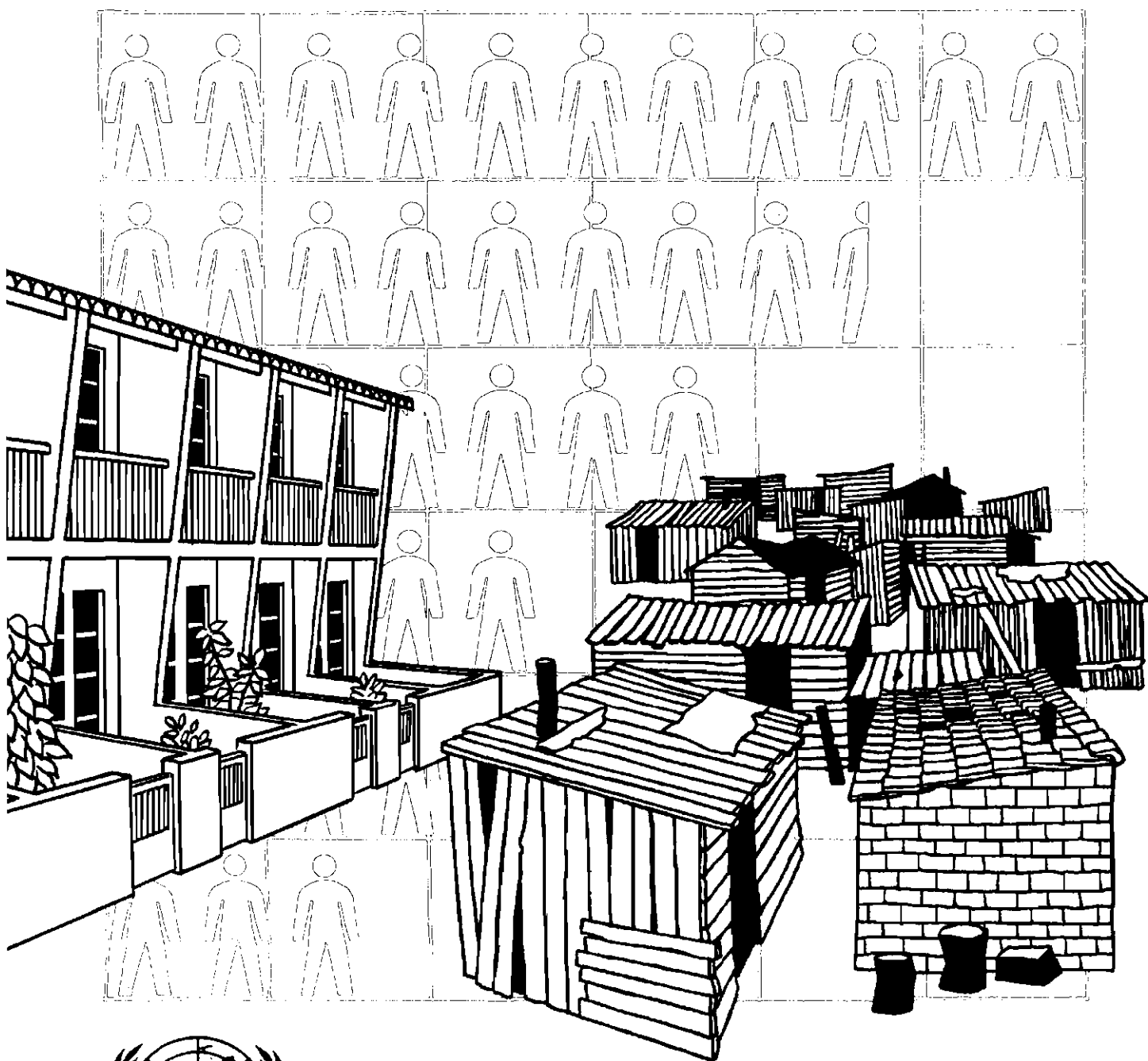


# Report of the Latin American Seminar on Housing Statistics and Programmes

Copenhagen, Denmark, 2-25 September 1962



**UNITED NATIONS**



REPORT OF  
THE  
LATIN AMERICAN SEMINAR  
ON  
HOUSING STATISTICS  
AND  
PROGRAMMES

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## INTRODUCTION

This report is divided into seven parts and six annexes. Part I contains a description of the organization and work of the Seminar. Part II gives a short description of estimated housing needs in Africa, Asia and Latin America and a general evaluation of housing conditions, programmes and statistics in Latin America and in Europe. Parts III, IV and V contain the substantive methodological features of the Seminar discussions. Part III deals with the principal aspects to be taken into account in the formulation of national housing programmes, Part IV with basic considerations related to the implementation of such programmes, and Part V with the statistics required to prepare and implement them. Administrative arrangements for collecting these statistics are discussed in Part VI, while Part VII contains the general conclusions reached at the Seminar, which have been presented separately, as the participants recommended, in view of their bearing on general aspects of housing policy and statistics. The annexes, which provide detailed information on the activities of the Seminar, are as follows:

- Annex A List of participants, observers and staff
  - Annex B Agenda
  - Annex C List of documents
  - Annex D Outline of the reports prepared by the participants concerning housing programmes and statistics in their countries
  - Annex E Activities of the Housing, Building and Planning Committee of the United Nations Economic Commission for Europe
  - Annex F New dwellings required per 1,000 inhabitants in accordance with given values of the variables indicated
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# I. ORGANIZATION AND WORK OF THE SEMINAR

## 1. Date, site and sponsorship

1. The Latin American Seminar on Housing Statistics and Programmes was convened in accordance with the United Nations *Long-range Programme of Concerted International Action in the Field of Housing and Related Community Facilities*,<sup>1</sup> and was held from 2 to 22 September 1962 at "Rolighed", an estate situated near Copenhagen, and from 23 to 25 September at Stockholm, Sweden. The Seminar was sponsored by the United Nations and the Government of Denmark. It was organized as part of the United Nations Expanded Programme of Technical Assistance and was made possible by a special contribution from the Danish Government.

2. Within the United Nations the Statistical Office, the Housing, Building and Planning Branch, the Bureau of Technical Assistance Operations, the Economic Commission for Europe and the Economic Commission for Latin America collaborated in organizing the Seminar. The Department of Social Affairs of the Pan American Union, the Inter-American Statistical Institute, the Inter-American Housing and Planning Centre, and the Latin American Demographic Centre also co-operated.

3. The Danish authorities undertook the direction of all Seminar activities conducted in their country. Danish experts participated in all the topics of the programme and Danish experience served to demonstrate how the various problems were being solved in actual practice in Denmark. Responsibility for the preparation of the documentation for the various topics was shared by the Danish Government and the sponsoring and collaborating bodies, all of which contributed the services of lecturers and discussion leaders.<sup>2</sup> The Economic Commission for Latin America assumed central responsibility for organizing the Seminar, for co-ordinating the preparation of documents, for the translation and publication of all documentation, and for the preparation of the report of the Seminar.

## 2. Background and objectives of the Seminar

4. The Seminar was the second of a series of meetings on housing statistics and programmes being organized for

<sup>1</sup> United Nations, *Social Commission. Report of the Twelfth Session (27 April-15 May 1959), Economic and Social Council, Official Records, twenty-eighth session, Supplement No. 11 (E/3265/Rev. 1 - E/CN.5/343/Rev. 1), Annex III, Resolution A.*

United Nations, *General Review of the Development and Co-ordination of the Economic, Social and Human Rights Programmes and Activities of the United Nations and the Specialized Agencies as a Whole. Concerted International Action in the Field of Housing and Related Community Facilities* (E/3382, New York, 1960).

United Nations, *Report of the Economic and Social Council, 1 August 1959-5 August 1960, General Assembly, Official Records, Fifteenth Session, Supplement No. 3 (A/4415), Chapter V, Section I, paras. 472-474.*

<sup>2</sup> For a complete list of the secretariat staff, see annex A.

the benefit of participants from housing agencies and statistical offices in the under-developed countries in various regions throughout the world. The first was held at Zagreb, Yugoslavia, in October 1961. The second of the series was designed to serve the needs of Latin America, where rapid industrialization, coupled with rapidly growing populations and large-scale population movements from rural to urban areas, has created a most serious problem in respect of the housing situation. In addition to the well-known fact that housing conditions in Latin America were extremely deficient for large sectors of the population, it became apparent during the decade 1950-1960 that housing conditions were deteriorating in several countries of the region. This trend was partially confirmed by the preliminary results of the 1960 censuses taken in several countries; and it calls for urgent policy decisions which should be based on improved statistical data and reliable methods for estimating housing needs and available resources. The Seminar was designed to provide an opportunity for examining such methods and the prospects of obtaining the statistics required for a sound evaluation of measures that might be undertaken in order to alleviate the critical housing situation.

5. The Seminar was convened at an opportune time, because the Governments of the Americas had recently entered into an agreement for the purpose of accelerating economic and social development and, as a result, they were receiving assistance for carrying out large-scale housing projects. In order to assess the significance of such projects in relation to general economic and social development, and to ensure the most effective utilization of external assistance, national housing programmes are called for. A major objective of the Seminar was, therefore, to examine the methodological principles to be followed in preparing national housing programmes and to discuss ways and means of obtaining the statistics required for the purpose.

## 3. Participation

6. Thirty-one participants from sixteen countries attended the Seminar. Since one of the purposes of the Seminar was to provide an opportunity for an exchange of views between persons engaged in the compilation and analysis of housing statistics and those engaged in the formulation and execution of housing programmes, the Governments were invited to propose participants from central statistical services, housing agencies and planning offices. Among the thirty-one participants, nine were directors-general of statistics; six were high-level officials responsible for demographic or housing statistics in national statistical services; five were presidents, managers or directors of national housing agencies or institutions; and eleven had important responsibilities for housing programmes in housing agencies and economic planning organizations.<sup>3</sup> The countries represented were Argentina,

<sup>3</sup> For a complete list of participants, see annex A.

Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Haiti, Honduras, Mexico, Panama, Peru, Surinam, Venezuela and Uruguay.

7. The Seminar was also attended by observers from the World Health Organization's European Office, the Government of the Netherlands, and the Washington Savings and Loan Association of Miami Beach, Florida, USA.

#### 4. Inaugural meeting

8. At the official opening which took place on 3 September 1962, statements were made by the Minister of Housing of Denmark; Mr. Carl P. Jensen, Danish Minister for Housing; Professor Nyboe Andersen, Head of the Danish Council for Technical Co-operation with Developing Countries; Mr. Einer Engberg, Chief of Section, Ministry of Housing, Denmark (Director of the Seminar); Mr. Octavio Cabello, Acting Regional Statistician, United Nations, Economic Commission for Latin America (Co-Director of the Seminar) on behalf of the Secretary-General of the United Nations, and Mr. Frederik Raes, Housing, Steel and Engineering Division, United Nations Economic Commission for Europe. A message from Mr. Philippe de Seynes, Under-Secretary for Economic and Social Affairs of the United Nations, was circulated on that occasion.

