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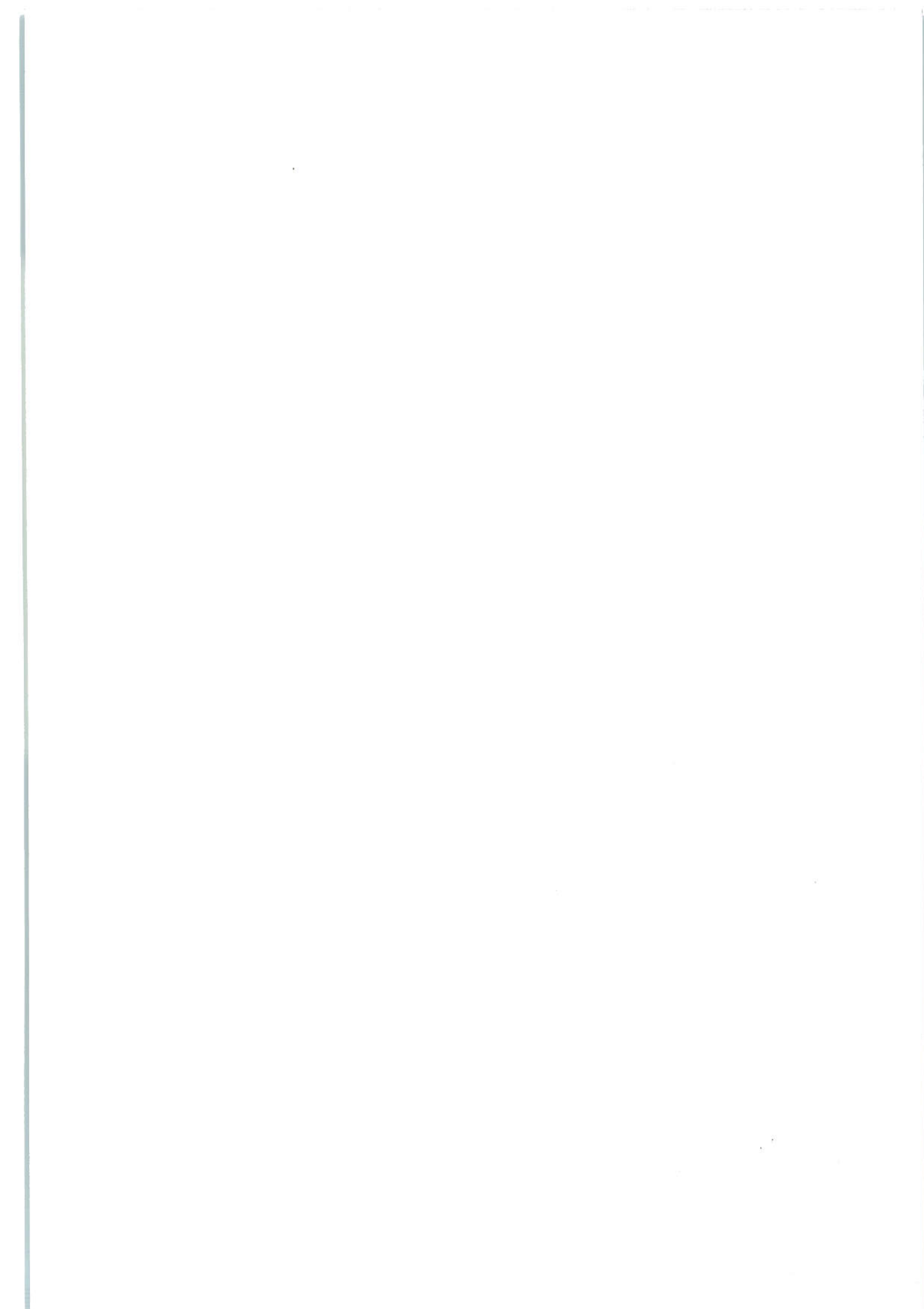


# Guidelines for housing programmes

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Jorge L Arrigone

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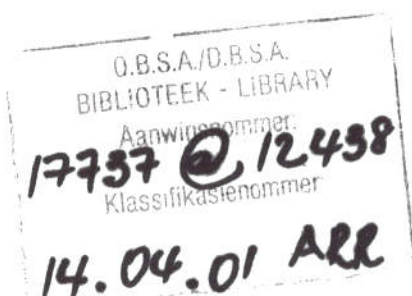
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The Development Bank of Southern Africa is a regional development institution whose primary aim is to facilitate socio-economic development and empower people economically in the region.

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# Preface

Urban growth, especially in developing countries, has become a major feature of the century now drawing to a close. In just four decades, from the 1940s to the 1980s, the portion of the world's population living in urban concentrations has increased from one in eight to one in three persons. In Africa, where urbanisation is growing fast, the urban population is expected to double during the last fifteen years of this century, bringing concomitant problems of lack of adequate housing and services.

The Development Bank of Southern Africa (DBSA) is well aware of these facts and figures and through its Urban Development and Policy and Information groups is facilitating the urban development process and assisting housing projects for low-income groups.

Although DBSA by statute does not fund house superstructures, financial support is provided for bulk infrastructure, internal township service reticulation, and technical assistance for low-income housing projects. DBSA is also actively involved in housing policy dialogue with community-based organisations (CBOs), non-governmental organisations (NGOs), consultants, local authorities and other development organisations.

Confronted with the need to provide DBSA project leaders and external organisations with basic information on how to prepare housing programmes on the national and local levels, the former DBSA Housing Support Task Team mandated the preparation of these guidelines in August 1992.

The advisory panel of the DBSA urban policy programme approved the document for internal use by DBSA project leaders in July 1993, and it was subsequently approved for publication and external distribution, with certain modifications, by the manager of the urban policy programme.

The document was drawn up by the author in his capacity as DBSA low-cost housing specialist, to ensure consistency of approach in housing projects submitted to the DBSA Operations Committee for approval.

It is hoped that this publication will make a constructive contribution to the low-income housing field and in particular assist governments, NGOs, CBOs, consultants and grassroots leadership in their tasks of developing shelter programmes which can alleviate the plight of countless families in search of better housing and living conditions.

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## Purpose

The guidelines describe the step-by-step preparation of housing programmes. Their purpose is to assist government housing agencies, non-governmental organisations, local community groups and consultants to formulate and implement housing programmes, especially for low-income people.

These guidelines are not prescriptive. They are meant as a checklist to be applied according to local circumstances. The way in which the loan-carrying capacity of households is calculated and how the affordable options are selected are of particular importance.

## Introduction

A housing programme could be broadly defined as an action plan which provides a step-by-step description of what is to be done in providing housing. The concept of 'housing' should be understood not only as 'the house' but also as a process that includes many other aspects, administrative, legal, socio-economic, financial, technical, cultural, psychological and institutional.

A programme may be formulated at a national, provincial, regional or local level, depending on the administrative and geographical coverage and range of the activities involved.

A programme may be broken down into a number of subprogrammes and/or projects dealing with specific components, such as conventional housing; sites and services; core housing; shell housing; building materials loans; squatter settlement upgrading; inner-city rehabilitation schemes; institution building; training for local artisans; and so on.

