cost of 4.25 million JD is allocated to Marka Site

All costs spent on the Beneficiary's plots directly, including costs of land, infrastructure and on plot development are to be recovered from beneficiaries (Recoverable). Costs of Community buildings and off-site works are paid by the Government (Unrecoverable).

2.9 million Jordanian Dinars are to be recovered from the total investment cost of Marka site. The distribution of funds between the three funding agencies is as the following:-

	World Bank	Housing Bank	Jord. Gov.
* Recoverable Items	50%	50%	---
* Non-Recoverable Items	50%	---	50%

III PROJECT OBJECTIVES:

The main objective of the project is to provide an serviced shelter for the lowest income groups. To ensure acheiving this objective, the applicant must satisfy the following conditions:

a. To be head of a household
b. To be Jordanian
c. Family total income not to exceed 190JD. per month
d. Not to own land or flat in the Amman region
e. To be a resident in Amman region for the past five years.

Except of being Jordanian, the other conditions are not asked for when applying for a commercial and market plot.

A. Pricing Strategy

The main aim of the project is to provide shelter, related infrastructure and community facilities to the lowest income groups at prices they can afford, with minimum subsidy to ensure replicability.

In order to reach this aim:

1. Different types of plots were provided so that beneficiaries can choose according to what they want and can afford.

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2. Cross subsidy was provided from the sales of commercial and market units surplus.

The pricing strategy for beneficiary plots was based on the principle that beneficiaries monthly payment should not exceed 33% of their income therefore, a cross-subsidy was provided for some types, especially for those built up ones. In the case of Marka Site, only type C required cross subsidy.

5 Market Research Conducted

A survey of existing squatter housing areas in Amman has been undertaken, to determine socio-economic characteristics of potential beneficiaries.

Meetings and discussions were conducted with both public and private agencies working in the field of housing, to make use of their findings and research on the demand of housing for low income groups. In addition co-ordination and liason took place with the planning agencies concerned such as National Planning Council (M.O.P later) and Municipality of Amman. All showed big deficit in housing supply for lower income groups, as most of housing was provided for the middle and high income groups.

Also aided with the World Bank and UDD Consultants more information were obtained to help in assessing the demand and design Parameters for the low income housing projects. Some of the design parameters taken with consideration were:

1. Household income of potential beneficiaries
2. Mix and size of plots
3. Number of rooms per dwelling
4. Type of preferable house layout

The number of applicants contacted the Department. after the announcement for registration was around 10,000 against 3500 units available for allocation.

This figure can be taken as a good indicater of the high demand.

C. Monitoring Survey Findings

A monitoring survey was conducted in July 1987 concerning the profile of the buyers in Marka. Survey results are as shown below:

ECONOMIC & FINANCIAL CONDITIONS

1.	Average income of Head HH (JD)	120.4
2.	Average total income of HH (JD)	150.3
3.	Total income of HH (JD)	
	-JD 49 or less	4.2%
	-JD 50 - 99	8.3%
	-JD 100 - 149	28.1%
	-JD 150 - 199	35.4%
	-JD 200 - 249	12.0%
	-JD 250 - 299	5.2%
	JD 300 or more	6.8%
4.	Way of financing plot unit	
	- Cash	24 %
	- Installments	76 %
5.	Average Household size (person)	7.1
6.	Average Age of Head Household (year)	40.4
7.	Occupation of head of HH %	
-	Professional, technical and workers	13.2
-	Administrative and managerial workers	0
-	Clerical and related workers	6.6
-	Sale workers	8.9
-	Service workers	9.0
-	Agricultural, Animal Husbandry and Forestry workers, fishermen & Hunters	0.6
-	Production & Related workers, Transport equipment operators and Laborers	49.1
-	Workers not classifiable by occupation	10.8
-	Armed Forces	1.8

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D. Location of job of Household Head

	Place of Work	Percentage
1.	Abdali Area Jabel Luweibdeh Jabel Hussein Shmeissani Sport city	21.2%
2.	Ain-Ghazal Area Marka North Tabarbour	12.1%
3.	Zahran Area Jabel Amman Abdoun Um Utheinah Suweifieh	9.2%
4.	Basman Area Jabel Nuzha Hashmi Kusur Mukhayam Hussein Mahatta Wadi Marbat	7.8%
5.	Amman Center Kala' Muhajreen Wadi Haddadah	5.7%
6.	Yarmouk Area Jabal Al-Taj Wahdat Ashrafieh Jofeh	5.7%
7.	Russeifa Area Awajan Zarka	5.0%

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8.	West Amman Wadi Sir Jubaiha 7th & 8th Circle	5.7%
9.	South East Amman Quweismeh Abu-Alanda Madaba	6.4%
10.	Unknown place of Work (Pedlers)	21.2%
	Total	100.0%

E. Location of Previous Dwelling %

1.	Amman / Abdali	3.2
2.	Amman / Ain Ghazal	13.7
3.	Amman / Zahran	1.0
4.	Amman / Basman	34.0
5.	Amman / Center	4.7
6.	Amman / Yarmouk	14.1
7.	Russeifa / Schneller Jabel Faisal/ Jabel Shamali/ Musherfeh	3.6
8.	Zarqa / Awajan	5.3
9.	Jubaiha/ Jordan University	1.0
10.	Wadi Sier/ 7th & 8th Circle	0
11.	Na'our/ Marj Hamam	0
12.	Amman / Ras El Ain	2.6
13.	Amman / Badr	5.3
14.	Quweismeh / Abu Alanda	1.6
15.	Khurbat Assouk/ Mokableen	0
16.	Sahab	0
17.	Outside Amman Region	2.6
18.	Amman / Nasr	7.3
19.	Fheiss/Mahess, Sweileh	0

Percentage of HH that contain the following No. of members in Kindergarten	
- Non	88.6
- One	7.8
- Two	3.1
- Three	0
- Four	0.5

Percentage of HH that contain the following No. of members in Elementary stage	%
- Non	18.1
- One	18.2
- Two	15.0
- Three	19.2
- Four	16.5
- Five+	13.0

The actual beneficiaries were within UDD's target group expectation,

As a result of several procedures followed up by the UDD, for example:-

1. UDD's method in checking the applicants income certificates

2. UDD's coordination with the Land and Survey Department and Housing Corporation to ensure that the applicants do not own land or housing unit within Amman region.

3. The follow up social survey of applicants houses.

It was not anticipated however that market plots would be sold so quickly and for such high prices. This greatly helped to subsidise beneficiary plots.

ALL market and beneficiary plots were sold soon after the completion of each phase.

FINANCIAL PERFORMANCE OF THE PROJECT

The average land cost was (5.778) J.D/m^2

The infrastructure cost was (2.83) J.D/m^2, design and supervision cost was (0.16) J.D/m^2, administrative costs (0.63) J.D/m^2 and financing costs were (0.72) J.D/m^2.

UDD has no aim in gaining profit, so the gross surplus gained from one project is used to subsidize another one.

The gross surplus of Marka Site was used to cover the deficits in Quweismeh Site.

In all levels Marka Site was successful, judging by the high demand and the high surplus gained from the project and by comparing with similar other sites of the First Urban Development Project. As a result Naqab Site which is less than 500m. from Marka site was chosen to be one of the Second Urban Development Project Sites.

VII REFLECTIONS ON OVERALL EXPERIENCE WITH THE PROJECT

The merits of the first development project that lead to its success are now adopted by many planning and financing agencies in the field of housing. Some of the successful principales used in the project and should be adopted in the projects to come are; minimizing the cost of unit below the affordability limit, establishing a cross-subsidy mechanism to overcome unexpected risks and deficits in other sides of the project, lowering the size of plots below the size normally used and dividing the project into phases to be adapted to speed up and match the changing market demand. Also addressing the beneficiaries desires and customs in the design of the unit, and the adoption of building individual units on the plot instead of the high rise flats system proved to be more acceptable.

Although the first project achieved successfully most of its goals. Still more additions were included in the Second Urban Development Project as concluded from the monitoring survey on the beneficiaries residing in the first project site. Some of these modifications were:-

- More variation in plot sizes $108m^2$ - $300m^2$
- More variation in the types built
- Some additions in the internal utilities of the unit (such as kitchen, shower tray).
- The construction of retaining walls on the shared wall between plots (when differences in levels exist)
- enlarging the size of community facilities (C.C., W.T.C.)
- The inclusion of more community facilities such as Emergency Centre and Post Office service.

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ABBREVIATIONS

H.H.	Household
J.D	Jordanian Dinars
MOP	Ministry of Planning
sqm	Square Meter
UDD	Urban Development Department
UDP	Urban Development Project

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شركة بيت المال للادخار والاستثمار للاسكان
المساهمة العامة المحدودة
بيتنا
Beit Al-Mal Saving & Investment for Housing Co. Ltd. BEITNA

الرقم ..... التاريخ .....

Case Study
1988

BEITNA DEIR GHOBAR
CONDOMINIUMS
AL SUWAIFIEH
AMMAN

Prepared by
MUAWIA ZABIAN
Vice Chairman Director
General

الادارة العامة / شارع البحتري جبل عمان . هاتف: ٦٣١٣٤٣ ٦٤١٦٤٤ ٦٤٢٥٨٣ فاكس ٦٢٦٢٣ عمان . ص.ب: ٨١١٦٦٦ - عمان برقياً : بيت ال

THE COMPANY

Beit El-Mal Saving and Investment For Housing Company Limited (BEITAN) "A Public Sahreholeing Company"

Beit Al-Mal Saving and Investment for Housing Co ltd (Beitna) was established on 21 of July 1988 and registered under No. 186 as a public shareholding Company . On 16.10.88 six days after its statutory meeting , the Company was granted the right to commence its activities according to its Memorandum and Articles of Association . Beitna is well over five years of age now, with a promising future .

From the beginning , the Board of Directors elected 5 share - holders, namely :

1-	Mr. Hisham B. Zabian	Chairman
2-	Mr. Muawia H. Zabian	Vice chairman
3-	Mr. Mohammad Kh. Kailani	Member
4-	Mr. Talal I. Armouti	"
5-	Mr. Husni A. Siksek	"

and appointed Mr. Muawia H. Zabian (UAI graduate-engineer) as director general .

Shortly afterwards , activity was set in gears and the size of Company grew to be 70 strong and went forth to anchor a pioneer project in Swaifieh on a piece of land No. 2010 Zone 33. With a rough and preliminary job description from the premise of company H. Q. and the two leading branches , operation started on the double and teams were allotted the diverse jobs of construction , material handling , supervision , equiring permits , marketing and publicity.

From the start every plan was carried out and every step taken was documented , discussed and based on the feedback of discussions and conclusion and evaluated . The Management set certain criteria for such evaluation some of which are success and the respnse of

buyer's desires and satisfaction .

The pioneer buyers who moved in first were our greatest asset and motivation . We were encouraged by the success and finality : the quality which we presented , the finish and the variety spoke loud and we pride ourselves that the demand kept increasing so that , even with our limited means and aim at perfection , we were able to achieve a target of constructing about 3 blocks a season with about 48 apartments altogether . That led to the notion of Deir Ghubar Vicinity of 5 blocks and 92 apartments altogether .

Encouraged by the previous housing projects built in Suwifieh by the Company and goodwill , the Engineering and Investment departments chose the new site in Deir Ghubar .
A piece of land was purchased bordering the southwestern end of Suwaifieh proper Zone and surrounded by two main roads one crossing the broad street leading mile south from Amra Hotel and the other branching from the Queen Alia'a Airport Highway , and leading deep into Abdoun and parallel to the Abdoun Road .