#### 5. Programme of the Seminar

9. The programme of the Seminar included the following topics:

- (a) Basic information for the discussion relating to the formulation of housing programmes and statistics required:
  - (i) The housing situation and trends in Latin America; a general assessment of the statistical data available, and estimates of housing needs;
  - (ii) Scope, purposes and characteristics of national housing programmes, and the organization of housing bodies in the Latin American countries;
  - (iii) Availability of basic statistics required for housing programmes and the organizational arrangements for their collection;
  - (iv) Role of regional organizations in respect of housing in Latin America.
- (b) Principal aspects in the formulation of housing programmes, namely:
  - (i) Planning for housing within the framework of over-all planning for economic and social development;
  - (ii) Regionalization of over-all housing programmes. Planning at the local level and the project level;
  - (iii) Adoption of statistical indicators of housing for the Latin American countries;
  - (iv) Methods of estimating existing housing deficits and future housing needs in Latin America;
  - (v) Evaluation of present and future resources required for dwelling construction;
  - (vi) Administrative and institutional arrangements for the formulation of housing programmes.
- (c) Statistics are required in connexion with the formulation and implementation of housing programmes, and ways and means of compiling such statistics. The

following topics were examined in this connexion:

- (i) Housing censuses;
- (ii) Sample housing surveys;
- (iii) Current statistics;
- (iv) Permanent housing records;
- (v) Demographic statistics and projections required for housing programmes;
- (vi) Statistics required for estimates of the investment in dwellings, household income and costs of construction;
- (vii) Administrative and institutional arrangements required for collecting statistical data for housing programmes.

#### 6. Development of the programme in Denmark

10. Responsibility for organizing the meetings concerned with each of the twenty major subjects of the programme was entrusted to one member of the staff, who acted as organizer and principal lecturer. In addition a chairman and a rapporteur were selected for each session from among the participants. The chairmen assumed responsibility for directing the discussions, and the rapporteurs, in consultation with the organizers, for preparing the draft reports concerning their respective sessions.

11. The Co-Director of the Seminar prepared guidelines for discussion, indicating the main topics to be considered and the documents which were relevant in connexion with each major subject. These guidelines were used in preparatory meetings attended by the organizer, chairman, rapporteur and the staff who were to participate more actively in each session. A list of the main subjects with the dates when they were discussed and the names of chairmen, rapporteurs and organizers is given in annex B.

12. Draft reports on each meeting were prepared during the course of the Seminar and submitted for the consideration of participants and secretariat at the last two meetings at Rolighed on 21 September. The Director and Co-Director of the Seminar were requested to revise the draft reports, taking into account the comments made at these meetings as well as the observations made by sponsoring agencies. The present report has been prepared accordingly. It incorporates parts of the working papers prepared for the Seminar where this material was supported by the conclusions arrived at during the discussions.

13. The Government of Denmark made arrangements for field visits to *Carlsro*, Tårnvej, Rødovre; *Milestedet*, Roskildevej; *Ballerup*, Måløv, and *Bellmansgade* at Edvard Griegsgade, Copenhagen. Arrangements were also made for the participants and secretariat to visit two factories in the neighbourhood of Copenhagen which manufacture prefabricated housing elements and the building sites where such elements were being used. The participants took advantage of the opportunity to observe, in actual practice, this modern building method which cannot easily be studied in Latin American countries, and to discuss the requirements for the successful implementation of prefabrication and the dependence of this type of industry upon the existence of clearly established government policies and programmes with respect to housing.

14. It is important to mention the warm hospitality offered by the Danish Government to the participants and secretariat staff; this gave an opportunity for an informal ex-

change of ideas and for professional contacts with government officials and with local authorities in Denmark. It was particularly interesting for Latin American participants and secretariat staff to receive first-hand information on the functions and organization of the City Council of Copenhagen, the City Council of Rødovre, and the Carlsro Housing Cooperatives at Copenhagen.

#### **7. Development of the programme in Sweden**

15. On 23 September the participants and secretariat travelled to Stockholm, in order to participate in a series of visits and lectures arranged by the Swedish Agency for International Assistance (NIB) in collaboration with the Swedish National Housing Board. At Stockholm, the group toured housing and community centres in the city and suburbs; this was combined with a series of lectures on housing policy and programmes in Sweden and the organization and development of urban planning at Stockholm. It was interesting

for the participants to realize the differences in methodological approaches to housing policy and city planning in the two Scandinavian countries visited. The Seminar ended on 25 September at a meeting held in the Department of Planning and Building Control of the City of Stockholm.

#### **8. Documentation**

16. The working papers prepared by the participating agencies and outside experts are listed in annex C to this report. Prior to the Seminar, the participants were requested to prepare a report concerning housing programmes and statistics in their respective countries, on the basis of a standard outline. The outline is reproduced in annex D to the report. Country reports were submitted for the following countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Haiti, Honduras, Mexico, Nicaragua, Panama, Peru and Venezuela.

## II. WORLD HOUSING CONDITIONS AND INTERNATIONAL ACTION IN RESPECT OF HOUSING

### 1. Housing requirements in underdeveloped areas and international action

#### (a) Demographic aspects of the housing problem

17. Housing is one of the consumer goods which satisfies a basic physical need of every human being. It provides protection against the elements and affords privacy for family life. Housing is also one of the most durable investment goods, and the way people are housed can be considered as a measure of the level of economic development and of the level of living. Today, poor housing conditions are most prevalent in countries with a low level of economic development; however, even in highly developed countries there are low income groups which cannot afford the kind of dwellings needed for the preservation of health and human dignity. Housing programmes are therefore a matter of concern for the Governments of countries at all stages of development.

18. Population growth, especially the rapid growth of the urban population, gives rise to serious social and economic problems, particularly in underdeveloped countries. According to the United Nations *Demographic Yearbook 1961*<sup>4</sup> the average annual rate of increase of the total world population was 1.8 per cent in the decade 1950-60. The regions of the world with the highest rates were Asia (1.9 per cent); Africa (2.2 per cent); Caribbean (1.8 per cent); South America (2.3 per cent); and Central America (2.7 per cent). The forecasts of the annual rate of increase for the next ten years are even higher.<sup>5</sup> For the total population the forecast is 1.8 per cent; for Asia, 2.0 per cent; Africa, 2.2 per cent; Caribbean, 2.9 per cent; South America, 2.9 per cent; and Central America 3.0 per cent. Although since 1800 the population of the world has increased 2½ times, the population resident in cities of 5,000 or more persons multiplied about thirty times and the population resident in cities of 100,000 or more increased about twenty-fold.<sup>6</sup>

19. The rapid and generally haphazard growth of urban areas has led to overcrowding in housing, an increase of slums and the appearance of shanty towns, which are the results of the mushroom growth of the population in cities and towns on the one hand and insufficient housing construction for low-income groups on the other.

20. To cope with housing needs it is necessary to know

the size of the population and its structure and to have the movement of the population under constant observation. While projections of the total population can be quite easily prepared, it is very difficult to make estimates for the urban population, since not only simple demographic factors are involved, but also social and economic ones. Projections are generally based on the assumption that in the movement of the population from rural to urban areas the existing trend will continue in the future, and that the structure of the population will be similar. The number of dwellings required will be equal to the number of households, assuming that every household should have a separate dwelling.

21. In the absence of a known correlation between household or family formation and population increase in most countries of Africa, Asia, Latin America and other regions, the estimates of housing needs arising from population increase are based on the assumption that the average size of households in the future will be the same as that of existing households. In actual fact, however, the size of households is likely to decline during a period of social and economic development; for this and other reasons, estimates made according to this hypothesis are bound to be on the low side.

22. The demand for housing arises not only from the natural increase of population, but also from migratory movement. Thus, housing requirements in urban areas are increasing not only because of the natural increase (i. e. the difference between births and deaths), but also because persons and families from rural areas move into urban areas in large numbers. This dual source of increase of the urban population has profound effects on housing needs in urban areas; therefore the housing needs of urban and rural areas must be examined separately. Moreover, changes in the demographic structure, as well as changes in the social and economic patterns will affect housing requirements irrespective of the levels of the rates of natural population growth.

23. Future housing needs which should be catered for by construction arise from the increase in the number of households as a result of population growth and other demographic and social factors and the need to replace dwellings that are destroyed, fall into disuse, or become so old or dilapidated that they cannot continue to provide suitable accommodation. In addition to these perennial requirements, some provision must be made to absorb accumulated housing shortages that always exist and, if it seems feasible, to raise the standard of housing to a more satisfactory level.

24. The bulk of the information required for estimating housing needs should be obtained from population and housing censuses or from housing surveys, or ideally from census data supplemented by information obtained through housing surveys. Unfortunately, in most underdeveloped countries data on housing are insufficient.

<sup>4</sup> *United Nations Demographic Yearbook 1961* (United Nations Publication, Sales No. 62.XIII.1).

<sup>5</sup> United Nations, *The Future Growth of World Population*, Population Studies No. 28 (United Nations Publication, Sales No. 58.XIII.2).

<sup>6</sup> *Urbanization in Asia and the Far East*, Proceedings of the Joint UN/UNESCO Seminar, Bangkok, 8-18 August 1956, p. 3.

(b) *Housing requirements in underdeveloped areas*

25. On the basis of the assumptions outlined above, an analysis was made of housing conditions and estimated housing requirements in the main regions of the world during the fifteen years ending 1975. These estimates serve to quantify the world housing programmes required over the next fifteen years or so and are intended as an aid to social and economic policy at the national, regional and international levels. The estimates distinguish three constituents of housing need: (a) population increase; (b) replacement needs; (c) removal of existing shortages.