The basic methodology for the preparation of housing programmes is much the same whether they are national, provincial, regional or local. The nature of the issues involved will however vary according to the administrative level. For example a national programme will focus mainly on macro-economic and legislative aspects whereas a local programme will be mainly practical and implementation-orientated. Obviously, in an ideal situation, national and local programmes should be well coordinated.

The guidelines are divided into two phases. Phase I describes the preliminary considerations that need to be taken into account in the programming process. Phase II provides detailed instructions for those interested in the initiation of a programming exercise, and the actual preparation of a housing programme.

The two crucial programming steps are identifying affordable options and matching objectives with resources (see diagram on page 22). These steps are summarised in Tables A, B, C, D and E which follow in order. Table A contains mathematical coefficients and Tables B, C and D present a hypothetical example of how to calculate the loan-carrying capacity of households and how to identify affordable options. Finally, Table E compares the resources required for implementing the theoretical programme with the resources available for a feasible option.

Several reference documents were consulted during the preparation of these guidelines, in particular the Guidelines for the Preparation of Shelter Programmes (UNCHS 1984). This report is the result of an ad hoc expert group meeting held in November 1983 in Nairobi. Other reference documents are listed at the end of the guidelines.



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# Phase I: Preliminary considerations

## 1. Identification of a group or agency responsible for preparing a housing programme

### 1.1 General

A housing programme can be formulated at a national, provincial, regional or local level, depending on the administrative and geographical coverage and range of activities involved.

Responsibility for preparing a housing programme could be assumed by a legally registered non-profit or civic organisation, by itself or assisted by a non-governmental organisation (NGO); by an NGO; or by a local authority, provincial or national government department or parastatal agency. Local community organisations and NGOs are usually small in scale and less subject to the conventions, inertia and government inter-agency rivalries that often reduce the effectiveness of bureaucracies in programming and implementing shelter programmes.

Should the programme be prepared by a local community organisation or an NGO, the technical group entrusted with this responsibility should seek the support and involvement of prospective beneficiary families; a broad spectrum of political groups; the appropriate level of government; and the private sector.

If a government department or agency is responsible for preparing the programme, the prevailing administrative and legal procedures should be followed. International experience suggests that in government structures the system of a steering committee and a task team, both appointed by an executive level, are sufficient for programme preparation. In this case, representatives from the beneficiary communities, NGOs and the private sector should also participate in preparing the programme.

### 1.2 Terms of reference

The work of preparing the programme should be based on clear terms of reference. This is so whether the responsibility is entrusted to a community-based organisation (CBO), an NGO or a government department.

Preferably, the terms of reference should be broad rather than narrowly detailed, and should give a clear time frame.

## 2. Problem statement

The problem should be defined by the body preparing the programme.

For example, is the problem a limited one, such as a land invasion, or is it a large one affecting the majority of the people of a region who are living in poor conditions? Depending on the scope of the problem, its solution might be to increase housing or to contribute to national development. In the former case housing is an end, whereas in the latter it is a means.



### 3. Fundamental issues

#### 3.1 Political constraints

##### Political will, commitments and economic realities

A housing programme is constrained by prevailing political will, commitments and the economic realities of the country. It usually competes for resources with other socio-economic programmes, such as education, health care and rural development. Political decisions determine priorities. Every endeavour should be made to balance the felt needs of communities and the 'political' attempts of governments to satisfy their constituencies.

##### Enhancement of the political will

Housing and urban development can play a decisive role in the government's socio-economic development strategies. This is only possible if the preparation, implementation, monitoring and evaluation of programmes are properly managed. If politicians, government decision makers and planners recognise this, they will more readily support the preparation of housing programmes and the active participation of NGOs and CBOs in the process of housing delivery.

Information about international and national experiences will stimulate the programming process. Seminars and workshops at local level and information campaigns increase the understanding among decision makers, politicians and community leaders of the benefits derived from a well structured housing programme. Dissemination and democratisation of information are important to encourage participation and popular autonomy in South Africa. This will greatly contribute to empowering communities and facilitating their participation in the low-income housing process.

#### 3.2 Housing policy

##### Need for a housing policy

Housing policy provides the point of departure for structuring a housing programme. An existing policy provides the tools and dimensions to evaluate competing strategies and programmes. If a housing policy is not in place, or if it is not clear enough, the technical group or the task team entrusted with preparing the programme must begin its work by considering basic policy issues. The need to make an evaluation of past experiences should be considered: an implicit housing policy can be inferred from housing actions previously taken by the government, parastatals and NGOs. A detailed housing policy document is not however required before starting with the preparation of the programme and the formulation of goals.

##### Formulation of general goals

Issues such as the following should be raised when formulating the general goals of a programme within the framework of the agreed policy:

- Will the programme be directed at a broad spectrum of households with different incomes or will it be concentrated on the urban poor?
- Will the programme offer flexibility through a wide range of housing options or is it limited to a few?
- Will the policy be supply-oriented or enabling-oriented? A supply-oriented policy assumes that the public sector must actually produce and supply completed dwellings to participant families. An enabling-oriented policy assumes that the role of the public sector is to assist in solving those housing problems which cannot be solved by individuals or communities on their own.

- 
- Will housing be obtained through progressive development or immediate development? In progressive development, the process is of paramount importance and it requires technical and financial support. On the other hand, immediate development suggests a short-term operation at the end of which there is a product: a completed dwelling.
  - Will the housing options in the programme be based strictly on affordability and willingness to pay or will they be based on subsidisation?
  - Will community participation be an important programme component or will it be peripheral?
  - Will training, community organisation and technical assistance be important programme components or will they be peripheral?
  - Will the programme rely mainly on the public sector or will the private Dsector and the individual participant families also be involved?
  - Will the programme support the development of small entrepreneurs such as local artisans, small local building contractors and building materials tradesmen?
  - Will the programme be locally based and meant to increase self-reliance or will it involve mainly external resources?
  - Will the programme use high standards to reach a few or minimal standards to reach many?
  - Will housing be interpreted as an integrated development comprising community facilities, the creation of cottage industries, and environmental issues or will it mean only shelter and basic services?

A statement of the general goals of a hypothetical housing programme could be:

Families residing in the metropolitan areas of Johannesburg, Cape Town, Durban, Port Elizabeth, East London and Bloemfontein and with a household income of between R1 000 and R12 000 pa will be eligible to participate in a housing programme which will facilitate the provision of serviced sites or core houses (see the definitions given below). The official name of the programme will be the Basic Shelter Programme. The programme will be implemented by the National Housing Department in coordination with local authorities, CBOs and NGOs. The Housing Finance Corporation will be responsible for mobilising the public and private funds needed for the programme and will control the allocation of housing subsidies and loans.

Local artisans, small local building contractors and self-help builders will play an important role in the programme. Household income will determine the eligibility for the different housing options offered in the programme. A differential capital housing subsidy, covering the total or partial cost of the housing option selected according to income, will be available to programme participants. Subsidies will vary according to the cost of the housing options. The lower the cost, the higher the subsidy as a percentage of that cost. Households must enter into a savings agreement to qualify for a subsidy and further financing assistance in the form of small short-term loans for building materials. Materials and technical assistance will be made available to programme participants through a Technical Aid Unit. The small loans will be secured by co-signers and the title to land and also wherever possible by the pressure of other loan group members on loan recipients so that they meet their commitments.