A prompt and diverse plan was agreed upon. Publicity was taken care of , the needs of buyers were considered a priority and the affordability of buyers studied as well as the quality , classy finish , and apartment sizes . The management aimed at perfection not only as the end all result but to gain first impression and act solo , thus a phased plan was prepared to annex to the project in addition to its extras car parks , closed circuit TV Intercom systems and central antenae,a modern swimming pool fully equipped, BBQ spots , playgrounds, Spanish garden, ballroom , tennis courts and terrace lounges fully equipped, too .

The marketing notes eventually formed a base and enlightened salesmanship thus enabling professionals to present the public with our Deir Ghubar condominiums which even when on design drafts got into the circle of light and sold before the foundations were constructed .

Five bolcks had been designed to stand on a well-shaped symmetrical oblong piece of land . The project approved and fees paid. later in 1985 work started , levelling the ground and digging for the five blocks which comprise 92 apartments amounting to about 12000 square meter studios (or one bedroom apartment self-contained) , 2 bedroom apartments of 100 - 120 square meters and three bedroom apartments of 140-180 square meters in size . Larger sizes were built to meet special orders by combining two or more adjacent apartments.

7 daumums , 5 blocks , 92 apartments , four-storey buildings on top of the first ground floor alloted for car parkings , to house small-sized , middle-sized and large-sized families or perhaps form the outline of the vicinity of town houses. Early in 1986 the place was swarming like a beehive and the first settlers occupied their homes 6 months ahead of schedule. Work continued and in a record time most of the apartments were inhabited . Meanwhile all the apatments were sold out by January 1988 in spite of the recession and cautious buying behaviour .

The premises were given identical numbers for reference and distinguished by simple numbers from BLOCK 4 through BLOCK 8 .

1- BLOCK 4 has 32 one bedroom apartments consisting each of a Living room , bedroom , bath , built-in kitchen and service , counter in addition to , wall-to-wall carpeting . This applies to all floors , (JD 12000) .

2- BLOCK 5&6 have 16 three bedroom aparments each (see diagram 2)

3 bedroom

2 bath rooms

1 spacious kitchen , (JD 32000)

BLOCK 7 consists of 16 apartments 12 3 bedroom and
4 2 bedroom
apartments (those sell at JD 22000) .

BLOCK 8 consists of 16 apartments 12 2 bedroom and
4 1 bedroom
apartments (those sell at JD 16000) .

1&2 bedroom apartments are smaller in area yet they do have the same top quality materials , finish and facilities .

Variation resulted in the number of persons per block and created a balance and stability in the manipulation of the lift , the stair-case, the roof and the grounds .

Priority was given in the phasing of project to the heavier needs and thus after the stages of construction and the finish the yeard were built up , the pool , the fountain , & the playgrounds etc.

The management set the policy of using self sources for financing all the stages respectively and then when the down payments came , it acquired almost 10% of the make-up prices . A number of buyers though limited paid all the price but all the others benefited by the loans extented to them by the Company . It also spread the payment of the loan over 36 months without charging any profits or extra payments on the mark-up .

Families whose demand was heavy on the apartments were mainly upper middle-class with substantial incomes and reasonable sizes coming from rented houses . Realising rentals consumed a great chunck of their ernings, which went down the rain , those families made a better investment buying thei Compan's apartments : they continue to pay almost the same amount of rent wiht a margin that will credit their down payment thus increasing their share of the house . A few expatriates bought the apartments ; few others bought to invest and furnished to let out . Parents aged between 32-50 mainly and family size varied from two to 5 at the average . Actual residence residence rate ranges from 1 to 6 at most which makes it regligible Most of the buyers moved from the Amman crowded hills .

The location was chosen simply because there was no need to cut the red tape or falter with the formalities of the routine on the one hand; and on another the price of land was not as soaring as it was every where else in Amman , the zone being under the jurisdiction of Wadisseer Municipality .

Whereas the sales rate was normal and promising , it slackened towards the middle of 1987 and as is expected accomplishing the project with its annexes proved to be a success and there was a great cut on time . Every thing was achieved well ahead of schedule .

A detailed marketing analysis and a comparative study taking into consideration such factors as ;

- buyers affordability
- material , labour & land prices
- location , services
- type of the units
- the facilities , recreatory and others
- the extras and class top quality finishings

as well as spreading out the payment without resorting to interest rate) all formed a strategic pricing policy . The sales and marketing department carried out their research and marketing intelligence through interviews , questionnaires , omnibus studies and established a way of listening to potential buyers who were given parties at the site : each and every remark was taken down and discussed in detail . The survey cast a light on a great many things and one of the results of the survey was the management's daring step of building the swimming pool and other annexes . It was reciprocal - salesmanship .

Socio-Demographic analysis forms part of the activity of the Investment and Research Department and a record of the buyer's social profile is being kept particularly when they offer to buy an apartment on onwards details of buyer's name , whereabouts , profession , income etc. are also taken down .

Income Annual	Number of Workers	Age Group	Size	Former Residence	Job	Location
below JD6000	1	20& under	2 or less	Condo	Civil	
36	5		2	20	8	
7000	2	21-30	3	Owned	Army	
(10)	40	10	8	6	3	
8000	3	31-40	4	Rented	Private	
10	10	26	20	20	35	
10 000	4 or more	41 or more	5 or more	Non-res	Expatriate	
_	1	20	26	10	10	

But for the recession and low season , the project sold faster than expected , thanks to the Company's plan and the activity initiated by management to go out to buyers . Mention should be made of the Housing Bank daring attempt to go to the Gulf and exhibit what the real-estate investors had to show to expatriates there .

There is no need for management if things go according to plan and schedule ; nevertheless alternative measures should also be used to face a fluctuating market and thus tackle demand if your supply is there . However , every development should be taken into account and encountered . As to this particular project the only measure that was taken when demand plumped , was to spread payment of the advance or to accept 10% instead of 25% of the total price of the apartment . Consequently , the remaining units sold out in a jiffy .

Financial Performance ,

Beitna financed the whole project from a to z and Beitna salesmen marketed it . The piece of land was about 6 daunums and cost JD 170,000 and about JD 20,000 was paid for development and fees to abtain permits and the ground ready . The five blocks construction cost totalled

JD 1,135,000,- was calculated as the cost of administering the project , thus leaving a reasonalbe margin of profit not exceeding 16% of the total cost .

The profit margin is held in conformity with the previous projects in terms of the light changes or rise in prices as it is Company policy to be consistent and keep its good name with an aim at super finish , finest quality and classy standards . Other projects as a result must have yielded higher profits since they do not observe these merits on which we count a lot .

When few apartments had not been sold out yet , demand rose and we were asked to sell even if the prices are higher ; this had been a consequence of the drastic rise in material prices and the sour sudden economic prices ; yet , management decided to sell at the prices already set and the pricing policy was restricted to the criteria that have always been considered . the management put along term plan for the construction of a variety of housing units according to demand and needs of the public .

All the phases are properly documented . Co-ordination between departments enhances manipulation of feedback , remarks, results of discussions and research and the department of development and resarch analyses all data accumulated andcirculates the results.

It has been referred to above careful management should always stand alert and alternatives are always to be put in action to eliminate risk even the unexpected or discalculated but not universal surprises that are no less than force majeur .

The Company's sales force keeps in touch and in continuous overall review of its activities through evening and in-action meetings experts are always called upon and consulted .
No marketing snag or work failure ever occured without being grasped and put under control . Appropriate calculation is cross examined.

Management has found it imperative to avoid huge condominiums because of the social problems that may arise . Other economic problems may make it difficult to maintain a huge project . Whenever some people do not honour their commitment and fail to pay their share of the cost of water supply or electricity or janitor's pay or maintenance , then it is certain that those who pay will suffer inseparably as well . Even if it is in the law , some may suffer .

To conclude a lot can be learnt and a great skill and persistence are needed to build up such a project . Not only engineering expertise may be needed but experts in all the aspects of community life are needed .

./NKH

بسم الله الرحمن الرحيم

HE HOUSING BANK

بنك الاسكان

Case Study Project

AlSaqer Building No.10 A & B

Conducted by : AlSaqer Company

Prepared by : Miss Abeer Amro

Foreign Relations Dept.

The Housing Bank

تلفون ٤/٦٦٧١٢٦ ص.ب ٧٦٩٣ تلكس ٢١٦٩٣، ٢٢٠٦١، ٢٣٤٦٠ اسكان جو العنوان البرقي اسكان فاكسيملي: ٦٧٨١٢١ شارع كلية الشرطة - العبدلي - عمان - الار
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نموذج [مراسلات/٥١ (١)

Introduction

Developing countries are on their way to satisfy the needs of their people according to their income & purchasing power.

In 1983 when Saqer started its business in housing development, most of the real estate developers focused their attention on certain types of buyers;and those were the upper classes who could pay more.

History of the Company

Saqer was established on May 17th,1983 starting with three civil engineers,a secretary,and one accountant at their office. On the otherhand,all constructions at sites were conducted by subcontractors .

Objectives of the Company

As Saqer is considered to be established to serve the community the average annual housing production as calculated over the past five years is 32 units per year,where mainly types of houses produced are 2&3 bedrooms apartments. Yet studio flats which consists of one main bedroom, and semi villas were also considered.

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نموذج | مراسلات/٥١)

The company's main strategy is to produce units to serve low-middle income people who live in west & east Amman as they represent the majority of the potential buyers. The case project was produced as the main target of the company is to serve people according to their income .

Case Study Project

AlSaqer Building No.10 A&B

Description of the Project

The project which Saqer wants to present is AlSaqer Building No.10 A&B built in a local area in Jabal AlKader near Refco Housing Project. And it was produced as a low-cost consisting of two bedroom apartments with 14 units two plots each 312 sq meters, where as the unit size is 69 sq meters.

On June 10,1985 the acquisition of land took place, and on September 17th,1985 the company started their marketing plan. In one year the project was sold out (May 20th,1986). The project consists of two bedrooms,a kitchen,and a bathroom .Each unit is 69 sq meters. All units were priced for 9500 JD, except ground floors & roofs for 10000 JD.

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نموذج | مراسلات/٥١ (٨٨/١)

Background of the Project

1 - Preparation

The company first started with an observation study of the market in the area, and the availability of services; such as schools, buses, supermarkets. Then feasibility study of the area and the project was done. Land acquisition and construction of project started after that .

2 - Purchasing Agreement

The project was purchased from Refco who financed land purchasing for 75% of its value. Then they financed the construction at the rate of 50 JD/m. During construction the company received down payments from customers which contributed in the process of financing, where the company financed permanent costs.

Project Objectives and target population

The project was produced to serve the low middle income people for people around 30 & 40 years old whose income is between 150 & 250 JD for mostly private sectors. The project was to serve families consisting of 4 to 6 persons .

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نموذج إمراسلات/١

At that time, the size of units and prices to compete with the company's project was not available. For this reason, the main goal was to have the project completed in a short time and to be sold at a sale rate of 10000 JD for the majority of people.

Pricing Policy

The price was established on the loans The Housing Bank will give to the potential customers (7500 JD), which will help the buyer to furnish only 3000 JD. And as the project is to serve the low-middle income people it is not difficult for the buyers to pay this amount and the firm used to accept installments if cash was not available. The company determined the price by considering the ability of the target to pay compared with the price of other companies.