26. It has been estimated that by 1965 a total annual output of nearly 24 million dwellings would be required in Africa, Asia and Latin America on the assumption of elimination of the existing shortage in 30 years, and of replacement of the existing stock in urban areas in 30 years and in rural areas in 20 years. With a replacement period of 50 years and 100 years the annual requirements in new dwellings by 1965 would be 20 million and 17 million respectively, or – allowing for reconditioning needs with the longer replacement periods – 21.7 million and 19.3 million respectively. An over-all annual rate of construction of 8 to 10 dwellings per 1,000 inhabitants is therefore required in these continents depending on the rate at which existing dwellings are replaced. This may be compared with the housing outputs currently being attained in more advanced regions of the world such as Europe and North America. An annual rate of 8 or more dwellings per 1,000 inhabitants is currently being attained only in Sweden (9.1), Switzerland (9.3), the Federal Republic of Germany (10.5), and the USSR (12.4). In the United States, France, Finland, the Netherlands and Norway the current rate is from 7.0 to 7.5 dwellings per 1,000 inhabitants. The other countries of Europe currently provide annually from 4.0 to 6.5 dwellings per 1,000 inhabitants.<sup>7</sup>

27. The comparison between the annual housing output required in the less developed areas of the world and that currently being attained in the more advanced and industrialized areas emphasizes the enormous social and economic implications of reaching the house construction targets required in the former. In particular, these implications are such as to require urgent attention in the less developed areas to measures which will ensure adequate resources for housing and urban development and give them a greater role than heretofore in social and economic development.

28. From the analysis of the world housing situation and future housing requirements it would appear that annual housing construction in Africa, Asia and Latin America should not be lower than ten dwellings per 1,000 inhabitants in the period 1960-75. Otherwise, the situation seems likely to deteriorate. Unfortunately, actual construction in those continents is only a fraction of that figure. National economies cannot afford to spend on housing more than 3 to 6 per cent of the gross national product. This is the case in the more developed European countries as well as in the United States and the Soviet Union.

29. Lower building costs must be achieved which would help to bring better housing in the developing countries within the economic reach of low-income families and within the capacity of the economies of those countries. This could

be done by undertaking research in building construction and the production of building materials, by developing building materials derived from local natural resources, by better organization of building construction, by training people in construction work, by organizing mutual help teams for construction purposes, by organizing housing and building co-operatives, and so forth. With this in mind, the Group of Experts established under Economic and Social Council resolution 830 (XXXII), which held its meeting at United Nations Headquarters from 7 to 21 February 1962,<sup>8</sup> made the following recommendation, *inter alia*, to the Social Commission:

- “(a) Governments should ensure that economic growth is accompanied by the necessary investment in housing and urban development as a means of achieving balanced economic and social progress.
- (b) Investment in housing and urban development should be accorded a high priority and a defined role in the general development pattern.
- (c) Governments should consider utilizing the potential for raising levels of construction generally and house-building and urban development particularly.
- (d) Governments should consider direct and indirect measures to provide and encourage required investment in building materials production, to modernize the building materials industry and to expand the construction labour forces so as to cope with forecast demand and plans.
- (e) Governments should take all possible measures to aid, improve and expand the production, supply and use of building materials, components and equipment and to increase the output and productivity of the building industry.
- (f) Governments should ensure that adequate, long-range national programmes for mobilizing and training labour for the building, building materials and building equipment industries are prepared and carried out, and that they provide for both a permanent specialized building force, necessary apprenticeship, and where applicable the temporary use of such under-employed labour as is or may become available during the process of development. These programmes should be considered in the light of forecasts of social, economic and locational demand factors and development programmes and should provide the incentive and conditions for people to expand their output and improve their operating efficiency through technological and other changes.
- (g) In developing countries public authorities should establish an efficient agency to give special attention to self-help and “core” housing and to facilitate the use of factory-produced components as well as the manufacture on site of prefabricated elements using local materials.
- (h) A design competition to aid in solving the problems relating to roofs and to encourage research on the subject should be sponsored under the auspices of the United Nations.

<sup>7</sup> United Nations, *European Housing Trends and Policies in 1960* (ST/ECE/HOU/2).

<sup>8</sup> United Nations, *Report of the Ad Hoc Group of Experts on Housing and Urban Development* (E/CN.5/367 and Add. 1).

- (i) In view of the shortage of skilled manpower in the building industry, a special effort is needed to promote modular co-ordination, standardization of construction elements, co-ordination or integration of building trades and improved organization on building sites with a view to reducing as much as possible the work of assembly and erection on the site.
- (j) Research should be intensified for better use of existing and new building materials, and there should be close collaboration between technical centres in charge of research in the building industry and the research laboratories of building materials industries.
- (k) Establishment of a national building council or similar body with participation by governmental agencies concerned with housing and building programmes and by other entities concerned in the building process to help implement measures necessary to improve the technical or operating efficiency of the building and building materials industries."

(c) *Importance of housing programmes as a means of improving housing conditions*

30. The existing housing situation cannot be remedied without a plan. Housing shortages can be overcome only through constant investment in housing, matching existing needs as they arise. This investment should be a well balanced part of the programme for the development of the national economy. Programming, however, is impossible without suitable statistics. Therefore, the type of programmes which are needed for the development of housing must be considered, as well as the kinds of statistics which are necessary for the elaboration of those programmes.

31. The Group of Experts, having in mind the importance of programming in housing development, recommended to the Social Commission, *inter alia*, as follows:

"Governments should, as part of their national development effort, review their policies and assess the adequacy of their programmes dealing with the different aspects of urbanization and establish the necessary governmental entities at all required levels for the planning, administration and execution of the related programmes for industrialization, urban and rural development, housing and town and regional planning.

Governments should establish policies requiring or favouring that housing and urban development programmes be conceived within the framework of plans for regional and national development which set out the broad pattern of physical development of the region, especially with respect to land use (including location of industry) and transportation.

Governments should facilitate the establishment of continuing programmes of housing and urban development and resources to carry them out should be assured for a sufficient scale of operation.

There should be a central ministry or administration for the formulation and implementation as appropriate of housing and urban development policies and programmes relating to housing, physical planning, pro-

vision of services and appropriate communal facilities, in close collaboration with other ministries or government organs having related responsibilities at different levels of government.

There should be an appropriate local administration to execute and, where feasible, plan local housing and urban development programmes and policies within the framework of regional and national policies and programmes.

Requirements in housing and other facilities should be ascertained through appropriate statistical and other surveys, but the lack of detailed data should not delay the undertaking of programmes to meet clearly evident social and economic purposes.

Short-term *ad hoc* programmes should not be regarded as a permanent substitute for long-term comprehensive action, which should be based on sufficient data and reviewed and revised in the light of achievements."

(d) *International action aimed at improving housing conditions*

32. The United Nations and its specialized agencies have carried out extensive work throughout the world in various aspects of housing, building and regional planning. The Long-Range Programme of Concerted International Action in the Field of Housing and Related Community Facilities was endorsed by the Social Commission at its twelfth session and by the Economic and Social Council at its twenty-eighth session during 1959.<sup>9</sup> The programme and the methods for its execution were developed in consultation between the United Nations, the International Labour Organisation (ILO), the Food and Agriculture Organization (FAO), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Health Organization (WHO). The Programme began to operate in 1961.

33. The Long-Range Programme consists of thirty-two joint projects, to be undertaken by the United Nations and the specialized agencies concerned during the period 1961-64; they are listed under six broad areas of activity: (i) Planning, organization and administration of programmes for low-cost housing and community facilities; (ii) Mobilization of individual and group efforts for extending the system of building low-cost housing; (iii) Provision of community facilities; (iv) Increase in productivity and capacity of the building industry; (v) Education and training; (vi) Financing of housing and urban development. Of the nineteen joint projects scheduled to be undertaken in 1961-62, some have been completed and others are in advanced planning stages or in the course of implementation.

34. In connexion with the *United Nations Development Decade. Proposals for Action*,<sup>10</sup> the Social Commission has recommended that appropriate additional resources be available from the Special Fund and EPTA for housing and related development. The initial objective of this increased assistance could be pilot or demonstration projects to establish, with wide international technical co-operation, lower building cost levels which would help to bring better hous-

<sup>9</sup> *Op. cit.*, footnote 1.

<sup>10</sup> *The United Nations Development Decade. Proposals for Action* (United Nations Publication, Sales No. II:B:2).



ing and urban development in the developing countries within the economic reach of low-income families and within the capacity of the economies of those countries. Another objective would be to assist, by the provision of "seed-capital", in the establishment or extension of savings and loan associations, mortgage banks, etc., in order to create the necessary mechanism for the expansion of long-term housing-credit. A third major objective would be to implement the recommendation of the Expert Group on the improvement of "squatter" or "shanty-town" settlements. Pilot projects could be undertaken in relation to specific settlements to facilitate ownership of building plots, to provide water and sewerage services and other facilities, and to organize self-help and mutual aid in the construction or improvement of housing with minimum outlays. The additional resources could, if sufficient, also be used to establish revolving funds which would provide short-term financing of construction in progress.

35. Generally, the use made of increased United Nations assistance would be of a strategic or pilot nature designed to lead to the release of latent domestic resources. The construction of housing and ancillary services on the scale required would ultimately depend, especially in urban areas, on the availability of sufficient long-term credit. Domestic resources, expanded through the growth of national income and through the mobilization of savings by an expanded savings and loan system, must provide the main source of such long-term credit. It is evident, however, that domestic resources would need to be supplemented by external funds if the investment required is to be forthcoming. The investment of private external funds in housing and urban development should be capable of expansion since ready markets exist.

36. The development decade should provide for intensified international exchange of experience, skill and knowledge both between developing countries themselves and with the more developed countries; the provision on an increased scale of technical services, experts, advisers and fellowships for study abroad; and the organization of conferences, seminars, workshops, study tours and exhibitions.

37. The work in the housing field, urban development and regional planning at the United Nations Secretariat is carried out by the Bureau of Social Affairs through the Housing, Building and Planning Branch, which is composed of two sections – the Housing and Building Section, and the Planning Section.

38. The Housing, Building and Planning Branch is mostly concerned with technical assistance for under-developed countries, providing experts, organizing seminars, conferences, workshops, etc. The world housing and urban situation is examined and regularly reviewed by the Social Commission and by the Economic and Social Council of the United Nations.

39. Surveys on the world housing situation, as well as the necessary documents for the Social Commission and for the Economic and Social Council, are being prepared by the Branch.

40. The Housing, Building and Planning Branch cooperates in the field of housing, building and regional planning with the United Nations Statistical Office and the Division of Industrial Development, with the regional economic commissions and with housing agencies throughout the world.

41. The creation of the Economic and Social Council Committee for Housing, Building and Planning<sup>11</sup> Development stresses the importance which the United Nations attaches to the housing situation and to solving housing problems all over the world.

42. The Statistical Office of the United Nations has been responsible, in compliance with recommendations of the Statistical Commission, for the collection and publication of housing statistics on a worldwide basis; for the formulation and dissemination of principles and recommendations in the field of housing statistics; for the promotion of seminars and training courses directed at improving methods of compiling and using housing statistics, particularly in relation to the formulation and implementation of housing programmes; and for providing other forms of technical assistance related to housing statistics. The Statistical Office also acts in an advisory capacity for countries that wish to consult it concerning housing censuses or surveys which they plan to undertake.