*Note:* 'Housing options' will have different costs. The lower the household income, the lower the cost of the housing option to be selected.



**Definitions:**

*Housing option:* A serviced site or a core house.

*Serviced site:* A site provided with the following services:

- waterborne sanitation: a superstructure for the WC and a shower are provided on each site ('wet core'). A water tap is fitted to the outside of the superstructure.
- roads and stormwater drainage: blacktop surfaced main collector which acts as the bus route; mechanically stabilised on-site material on all residential access roads; surface stormwater management system into the stabilised road zone.
- electricity: single connection to a connection metering point, combined with the water metering whenever possible. Public lighting is by means of a high mast system.

*Core house:* An expandable basic superstructure consisting of one or two rooms. It is understood that a core house also includes all the components detailed under the definition of a serviced site above. A kitchen sink is fitted in one of the rooms.

## 4. Evaluation of current strategies

### 4.1 Past experience

Before commencing with the preparation of the programme (see Phase II below), various strategy options should be evaluated on the basis of local and international experience and other relevant information.

What has proved the most appropriate approach to improving existing housing conditions? Should the approach to inner-city slums and squatter settlements be based on rehabilitation and upgrading or 'bulldozing' and resettlement?

The strategy options to be evaluated should be compatible with the general goals adopted for the programme (see 3.2 above). The general goals of the programme should be evaluated in relation to the resources available. Only after that can the strategies be formulated in detail.

### 4.2 Selection of strategies

In most developed and developing countries, private enterprise is usually willing and able to take care of developments aimed at the medium-income and high-income housing market. However, the public sector may have to intervene to make sure that the allocation of land for low-income housing is not adversely affected.

The strategies selected will depend in part on the answers to the following questions:

- What is the experience of low-income housing programmes sponsored by governments?
- Have the housing options provided been affordable by the target population group?
- If they were subsidised, could the local economy bear the burden?
- What is the experience of low-rise high-density versus high-rise high-density schemes?



- Is the cultural background of low-income communities compatible with high-rise housing?
- Have sites and services schemes been implemented?
- If so, with what level of standards?
- Have such schemes been acceptable to local communities?
- Have core housing schemes been implemented?
- What type of technical and financial assistance has been provided to participants' families?
- Were families involved during the planning process or were they only involved in construction?

## Phase II: Preparation of the programme

### **5. Identification of the target population and its housing needs**

This first step is to get information from the community and from other sources.

#### **5.1 Assessment of present housing conditions**

When identifying the nature and magnitude of housing problems, it is necessary to assess the present housing conditions of the population groups affected. If a specific income group was identified when the general goals for the programme were set (see 3.2 above), the investigation should concentrate on the housing conditions of that specific group.

#### **5.2 Identification of priority areas**

The surveyed population can be classified according to their standard of housing. If this classification is viewed as a ladder, the technical group or the task team will have a clear perception of the priority groups whose housing problems should be alleviated first. The size of these priority groups reflects the scale of the housing problem in the programme area.

By analysing the present housing conditions according to indicators such as building standards, number of dwellings per hectare, overcrowding in otherwise acceptable rooms, water supply, electricity, and access to settlement, the minimum housing standard for the programme can be established and measured against the preliminary standards set when the programme goals were formulated (see 3.2 above).

What is important is to set realistic minimum standards in order to avoid waste of resources and recurring housing subsidies that are not sustainable.

#### **5.3 Assessment of needs**

At a qualitative level, housing need is related to a standard of accommodation that is considered the minimum for all households according to the housing policy adopted. At a quantitative level, housing need arises from two sources: population growth and the need to eliminate housing backlogs.

The population census is usually the most comprehensive source of data. Specific socio-economic and housing sample surveys can be undertaken but this is usually expensive and time-consuming, especially for large populations scattered throughout big geographical areas. Aerial photography has proved to be very useful for locally focused programmes. By counting the number of houses in a given area shown on an aerial photograph and multiplying the figure by an estimated average number of persons per house, reasonable estimates can be obtained.

Conventional methods of compiling data, as described above, provide a one-way flow of information only. The technical group or the task team should therefore involve the community or communities concerned, by organising meetings at which housing priorities can be defined. In doing this, care should be taken to ensure that minorities, churches, women, the self-employed and other important groups are represented.

## 5.4 Forecast of future needs

A population projection should be made for the programme period. Population growth consists of two elements: natural growth and net migration. In a short-term projection, natural growth in developing countries tends to be high. Migration rates may be difficult to estimate, as they depend both on the level of development in the areas of destination and on conditions in the areas of origin. A population forecast can be a sophisticated exercise. However, rough estimates based on an assumed percentage population growth per annum are sufficient.

## 6. Housing demand

Having identified present and future housing needs, consideration must be given to the process by which these needs are translated into effective demand. Housing needs reflect housing requirements from a social viewpoint. In contrast, housing demand expresses these requirements in terms of the market: what kind of shelter can be supported by people's financial capacity.

Perhaps the greatest challenge confronting housing specialists today is to know how to convert the ever-growing housing need of the poor into effective demand by putting scarce resources to their best possible use.

## 7. Objectives

When needs and effective demand have been assessed, the preliminary objectives for the programme can be established.

The objectives are needed first to indicate the rate of housing development which is commensurate with the general socio-economic development in the area. Second, the objectives provide a strategic tool in gaining political support when the housing sector is competing with other sectors for the same scarce resources in socio-economic development. Third, the objectives provide a measure against which the accomplishments of the implementing agencies can be evaluated.

The quantitative objectives are obtained by asking the questions 'how many new housing units are required?' and 'how many existing housing units should be upgraded?' The qualitative objectives are obtained by asking the question 'what level of housing and planning standards and housing delivery systems is appropriate?'

The preliminary objectives should specify the target areas or localities for the programme. The objectives should also set the time frame for the priority areas of the programme, as unambiguously as possible.

## 8. Assessment of resources

It is necessary to assess all available resources for the implementation of the programme. Too often financial resources are considered to the exclusion of others such as land, labour, materials and technology. Furthermore, often only public financial resources are taken into account.



## 8.1 Land

Land is a critical issue in housing programmes. There is growing international consensus that governments should shift their attention from the delivery of completed housing units to the provision of serviced land and secure tenure, thereby stimulating the capacities of other sectors of the economy. The provision of secure tenure of land in suitable locations and adequate quantities, at affordable prices, is a fundamental requirement to alleviate the housing conditions of low-income families.

*How much vacant land in the programme area is suitable for residential purposes?* The main areas of vacant land available for new developments should be identified. Land occupied by squatter settlements is not normally counted as a vacant land reserve. Squatter settlements, although poorly serviced and with many other problems, represent a valuable housing stock which is lost if the settlements are demolished.

*How can land be made available for the programme and what will this cost in money and time?* The main objective of the land resource assessment is to assure people of legal access to land. This can be achieved through direct methods, such as the purchase of land for specific purposes, or indirectly, by freezing land purchase prices or by taxation. Indirect methods usually reduce the financial commitment of public agencies. Under certain circumstances, public acquisition of land by expropriation may be necessary and justifiable.