Type of Market Research

No Market research was conducted for this project but the company collected information by observing the other competitors; visiting their projects; noting the designs and units sizes & prices; observing their speed of marketing.

Meanwhile, the company decided that their target of potential buyers will be low - middle income people who need a good shelter and not a luxurious house. For that the project was produced to serve such buyers, but they did not conduct any surveys.

As the company did not undertake any other competitive projects they had to depend on their previous experiences in this field, and on the notes taken when observing other competitors.

How was the project sold out

The project was sold out faster than expected, and some buyers were as per expectation and some were unpredictable. They were those who owned houses and only bought the apartment to rent it out to others. Investment was a major reason for the buyers as we can see in the list attached. The project was expected to be sold out to help people cut down some of their expenses; such as the renting costs, and to have his own house.

Though the company did not follow a specific marketing plan and did not study the feasibility of the project systematically, the results were nonetheless good and as expected. The same project was repeated and has succeeded as well.

Most of the real estate developers focused their attention on providing houses for the middle and upper classes and neglected those who do not have the purchasing power. So, Saqer decided to respond much to the need of the low segment of the middle income group due to their limited power of paying more, and provide those who were in need of inexpensive houses and shelters .

Since the project was to meet the needs of a specific group, and the invested capital was relatively low, it was a big success for the company, though they had to accept offers for exchanging two units for one plot in Sweifieh.

Financial Performance of the Project

A - The project costs

1 - Land cost per dunum : 25400 JD (40 JD / sq meters) .

2 - Cost of landfill : 1000 JD .

3 - There was no cost of land developing .

4 - Cost of building (average across all units) : 68000 JD .

5 - Administrative costs & fees : 18372 JD .

6 - Gross profit : 23855 JD .

B - Profitability - gross profit margin / total costs : 20.3 % .

C - Profitability(gross profit margin/total invested capital):79%

Economic and financial performance of project

Compared to other firms projects,the company consider the project a big success since the invested capital was relatively low. Although the project was to serve only low - middle income group,the amount of profits made was not different from that of other companies targeting higher income households .

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نموذج إمراسلات/٥١ (٨٨/١)

Although the company did not follow a specific marketing research, the project was a success as low cost houses are very fast in construction and accordingly in marketing. As the project was sold out as expected, the company would conduct similar projects, but not on a massive scale for the policy of the company is to give the buyers more options to choose from .

Reflect on overall experience with the project

In order to carry out such projects, the company recommends that it is important that one should study the demands of the market first as people nowadays tend to avoid luxirious flats and big houses.

The company took in mind that inexpensive houses are what people tend to look for, even if it was for investment only. And this will assure them of the success of the project conducted,as they will help those who have low income to own a house and considered to be the majority of the population .

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نموذج | مراسلات/٥١)

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	Unit No.	Income/No. of workers	Age	Household size	Location of former residence	Type of Job / location
Building No. 1	1	300 JD/1	30	5	same area/was owned by him & sold	Amman/contractor
	2	250/1	40	7	same area/rent	RJ employee /Amman
	3	290/2	43	9	same area still owned	Amman/contractor
	4	300/1	36	4	Qatar /rent	Teacher / Qatar
	5					
	6					
	7					
Building No. 2	1	260/1	29	6	same area/rent	shop owner /Amman
	2	700/1	32	4	Saudi Arabia /rent	Mechanic /S.A.
	3	220/1	34	4	Jabel Amman/rent	Teacher/Amman
	4	290/1	29	4	same area/rent	pipe fitter/Amman
	5	220/1	33	5	Kerak/rent	Electric Authority Kerak
	6	250/1	26	1	Amman/rent	salesman/Amman
	7	300/1	29	6	Amman/rent	black smith/Amman

* Unit No. 5 was purchased by 32 years old woman who is currently living in a rented apartement in Ashrafia & letting out the Apartement.
* Units 6 & 7 were purchased by rela estate merchant who sold the Company a plot of land in Swefiah in the exchange of those two units.
* Unit No. 2 was purchased for investment.
* Unit No. 3 was purchased for investment.
* Unit No. 6 is let out by the owner.

/h.h.

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نموذج | مراسلات/٥١ (٨٨/١)

CASE STUDY - ABU NUSEIR NEW TOWN

HOUSING CORPORATION

The National Housing Corporation is a public institution. It was established in 1966 and is now governed by law No. 27 for 1968. It enjoys full financial and administrative autonomy and rights for management of its business.

The objectives of the Corporation are:

- Aquisition of land, preparing designs, feasibility studies and implementing houses according to programmes. These houses are either for sale or rent for limited income groups.

- Providing construction loans for individuals and/or cooperatives. The Housing Corporation has the right to ensure the suitability of costs, design, and supervision of housing projects to ensure the use of the loan for the purposes of these loans.

- Advise the government on general housing policies and its relation to Zoning in collaboration with the Department of Zoning at the Ministry of Municipal and Rural Affairs and the Environment and other public corporations.

The Housing Corporation is governed by a board of directors chaired by the Ministry of Public Works and Housing.

The composition of the board of directors is as follows:

1.	Mini. ter of Public Works and Housing	Chairman
2.	Director General - Housing Corporation	Vice-Chairman
3.	Mayor of Greater Amman	Member
4.	Director General of Department of Lands and Survey	Member

5.	Director General of Housing Bank	Member
6.	Representative of Ministry of Planning	Member
7.	Representative of Ministry of Municipal and Rural Affairs and the Environment	Member
8.	Representative of Central Bank	Member
9.	Representative of Jordan Electricity Authority	Member

The board of directors mainly concerns itself with broad policies and programs, rules and regulations and important items such as the budget, and also makes final decisions regarding personnel affairs.

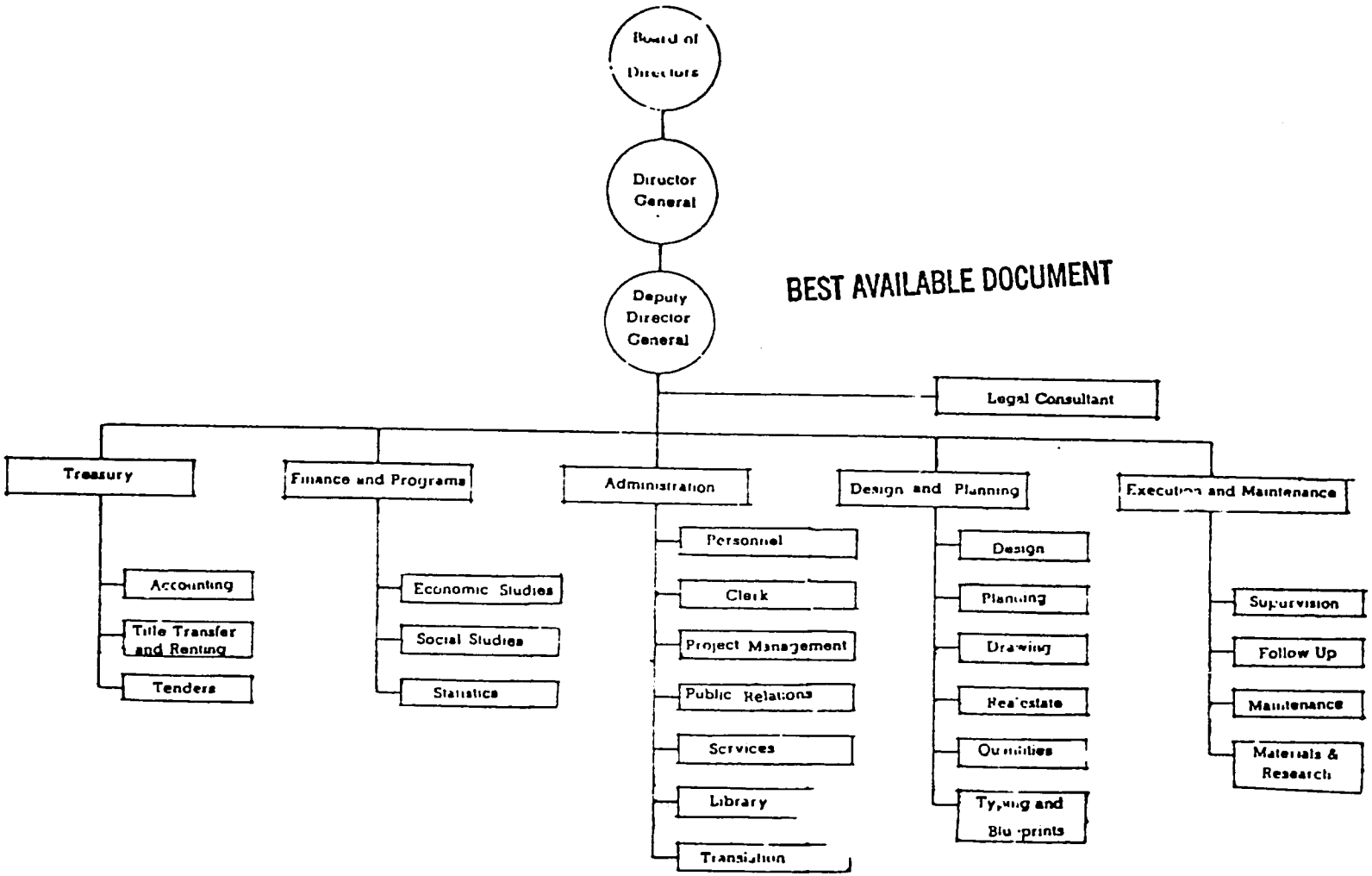
The Corporation is run by the director general who exercises full board membership with full voting and is responsible for the implementation of the decisions of the board of directors. The director general has full authority to handle day-to-day administrative affairs.

The body of the Corporation is presently organized into five main functional divisions, each under a chief of division. Figure(1) introduces the organizational chart of the Corporation.

Since its inception, the Corporation improved its staff through the attraction of necessary skills for the functioning of the Corporation. At present the total number of its employees accounted to be (331) of which (94) are professional full-time employees.

During the planning period (1980-1985) the Housing Corporation made plans for (20) housing projects in different Governorates comprising (7663) housing units for limited income groups on an average of (1,200) housing units annually and to fulfil part of the housing needs arising from increasing in population, replacement of non-upgradable housing units,

Figure (1)



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overcrowding, to provide shelter units for institutional housing, and to house workers in industrial sectors. The Corporation also gave more attention to house the bedouins who live in historic caves and tents in Wadi Mousa area in the Southern region. It is also worth noting that the Housing Corporation implemented a housing project in Marka to reside (700) families whose old housing units were demolished as a result of improvement of the eastern entrance to Amman City. (See figure 2).

In addition the Corporation has supervised (11) government building projects.

It is of importance to note that all housing projects executed by the Housing Corporation were provided with public services such as water, electricity, sewage treatment, commercial shops, health units and schools.

Sources of funds for the implementation of the Corporation housing projects are: the General Budget (15%), Internal Loans (61%) and the Housing Corporation self-finance (24%).

As to type, housing produced by the Housing Corporation are semi-detached and apartment housing units.

ABU NUSEIR NEW TOWN

Abu Nuseir new town copes well with the main task to offer housing to the governmental employees working in Amman and to the employees of the private sector because these working places are mainly located in the northern part of Amman City. In addition the several industries around Sweileh and Baq'a and the scientific institutions around Jubeiha offer a considerable number of jobs.