43. Housing statistics are collected from all countries members of the United Nations and are published annually in the *Statistical Yearbook*.<sup>12</sup> The data include information concerning the number of dwellings, density of occupation and facilities, as well as the volume of residential construction. Information concerning housing has been included in the *Compendium of Social Statistics* issued in 1963.

44. The Statistical Office has been responsible, in collaboration with the Housing, Building and Planning Branch of the Department of Social Affairs, for initiating the preparatory work related to the present series of seminars on housing statistics and programmes and in the past has sponsored training centres on housing census methods in Asia and in Latin America.

45. Governments have become increasingly interested in taking housing censuses, but a study of census definitions, procedures and reports revealed wide variations in scope, concepts, terminology and methods used which reduce the usefulness of the information both for national and international purposes. With a view to increasing the usefulness of the data collected for national purposes and promoting international comparability, a series of *General Principles for a Housing Census*<sup>13</sup> was formulated by the Statistical Commission. The Principles are based on studies of housing census methods made by various international organizations, associations and national agencies, and are intended as a guide to countries planning to take housing censuses.

46. Following the publication of the Principles in 1958, a study on *Statistical Indicators of Housing Conditions*<sup>14</sup> was prepared and issued in 1962. The formulation of the indicators was undertaken to fill the gap which existed as regards indicators of the housing component of levels of living as well as to recommend some statistical yardsticks by means of which countries could assess their housing conditions in relation to those of other countries and evaluate

<sup>11</sup> *Economic and Social Council, Official Records, Thirty-fourth session, Supplement No. 1 (E/3671), Resolution 903 C (XXXIV).*

<sup>12</sup> United Nations, *Statistical Yearbook* (United Nations Publication, Sales No. 62.XVII.1).

<sup>13</sup> United Nations, *General Principles for a Housing Census, ST/STAT/SER.M/28* (United Nations Publication, Sales No. 58.XVII.8).

<sup>14</sup> United Nations, *Statistical Indicators of Housing Conditions, ST/STAT/SER.M/37* (United Nations Publication, Sales No. 62.XVII.7).

national progress over a period of time. The indicators recommended correspond directly to the basic housing requirements of adequate shelter, privacy, and sanitation as reflected by the availability of permanent dwellings, density of occupation and the provision of essential facilities.

47. A study prepared for the Statistical Commission – *Proposed Methods of Estimating Housing Needs*<sup>15</sup> – takes into account comments which have been received from national statistical offices and housing agencies as well as regional organizations. The study recommends suitable methods of estimating present and future housing requirements but leaves the establishment of the standards to be used in this connexion to the countries concerned.

## 2. The housing situation in European countries and regional activities in the field of housing

### (a) *The housing situation in Europe*

48. From a purely quantitative point of view the general housing situation for the whole of Europe was reported to be relatively satisfactory. However, although density of occupation for Europe is around 1.1 persons per room important differences in the housing situation exist between the various parts of Europe. While the density of occupation in Western and Central Europe is around 0.8 persons per room, the figure increases for Southern Europe to 1.2, for the USSR to 1.5, and for Eastern Europe to 1.6.

49. Notwithstanding this comparatively favourable quantitative housing situation for Europe as a whole, a more detailed analysis reveals the existence of a serious housing problem. In some cases this is a quantitative problem (which is becoming more acute in certain countries) but in others it is one of quality, requiring large-scale programmes of slum clearance and urban renewal.

### (b) *Housing policies and current trends in Europe*

50. Dwelling construction in Europe has been steadily increasing since the end of the war. In 1961 the total number of dwellings constructed amounted to some 5.5 million, corresponding to a rate of 7.5 dwellings per 1,000 inhabitants. However, like density of occupation, housebuilding achievements differ substantially among countries in the region. On the one hand, housebuilding in the USSR accounted for about half of the regional volume or a rate of 12.4 per 1,000 – almost twice the average rate for Europe. On the other hand in Western and Central Europe the number of dwellings constructed per 100 inhabitants was 7.4, in Southern Europe 5.4, and in Eastern Europe (excluding the USSR) only 6.0.

51. The distribution of new housing in recent years showed a much higher level of building in urban areas, especially in the developing countries of Western Europe and in most Eastern countries. The principal reason for this is the much higher rate of increase in urban population as compared with the decline or virtual stabilization of the rural population in many countries. Urbanization is thus giving rise to a strong demand for housing. New housing in rural areas has generally been required mainly to replace defective or deficient dwellings.

52. The shift to private construction of dwellings and a relative decline in the public and semi-public sectors continues in many Western European countries; in some, there is a considerable volume of speculative housebuilding. The co-operative housing sector remains appreciable in several countries, and there appears to be considerable scope in many of them for developing or further expanding this form of housebuilding. In the USSR and other Eastern European countries and in Yugoslavia, the State house-building sector continues to be dominant, at least in urban areas. Housebuilding by individuals and co-operatives was stated, however, to be much encouraged in all these countries.

53. The number of dwellings constructed for renting – generally accounting for somewhere between one-third and two-thirds of total housebuilding in Western European countries – seems to have been declining in recent years. As a rule, the greater part of rental housing has been provided by public and semi-public agencies, and that constructed in the private sector has generally been State-aided. There is some evidence in a number of countries that a greater proportion of new housing should be for renting, especially for the relatively weaker economic groups, young households and those now badly housed.

54. Many Western European countries have found it necessary to impose restraining monetary, budgetary or physical control measures, designed to reduce the demand for residential building, as a means of easing the strain on their internal economies. The value of manipulating the volume of housebuilding activity for counter-cyclical ends seems, however, to have become more and more questionable, both on economic and on social grounds. One detrimental effect of these induced fluctuations in the level of housebuilding has been that it has impaired efficient utilization of resources by depressing the inducement to modernization and labour-saving investments in the building industry. Further, it has postponed the fulfilment of social housing needs which are substantial in virtually every country.

55. In much of Western Europe efforts continue to be made to bring housing policy more into line with general economic policy, by decreasing State outlay for housing and pursuing a more selective financing policy aimed at particular population groups. The buoyancy in the private housebuilding sector has encouraged this gradual shift. Several countries, however, have experienced some difficulty in attracting new private funds for housebuilding in competition with higher interest rates obtainable elsewhere, with the result that the interest rates on housing loans have been raised in a number of countries. The growth of the private housebuilding sector has not always offset the lower volume of social housing, especially for renting, provided by public and semi-public agencies. Slum clearance drives and rehousing schemes have generally proceeded more slowly than originally planned and there remains a considerable backlog of such needs. There is a growing tendency in many Eastern European countries to seek greater participation by the population in the provision of housing. This development has been much encouraged in recent years by extension of State credits and subsidies and by increased provision of materials and building sites. Co-operative housing in particular has been growing in some of these countries. Public funds deriving mainly from State budgets and to a much lesser extent from industrial enterprises remain, however, the principal

<sup>15</sup> United Nations, *Proposed Methods of Estimating Housing Needs* (E/CN.3/274).

source of financing for housing in urban areas in virtually all Eastern European countries.

56. Most Western European countries are aiming at the eventual abolition of rent control. Meanwhile, the scope of rent control is being gradually narrowed by freeing from control, for example, certain geographical areas where the housing shortage is not serious, particular categories of dwellings, and dwellings at the time of reletting. In addition, there has been a progressive increase in the rents of controlled dwellings, particularly of old houses. One important objective of this policy is to enable more adequate repairs and maintenance to be carried out. Such policies have brought rent in recent years increasingly into line with the general level of prices. There is also provision in many countries for greater rent allowances for large low-income group families and in cases of hardship. In most Eastern European countries there have been changes in the fundamental rent policy pursued; rents laid down by the authorities have generally remained minimal, while funds for repairs to dwellings are provided through the State budgets. In some countries it has been decided that, in order to improve maintenance and utilization of dwelling space, rents should be raised to more economical levels.

(c) *Activities of the United Nations Economic Commission for Europe in the field of housing*

57. The European housing situation and housing policies are regularly reviewed and discussed by the Housing, Building and Planning Committee<sup>16</sup> of the United Nations Economic Commission for Europe. This Committee, like other ECE committees, is an all-European inter-governmental organ in which the United States of America is also represented, along with representatives of the United Nations specialized agencies such as the International Labour Organisation (ILO) and the World Health Organization (WHO), and the international professional and technical non-governmental organizations concerned with various aspects of housing, building and planning, such as the International Confederation of Free Trade Unions (ICFTU), the International Co-operative Alliance (ICA), the International Council for Building Research, Studies and Documentation (CIB), the International Federation of Christian Trade Unions (IFCTU), the International Real Estate Federation (FIABCI), the International Union of Family Organizations (UIOF), the *Union des Fédérations Nationales des Négociants en Matériaux de Construction* (UFEMAT), and the International Union of Landed Property.

58. There are generally at least two series of housing meetings a year, consisting of at least one annual plenary session of the Committee as well as meetings of subsidiary committees. The Committee's spring meeting is generally followed by a study tour to one or more member countries. Annual and long-term programmes of work are formulated and adopted by the Committee. The work is carried out partly by the secretariat and partly, to a growing extent, by or with the help of expert rapporteurs, provided freely for this purpose by the participating Governments. The work is guided and co-ordinated, and the Committee serviced, by

a small staff of professional international civil servants from the United Nations Secretariat.

59. The work programme of the Housing, Building and Planning Committee provides for the organization of seminars on specific subjects of interest to the developing countries in Europe, with the participation of experts provided by the more industrialized countries. The first of these seminars was held in 1961 in Yugoslavia and dealt with problems that arise in the preparation of housing surveys and housing programmes.<sup>17</sup>

60. The Committee makes an effective contribution to the "Long-range Programme of Concerted International Action in the Field of Housing and Related Community Facilities" carried out by the United Nations family primarily for the benefit of the developing countries. This contribution has largely consisted in making available the results of the Committee's work, helping to organize seminars and expert meetings on specific subjects and providing host facilities for study tours. The Committee's current and future activities (referring where necessary to recent work) are summarized in annex E under the following headings: (a) economic aspects of housing policy; (b) housing and building statistics; (c) technical aspects of housing policy with particular reference to reducing the cost of housing construction; (d) urban and rural planning; and (e) technical co-operation.

**3. The housing situation in Latin America and regional activities in the field of housing**

(a) *The housing situation and trends in Latin America*

61. Latin America is an area of the world notable for its high population growth and rapid urbanization, reflected in high land costs and enormous problems in regard to the provision of urban facilities. Construction costs are high, the volume of the construction industry is low and the labour force is lacking in many basic skills. In many cases public subsidy programmes for housing do not provide the services to the income group for which they were intended. There is, however, a growing recognition of the importance of housing by the Governments of the Latin American countries and by international organizations. Even two or three years ago housing was given a very low priority in social, economic and political plans, but the importance of housing has now received formal recognition and acceptance.