To assess the costs, some further questions can be asked:

- How favourable is the location of the vacant land in relation to available bulk infrastructure?
- Is any of the vacant land held by public authorities?
- Can this land be acquired?
- How long would the negotiations and procedures take?
- How much of the vacant land is in private ownership or held under a long-term lease?
- Can this land be acquired?
- What are the procedures and what would it cost to provide squatters with a legal title to the land they occupy?
- How long will it take until the land can be allocated after its acquisition?
- Is any of the land acquired already surveyed? If not, how long will the survey procedures take and what are the costs involved?
- Can the costs be lowered and the time shortened?
- Can land administration be improved to streamline the procedures?
- Surveying and land registration are often a problem. Could land surveying and registration systems be improved to simplify land transactions and allocation procedures, to ensure the security of tenure or to improve the data base for land management and property taxation?

Issues such as the following can be raised:

- Should local land registers be established to reduce the time and costs of registration?
- Should the existing surveying procedures be simplified?

## 8.2 Labour, institutional and community resources

### Labour

In developing countries, unskilled labour is often an underutilised resource, while skilled labour is usually in limited supply. For most low-income housing programmes, it is necessary to rely on low key technology requiring limited skills for most tasks and labour intensive operations.

The inventory of available labour resources should cover the current rate of use and cost implications of various types of labour as well as the obstacles to the intensive use of labour resources. Some of the questions which are to be answered are the following:

- What is the role of self-help in housing construction?
- What kind of skills are needed and available for housing construction?
- Can these skills be upgraded?
- What kind of technical assistance should be given to self-help builders and local artisans?
- What are the constraints, ie what are the items of work which families cannot do on their own?
- What are the obstacles families face in attempting to use their own labour resources?
- What can be done to remove these obstacles?
- What is the role of self-help in maintenance?
- What is the role of local private contractors and artisans in housing construction?
- What are the skills and capacities of local contractors and artisans?
- How can these skills and capacities be improved?
- What is the cost of dwellings built by local contractors and artisans compared with those built by the informal sector?

*Note:* Self-help can be organised in the following ways:

- a family may hire a local contractor to build or extend its house;
- a family may hire and supervise individual labourers to build or extend its house;
- a family may use its own labour to build or extend its house; and
- families may help each other, working together in groups to build or extend their own houses.



### **Institutional capacities for implementation and post-implementation**

It is necessary to estimate the administrative and managerial skills available for programme implementation. This is of paramount importance. All planning efforts on the technical, financial, social and administrative fronts will prove to be futile unless a committed and highly motivated executing agency is geared for implementation.

Similarly, it is necessary to decide whether the administration and financial resources are sufficient for the physical maintenance and operational costs of residential areas.

The proper maintenance of residential areas and housing stock in public ownership is unfortunately often not only financially but also administratively beyond the capacity of the authorities. One way of reducing the pressure on managerial skills is to delegate powers and to contract for services.

### **Community resources**

Low-income housing needs to be integrated into vigorous community development programmes. This will provide the community with the opportunity to get involved in the planning and implementation of programmes. People will not contribute labour, imagination, organisation and money, unless they see that the housing programme supports the attainment of their own aspirations. Therefore, the entire decision-making system must be conducive to expressing the people's priorities.

## **8.3 Building materials**

The choice of building materials and components for the housing programme has important economic implications. The economic multiplier effects of housing programmes depend in part on the materials and components which are chosen.

The programmes should as far as possible use locally available materials and components. Materials from outside the region or from abroad are to be avoided as they are costly and imports may drain foreign exchange reserves. Low-income housing in developing countries must make imaginative use of readily available local materials and components.

There may, however, be problems hampering the use of appropriate local materials. Often, building codes and regulations do not permit the use of traditional materials and technology in planned urban areas.

Research and information into the development of upgraded materials and components may be required to encourage their use by developers, local builders and artisans.

For the programme under preparation, a rough estimate should be made of the materials and components available. Consideration should therefore be given to problems of supply, and the measures necessary to promote and improve the production and supply of appropriate local materials.

What are the most commonly used building materials and components in the programme area?



Building materials and components can be classified according to the level of technology, that is:

- industrial (eg cement, galvanised steel roof sheets, asbestos–cement roof sheets, steel door and window frames);
- intermediate (eg locally produced soil–cement bricks or fire burnt bricks, locally produced sisal fibre–cement roof sheets); and
- traditional (eg sun–dried mud bricks, straw roofing).

Materials and components can also be classified according to their use, that is:

- new;
- second–hand;
- recycled or transformed; and
- raw or unprocessed.

Local stores in villages, small rural towns and urban neighbourhoods normally represent the major source of supply of new materials and components. The high cost of new materials (specifically in semi–rural and rural areas) can mainly be attributed to high transportation costs and the unfavourable position of the village store or small rural town store in the distribution chain.

Second–hand materials and components are usually obtained from demolition contractors in urban areas and they can be purchased from a variety of sources including the informal sector and local small merchants in the formal sector.

Recycled or transformed materials and components are obtained mainly from the informal sector. Finally, raw or unprocessed materials, such as soil, river sand, stone, rough timber poles and reeds can be purchased from local merchants or found directly by home builders in and around the project areas.

What kind of problems are there in the procurement and use of these materials and components?

As far as possible, the housing programme should not rely only on industrial and new materials and components. Local small building industries producing materials and components classified under the intermediate and traditional categories should be assisted to improve quality and production, whenever possible.

In conclusion, what kind of materials and components would be the most appropriate for the programme and what supporting measures are needed to promote the supply and use of these materials?

- Should existing local industries be promoted?
- Should research be undertaken to upgrade some of the existing intermediate and traditional building technologies?
- Should building codes and municipal regulations be revised?
- Should training and information campaigns be arranged to support local industries?

## 8.4 Technology

The issues of labour and building materials are closely related to the building technology to be adopted. Where an innovative technology or an upgraded intermediate or traditional technology is introduced, training and information campaigns should be considered.

The adoption of 'modern' and capital-intensive industrial technologies often absorbs many scarce resources, such as skilled labour, plant and industrial building materials and components. In contrast, the use of intermediate and traditional technologies provides more job opportunities to the informal sector, promoting self-help builders and the use of simple and local building materials and components. In some cases, however, the productivity of unskilled labour may be so low as to warrant the use of capital-intensive techniques.

Experience in some developing countries teaches that the combination of industrial and intermediate or traditional technologies offers an appropriate formula for housing programmes for low-income groups.

## 8.5 Financial resources

Estimate first the amount of funds to be made available for housing by national and international agencies during the programme period. This will involve:

- deciding what budgetary allocations are possible for different implementing agencies participating in the programme;
- identifying any ongoing governmental schemes (central or regional) under which finance can be available;
- identifying provisions made in the National Development Plan;
- comparing actual allocations in recent years to planned allocations in order to arrive at realistic estimates; and
- considering whether the supply of public funds can be increased, for example through internal budget transfers.

Estimate what funds will be available for the programme from other conventional sources. This will involve:

- deciding what funds can be made available through public-sector housing finance organisations, such as National Housing Banks;
- considering how much money can be raised through the formal private sector and for what kind of schemes this can be used; and
- considering what kinds of incentives (eg government guarantees for loans) can be given at the national, provincial or local levels in order to encourage formal private-sector investment in housing for low-income families.