Figure (2)

Housing Projects Executed by the Housing Corporation
during (1980 - 1985)

Year of Const.	Name of Project	No. of Housing Units	Cost/M² JD
1980	Journalist Housing	67	92.4
	Zilldet Farkouh	392	102.7
	Karak/2nd	92	96.6
	Bdoul/Wadi Mousa	100	71.42
	Aqaba/Industrial	1,554	103.66
1981	Sahab	258	105.7
	Customs - Mukablan	132	71.5
	Amman/Apt.	48	97.7
	Abu Nseir	3,655	178.0
1982	Kudat	66	128.8
	Jerash	60	120.4
	Mafraq	104	117.7
	Ma'an/Railway	252	102.0
	Ma'an/Glass Factory	426	169.0
1983	Rusaifa/2nd	124	94.2
	Ain Janna/Ajloun	57	129.7
	Um Qais/Tafeeleh	97	109.3
	Tafeeleh/2nd	78	134.7
1984	Ma'an/2nd	41	94.1
1985	Hisha Beidah/Wadi Mousa	60	85.9
	Total	7,653	

General Objectives for the New Town of Abu Nuseir

I. The main objective is to expand and improve the supply of housing in the Amman region.

II. The concentration of this housing into a suitably defined area in order to prevent the uncontrolled growth and dispersal of Amman.

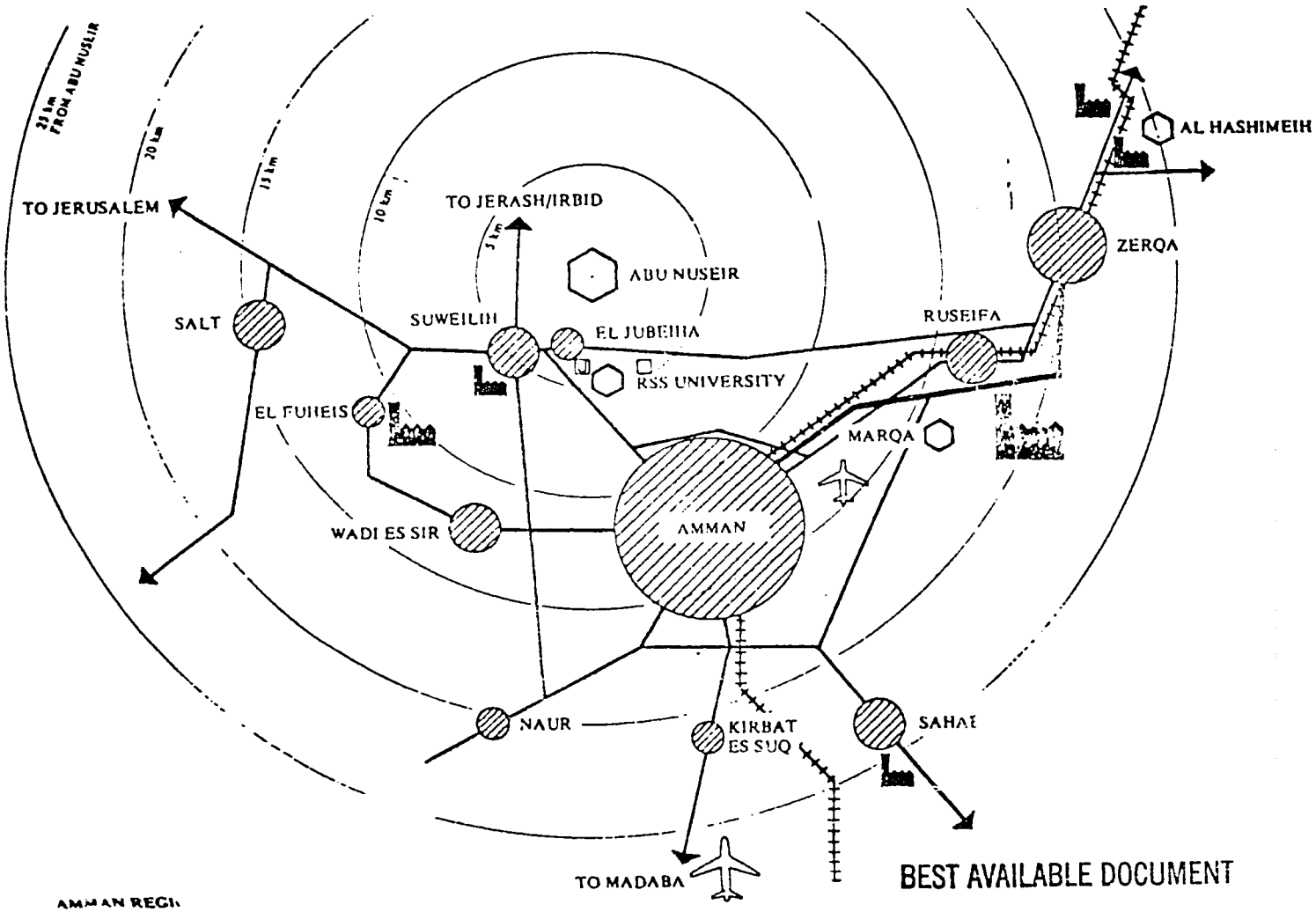
III. The creation of a "New Community" with its own character.

Location of project

The area of Abu Nuseir is 2930 Dunums and located in the northern part of Greater Amman, approximately 15km from the center of Amman and thus within the sphere of influence of the "Amman Urban Planning Project" which encompasses Amman to a distance of 30km (see figure No.3). Among the fundamental considerations which took place in selecting Abu Nuseir site are set:

- The distance of about 15 km was considered as ideal because for working in Amman, transportation with direct bus connection is easily fairly good, whereas the distance is big enough for the shops as well as for cultural and social activities to be out of the commercial shadow of the Capital.
- The northern part of Greater Amman needs a new service center with modern shopping areas, cultural activities and social services. The land acquired by the Government (HC) offers suitable sites for functions as well as dwelling places for the persons running these institutions. Abu Nuseir therefore also improves the situation of Suweileh and Jubeiha.
- The site of Abu Nuseir is of no value for agricultural uses. The existing farming is scattered on very few and small plots, nevertheless the site is not to be called a real desert.

Figure (3)



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- Abu Nuseir is situated in a climatically favoured area with good ventilation and air coming from the northwest without pollution.
- Abu Nuseir by its location in an empty and topographically suitable area offers the possibility of expansion in several independent steps towards south and east. The situation of the existing network of main roads in the region as well as the suitable distance of the existing villages makes such an expansion very logical and easy to integrate into the regional context.

Phase I:

Area: 1576 Dunums

Phase I: consists of (16) types of houses which include one family houses and multi-family houses. All of the houses are semi-detached. Total number of the executed housing units in Phase I is (3650) housing units with infrustractural services, water supply network, sewage systems, sewage treatment plant, roads, electricity and telecommunication network. The new town of Abu Nuseir also comprises the basic public services namely 6 schools for boys and girls, health clinics, and a Community Development Center. It also consists of a Commercial Center comprising of 80 shops and 5 local shops for different business activities and recreation facilities.

A summary of the history of Abu Nuseir New Town

a. Government decision to build a new town and the acquisition of a suitable area to build a new town in 1977.

b. International announcement for the submission of prequalification documents early in 1977, and the

establishment of a short list of the qualified applicants. Submission of the offers and projects on 2 May, 1977. Examination of the projects and chosing the consultant and signing the agreement in 1977.

c. Data was compiled, questionnaire carried out, feasibility study done and completing the different stages of design and documents of tender by 1979.

d. Chosing the contractor through international announcement for submission of prequalification, and the establishment of a short list of the qualified applicants. Submission of the offers and the chosing of two contractors and singing the contract by May 1981.

e. Chosing the Consultant to supervise the work in Sept. 1981.

f. The construction period from May 1981 to January of 1987 excluding district heating which is under construction and other minor works.

g. Selling the houses early in the year 1987.

The Prospect Population of Abu Nuseir

An inquiry was executed through questionnaires sent to the government departments. 860 questionnaires were returned and evaluated and some of these results are summarized as follows:

Age structure :	30%	are under 30 years old
	50%	are 30 - 39 years old
		relatively low over 50 years old
Marital status :	78%	are married
	55%	age group 30 - 39 years

Family size : The average size of the married families will be approx 5,23 persons/family.

15% of the families have 8 and more members.

Type of job : 2/3 of the applicants are classified employees.

Present dwelling:
- More than 60% of the applicants live in a rented dwelling.
- 35% contain 1 or 2 rooms.
- 40 contain 3 rooms.

Family income : The average monthly income of the family (including the earnings of all the members) is JD 127 and therefore increases the income of the head of family by approx. 30%.

Pricing Strategy:

1. **Summary of the estimated costs (in JD1000)**

- Road building within the boundary (Signals incl.)	02,073
- Schools	04,506
- Other public buildings	02,568
- Commercial buildings	01,362
- Services within the boundary	04,320
- Landscaping and public car parks	01,799
	16,628
- Unforeseen 15%	02,494
Total excl. Housing and Land	19,122
- Land costs	02,500
	21,622

- Housing average variation a)	49,905 71,527
- Housing high variation b)	55,075 76,697
- Housing low variation c)	44,958 66,580

The estimated prices are those of spring 1978.
Building interests, charges, taxes, financing costs, project costs and administrative work of Government are not included.
The actual building costs have been estimated. The estimation accords to the present stage of the project in this planning phase.

2.	Number of Units		6068
3.	Cost of a Unit (Average)		JD 8,450
4.	Household Average Income		JD 100/month
5.	Possible Payment		JD 25/month
6.	Basic Price of m2	Variation a	JD 63/m2
		Variation b	JD 70/m2
		Variation c	JD 56/m2

Analysis

The estimated cost during the design stage was presented in 3 variations for housing. Making a comparison between the estimated cost, the selling price and the actual cost possible, we make the following suppositions:

1. Schools, public building, commercial buildings are not included in the cost.

2. The estimated cost of Stage I for the sake of comparison is calculated according to the percentage of units of Stage I to the total number of the whole town.

I. **The estimated cost of stage I is**

1	-	Roads	JD 2073000
	-	Services	JD 4320000
	-	Landscaping and public car parks	JD 1799000
	-	Unforeseen 15%	JD 1228800
		Total	JD 9420800
	-	Land	JD 3200000
	-	Housing variation a)	JD 49905000
		Housing variation b)	JD 55075000
		Housign variation c)	JD 44958000
	-	Total costs a)	JD 62526000
		b)	JD 67696000
		c)	JD 57579000
		Cost of Stage I a)	JD 37413000
		Cost of Stage I b)	JD 40507000
		Cost of Stage I c)	JD 39839000
		Cost of m2	JD 85-92

The consultant did not consider the cost of design, supervision and financing.

II. <u>Defining the selling price:</u>

The prices of the dwellings defined after the contract of Stage I were awarded to Sogex and Catic.

This stage includes Housing, Roads, Water, Sewage, Storm Water and Sub-stations.

The value of the two contracts was JD 39,838,000. 25% was added to it for design, supervision, financing, land, other services. The cost became JD 49,798,000. The cost of square meter is JD 113. (See figure No. 4).

III. Actual Cost of Abu Nuseir:

1. Figure No.5 summarizes the actual cost of Abu Nuseir. The actual cost do not include the following: schools, the value of Sogex Camp and material which were forfeitured by HC and the telephone network.