62. When the gross national product is low, as it is in Latin America; when construction costs are high, financing possibilities are limited, and the resulting costs are high; when population continues to increase, and the ideas and aspirations of the people require a higher standard of living, the problem of housing becomes extremely acute. There is obviously not one single solution only; a variety of programmes, solutions and mechanisms must be devised and interrelated in order to approach or attempt a solution. In this respect the availability of statistics and housing programmes is extremely important.

63. Data for a statistical evaluation of the housing situation in Latin America are limited, but some may nevertheless be drawn from the available census data for 1950. In six

<sup>16</sup> At the April 1963 session of the Economic Commission for Europe the title of the Housing Committee was changed. The new title is "Housing, Building and Planning Committee".

<sup>17</sup> *United Nations Economic Commission for Europe Report on the Seminar on Housing Surveys and Programmes, with Particular Reference to Problems in the Developing Countries (ST/ECE/HOU/5).*

countries the percentage of the population at that time living in conventional dwellings varied between 34 and 68 per cent and for five of seven countries for which data were available more than 25 per cent of conventional dwellings had densities of three or more persons per room. The percentage of dwellings in urban areas with piped water varied from 34 per cent to 98 per cent. Data concerning toilet facilities were available for only four countries and in these the percentage of dwellings in urban areas with toilet facilities of any kind varied from 31 per cent to 98 per cent; in rural areas the proportion was 10 per cent to 88 per cent.

64. It is estimated that in Argentina 25 per cent of the population is inadequately housed. In Bolivia, 60 per cent of the dwelling units are not habitable and only 30 per cent of the housing in Mexico is in good or fair condition. The extremely poor housing conditions in the region were stated during the Seminar to be the result of (a) the fact that the low-income groups cannot afford a dwelling meeting even minimum standards; (b) the rapid movement to the cities of the rural population, a large proportion of which is unskilled and not able to be absorbed in the urban labour force; (c) speculation in land and housing; and (d) difficulties in financing low-cost housing. The marginal population living on the outskirts of the larger cities in the Latin American region and contributing a major problem in almost all countries is generally housed in huts constructed of waste material and these areas are without roads, water or sewerage.

65. In short, there is no doubt that the housing situation in all Latin American countries for which statistics are available is extremely poor; the housing problem is one of quantity and quality in the cities and of quality in the rural areas. Furthermore in several countries the data available show that housing conditions are deteriorating, and it can be assumed that the situation is no better in countries for which data are not available.

66. It is useful to examine some indicators of the economic situation and levels of living which are closely related to housing. The national *per capita* income was less than 100 dollars in one country; between 100 and 200 dollars in eight countries; between 200 and 350 dollars in three countries; between 350 and 575 dollars in four countries and between 575 and 1,000 dollars in one country. The problem, however, is not only one of low average *per capita* income but also of income distribution. The illiteracy rate in the region varies between 13.6 per cent in Argentina and 89.3 per cent in Haiti. Twelve countries have illiteracy rates higher than 40 per cent.

#### (b) *National housing programmes in Latin America*

67. Most of the countries in the region have a national housing agency but only a few have what could be regarded as a national housing programme. The goals of the programmes are generally stated in terms of what the housing agency plans to accomplish and not what is planned for the country as a whole. In some countries housing programmes are clearly planned as a sector of over-all economic and social development plans; in others the relationship between the over-all programme and the housing programme is not clear. The fact that very few countries have national housing programmes was emphasized during the Seminar.

68. National estimates of housing needs have been made in a few countries only, but according to estimates by the

Economic Commission for Latin America some of the goals established for the construction of dwellings in national housing programmes fall short of minimum requirements, that is they are insufficient to maintain the housing situation at its present level, let alone improve it.

69. Programmes of the housing agencies generally include the construction of dwellings as well as the financing and administration of large-scale housing projects. The time covered by the programmes varies from two to twenty years, with several countries having both a short-term programme (two years) with specific goals and detailed arrangements drawn up, as well as a long-term programme (five, ten or twenty years) stated in more general terms.

#### (c) *Availability of statistics in Latin America*

70. The reports submitted by the participants and the discussion during the Seminar indicated that the statistics available for housing programmes are generally inadequate for the purpose. There is incomplete geographical coverage of the data, there are gaps in the series of statistics required for housing programmes or where the series are complete, the data are out of date or are not in the form in which they can be used. The data stated to be lacking include statistics concerning the type of housing unit and the number of families in each, volume of construction and demolition, labour force, cost of construction, production of construction materials, level of family income and cost of living, and internal migration.

71. The problem most commonly reported is an almost complete lack of information concerning dwelling construction. In the majority of countries information is collected only for a few large cities or only for the capital city and even these data are unreliable. As a result no reliable estimates can be made in these countries of the investment in dwelling construction (this affects national income estimates and, therefore, the evaluation of economic growth) nor can any estimates be made of the number of dwellings constructed or the number that are likely to be constructed by the private sector. Since in most countries government programmes of dwelling construction are formulated to complement the private sector (to provide dwellings for the population groups and in the geographic areas where private construction is insufficient to meet housing needs) the goals of government housing programmes cannot be established on a factual basis.

72. Most of the countries in the region took housing censuses in 1950, but fewer have taken them in 1960. The difficulty generally seems to be a financial one. An examination of previous censuses indicates that publication of preliminary results takes from one to three years, and publication of the final results from two to six years. In at least one case the census data were not published at all and in others only part of the information collected was published. Housing surveys which have been made in the region are generally of limited scope and have been conducted at irregular intervals.

73. In all the countries the central statistical office was stated to be responsible for carrying out the housing census and in some cases there is a separate section of the statistical office which is responsible for housing censuses. In some cases the housing surveys have been taken by other agencies.

Current statistics are collected variously by the central statistical offices, the housing agencies, the central planning organizations, the central banks and the municipalities. Population estimates and projections are normally provided by the central statistical offices and information concerning national accounts by the central banks. Price indexes of materials (generally lacking) are established either by the central banks, by the central statistical offices, or by private agencies. Price indexes for dwellings do not appear to exist.

74. It was pointed out at the Seminar that there is a general lack of statistics related to the financing of housing and to building costs and the need to collect information on natural resources for the building materials industry was stressed.

75. The importance of land development and urban structure in relation to house construction costs was also noted. Attention was drawn to the legal aspects to be considered in connexion with the substantial areas occupied by squatters around most of the major cities in Latin America.

76. In order to improve the availability of adequate statistics for housing programmes it was suggested that better co-ordination is required among the agencies that collect the statistics used for housing programmes; that greater efforts should be made towards national and international standardization; that more systematic methods should be introduced for producing statistics; that surveys should be conducted concerning housing units, occupants and land; that rural research needs to be undertaken in some countries; that the organization of courses and seminars concerning the collection and analysis of housing statistics should be undertaken; and that a section responsible for housing statistics should be established in the international statistical offices.

#### (d) *Activities of the United Nations Economic Commission for Latin America*

77. The work of the Economic Commission for Latin America related to the improvement of housing conditions in the region is concentrated in four main fields: (i) At an earlier stage the Economic Commission for Latin America contributed to the definition of the problems through its economic studies of countries, subsequently providing assistance in the preparation of economic development plans to countries such as Chile, Ecuador and Venezuela, and more recently to Bolivia and Colombia. Currently work of this sort is being carried on, in collaboration with the Inter-American Development Bank and the Organization of American States, in Haiti and Uruguay. A team of experts is also being organized by these same agencies to work in the Central American countries, and here special attention will be paid to planning for housing within the economic integration programme for Central America. The possibility of organizing a similar team of experts for Paraguay and Peru is under consideration, at the request of the Governments of these countries; (ii) Intensive courses in economic programming have until recently been offered by the Economic Commission for Latin America, and now such courses have been expanded and systematized with the establishment of the Latin American Institute for Economic and Social Development; (iii) Research on methods of social programming, including research on the methods of formulating housing programmes, has constituted a special feature of ECLA's work; (iv) ECLA

directs the work of regional advisers in the fields of housing finance and planning, sample surveys and housing censuses, and these are at the disposal of the Governments of the region.

#### (e) *Activities of the Organization of American States*

78. In the field of housing, perhaps the most important contribution of the Organization of American States has been the establishment of the Inter-American Housing and Planning Center (CINVA) at Bogota, Colombia – a centre for education, training and research. In recent years it has been reorganized and now offers a nine-month, twenty-five hours credit course with a graduate curriculum in all aspects of housing. Students are accepted from all over the hemisphere, and in its regular programme seventeen to eighteen countries are represented. In addition to this major course, two or three rural extension courses are given annually. These courses are organized in various countries of Latin America and Central America at the request of member Governments. Very recently a four-month training course in aided self-help or mutual aid housing techniques was begun. Seven countries have sent teams of five members each to work at the Inter-American Housing and Planning Center (CINVA) and also to co-operate in the Colombian Government's housing programme, especially its aided self-help programme which is becoming internationally known. In addition to the training course, research of various forms has been undertaken over the years. There are now 400 graduates of CINVA working in housing fields in Latin America.

79. In Peru a two-year graduate programme concerned with urban and regional development has been introduced for students from all countries of the hemisphere. It can be seen from these activities that the major problems of urban development and housing are of considerable importance in the programme of the Organization of American States.

80. In addition to the training programme, OAS is concerned with increasing knowledge and offering a more extensive service to member countries in the field of general housing activities. Thus, more than a year ago, a meeting was held at Bogota to explore what might be done to develop survey techniques so as to obtain a better knowledge of the housing situation in Latin America.<sup>18</sup>

#### (f) *Activities of the Inter-American Development Bank in Latin America*

81. Another international organization carrying on important work in Latin America in relation to housing is the Inter-American Development Bank. After the Bank began its operations it was made the trustee of a special fund known as the "Social Progress Trust Fund", contributed by the United States Government.<sup>19</sup> This special fund amounted to 394 million dollars and was to be administered by the Bank "to support the efforts of the Latin American countries to initiate or expand effective institutional improvements and to adopt measures to employ efficiently their own resources with a view to achieving greater social progress and

<sup>18</sup> OAS, Advisory Committee on Housing: *Proceedings*, Pan American Union, Washington D.C., USA., 1962.

<sup>19</sup> Inter-American Development Bank, *Social Progress Trust Fund, First Annual Report, 1961*, Washington D.C., 1962.

more balanced economic growth". This is the basic premise of the Alliance for Progress, namely that there is a recognition that social problems must be attacked while economic growth is being fostered.