Estimate what can be done to mobilise people's own resources. This will involve:

- identifying obstacles hampering individual investment, such as lack of secure tenure, restrictive building codes and regulations and high rates of inflation;
- identifying community-based financial intermediaries, such as stokvels and savings and loans associations, that might be interested in providing financial resources to the housing programme; and



- identifying international aid agencies that might be interested in providing seed capital and technical assistance in institutional strengthening to community-based financial intermediaries.

Estimate the total amount of all financial resources likely to be available for the programme (public, private, people's own resources and other resources).

Explore the possibilities and opportunities for increasing the financial resources available.

Estimate the total amount of subsidies likely to be available from the public sector.

## 9. Identification of affordable options

A range of options affordable by the target income group(s) must be identified following the preliminary programme objectives and the resource assessment. The programme will not reach the intended households unless the proposed housing options are affordable.

The following questions should be considered carefully before identifying the affordable options:

- What monthly mortgage payment can the targeted groups pay?
- What affordable housing options can be proposed for the targeted groups?
- Are the housing options attainable with the resources available?
- Can the costs of the housing options be reduced when they are not affordable?
- How can the costs be reduced?

The monthly amount that an average household should be expected to set aside for the repayment of a housing mortgage loan is an issue that concerns planners, economists and decision makers. Many private and public institutions adhere to the standard figure of 20 per cent to 25 per cent. However, perhaps no more than 9 per cent to 15 per cent should be the standard for the lowest income households even though this rarely applies in conventional financing.

A large proportion of the household income of the urban poor is allocated to food, clothing, energy and transportation. Little is left over for mortgage payments for housing. Hence the need, when programming housing for the lowest income groups, for housing subsidies, appropriate planning and building standards, local materials, local artisans and small contractors, self-management house construction, self-help housing techniques, simplification of technical supervision and administrative controls, research, unconventional financing mechanisms and simple land acquisition and land registration procedures.

Very often, the target income group includes people with a range of incomes and different cultural backgrounds, ways of life and aspirations. It will therefore be necessary to include in the programme a mix of subprogrammes or projects with different costs – within certain parameters – catering for a range of affordabilities, eg squatter settlement upgrading; sites and services; wet core schemes; core housing; conventional low-income housing; inner-city rehabilitation and renovation schemes.

The calculation of the loan-carrying capacity of the average household of the target income group should be made as follows:

Firstly, an assumption has to be made about the amount of money which the average household can set aside for the repayment of a housing mortgage loan in the month ( $M$ ). This figure is also known as the monthly outlay on housing.

Secondly, calculate the annuity:  $P_o = M \times 12$

Finally, calculate the loan-carrying capacity (this figure is also known as present value) using the following formula:

$$PV = a \times P_o$$

where  $PV$  is the present value of a constant annuity paid over a selected number of years ( $n$ ) at a selected interest rate ( $i$ ). This figure is also known as the loan-carrying capacity of the average household of the target income group.

$a$  is the coefficient of an annuity for selected interest rates ( $i$ ) and selected number of years ( $n$ ) of loan amortisation. The values of this coefficient calculated for different interest rates and number of years are provided in Table A.

$P_o$  is the annuity.

The present value of a constant annuity of the average household is the major factor influencing the selection of strategies and affordable options for the programme.

The amount to be recovered from the household through mortgage loan repayments should cover elements such as land purchase, on-stand infrastructure, house construction, design and supervision fees. Cost elements related to major access roads, schools, hospitals and other community facilities are normally paid by general taxation.

The target cost figures which are the output of the above planning sequence should ideally form the ceiling below which physical planners, architects, services engineers and builders have to work. It is pointless to generalise about the standard of accommodation that can be supplied for any particular cost; this depends above all on the local price of land, physical constraints, labour rates and building materials. For a given outlay much more can be achieved in some places than in others. There are some countries where costs allow solutions to be considered for the poorest whereas elsewhere they can only be afforded by wealthier groups.

The final options selected should be designed in consultation with the intended occupants, and should respect local ways of life and traditions. In some societies families are used to sharing services, like cooking units and toilets, while in others privacy is the norm. Many families would prefer an extra bedroom to a separate kitchen. Some occupants would favour a larger site, even at the expense of a larger home, in order to grow food, keep animals or rear poultry. These customs and preferences can be identified by consulting the target income group and observing what currently goes on. Households may be offended by imported concepts and designs brought from elsewhere without modification.



*Example:* Calculation of the loan-carrying capacity (*PV*) of an average household and identification of the corresponding affordable option (see this example in target income group G2, Table B).

*Assumptions:*

- Target household income group = R501–R1000
- Monthly outlay for housing = 10 per cent average monthly gross income.
- Amortisation period (*n*) = 20 years
- Interest rate (*i*) = 9 per cent

The calculation is therefore as follows:

$$\text{Average monthly gross income: } \frac{\text{R500} + \text{R1000}}{2} = \text{R750}$$

$$\begin{aligned} M &= 10 \text{ per cent of R750} \\ &= \text{R75,00 (monthly outlay for housing)} \end{aligned}$$

$$\begin{aligned} P_o &= M \times 12 \\ &= \text{R75,00} \times 12 \\ &= \text{R900 (annuity)} \end{aligned}$$

$$\begin{aligned} PV &= a \times P_o \\ &= 9.128 \times \text{R900} \\ &= \text{R8215 (loan-carrying capacity or present value of the constant annuity over 20 years at an interest rate of 9 per cent. See coefficient } a \text{ in Table A).} \end{aligned}$$

The *PV* amount calculated for this household income group indicates that the affordable option falls in the sites and services category plus a wet core (water supply, sewerage and aerial electrical reticulation to each site) with gravel roads and surface stormwater drainage system.

Often, especially for the lowest income groups, affordability can only be achieved through subsidies or special schemes and appropriate technologies aimed at reducing costs and making housing options affordable. 'Special schemes' are those following the model of 'progressive development' (or incremental construction). The latter can be defined as a method of housing construction or upgrading obtained through: a) stage development in which the infrastructure and sometimes parts of the house are built by a contractor and the rest is completed by the family; and b) self-help, which can be organised in different ways according to local circumstances.

## 10. Matching objectives with resources

Once all affordable options have been identified (see Table B), subprogrammes corresponding to each of them should be costed.

The total programme cost is presented in a hypothetical example in Table C.

Available resources and capacity should then be identified. Some resources are easily quantifiable, eg financial, land, labour and materials; others are less so, eg institutional and community resources, though appraisal criteria exist.

The quantification of financial and land resources required for implementing the programme is presented in a hypothetical example in Table D.

Table E, Matching Objectives with Resources, compares the resources required with what is available.

In brief, Tables B, C, D and E provide a planning tool to prepare a feasible housing programme. If the programme cost exceeds available financial resources, the specifications of relevant subprogrammes should be revised and the costs recalculated until feasible and acceptable alternatives are found (see 9 above). If the programme cost does not exceed available financial resources, it should be established if the programme is justifiable in economic terms, eg creation of job opportunities and mobilisation of the building industry. In short, economic returns must be greater than economic costs.