The actual cost including the schools	78526
The cost of schools	4403
The cost without schools	74123
The area of houses	442180 m2
The cost of square metre without schools	JD 168/m2

2. The monthly payments increased much more than what was planned. Therefore the government supported Abu Nuseir on 14/2/1987 by the difference between the actual cost and the selling price. The value of support is estimated (not final yet). JD 29060

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Types of Housing Units in Abu Nuseir New Town (Phase I) classified by building area, No. of housing units, and selling price

Type of Housing Unit	Building Area/sq.m.	No. of Dwellings	Selling Price/ Dwelling JD.	Total Cost (1000 JD)
A - 54	137	122	13,900	1,705.8
A - 52	127	216	13,500	2,916.0
A - 51	133	296	13,700	4,055.2
A - 42	113	220	11,450	2,519.0
A - 41	113	181	11,500	2,081.5
A - 32	90	347	8,800	3,053.6
B1 - 51	128	341	12,800	4,364.8
B1 - 41	114	263	11,500	3,024.5
B2 - 31	93	315	11,000	3,465.0
B2 - 51	138	315	16,000	5,040.0
C1 - 31	92	64	11,200	716.8
C2 - 51	145	207	18,300	3,788.1
C2 - 52	134	211	17,000	3,587.0
D - 51	144	218	18,000	3,924.0
D - 41	112	206	14,800	3,048.8
E - 51	135	128	17,000	2,176.0
Total		3,650		49,466.1

Total building area/sq.m. 442180
Average selling price/sq.m. (JD) 113

Figure (5)

The Actual Costs of Abu Nuseir
in thousands JD.

No.	Main Item	Land	Design	Super-vision	Construc-tion	Total	%	Finan-cing	Total	%
1.	Housing	1462	258	3766	43706	49192	88.75	7390	56582	88.92
2.	Roads	75	14	205	2396	2690	4.85	404	3094	4.86
3.	Water Main	-	1	20	232	253	0.46	36.5	289.5	0.45
4.	Water Lateral	-	0.5	5	64	69.5	0.13	10.25	79.75	0.13
5.	Sewage Main	-	1	19	224	244	0.44	29.5	273.5	0.43
6.	Sewage Lateral	-	3	48	552	603	1.09	87.25	690.25	1.08
7.	S.T. Plant	72	16	227	1674	1989	3.58	208	2197	3.45
8.	Electricity	-	2	29	332	363	0.65	32	395	0.62
9.	Telephone	-	0.5	2	24	26.5	0.05	3.25	29.75	0.05
10.	TOTAL	1609	296	4321	49204	55430	100	8200.75	63630.75	100
11.	Financing to 31/12/1986	539	121.75	624	6916	8200.75	-	-	-	-
12.	Financing from 1/1/87 to 14/2/87	16.4	3.2	38	430.4	488	-	488	-	-
13.	Total with Finan-cing	2164.4	420.95	4983	56550.4	64118.75	-	-	64118.75	-
14.	%	3.38	0.66	7.77	88.19	100	-	-	-	-
15.	G. Support	-	-	-	-	9450		554	10004	-
16.	Total Support	-	-	-	-	-	-	9242.75	74122.75	-
17.	Schools	11	21	304	3544	3980	-	423.25	4403.25	-
18.	Total with Schools	-	-	-	-	-	-	9666	78526	

In spite of the government support, the monthly payment is still high. The tenant pays 10% of the cost at the time of receiving the house and the remaining is paid monthly on the basis of 5% interest. The monthly payment was relatively high, see figure (6).

A change in this system was introduced. The government decided not to take the 10% payment and extended the period from 20 years to 30 years. This method of payments decreased the monthly payment by a percentage of 8%. Figure No.6 shows a comparison between the two methods of repayments.

The consultant did not consider in his estimate the cost of design, supervision and financing.

IV. Increase of cost

The reasons for the increase of cost are:

1.	Delay in finishing the project for 3 years which imply the following costs:		
	Financing	6462	
	Supervision	2553	
	Total		9015
2.	Variations:		
	Retaining Walls in Roads		
	Cement and Asfalt		
	Others		
	Total		4393
3.	Other projects:		
	District Heating	2800	
	Shutters	432	
	Total		3232
4.	Failure of Sogex to complete	9450	
	Total		26090

Figure 6

Monthlye payments comparison between the H.C. system and Abu Nuseir System

Type of Housing Unit	Building Area /sq.m.	No. Of Dwellings	A Selling Price/ Dwelling JD.	B Monthly Paymet Advance 10% 20 Years	C Monthly Paymet Without 30 Years
A-54	137	122	13,900	86	79
A-53	127	216	13,500	84	77
A-51	133	296	11,450	85	78
A-42	113	220	11,450	71	65
A-41	113	181	11,500	71	65
A-32	90	347	8,800	54	50
B1-51	128	341	12,800	79	73
B1-41	114	263	11,500	71	65
B2-31	93	315	11,000	68	62
B2-51	138	315	16,000	99	91
C1-31	92	64	11,200	69	64
C2-51	145	207	18,300	113	04
C2-52	134	211	17,000	105	97
D-51	144	218	18,000	111	102
D-41	112	206	14,800	92	84
E-51	135	128	17,000	105	97
TOTAL		3,650			

Notes:

1. Monthly payments include life insurance.

2. $B = \frac{A \times 0.9 \times 1.651}{240}$

$C = \frac{A \times 2.044}{360}$

V. If we only consider the increase in cost due to the delay and failure of the contractor to complete, the increase is 18465 which represent 33% of the selling price.

. **Profile of the actual buyers compared with the market plan**

	Market Plan	Actual Buyers
- Age structure		
Under 30 years	30%	22.0%
30-39	50%	48.2%
Over 50 years	Relatively low	Relatively low
- Household size	5.2	4
- Type of job		
Government employees	65%	60%
- Family income	1524	3200

Conclusion:

1. The costs should include land, design, supervision construction and 5% for other items such as maintenance, licence, emergency, delay.

2. Work toward self-supporting for each project within the following conditions:

   a. Schools are not included in the cost.
   b. Roads, water network, sewage network outside the site are not included.
   c. Public and commercial buildings are not included in the cost.

3. The cost, whether selling or actual, is beyond the affordability of the target group. Therefore the areas of units must be decreased accordingly.

4. A study is taking place in the HC for evaluating the second stage of A.N, and the following alternatives are under study:

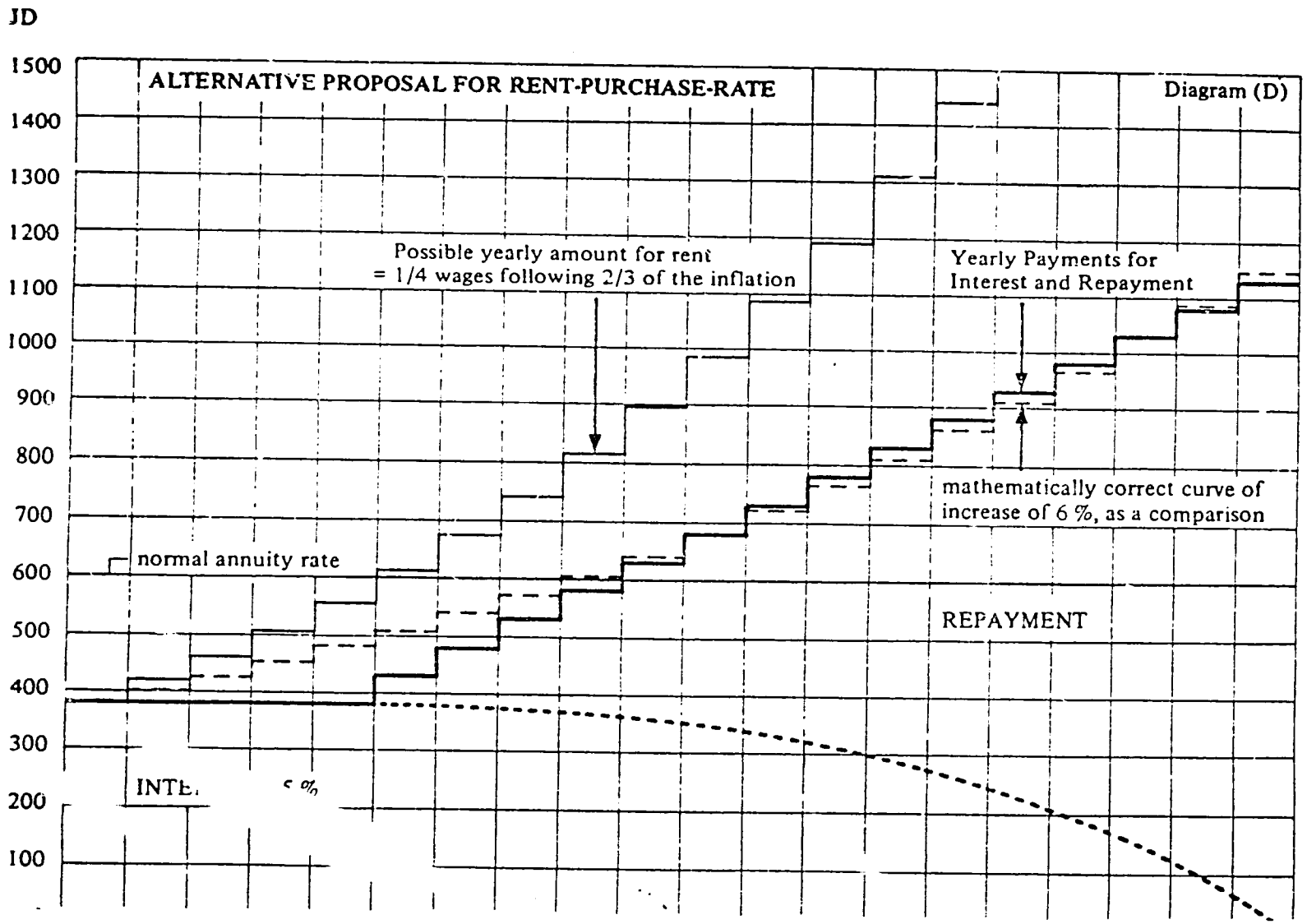
   a. Site and services with parcels not more than 300 m2.
   b. Constructing the second stage with new design with areas mainly between 70 m2 - 90 m2.