82. The Bank has adopted five general criteria for the provision of loans from the Social Progress Trust Fund. They are: (i) contribution of local resources to projects and programmes; (ii) long-range development plans; (iii) improvement of government fiscal systems and practices; (iv) improvement of rural living and land use; (v) mobilization of domestic resources.

83. Within these general criteria the Fund provides money for four types of projects: (i) land settlement and improved land use; (ii) housing for low income families; (iii) community water supply and sanitation facilities; (iv) advanced education and training. In addition, the Bank carries on a programme of technical assistance in these fields, and also is willing to provide technical assistance in drawing up the plans which form the general framework for a country's economic growth or for specific plans to be used as a basis for making a loan application within the criteria mentioned above.

*(g) Co-operative activities in Central America aimed at improving housing conditions*

84. In Central America activities related to the promotion of housing conditions by the Economic Commission for Latin America, the Organization of American States, the Inter-American Development Bank and the International Labour Organisation have been closely co-ordinated. Work on housing has been to a large extent part of the broader Central American programme of economic integration in which the ECLA secretariat is participating in an advisory capacity. The work has been conducted through a Sub-Committee on Housing formed by the heads of the housing institutes existing in the Central American countries.

85. A study has been initiated in each country of the region concerning the construction industry, the production of building materials, the natural resources available for building and the number of training and vocational schools in the area. The purpose of this study is to determine the

resources available in each country with a view to stimulating the exchange of resources, taking into account the advantages and possibilities of each country and the need to avoid duplication of effort as well as to foster economic complementarity.

86. In view of the lack of statistical information in the region – only three countries took housing censuses in 1960 – a uniform scheme for sample housing surveys in the six countries of the region has been proposed as a means of obtaining essential data required for the evaluation of housing conditions, estimation of shortages and housing needs, and to provide, in the future, information on changes in housing conditions over the years.

87. A preliminary inventory of the industries related to dwelling construction has been made, including their production and an assessment of the possibility of immediate expansion of their output. The inventory revealed that some industries were producing at one-third of their capacity.

88. A meeting of experts on modular co-ordination was held from 14 to 22 August 1962 at San Salvador, El Salvador.<sup>20</sup> The experts made recommendations concerning standardization of materials and the adoption of a uniform modulus. The metric system of measures has been adopted for construction materials, instead of the fifty-six different types of units currently in use. A system of modular co-ordination is being introduced in the region with the purpose of saving materials and cutting labour costs, thus obtaining a reduction in construction costs. On the basis of the dimensions of basic materials used in construction in Central America it has been possible to make recommendations regarding standardization of materials for walls, floors, windows, doors, as well as for household equipment. Measures have also been taken with a view to standardizing the terms used in architecture and construction in the Central American countries. To effect this, a vocabulary of conventional terms has been prepared which will be widely distributed among architects, engineers, building firms, departments of public works, institutes, universities and so forth.

<sup>20</sup> United Nations, Economic Commission for Latin America. Sub-Committee on Housing, Building and Planning, *Informe del grupo de trabajo sobre coordinación modular en la vivienda* (E/CN.12/CCE/SC.4/10), 1962.

### III. FORMULATION OF HOUSING PROGRAMMES WITHIN THE CONTEXT OF GENERAL ECONOMIC AND SOCIAL PLANNING

#### 1. General aspects of planning

##### (a) *Economic and social development and the housing problem*

89. Economic development should be considered as part of a vast and complex process of social change. In order for this development to take place, it is necessary to improve the social integration of the community. In this, an important role is played by the family nucleus and adequate housing is one of the main factors making for the stability of family life. Conversely, slums and shanty towns constitute separate clusters and segregate important groups of the population into an almost caste-like system. Such segregation limits the possibilities of more rapid or steady development.

90. Migration from the country to the city greatly influences dwelling requirements. But it is likewise reflected in the economic conduct of the consumer, including the use of his income, and in his social conduct as expressed in a changing of value judgments and of motivations and aspirations. Migrants from the country to the city adopt new forms of living, undergoing a process of adaptation which has important implications for housing programmes. Furthermore, migration may lead to modifications in the structure of the family brought about by the legalization of marriages, changes in the number of children per family and the number of persons such as parents and relatives living with the family.

91. In Latin America land reforms resulting in the subdivision of land and the formation of new population centres may also affect the housing problem. On the other hand, the rate of urbanization may be slower with more intensive land use than would be the case should the more extensive type of exploitation of the land be maintained.

92. The substantial differences with respect to income levels, and the geographical and occupational distribution of the working population in the Latin American countries should be noted in examining the economic and social development and the present problems of the region. The rural population varies, in round figures, from approximately 20 per cent to almost 85 per cent, in spite of an urbanization process which in the years between 1950 and 1960 brought the proportion of rural population generally down from 61 per cent to 54 per cent. Such differences indicate that future urbanization rates will vary according to the country – a fact that will have to be duly considered in general economic development plans and housing programmes. In spite of these differences a general deterioration of the housing situation has taken place, though in some cases the share of gross domestic investment that has gone into housing has been high. Mainly responsible are the low gross national product, the low coefficient of total capitalization

amounting to about 15 per cent of the product for the region, and the excessive concentration of housing investment in dwellings intended for the higher-income groups. Indeed, inflation and other factors are also involved. Hence, it is necessary to increase the rate of capitalization and re-adjust the general investment structure and especially that of investment in housing, diverting a greater proportion to low-cost housing. This is precisely the type of problem which can be dealt with only within the framework of comprehensive programming.

##### (b) *Housing programmes within the framework of comprehensive plans*

93. From a purely practical point of view, an economic development plan consists of a coherent body of investment projects, economic policies, and institutional arrangements to stimulate concentrated efforts designed to attain certain objectives. Basically, these objectives concern the rate of growth of income and its distribution, the employment of available manpower, and the improvement of levels of living as expressed in terms of nutrition, health, education and housing.

94. The plan should be flexible, so that it can be adapted to unforeseen situations as they arise, and efforts should be made to establish a continuous planning process rather than to formulate a rigid set of goals.

95. The realization of the plan requires the concerted efforts of both the public and the private sectors. Thus the plan helps to define clearly the spheres of activity of both sectors so that they will be compatible and complementary in the national effort.

96. In planning, it is customary to distinguish a stage of diagnosis and another of actual projection and programming. The diagnosis consists of making a retrospective analysis of the economic development of the country, identifying the main problems of development and the obstacles to economic growth. That is done for the economy as a whole and for each sector including, of course, housing. The analysis defines certain fundamental objectives and determines the general lines of the plan which is to be prepared in the second phase.

97. In planning use is generally made of some type of global econometric model and input-output tables to break down economic activity into sectors, and to insure the inter-industrial compatibility of the projections. By means of successive approximations the preliminary estimates obtained with the global model and the more detailed estimates resulting from the use of inter-industrial relations are brought into agreement. Thus production and investment targets for each sector are obtained, usually for periods of five and ten



years. The targets must be in keeping with the specific projects of each sector and hence a new adjustment process takes place. Once it is known what the specific projects are and where they are to be applied, it is possible to formulate a programme in terms of a region and execute it.

98. The fundamental technical requisite of a programme is the consistency between the goals and the resources, especially as regards total supply and demand, saving and investment, balance of payments, occupation of the labour force, inter-industrial relations, and the monetary, foreign trade, tax and credit policies.

99. The analysis must depict housing conditions, including quantity of dwellings, overcrowding, sanitation, and other aspects of the problem which help to draw a picture of the situation. Furthermore, it must shed light on questions such as the share of total national investment devoted to housing. How has housing investment been distributed amongst the various types of dwellings constructed, intended for various income groups? How many square metres of housing could have been built with the same sum of money if the shell had been originally built for low-income groups? How many dwellings must be replaced because of their poor quality? How many must be built to relieve overcrowding? What is the maximum amount that families of various income levels can spend on housing?

#### (c) *Nature and characteristics of housing programmes*

100. Before examining the various requirements for drawing up housing programmes, it will be useful to consider the terms programme and programming. A housing programme (as well as any other economic and social programme) is a plan prepared by a central authority describing certain targets for production, supply and consumption within a given period. Thus a housing programme is a plan setting a target for house construction within a year or over a number of years.

101. There are different types of programmes. A programme may be a well-defined production plan based on detailed and careful calculations of the available resources in all the sectors involved and carried out under rigorous control of the authorities concerned. A programme may, on the other hand, be simply a forecast of what could be produced within a certain period, prepared with the purpose of leading the production in the desired direction. By prescribing a reasonably high target and by indicating what this is likely to mean for the different sectors, the object of the programme is to create the activity necessary to reach the target. In the first case, the programme can be described as providing directives to management, in the other as providing incentives. Between these two extreme cases there are, of course, a number of intermediate cases, and normally, programmes are neither merely directives nor entirely incentives but may include elements involving both types of programming. A housing programme may, for instance, for some categories of dwellings, such as houses for elderly persons, dwellings for workers in certain areas or industries, etc., prescribe production plans which are carried through under elaborate control while the remaining programme is merely to be considered as a production target with the purpose of influencing the course of production in the desired direction.

102. A housing programme must be co-ordinated with programmes in other fields, and must form an integral part of the general national economic programme. Consequently, housing programmes are influenced by developments in other sectors and will have to be adjusted accordingly. If the balance of the over-all programme is disturbed, the consequence may – and in fact often will – involve a readjustment of the housing programme. This underlines the necessity for strong political support for the national housing programme, if housing is not to become the guinea-pig when remedies for economic disorder have to be found.

103. Experience in many countries has shown clearly that housing is often considered the nearest-at-hand and easiest field of operation for measures against a threat to the economy. Housing and construction are important parts of the economy with a considerable influence on activities in other sectors, and any interference will therefore be felt quickly and widely. On the other hand, building as an industry is less homogeneous in structure and more local in character than other industries, and thus is less able to withstand pressure from outside if sufficient political support is not available.

104. The social aspects are the dominant features of housing programmes and their execution. Notwithstanding the economic consequences of building activities, the preparation of housing programmes is to a very wide extent governed by the drive towards an improvement in levels of living. Good, healthy and cheap dwellings are part of any programme for improving social conditions, and housing therefore plays an important role in such programmes. Consequently, housing programmes cannot be judged as economic planning only; due consideration should be given to their importance for the social welfare of the community as a whole.