## 11. Programme formulation

### 11.1 Preparation of programme document

After completing the identification and matching steps in the programming process (see 9 and 10 above) a detailed programme document should be prepared. The format, length, details and components will depend on the needs to be satisfied and resources available.

Four essential items should be included in the document, as follows:

- an explanation of why the programme should be implemented, eg policy goals and expected results;
- a detailed programme budget;
- an action plan which should include programme components, task breakdown and implementation target dates; and
- a description of support activities required for programme implementation, eg information campaign, training, revision of existing legislation.

### 11.2 Programme document components

A programme document should include *inter alia* the following:

#### Preliminary studies

- existing housing conditions, building technologies and community facilities in the programme area(s);
- socio-economic surveys; and
- survey of human resources (community).



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**Technical documentation**

- site layout planning;
- services planning;
- house design;
- specifications; and
- bill of quantities and costing.

**Budget****Financing**

- loan schemes;
- savings and downpayments;
- subsidies; and
- aid grants.

**Legal**

- regulations;
- deed of sale;
- loan contract; and
- building contracts.

**Selection of households, allocation of sites and dwellings.**

**Special programme components, eg information campaigns, training, technical aid centre.**

## **12. Programme implementation procedures and tasks**

### **12.1 Implementation procedures**

The implementation of a comprehensive housing programme brings together public corporate agencies, semi-private and private agencies and CBOs. In this case, coordination of activities is vital and an interagency coordinating committee, with the necessary political and community support, may be needed.

If the programme is sectoral and mainly construction oriented, most of the implementing responsibilities may be given to a single implementation agency.

Usually the agency which guided the programme planning process will continue as implementor and coordinator.

When CBOs are well organised and trained, they can play an important role in implementing projects. In some cases, the civic associations may be organised as non-profit building companies with the responsibility for planning and implementing projects. These companies are closed organisations which build, upgrade or rehabilitate houses for company members only.

In other cases, the civic associations may, from the early planning stages of the projects, be responsible for contracting private consultants. These consultants would prepare preliminary studies and the technical documentation for implementation, eg site planning, services planning and house design.

If the latter conditions do not apply, participating households should at least be actively involved in giving information and feedback to representatives of the implementing agency or agencies.

## **12.2 Implementation tasks**

The number and scope of implementation tasks can vary according to the objectives, type and comprehensiveness of the programme and role of civic associations involved in them. No attempt is therefore made here to present a comprehensive list of tasks for programme implementation; rather, the list below is a guideline only and should be adapted to specific circumstances.

### **Selection of households, allocation of sites and loans**

- application forms;
- criteria for the selection of households;
- study of applications;
- selection of programme participants; and
- allocation of sites and loans.

### **Construction of technical aid centre**

- building materials store;
- site office;
- workshop and shed(s); and
- temporary installations of water, sanitation and electricity.

### **Land surveying**

#### **Construction of services**

- water, sanitation, electricity, roads, stormwater drainage.

#### **Construction, upgrading, rehabilitation or renovation of housing units**

### **Programme administration and technical supervision**

- control of personnel (technical, social and administrative personnel, labourers, local building contractors);
- technical supervision when the construction of housing superstructures is carried out by contractors eg wet cores, core houses;
- purchase, reception, storage and delivery of building materials and components;
- production, storage and distribution of building components on site; and
- organisation and control of transportation facilities.

### **Orientation and technical aid to participating households**

- orientation programme and technical aid to households involved in self-help construction during the 'consolidation' process of projects;
- guidance to individual households on financial responsibilities; and
- guidance on the use and maintenance of existing and new community facilities provided in the programme.

### **Orientation and technical aid to informal building industry and local entrepreneurs**

- advisory services to small local building materials industries and to local entrepreneurs in order to stimulate income-earning opportunities.

### **Loan schemes**

- building materials loans for project participants to facilitate extensions and/or improvements to existing housing structures;
- small loans to local materials and components industries to purchase tools and equipment to improve existing installations and production; and
- small loans to local businesses or to local entrepreneurs to stimulate income-earning opportunities.

### **Reception of payments**

- for sale of sites and services, basic housing units, eg wet cores, core houses; and
- for sale of basic building materials for extension to or rehabilitation of existing housing units.

## **13. Programme monitoring and evaluation**

In broad terms, monitoring and evaluation are the systematic and objective assessment of the merit or worth of the programme and basically consist of the collection, recording and analysis of data about the programme components. This requires the direct involvement of programme participants and the agencies responsible for planning, implementation, coordination and financing.

Programme evaluation should be undertaken during implementation, ie ongoing evaluation, and after completion of activities, ie final evaluation. The aspects to be addressed are technical, administrative, social, economic, legal and financial.



According to Salmen (1987: 112–113) 'worth is a matter of judgement and measurement, quality and quantity. Recent evaluation literature has recognised the advisability of combining qualitative and quantitative methods in evaluation research and of seeing each as complementary rather than antagonistic to the other'.

A reasonable blend of qualitative and quantitative information should be obtained during the evaluation process.

The methods of direct observation and informal face-to-face interviewing should be complementary to the more conventional method of formal interviews using rigid questionnaires. Observation and personal interviewing are tools that allow a better understanding of the real situation and enable the formulation of reliable qualitative judgements.

Priority consideration should be given to the following aspects in the evaluation of housing programmes:

- objectives, size and scope of programme;
- financing;
- socio-economic factors;
- physical planning, technical studies and costing data;
- environmental factors;
- organisational and administrative factors; and
- summary appraisal of the results.

## **14. Programme revision**

By monitoring and evaluating the programme, interim and final conclusions can be reached that can be translated into practical recommendations to improve outcomes. The monitoring and evaluation exercise will reveal how well the programme goals and objectives have been met and whether similar programmes are viable.