Addendum 1

Variation: Plan for Payments with 5 % Interest and 10 % Down Payment

5 % of (90 % of 8450.– JD = 7605.– JD) = 380.– JD p.a., or 31.69 JD/month

	possible payment, increase following 2/3 of inflation (2/3 of 15 % = 10 %)	proposed payment increasing by 50.– JD yearly after 5 years	quota for interest	quota for repayment
1st year	380.00	380.00	380.00	–
2nd year	418.00	380.00	380.00	–
3rd year	459.80	380.00	380.00	–
4th year	505.78	380.00	380.00	–
5th year	556.36	380.00	380.00	–
6th year	611.99	430.00	380.00	50.00
7th year	673.19	480.00	377.75	102.25
8th year	740.51	530.00	372.64	157.36
9th year	814.56	580.00	364.77	215.23
10th year	896.02	630.00	354.00	276.00
11th year	985.62	680.00	340.20	339.80
12th year	1084.18	730.00	323.20	406.80
13th year	1192.60	780.00	302.88	477.12
14th year	1311.86	830.00	279.02	550.98
15th year	1443.05	880.00	251.47	628.52
16th year	1587.35	930.00	220,05	709,95
17th year	1746.09	980.00	184.55	795.45
18th year	1920.70	1030.00	144.78	885.22
19th year	2112.77	1080.00	100,52	979.48
20th year	2324.05	1130.00	51.54	1078.46


JD
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
ALTERNATIVE PROPOSAL FOR RENT-PURCHASE-RATE
Diagram (D)
Possible yearly amount for rent
= 1/4 wages following 2/3 of the inflation
Yearly Payments for
Interest and Repayment
mathematically correct curve of
increase of 6 %, as a comparison
normal annuity rate
REPAYMENT

Addendum 4

Location of Job

Location	Frequency	Percentage
Amman	240	85.7
Zarqa	005	01.8
Karak	001	00.4
Ghor	001	00.4
Ma'an	001	00.7
Baq'a gov.	002	02.5
Irbid	007	08.3
NA	023	----
	280	100

Income distribution

Income Group JD	Frequency	Percentage
0001-1000	08	02.9
1001-1500	43	15.4
1501-2000	26	09.3
2001-2500	35	12.5
2501-3000	37	13.2
3001-3500	27	09.6
3501-4000	20	07.1
4001-4500	15	05.4
4501-5000	18	06.4
5001+	43	15.4
NA	08	02.9

Addendum 3

Profile of the buyers

Age Structure:

Age Group	Frequency	Percentage
less than 20 yrs.	004	01.4
21-30	057	20.4
31-40	135	48.2
41-50	061	21.8
51-60	016	05.7
61+	007	02.5
	280	100%

Household size: (4)

Type of Job

Type of Job	Frequency	Percentage
Retired	008	02.9
Military forces	010	03.6
Government employees	170	60.7
Private sector employees	076	27.1
NA	006	02.1
Other	010	3.7
	280	100%

بسم الله الرحمن الرحيم

EVALUATION OF ABU NUSEIR NEW TOWN PROJECT

PREPARED BY

PLANNING & DESIGN DIRECTORATE/HOUSING CORPORATION

WITH ASSISTANCE BY

SHELTER UNIT/MINISTRY OF PUBLIC WORKS & HOUSING

Submitted to:

MARKET ANALYSIS FOR HOUSING DEVELOPERS CONFERENCE
Feb. 28 - MARCH 1st 1989

AMMAN - JORDAN

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CASE STUDY - ABU NUSEIR NEW TOWN

HOUSING CORPORATION

The National Housing Corporation is a public institution. It was established in 1966 and is now governed by law No. 27 for 1968. It enjoys full financial and administrative autonomy and rights in the management of its business.

The objectives of the Corporation are:

- Acquisition of land, preparing designs, feasibility studies and implementing houses according to programmes. These houses are either for sale or rent for limited income groups.

- Providing construction loans for individuals and/or cooperatives. The Housing Corporation has the right to ensure the suitability of costs, design, and supervision of housing projects to ensure the use of the loan for the purposes of these loans.

- Advise the government on general housing policies and its relation to Zoning in collaboration with the Department of Zoning at the Ministry of Municipal and Rural Affairs and the Environment and other public corporations.

The Housing Corporation is governed by a board of directors chaired by the Ministry of Public Works and Housing.

The composition of the board of directors is as follows:

1.	Minister of Public Works and Housing	Chairman
2.	Director General - Housing Corporation	Vice-Chairman
3.	Mayor of Greater Amman	Member
4.	Director General of Department of Lands and Survey	Member

5.	Director General of Housing Bank	Member
6.	Representative of Ministry of Planning	Member
7.	Representative of Ministry of Municipal and Rural Affairs and the Environment	Member
8.	Representative of Central Bank	Member
9.	Representative of Jordan Electricity Authority	Member

The Board of Directors mainly concerns itself with broad policies and programs, rules and regulations and important items such as the budget. It also makes final decisions regarding personnel affairs.

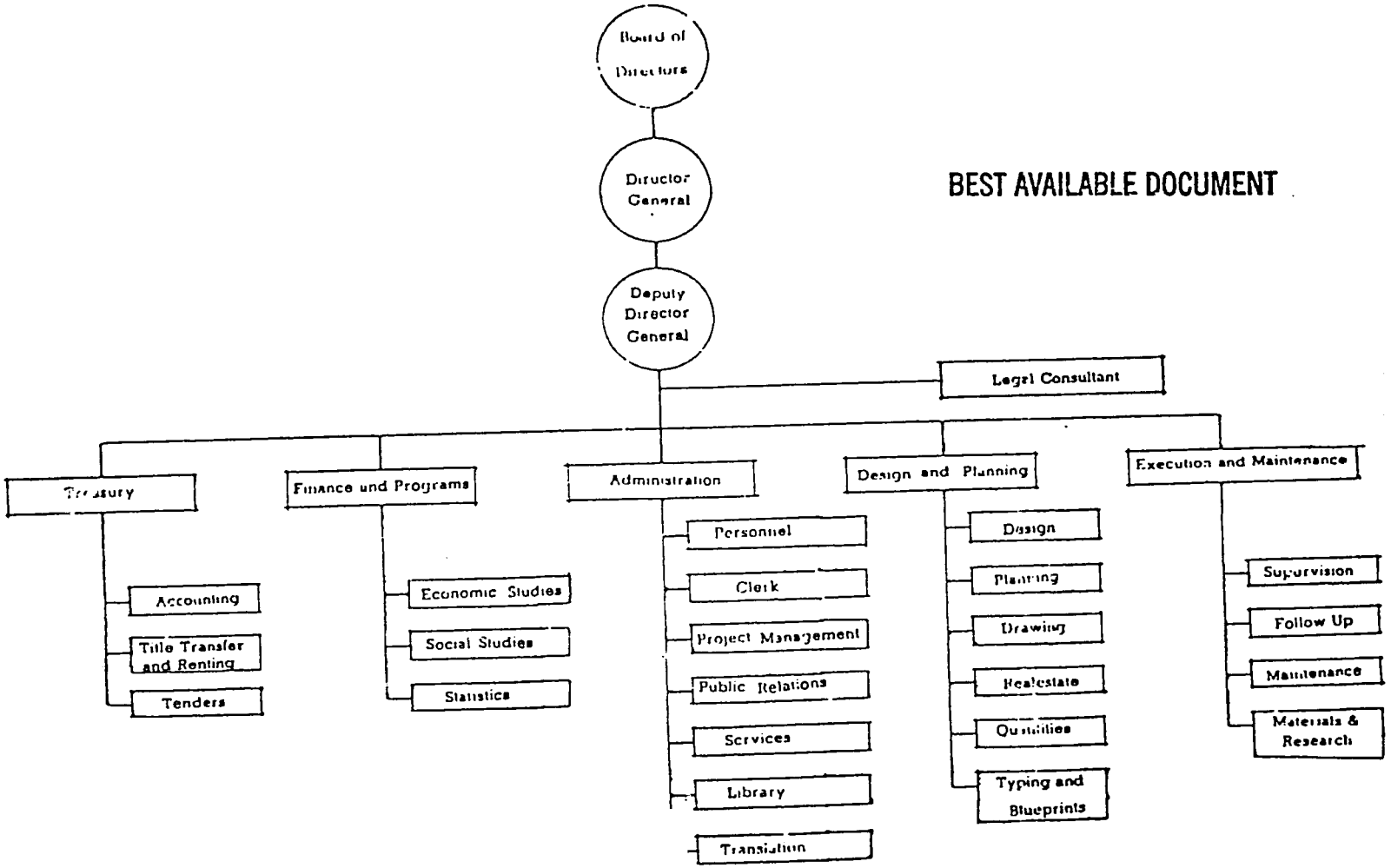
The Corporation is run by the Director General who exercises full board membership with full voting rights and is responsible for the implementation of the decisions of the Board of Directors. The Director General has full authority to handle day-to-day administrative affairs.

The body of the Corporation is presently organized into five main functional divisions, each under a Chief of Division. Figure(1) introduces the organizational chart of the Corporation.

Since its inception, the Corporation has improved its staff through the attraction of necessary skills to guarantee its proper functioning. At present the total number of employees is 331 of which 94 are professional full-time employees.

During 1980-1985 planning period the Housing Corporation made plans for 20 housing projects in different Governorates comprising 7663 housing units for limited income groups. An average of 1,200 housing units were to be built annually to fulfil a part of the overall housing need arising from increases in population, the replacement of non-upgradable housing units,

Figure (1)



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overcrowding, the provision of shelter units for institutional housing, and the housing of workers in industrial sectors. The Corporation also gave more attention to housing the bedouins living in historic caves and tents in Wadi Mousa area in the Southern region. It is worth noting that the Housing Corporation implemented a housing project in Marka for 700 families whose old housing units were demolished as a result of improvement of the eastern entrance to Amman City. (See Table 1).

In addition to its housing activites the Corporation supervised 11 government building projects.

It is of importance to note that all housing projects executed by the Housing Corporation were provided with public services such as potable water, electricity, sewage treatment, commercial shops, health units and schools.

Sources of funds for the implementation of the Corporation's housing projects are: the General Budget (15%), Internal Loans (61%) and the Housing Corporation self-finance (24%).

Housing units produced by the Housing Corporation, include detached, semi-detached and apartment units.

ABU NUSEIR NEW TOWN

Abu Nuseir new town fits well within the main taskof the Housing Corporation which is to offer housing to the governmental employees working in Amman and to the employees of the private sector. Many working places are located mainly in the northern part of Amman City. In addition the several industries around Sweileh and Baq'a and the scientific institutions around Jubeiha provide a considerable number of jobs.

Table (1)

Housing Projects Executed by the Housing Corporation
during (1980 - 1985)

Year of Const.	Name of Project	No. of Housing Units	Cost/M² JD
1980	Journalist Housing	67	92.4
	Zibdet Farkouh	392	102.7
	Karak/2nd	92	96.6
	Bdoul/Wadi Mousa	100	71.42
	Aqaba/Industrial	1,554	103.66
1981	Sahab	258	105.7
	Customs - Mukablan	132	71.5
	Amman/Apt.	48	97.7
	Abu Nseir	3,655	178.0
1982	Kudat	66	128.8
	Jerash	60	120.4
	Mafraq	104	117.7
	Ma'an/Railway	252	102.0
	Ma'an/Glass Factory	426	169.0
1983	Russifa/2nd	124	94.2
	Ain Janna/Ajloun	57	129.7
	Um Qais/Irbed	97	109.3
	Tafeeleh/2nd	78	134.7
1984	Ma'an/2nd	41	94.1
1985	Hisha Beidah/Wadi Mousa	60	85.9
	Total	7,663	

General Objectives for the New Town of Abu Nuseir

The main objectives are:

I. To expand and improve the supply of housing in the Amman region.

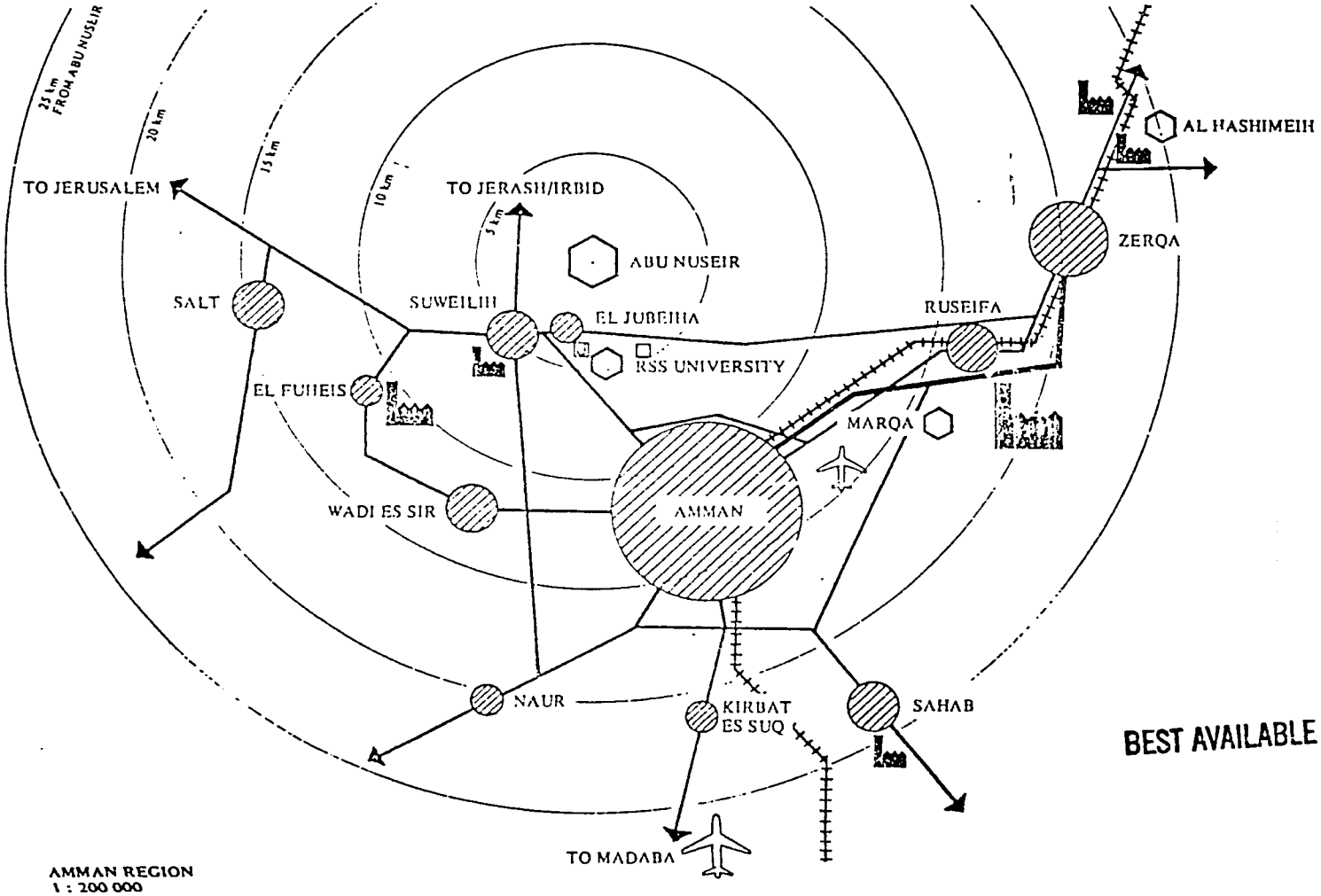
II. To concentrate this housing into a suitably defined area in order to attract potential home owners & preempt uncontrolled residential growth in Amman.

III. To create a "New Community" with its own character.

Location of project

The area of Abu Nuseir is 2930 Dunums and located in the northern part of Greater Amman, approximately 15km from the center of Amman. It is within the sphere of influence of the "Amman Urban Planning Project" which encompasses Amman to a distance of 30km (see figure No.2). Fundamental considerations which took place in selecting the Abu Nuseir site are:

- The distance of about 15 km between home and work's place was considered as optimal for working in Amman, transportation with direct bus connection is easily accessible, and the distance is sufficient to allow the shops, cultural and social activities to be out of the commercial shadow of Amman.
- The northern part of Greater Amman needs a new service center with modern shopping areas, cultural activities and social services. The land acquired by the Government (HC) offers suitable sites for these functions as well as dwelling places for the persons running these institutions. Abu Nuseir also improves the situation of Suweileh and Jubeiha.
- The site of Abu Nuseir had agricultural value. Existing farming was scattered on only very few and small plots. With development, the site would be able to support residential green spaces and gardens.



AMMAN REGION
1 : 200 000

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- Abu Nuseir is situated in a climatically favoured area with good ventilation and breezes coming from the northwest. There is no air pollution in the area.
- Abu Nuseir by its location in an empty and topographically suitable area offers the possibility of expansion in several stages towards the south and east. The situation of the existing network of main roads in the area as well as the suitable distance of the existing villages makes such an expansion very logical and easy to integrate into the regional context.

Phase I:

Area: **1576 Dunums**

Phase I: consists of 16 types of houses including single family houses, and multi-unit buildings. All single units are semi-detached. The total number of housing units built as part of Phase I is 3650. Infrustracture services, water supply network, sewage systems, sewage treatment plant, roads, electricity and telecommunication network were also provided. The new town of Abu Nuseir is also provided with basic public services namely 6 schools for boys and girls, health clinics, and a Community Development Center. A Commercial Center comprising 80 shops and 5 local shops for different business activities and recreational facilities is also part of the scheme.

A summary of the history of Abu Nuseir New Town

a. The government decision to build a new town and acquire a suitable area to build, were accomplished in 1977.

b. The international announcement for the submission of prequalification documents was made early 1977, and the

establishment of a short list of the qualified applicants made shortly thereafter. The submission of the offers was made on May 2nd, 1977. Examination of the projects and the choice of consultant and signing the agreement took place in 1977.

c. Data was compiled from a survey of potential beneficiaries, feasibility studies completed and the different stages of design and tender documents carried out by 1979.

d. Chosing the contractor through international announcement for submission of prequalification, and the establishment of a short list of the qualified applicants was completed in 1981. Submission of the offers, the choice of two contractors and singing of the contracts were made in the same year.

e. The choice of the Consultant to supervise the work was made in Sept. 1981.

f. Construction occurred during the period from May 1981 to January 1987. This does not include district heating which is still under construction and other minor works.

g. The sales of housing units was carried out in 1987.

The Target Population of Abu Nuseir

A survey was executed through questionnaires sent to the government departments. 860 questionnaires were returned and evaluated and some of these results are summarized as follows:

The age structure	:	30% are under 30 years old
(head of household)		50% are 30 - 39 years old
		relatively low over 50 years old
Marital status	:	78% are married
(head of household)		55% age group 30 - 39 years

Family size : The average size of married household was approximately 5,23 persons/family.
15% of the families have 8 and more members.

Type of job : 2/3 of the respondents were classified Government employees.

Present dwelling conditions :
- More than 60% of the respondents lived in a rented dwelling.
- 35% contain 1 or 2 rooms.
- 40% contain 3 rooms.

Family income : The average monthly household income (including the earnings of all the members) was found to be JD 127 which was roughly 30% more than that of the head of family.

Pricing Strategy:

1. Summary of the estimated costs (in JD1000)

- On site road building including Signalization	02,073
- Schools	04,506
- Other public buildings	02,568
- Commercial buildings	01,362
- On site infrastructure	04,320
- Landscaping and public car parks	01,799
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- Unforeseen 15%	02,494
The total excluding Housing Construction and Land	19,122
- Land acquisition	02,500
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-	Low cost housing (variation a)	44,958 66,580
-	Meduim cost housing (variation b)	49,905 71,527
-	High cost housing variation c)	55,075 76,697

The cited above are estimates for the spring of 1978.
The feasibility studies did not include building interests, charges, taxes, financing costs, project costs and administrative work of Government.

2.	Number of Units		6068
3.	The average cost of a Unit		JD 8,450
4.	Average household income		JD 100/month
5.	Affordable monthly payment		JD 25/month
6.	Basic price m2	Variation a	JD 56/m2
		Variation b	JD 63/m2
		Variation c	JD 70/m2

Analysis

The estimated cost during the design stage was presented in 3 variations for housing. Making a comparison between the estimated cost, the selling price and the actual cost possible, we make the following suppositions:

1. Schools, public building, commercial buildings are not included in the cost.

2. The feasibility study considered the entire project of 6068 Units using the estimated cost of Stage I.

I The estimated cost of stage I is

1	-	Roads	JD 2073000	
	-	Services	JD 4320000	
	-	Landscaping and public car parks	JD 1799000	
	-	Unforeseen 15%	JD 1228800	
		Total		JD 9420800
	-	Land		JD 3200000
	-	Housing variation a)		JD 44958000
		Housing variation b)		JD 49905000
		Housing variation c)		JD 55075000
	-	Total costs a)		JD 57579000
		b)		JD 62526000
		c)		JD 67696000
		Cost of Stage I a)		JD 37413000
		Cost of Stage I b)		JD 40507000
		Cost of Stage I c)		JD 39839000
		Cost of m2		JD 85-92

The above figures did not include the costs of design, supervision and financing.

II. <u>Defining the selling price:</u>

After contracts for Stage I were awarded to Sogex and Catic, sale prices of the different Units were set based on above costs.

The first stage included the construction of Housing, Roads, Water Supply, Sewage and Storm Water Networks and Sub-stations.

The value of the two contracts was JD 39,838,000. 25% was added to it for design, supervision, financing, land, other services. The total cost became JD 49,798,000. The cost of square meter/housing unit was JD 113. (See Table No. 2).

III. Actual Cost of Abu Nuseir:

1. Table No.3 summarizes the actual costs of Abu Nuseir. These costs do not include the following: schools, the value of Sogex Camp and material which were forfeitured by the Housing Corporation and the telephone network.

The actual cost including the schools	JD 78526000
The cost of schools	JD 4403000
The cost without schools	JD 74123000
The area of houses	442180 m2
The cost of square metre without schools	JD 168/m2

2. The monthly payments increased much more than anticipated. Therefore the government supported Abu Nuseir on 14/2/1987 by subsidizing the difference between the actual cost and the revenues from the sale of housing units.

The value of support is estimated (not final yet).	JD 29060

Table (2)

Types of Housing Units in Abu Nuseir New Town (Phase I) classified by building area, No. of housing units, and selling price

Type of Housing Unit	Building Area/sq.m.	No. of Dwellings	Selling Price/ Dwelling JD.	Total Cost (1000 JD)
A - 54	137	122	13,900	1,705.8
A - 52	127	216	13,500	2,916.0
A - 51	133	296	13,700	4,055.2
A - 42	113	220	11,450	2,519.0
A - 41	113	181	11,500	2,081.5
A - 32	90	347	8,800	3,053.6
B1 - 51	128	341	12,800	4,364.8
B1 - 41	114	263	11,500	3,024.5
B2 - 31	93	315	11,000	3,465.0
B2 - 51	138	315	16,000	5,040.0
C1 - 31	92	64	11,200	716.8
C2 - 51	145	207	18,300	3,788.1
C2 - 52	134	211	17,000	3,587.0
D - 51	144	218	18,000	3,924.0
D - 41	112	206	14,800	3,048.8
E - 51	135	128	17,000	2,176.0
Total		3,650		49,466.1

Total building area/sq.m. 442180
Average selling price/sq.m. (JD) 113

The Actual Costs of Abu Nuseir
in thousands JD.