105. It should also be noted that housing – perhaps more than any other sector – is a field where long-term programmes are needed to achieve the full benefit of planning. Housebuilding is a long and time-consuming process which, including design and planning work, may spread over many years, so that any programming aimed at an increase in the normal rate of production will find expression in completed dwellings only after a considerable time. Moreover, owing to the organizational structure of building and the methods applied, an increase in production capacity is very hard to achieve. For that reason, there is bound to be great difficulty in absorbing a deficit caused by inadequate production in previous years. By applying untraditional building methods, such as prefabrication and mass production of components for assembly, it may of course be possible to expand production at relatively short notice. In that case, however, the question of economic production largely depends on whether investments in machinery and equipment for factory production can be written off over a sufficiently long period. Thus, in order to utilize the capacity of the building industry in the best and most economic way, long-term programming is necessary. The planners should be able to see ahead and prepare programmes for a period sufficiently long to make it possible for the builders to organize production in a rational and economic way.

#### (d) *General planning of building activities*

106. The first, and basic, means of implementing housing programmes through effective and economic building is



forthcoming at the planning stage. Much waste and many sources of complications derive from insufficient planning efforts, whereas good planning is the cheapest and in many respects the most direct way to successful results. In analysing planning problems, a distinction should, however, be made between the planning of building activities as such, in a country or a region, and the planning of the individual projects.

107. Deliberate efforts to intensify building development are in several respects dependent on the fact that some mainlines for the future are marked out by the responsible authorities, thus providing a guide to all the sectors involved in building activity. This means that the nature of the housing programmes must be such that existing housing requirements are transformed into an effective, stable and continuous demand. Housing programmes should therefore fix, or indicate, the housing policy to be followed for the next few years. Housing policy determines the aims as to both quantity (annual volume of production) and quality (types and sizes of dwellings, equipment, permanent, semi-permanent or temporary dwellings, exploitation of land, rent policy, etc.). A supplement to the housing policy should also outline a building policy which would determine the methods selected to carry through in practice the objectives of the housing policy – the technological and organizational aspects of practical building as well as distribution of the programme among the various kinds of investors (public sector and private sector). The questions dealt with in paragraph 109 would – if followed up deliberately and systematically – form part of such a building policy.

108. A long-term plan of the kind just described would be the framework of a developing building industry if it were spread over a sufficiently long period of time – some three to five years should be a minimum –, if it comprised a sufficiently large part of building activity as a whole – not only housing but also other kinds of public and private building should be included –, and if it were allowed to be carried out according to plan and were not interrupted by difficulties of various kinds which crop up.

109. A long-term basis is necessary for development in the following fields:

(a) Capital investment: the capital required for the establishment of production facilities on any large scale, such as buildings, machinery, and equipment, can only be amortized over a relatively long period; this is a condition for attracting the capital needed in the face of competition with other fields of investment.

(b) Standardization and type-planning: the work laid down in elaborating standards and type-plans presupposes the certainty that they will be used on a sufficiently broad scale through a large number of repeated projects.

(c) Labour: the attraction of the necessary qualified labour force at all levels and the establishment of a comprehensive educational system will only be possible if justified by future prospects of employment.

(d) Builders: general contractors, craftsmen, and major investors can only plan their activities in a rational way if plans can be made for a long time ahead; this will, among other things, make possible the purchase of large quantities of material on more favourable terms.

(e) *The indirect effect of a housing programme*

110. In evaluating the economic repercussions of alternative housing programmes, the direct and indirect effects on the general economic activity should be considered. Such direct and indirect effects derive mainly from:

(a) The demand for local building materials, urbanization and basic services, including water, sewerage, paving, light and others; (b) the demand for furniture and household furnishings; (c) the demand for construction equipment; (d) the demand for imported goods; (e) the demand for skilled and unskilled labour. Part of this information can be obtained from inter-industry relationship tables, if they exist, or by means of a direct approximation.

111. To evaluate a long-term housing programme, it is necessary to study investment in all construction activities as well as in housing itself. The evaluation of the inter-industry repercussions of a housing programme will enable a better evaluation to be made of the programme itself from an economic point of view and give some idea of the market for skilled labour, equipment and building materials and furnishings. It will also furnish criteria for adopting measures to prevent sudden fluctuations on that market and detecting in advance bottlenecks which may occur because of a shortage of some of the inputs. In the final analysis, however, the evaluation of housing programmes must be formulated not only in economic but also in social terms. In this respect, housing may be considered as being half-way between a capital asset and a durable consumer good accomplishing an important social function.

(f) *Relationship between specific projects and housing programmes*

112. The relationship between global plans and specific housing projects should be pointed out. The programmes help to define the dimensions of the problem in aggregate terms, to place it in the framework of over-all planning, verify the compatibility and coherence of the over-all objectives, and provide criteria for establishing a minimum dwelling standard. On the other hand, concrete projections worked out for various regions, costs, materials and construction techniques will furnish a yardstick for estimating the cost of standard dwellings for various income levels and these criteria will make it easier to estimate total investment.

113. The process of successive approximations cannot be carried to a point where a prototype dwelling, used in global programming of the sector, would correspond exactly to a weighted average of the specific projects which will actually be built. However, a few key projects may be sufficiently representative as a basis for global estimates which in practice would not be far wrong.

114. It must be recognized that programmes are intended to provide criteria for working out a co-ordinated economic policy in an essentially dynamic environment. This requires them to be flexible and does not demand too great a degree of accuracy, though greater accuracy will be required at the implementation stage. Thus, the plan to be implemented next year, for example, will contain concrete projects (some of them perhaps involving the completion of work begun in previous periods), which will allow for more precise

estimates. The same degree of accuracy will not be required for the fifth or the tenth year after the start of the programme.

## 2. Evaluation of housing conditions

### (a) *The housing inventory*

115. The first problem faced by those responsible for housing programmes is to determine the number of housing units existing at a given moment in the country or region under study, the nature of their structural characteristics, the facilities at their disposal, and conditions of tenure and occupancy. The purpose of housing censuses is precisely to procure data of this type. Where no such censuses have been taken, estimates can be based on nation-wide sample surveys.

116. Housing censuses in Latin America are a relatively recent development. However, housing data of one kind or another have been obtained in almost all the population censuses; unfortunately, the concepts applied vary widely and in some cases they do not afford even an approximate idea of the number of housing units existing at the time of the census.

117. The significance of total housing figures, however, is purely relative, since a great variety of types of housing units is to be found in all countries, and the total figures include the whole range, from the luxury flat or apartment to the rustic hut or *rancho*.

118. In order to interpret the statistics it is necessary to ascertain the composition of this total, i.e., to classify housing units by structural characteristics and facilities provided. It is for this reason that in paragraph 302 of the *General Principles for a Housing Census*,<sup>21</sup> a classification of housing units into ten major categories is suggested. The most important of these categories is that comprising the units defined as "private conventional (permanent) dwellings", which include houses and flats or apartments. These are the units considered most suitable for habitation on account of their structural characteristics. The objective of housing programmes is to maintain a sufficient number of such dwellings in the various places.

119. It is likewise important to distinguish categories which constitute a problem on account of their inherent characteristics, for example improvised housing units (*calampas*, *barriadas*, etc.) and certain kinds of multi-family housing units such as *conventillos* or *casas de vecindad*.

120. An adequate classification of housing units is essential if a distinction is to be drawn between satisfactory and sub-standard housing units. The mere comparison of the proportional distribution of housing units and their occupants in two successive censuses – provided the principles applied in these censuses are uniform – can shed a great deal of light on the changes that have taken place in housing conditions during the interval between the two censuses.

121. The size of private housing units is a particularly useful item of information. Census data should include the number of square metres of floor space in housing units, as well as the number of rooms. But it is very difficult to

obtain the former figures, and in almost all the censuses taken in Latin America only the latter have been recorded. The importance of the information in question derives from the principle that there should be a correlation between the classification of dwellings by number of rooms and the classification of families or private households by number of members. Clearly, if most dwellings consist of only one or two rooms while most families or private households are composed of four or five members, the result will be overcrowding; this is the situation in the majority of the Latin American countries where the dwellings are generally too small in relation to the size of households.

122. It is important to point out that methods of reckoning the number of rooms in dwellings vary widely. One source of discrepancy is the inclusion or exclusion of the kitchen. This alone suffices to account for considerable variations in the average number of rooms per unit.

123. Occupancy is another basic aspect of special relevance for housing programmes on which data must be collected in housing censuses or by means of special surveys. Particular interest is attached to two ways of measuring occupancy: (a) by the number of private households occupying the existing housing stock; (b) by the number of individual persons living in the units concerned. The first method involves a good many complications (for a discussion of the relevant procedures applicable, see paras. 175-204). A count of the number of occupants of housing units is necessary in any case, and this is the practice usually adopted in housing censuses, whether they are taken in conjunction with population censuses or separately.

124. Density of occupation as a means of assessing housing conditions is particularly meaningful when it refers to the occupants of conventional (permanent) dwellings. It is important whatever the types of housing units under consideration – shanty towns or apartment buildings – inasmuch as the index of crowding shows how difficult it is for families and their individual members to enjoy privacy. However, since it is obvious that housing conditions in units regarded as sub-standard, on account of their structural characteristics, must in any event be highly unsatisfactory, there is no point in attempting to enumerate the rooms or enclosures to be found on premises that may have been built of waste materials, such as cardboard, wooden boards or sheets of tin. Thus, the measurement of occupation density is significant only in relation to conventional (permanent) dwellings and perhaps to rustic housing units. This is why, in the *General Principles for a Housing Census*, cross-tabulation of the number of rooms and number of occupants is recommended only in the case of "conventional (permanent) dwellings". Since overcrowding constitutes one of the principal housing problems, census data indicating the extent and significance of overcrowding should be collected.

125. The supply of drinking water and the disposal of human waste are matters of special interest, because they represent the most essential elements in environmental sanitation. The availability of such facilities is of the greatest importance for the preservation of health, irrespective of the structural quality of the housing units. In international and regional recommendations for housing censuses, therefore, stress has been laid on the desirability of obtaining data on the drinking water supply system in relation to housing units of all types.

<sup>21</sup> *Op. cit.*, footnote 13.

(b) *Statistical indicators of housing conditions*

126. Although the housing situation is best described by analysing the housing stock and its composition, it has been found convenient to select a few statistical measures or "indicators" reflecting the more important aspects of housing conditions. The document entitled *Statistical Indicators of Housing Conditions*<sup>22</sup> contains a description of the following statistical indicators which have been developed by the United Nations in consultation with statistical offices, housing experts and regional organizations.

**Basic indicators**

- B-1 Percentage of the population living in dwellings<sup>23</sup>
- B-2 Percentage of occupied dwellings with three or more persons per room
- B-3 Percentage of occupied dwellings with piped water inside the dwelling or outside the dwelling but within 100 metres
- B-4 Percentage of occupied dwellings with toilets.