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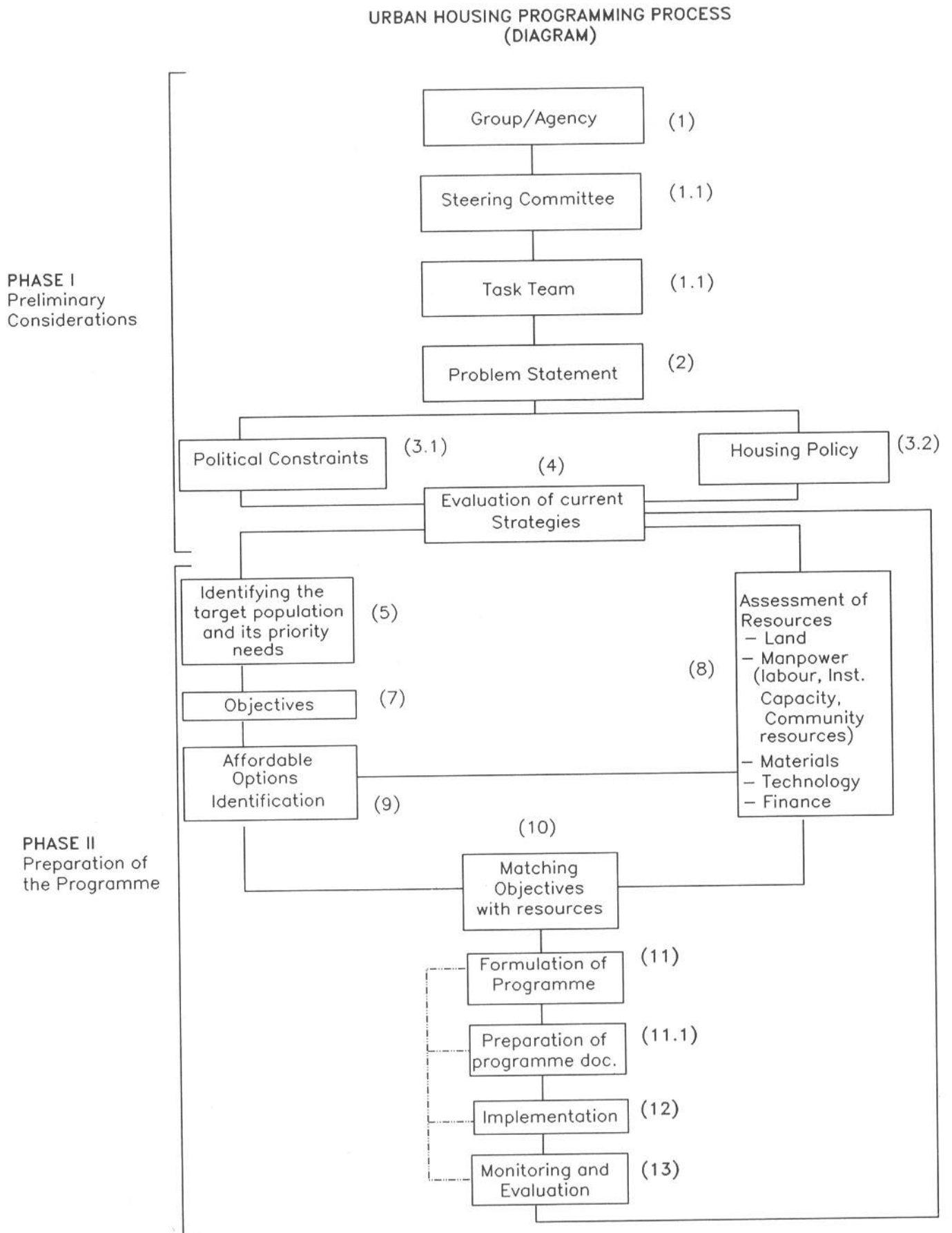
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**Diagram: Urban housing programming process**



NOTE: The numbers between brackets in the diagram refer to the paragraph numbers in the text of the guidelines



**Table A: Present value coefficients of an annuity for selected interest rates and amortisation periods**

TABLE A: Present value coefficients (a) of an annuity for selected interest rates (i) and amortization periods (n)

Amortization periods (n) years	Interest rates (i)%																			
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20				
5	4.329	4.212	4.100	3.993	3.890	3.791	3.695	3.606	3.517	3.433	3.352	3.274	3.199	3.127	3.057	2.990				
6	5.075	4.917	4.766	4.622	4.485	4.355	4.230	4.111	3.997	3.888	3.784	3.684	3.589	3.497	3.409	3.325				
7	5.786	5.582	5.389	5.206	5.032	4.868	4.712	4.563	4.422	4.288	4.160	4.038	3.922	3.811	3.707	3.604				
8	6.463	6.209	5.971	5.746	5.534	5.334	5.146	4.967	4.798	4.638	4.487	4.343	4.207	4.077	3.954	3.837				
9	7.107	6.801	6.515	6.246	5.995	5.759	5.537	5.328	5.131	4.946	4.771	4.606	4.450	4.303	4.163	4.030				
10	7.721	7.360	7.023	6.710	6.417	6.144	5.889	5.650	5.426	5.216	5.018	4.836	4.668	4.514	4.368	4.192				
11	8.306	7.886	7.498	7.138	6.805	6.495	6.206	5.937	5.686	5.452	5.233	5.028	4.836	4.656	4.486	4.327				
12	8.863	8.383	7.942	7.536	7.160	6.813	6.492	6.194	5.917	5.660	5.420	5.197	4.988	4.793	4.610	4.439				
13	9.393	8.852	8.357	7.903	7.486	7.103	6.749	6.423	6.121	5.842	5.583	5.342	5.118	4.909	4.714	4.532				
14	9.898	9.294	8.745	8.244	7.786	7.366	6.981	6.628	6.302	6.002	5.724	5.467	5.229	5.006	4.802	4.610				
15	10.379	9.712	9.107	8.559	8.060	7.606	7.190	6.810	6.462	6.142	5.847	5.575	5.324	5.091	4.875	4.675				
16	10.837	10.105	9.446	8.851	8.312	7.823	7.379	6.973	6.603	6.265	5.954	5.668	5.405	5.162	4.937	4.729				
17	11.274	10.477	9.763	9.121	8.543	8.021	7.548	7.119	6.729	6.372	6.047	5.748	5.474	5.222	4.989	4.774				
18	11.689	10.827	10.059	9.371	8.755	8.201	7.701	7.249	6.839	6.467	6.127	5.817	5.533	5.273	5.033	4.812				
19	12.085	11.158	10.335	9.603	8.950	8.364	7.839	7.365	6.937	6.550	6.198	5.877	5.584	5.316	5.070	4.843				
20	12.462	11.469	10.594	9.818	9.128	8.513	7.963	7.469	7.024	6.623	6.259	5.928	5.627	5.352	5.100	4.869				

**Notes:**

1. Data of this table was extracted from tables prepared by the Economic Development Institute of the World Bank (See Prince Gittinger, J. 1974: 'Tablas de Interes Compuesto y Descuento'. Ed Tecnos, Madrid).
2. The present value coefficients (a) are calculated according to the following formula:

$$a = \frac{(1+i)^n - 1}{i(1+i)^n} \quad \text{where: } a \text{ is present value coefficient; } i \text{ is interest rate (\%); and } n \text{ is amortization period (years)}$$

Table B: Working table for affordable options (hypothetical example)

TABLE B: Working Table for identification of affordable options (hypothetical example).

1. Target Income Group	2. Gross Household Income		3. Outlay for Housing		4. Loan carrying capacity (Pv)				5. Affordable shelter		6. Affordable options	7. Comments	
	2.1 Monthly Income (R)	2.2 Monthly Income Average (R)	3.1 Monthly Outlay (M)	3.2 Annuity $P_o = M \times 12$ (R)	4.1 Amortization Period (n) Years	4.2 Interest Rate (i) (%)	4.3 Present value Coefficient (a)	4.4 Present Value $P_v = a \times P_o$ (R)	5.1 Down- DP (R)	5.2 Total Value $P_v + DP$ (R)			
													(%)
G1	0-500	250	9	23	270	20	7	10.594	2900	(0% Pv)	2900	a) Can afford basic services (upgrading of squatter settlement), or b) Can afford rehabilitation of services and upgrading of structures (slum areas). Can afford 'sites and services' plus a 'wet core'.	a) Water stand pipes with VIP or aqua-privy in each site. Dirt roads, gravel access roads. Subsidy necessary for the lowest income households. Technical assistance is provided during the 'consolidation' period. b) Rehabilitation of 'on stand' services eg. water, sanitation, electricity, and improvements in lighting and ventilation.
G2	501-1000	750	10	75	900	20	9	9.128	8000	(5% Pv)	8400	Can afford 'sites and services' plus a 'wet core'. Can afford 'sites and services' plus 'core house'.	Water supply, sewerage and aerial electric reticulation to each site; gravel roads and surface storm water drainage. Technical assistance is provided during the 'consolidation' period.
G3	1001-1500	1250	12	150	1800	20	12	7.469	13500	(5% Pv)	14175	Can afford 'sites and services' plus 'core house'.	Services standards similar to G2. If 'self-help' contribution is made by household, a bigger 'core house' could be provided. Technical assistance is provided during the 'consolidation' period.
G4	1501-2000	1750	15	260	3120	20	15	6.259	19500	(8% Pv)	21060	a) Can afford 'sites and services', 'core house' plus a small materials loan, or b) Can afford renovation of dwellings (slum areas).	a) Services standards similar to G2 and G3. If 'self-help' contribution is made by household, a bigger 'core house' could be provided. Technical assistance is provided during the 'consolidation' period. b) Demolition of dilapidated dwellings and rebuilding.