No.	Main Item	Land	Design	Super-vision	Construc-tion	Total	%	Finan-cing	Total	%
1.	Housing	1462	258	3766	43706	49192	88.75	7390	56582	88.92
2.	Roads	75	14	205	2396	2690	4.85	404	3094	4.86
3.	Water Main	-	1	20	232	253	0.46	36.5	289.5	0.45
4.	Water Lateral	-	0.5	5	64	69.5	0.13	10.25	79.75	0.13
5.	Sewage Main	-	1	19	224	244	0.44	29.5	273.5	0.43
6.	Sewage Lateral	-	3	48	552	603	1.09	87.25	690.25	1.08
7.	S.T. Plant	72	16	227	1674	1989	3.58	208	2197	3.45
8.	Electricity	-	2	29	332	363	0.65	32	395	0.62
9.	Telephone	-	0.5	2	24	26.5	0.05	3.25	29.75	0.05
10.	TOTAL	1609	296	4321	49204	55430	100	8200.75	63630.75	100
11.	Financing to 31/12/1986	539	121.75	624	6916	8200.75	-	-	-	-
12.	Financing from 1/1/87 to 14/2/87	16.4	3.2	38	430.4	488	-	488	-	-
13.	Total with Finan-cing	2164.4	420.95	4983	56550.4	64118.75	-	-	64118.75	-
14.	%	3.38	0.66	7.77	88.19	100	-	-	-	-
15.	G. Support	-	-	-	-	9450		554	10004	-
16.	Total with Support	-	-	-	-	-	-	9242.75	74122.75	-
17.	Schools	111	21	304	3544	3980	-	423.25	4403.25	-
18.	Total with Schools	-	-	-	-	-	-	9666	78526	

In spite of the government support, the monthly payment is still high. The tenant pays 10% of the cost at the time of receiving the house and the remaining is paid monthly on the basis of 5% interest. The monthly payment was relatively high, (see Table No. 4).

A change in this system was introduced. The government decided not to take the 10% payment and extended the period from 20 years to 30 years. This method of payments decreased the monthly payment by a percentage of 8%. Table No.4 shows a comparison between the two methods of repayments.

IV. The cost Increases

The reasons for cost increases are:

1. Delay in finishing the project for 3 years which imply the following costs:

	Financing	JD 6462000
	Supervision	JD 2553000
	Total	JD 9015000
2.	Variations:	
	Retaining Walls for Roads, Cement, Asphalt & others	JD 4393000
3.	Other projects:	
	District Heating	JD 2800000
	Shutters	JD 432000
	Total	JD 3232000
4.	Failure of Sogrex to complete the work	JD 9450000
	Total	JD 26090000

Table (4)

Monthlye payments comparison between the H.C. system and Abu Nuseir System

Type of Housing Unit	Building Area /sq.m.	No. Of Dwellings	A Selling Price/ Dwelling JD.	B Monthly Paymet Advance 10% 20 Years	C Monthly Paymet Without 30 Years
A-54	137	122	13,900	86	79
A-53	127	216	13,500	84	77
A-51	133	296	11,450	85	78
A-42	113	220	11,450	71	65
A-41	113	181	11,500	71	65
A-32	90	347	8,800	54	50
B1-51	128	341	12,800	79	73
B1-41	114	263	11,500	71	65
B2-31	93	315	11,000	68	62
B2-51	138	315	16,000	99	91
C1-31	92	64	11,200	69	64
C2-51	145	207	18,300	113	104
C2-52	134	211	17,000	105	97
D-51	144	218	18,000	111	102
D-41	112	206	14,800	92	84
E-51	135	128	17,000	105	97
TOTAL		3,650			

Notes:

1. Monthly payments include life insurance.

2. $B = \frac{A \times 0.9 \times 1.651}{240}$

$C = \frac{A \times 2.014}{360}$

V. If we only consider the increase in cost due to the delay and failure of the contractor to complete the work, the increase would be JD 18465 which represent 33% of the project revenues.

- **Profile of the actual buyers compared with the market plan**

	Market Plan	Actual Buyers
- Age structure		
Under 30 years	30%	22.0%
30-39	50%	48.2%
Over 50 years	Relatively low	Relatively low
- Household size	5.2	4
- Type of job		
Government employees	65%	60%
- Family income/year	1524	3200

Conclusion:

1. The costs should include land, design, supervision construction and 5% for other items such as maintenance, licence, emergency, delay.

2. Each project should be self-supporting within the following conditions:

   a. Schools are not to be included in the recoverable cost.
   b. Off-site roads, infrastructure for water network, sewage network are not to be included in the recoverable costs.
   c. Public and commercial buildings are not to be included in the recoverable cost.

3. Both anticipated and sales prices are not affordable to the desired target group. Additional study and analysis is required to establish more flexible standards and pricing units.

4. A study is taking place in the Housing Corporation for evaluating the second stage of Abu Nuseir, and the following alternatives are under study:

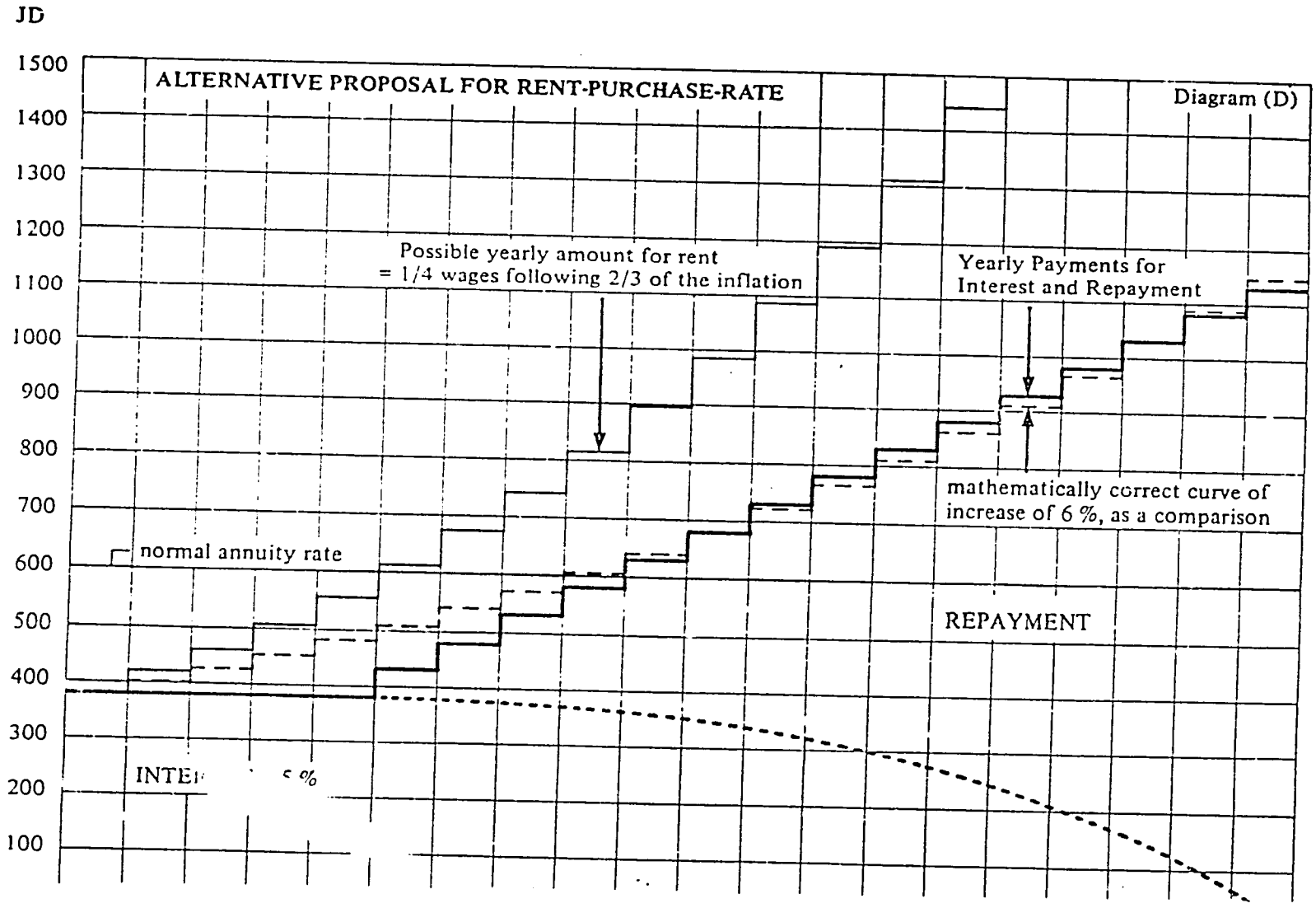
   a. Site and services with parcels not more than 300 m2.
   b. Constructing the second stage with new design with areas mainly between 70 m2 - 90 m2.

Addendum 1

Variation: Plan for Payments with 5 % Interest and 10 % Down Payment

5 % of (90 % of 8450.– JD = 7605.– JD) = 380.– JD p.a., or 31.69 JD/month

	possible payment, increase following 2/3 of inflation (2/3 of 15 % = 10 %)	proposed payment increasing by 50.– JD yearly after 5 years	quota for interest	quota for repayment
1st year	380.00	380.00	380.00	–
2nd year	418.00	380.00	380.00	–
3rd year	459.80	380.00	380.00	–
4th year	505.78	380.00	380.00	–
5th year	556.36	380.00	380.00	–
6th year	611.99	430.00	380.00	50.00
7th year	673.19	480.00	377.75	102.25
8th year	740.51	530.00	372.64	157.36
9th year	814.56	580.00	364.77	215.23
10th year	896.02	630.00	354.00	276.00
11th year	985.62	680.00	340.20	339.80
12th year	1084.18	730.00	323.20	406.80
13th year	1192.60	780.00	302.88	477.12
14th year	1311.86	830.00	279.02	550.98
15th year	1443.05	880.00	251.47	628.52
16th year	1587.35	930.00	220,05	709,95
17th year	1746.09	980.00	184.55	795.45
18th year	1920.70	1030.00	144.78	885.22
19th year	2112.77	1080.00	100,52	979.48
20th year	2324.05	1130.00	51.54	1078.46


JD
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
ALTERNATIVE PROPOSAL FOR RENT-PURCHASE-RATE
Diagram (D)
Possible yearly amount for rent
= 1/4 wages following 2/3 of the inflation
Yearly Payments for
Interest and Repayment
mathematically correct curve of
increase of 6 %, as a comparison
normal annuity rate
REPAYMENT

Addendum 2

Addendum 3

Profile of the buyers

Age Structure:

Age Group	Frequency	Percentage
less than 20 yrs.	004	01.4
21-30	057	20.4
31-40	135	48.2
41-50	061	21.8
51-60	016	05.7
61+	007	02.5
	280	100%

Household size: (4)

Type of Job

Type of Job	Frequency	Percentage
Retired	008	02.9
Military forces	010	03.6
Government employees	170	60.7
Private sector employees	076	27.1
NA	006	02.1
Other	010	3.7
	280	100%

Addendum 4

Location of Job

Location	Frequency	Percentage
Amman	240	85.7
Zarqa	005	01.8
Karak	001	00.4
Ghor	001	00.4
Ma'an	001	00.7
Baq'a gov.	002	02.5
Irbid	007	08.3
NA	023	----
	280	100

Income distribution

Income Group JD	Frequency	Percentage
0001-1000	08	02.9
1001-1500	43	15.4
1501-2000	26	09.3
2001-2500	35	12.5
2501-3000	37	13.2
3001-3500	27	09.6
3501-4000	20	07.1
4001-4500	15	05.4
4501-5000	18	06.4
5001+	43	15.4
NA	08	02.9