NOTES: 1. Table B is a hypothetical example of how to calculate the loan carrying capacity of target income groups and how to select the affordable options.  
 2. This table has been completed from left to right.  
 3. The present value coefficients (a) are in Table A.  
 4. The present value has been rounded off to the nearest hundred.

KEY: M = Monthly outlay for housing  
 Po = Annuity  
 n = Amortization period  
 i = Interest rate  
 a = Present value coefficient  
 Pv = Present value (Loan carrying capacity)  
 DP = Household's downpayment



Table C: Programme cost estimate (hypothetical example)

1. Target Income Group	2. Affordable option (sub-programme)	3. Number of 'housing solutions' in the sub-programme (Units)	4. Total value per unit: PV + DP (see table B - 5.2) (R)	5. Total cost estimate per sub-programme ('000) (R)	6. Comments
G1	a) Upgrading of squatter settlements	10 000	2 900	29 000	* Upgrading of services (water supply, sewers, stormwater drainage, pedestrian paths, access roads) by contractors and 'self-help'.
	b) Rehabilitation and upgrading of slum area	300	2 900	870	* Demonstration project in a major urban centre involving 300 units. * Rehabilitation of services (water supply, sewers and electricity) and upgrading of units by contractors and 'self-help'.
G2	'Sites and services' plus 'wet core'	20 000	8 400	168 000	* Construction of services and 'wet cores' by contractors. * Extensions by 'self-help'.
G3	'Sites and services' plus 'core house'	15 000	14 175	212 625	* Construction of services and 'core houses' by contractors. * Extensions by 'self-help'.
G4	a) 'Sites and services', 'core house' plus small materials loan.	5 000	21 060	105 300	* Construction of services and 'core houses' by contractors. * Extensions by 'self-help'.
	b) Renovation of slum area.	100	21 060	3 006	* Demonstration project in a major urban centre involving 100 units. * Demolition of dilapidated dwellings and rebuilding by contractors. * Upgrading of open spaces, parking areas and access roads.
<b>PROGRAMME COST ESTIMATE</b>				518801	A total of R518,801,000 will be required to provide 50,4000 'housing solutions' in six sub-programmes. Average cost estimate per 'housing solution' = R10293.

## NOTES:

1. Table C is a hypothetical example of how to calculate the programme cost estimate.

2. It is assumed that the programme is sub-divided in six sub-programmes according to target income groups and affordable options selected (see Table B).



Table D: Financial and land resources required (hypothetical example)

TABLE D: Financial and land resources required (hypothetical example).

1. Target Income Group	2. Affordable option (sub-programme)	3. Total cost Estimate per Sub-programme ('000) (R)	4. Financial resources required (Estimates)					5. Land Resources Required (Ha)	6. Comments
			4.1 Public Sector Funds ('000) (R)	4.2 Households' Downpayment per unit DP = %Pv (See Table B. 5.1) (R)	4.3 Total Households' Downpayment per sub-programme ('000) (R)	4.4 Private Sector Funds ('000) (R)	4.5 International Funds ('000) (R)		
G1	a) Upgrading of squatter settlements.	29 000	29 000	-	-	-	-	-	* Financing provided by public sector
	b) Rehabilitation and upgrading of slum area.	870	-	-	-	870	-	-	* Grant-in-aid provided by an international development agency.
G2	'Sites and services' plus 'wet core'.	168 000	160 000	400 (5% Pv)	8 000	-	500	500	* Mixed financing (public sector and households). * Gross density = 40 units per Ha.
G3	'Sites and services' plus 'core house'.	212 625	202 500	675 (5% Pv)	10 125	-	-	375	* Mixed financing (public sector and households). * Gross density = 40 units per Ha.
G4	a) 'Sites and services', 'core house' plus small materials loan.	105 300	47 500	1 560 (8% Pv)	7 800	50 000	140	140	* Mixed financing (public sector and private sector plus households and a grant-in-aid provided by an international development agency). * Gross density = 35 units per Ha.
	b) Renovation of slum area.	3 006	-	1 560 (8% Pv)	156	1 400	-	-	* Mixed financing (public sector and private sector plus households and a grant-in-aid provided by an international development agency). The bulk of finance (84.5%) is from the public sector followed by the private sector (10%), households (5%) and international agency (0.5%).
Resources Required		518 801	439 000	X	26 081	51 400	2 320	1 015	

## NOTES:

1. Table D is a hypothetical example of how to quantify the financial and land resources required to implement the programme.
2. Resources such as labour (skilled and semi-skilled) and materials (traditional, intermediate and industrial), they can be quantified in each sub-programme reflecting actual circumstances.

**Table E: Matching objectives with resources. Summary and conclusions (hypothetical example)**

TABLE E: Matching objectives with resources. Summary and conclusions ( hypothetical example).

1. Resources	2. Financial (Estimates)					3. Land  (Ha)	4.  Comments
	2.1 Programme cost ( '000) (R)	2.2 Public sector Funds ( '000) (R)	2.3 Household's downpayments ( '000) (R)	2.4 Private sector Funds ( '000) (R)	2.5 International funds ( '000) (R)		
Required	518 801	439 000	26 081	51 400	2 320	1 015	* The resources required are based on the calculations made in Tables B, D and D.
Available	518 801	439 000	26 081	51 400	2 320	165	* All financial resources required are available from the public sector and the private sector (building societies and banks), and international funding (grants-in-aid).  * Public land is in short supply. More than 80% of land required will have to be acquired from the private sector. Estimate costs of land purchase have already been taken into account when costing relevant sub-programme.  * Downpayments are required in some of the sub-programmes (see Table D).

**Notes:**

1. Table E is a hypothetical example of how to compare resources required to achieve the objectives of the programme, with the available resources.
2. The table shows that all required financial resources are available for implementing the programme. However, land presents a problem.
3. In case that other quantifiable (labour, materials) and unquantifiable (institutional and community) resources are available, it could therefore be concluded that the programme is feasible with the given resources (on condition that suitable private land is found at reasonable prices).
4. If the programme cost exceeds available resources, the specifications of relevant sub-programmes should be revised and the costs recalculated until a suitable and practical alternative is found.