**Supplementary indicators**

- S-1 Percentage of the population living in housing units classified as "rustic", "improved", or "not intended for habitation", or without shelter of any kind
- S-2 Average number of persons per room (for occupied dwellings only)
- S-3 Percentage of occupied dwellings with flush toilets (urban)
- S-4 Percentage of occupied dwellings with toilets of a type other than flush
- S-5 Index of dwelling construction in relation to estimated requirements (for three-year periods).

127. The indicators proposed are intended to serve as statistical yardsticks by means of which countries can assess their housing conditions in relation to those of other countries – particularly those of similar culture and climate – and evaluate national progress over a period of time. They should be useful for describing actual housing conditions as a component of levels of living, but will need to be interpreted with due regard to background information concerning climate, culture, degree of urbanization and the demographic, economic and social structure.

128. In selecting the indicators shown above, special attention has been given to the utilization of physical units reflecting specific aspects of housing conditions and statistically measurable. It has not been considered feasible to select a single indicator which would satisfactorily measure all aspects of housing conditions since an acceptable level of housing depends on several interrelated factors. However, the number of indicators has been kept to what is considered a minimum, only those being recommended that correspond directly to the basic housing requirements of adequate shelter, privacy, and sanitation, as reflected by the availability of permanent dwellings, density of occupation and the provision of essential facilities.

129. The participants at the Seminar agreed that the indicators proposed in *Statistical Indicators of Housing Conditions* would be useful in evaluating housing conditions and changes over a period of time in their own countries. There was considerable discussion about the criteria to be used in counting the number of rooms in dwellings. It was finally decided that a kitchen ought to be counted as a room for the purpose of international comparison although in countries where this has not been the practice in the past separate tabulations may be needed, including and excluding the kitchen in the number of rooms. This implies separate tabulations for dwellings with and without kitchen by number of rooms.

130. The value of some of the following indicators for the purpose of housing programmes was pointed out: B-1, percentage of the population living in dwellings; S-1, percentage of the population living in unacceptable types of housing units; and S-2, the average number of persons per room. In effect, indicator S-1 measures part of the existing housing shortage; the value indicator B-1 at the time of the last census can be used as a starting point for the determination of minimum housing needs, and indicator S-1 can be used as a reference basis for estimating housing deficits and future housing requirements (see para. 202). The indicators can therefore be used to express the objectives of housing programmes in terms of expected improvement of the levels of housing conditions, defining for example a minimum programme as one which would only maintain existing housing conditions after making allowances for demographic growth and replacement and maintenance needs of the housing inventory.

131. On the other hand, it was also noted that in the more advanced countries the objectives of housing programmes would be expressed in quite different terms, since indicator B-1 in those countries has already reached its maximum attainable value and S-1, therefore, is close to zero. The problem in most Latin American countries is to provide dwellings for an increasing percentage of rapidly growing populations (only between 34 and 80 per cent of the population occupy "dwellings" in Latin American countries), while in the more advanced countries of Europe the problem is to supply better equipped or larger dwellings to populations already occupying structurally adequate dwellings, and growing at a moderate rate. Furthermore, it was indicated that a shortcoming of the indicators is the difficulty of translating them into means of measuring well-being. It was suggested, therefore, that more direct types of measure, such as the actual number of families which would obtain a dwelling as a result of a programme, would be a more useful expression of the objectives of housing policy.

132. The very few data available in the Latin American countries show that housing conditions in the area leave much to be desired, and that much information is lacking. Basic indicators cannot be calculated even for those countries that have in fact taken housing censuses, because the principles followed or the form in which the data have been tabulated and published preclude calculation of the indicators. In view of the pressing need for measuring levels of living in the field of housing, and the lack of statistics, recourse has had to be had to partial estimates and indirect evaluations of housing conditions based on subjective appreciations which may lead to wrong conclusions.

<sup>22</sup> See footnote 14.

<sup>23</sup> "Dwellings" refers to "conventional (permanent) dwellings" as defined in para. 304 of *General Principles for a Housing Census*.

### 3. Evaluation of housing requirements

#### (a) *Physical units used in connexion with housing programmes*

133. A housebuilding programme in its most simple form may be described as an "assignment" to the building industry to erect a specified number of "dwellings" of a certain type, within a specified period of time, for the purpose of raising, or at least maintaining, existing housing conditions. Thus, one of the major purposes of any housing programme is to indicate the amount of resources it would be necessary to allocate to housing, within the framework of development plans, in order to achieve certain social and economic aims in a specified time. Within the framework of housing policy, the programme should indicate the various measures to be adopted and the kinds of building activity to be undertaken to achieve the aims established.

134. It should be recognized that various public measures can stimulate maintenance, improvement, reconstruction, conversions, and new residential construction by bringing about a more favourable relationship between housing costs (rents) and the incomes of those who need improved, reconstructed or new housing. However, with regard to the practical purpose of determining the size of a housebuilding programme for a given period, there are good reasons for measuring the programme in terms of new conventional "dwellings" which ought to be built in order to satisfy certain requirements. This has been used in European and Latin American countries in attempts to estimate housing shortages and replacement needs as well as future housing requirements at the beginning of the programming period.

135. Housing requirements are primarily represented not by individual members of the population, but by private households, i. e. families, other groups or persons, and even single persons in certain age groups, usually not under fifteen or twenty years of age; and to meet the housing requirements of households separate dwellings are needed, representing combinations of varying numbers of rooms, partly, of course, single rooms. In all countries a certain part of the population will be found to be living in "collective" housing units. These units may or may not provide satisfactory accommodation, but in general housing programmes do not make provision for building "collective housing units". In order not to complicate the discussion, this report concentrates upon the problem of estimating the housing requirements of "private" households, in the form of "dwellings".

#### (b) *Definitions*

136. With regard to the basic notions of dwelling, private household and family, in practice, fairly substantial differences occur from one country to another. However, in this respect a certain consensus has been reached, the principles of which are laid down in the *General Principles for a Housing Census*, and in the *European Programme for National Population Censuses*: Conference of European Statisticians.<sup>24</sup> The most important feature of these documents is that at the world level, the notions of dwelling and private household are defined separately, without being strictly interrelated,

<sup>24</sup> See *European Programme for National Population and Housing Censuses* (CONF.EUR.STATS/WG.6/81 and 82).

and that at the European level a more detailed analysis is made possible of the composition of the "family" by means of special tabulations. Since the definition of the basic notions is of decisive importance for the calculation of present and future housing requirements, the relevant definitions, as recommended in the papers referred to above, are dealt with extensively in the following paragraphs.

137. In the recommendations mentioned, a "dwelling" is defined as one category of housing unit. The way in which dwellings are distinguished from other types of housing units is clear from the recommended classification of housing units, which is given below:

- 1.0.0. Housing units intended for habitation
  - 1.1.0. Private housing units
    - 1.1.1. Conventional (permanent) dwellings (houses, apartments, flats, etc.)
    - 1.1.2. Rustic housing units (huts, cabins, etc.)
    - 1.1.3. Mobile housing units (trailers, caravans, tents, boats, wagons, etc.)
    - 1.1.4. Improvised housing units (squatters' houses, *callampas*, *casas brujas*, etc.)
  - 1.2.0. Collective housing units
    - 1.2.1. Hotels, rooming houses and other lodging houses (hotels, motels, inns, boarding houses)
    - 1.2.2. Institutions (convents, hospitals, boarding schools, etc.)
    - 1.2.3. Camps (lumber, mining, military, etc.)
    - 1.2.4. Multi-family housing units (long houses, *barracones*, *conventillos*, *casas de vecindad*, *carré*, etc.)
- 2.0.0. Housing units not intended for habitation but in use for the purpose
  - 2.1.0. In permanent structures intended for non-residential purposes (barns, mills, garages, warehouses, etc.)
  - 2.2.0. Other (caves, natural shelters, etc.)

138. The following definition of a "dwelling" is recommended:

"A dwelling is a room or a suite of rooms and its accessories in a permanent building or structurally separated part thereof which by the way it has been built, rebuilt, converted, etc. is intended for private habitation and is not, at the time of the census, used wholly for other purposes. It should have a separate access to a street (direct or *via* a garden or grounds) or to a common space within the building (staircase, passage, gallery and so on)."

139. The recommended definition of a "private household" is the following:

- (a) One-person household: a person who lives alone in a separate housing unit or who as a lodger occupies a separate room or rooms in a part of a housing unit but does not join with any of the other occupants of the housing unit to form part of a multi-person household as defined below; or
- (b) Multi-person household; a group of two or more persons who combine to occupy the whole or part of a housing unit and to provide themselves with food or other essentials for living. The group may pool their incomes and have a common budget to

a greater or lesser extent. The group may be composed of related persons only or of unrelated persons or of a combination of both, including boarders but excluding lodgers . . .”

140. Along with this definition of “private household” a separate one is given for “institutional household”, which is defined as “a group of persons living in a school or college, penal establishment, hospital, military installation, hotel, boarding house, etc. Households in which the number of boarders and lodgers exceeds five should be considered as boarding or lodging houses and enumerated as institutional households.” It should be noted that this definition is not strictly related to the concept of collective housing unit, just as the private household is not strictly related to the concept of the private housing unit.

141. In Europe it is recommended that households should not only be classified according to whether they constitute private or institutional households, but should be subdivided further according to whether they contain family nuclei, and if so, according to the number of these. For this purpose a family (nucleus) is defined as: “A married couple without children, a married couple with one or more unmarried (that is never married) children, or one parent with one or more unmarried children.”<sup>25</sup> It may be remarked that all other relatives of a household are regarded as not belonging to the family nucleus.

142. This European recommendation implies that private households will be classified as follows:

- 1.0. Non-family households
  - 1.1. One person households
  - 1.2. Multi-person households
- 2.0. One-family households
  - 2.1. Married couple without children
  - 2.2. Married couple with unmarried children
  - 2.3. Father or mother with unmarried children
- 3.0. Multi-family households
  - 3.1. Comprising two families
  - 3.2. Comprising three families
  - 3.3. Comprising four families, etc.

It should be emphasized that the types of household mentioned under 2.0 and 3.0 may comprise, apart from the members of the family nucleus, other relatives and/or related persons. The latter belong to the household but not to the family nucleus.

143. As regards families, a classification into two main types emerges from the foregoing. First of all there are the families of which the head is at the same time the head of the relevant household. These may be called *primary* families. Secondly there are the families of which the head is not at the same time the head of the household. These may be referred to as *secondary* families. Obviously secondary families may occur also in institutional households.

144. The terms “housing deficit”, “housing shortage”, “replacement needs”, and “present housing requirements”, have been used in Europe and Latin America with different connotations. The expression “existing housing deficit”, used in Latin America, is equivalent to the expression “present housing requirements”, which is currently used in European Housing Committee documents. Both concepts encompass

both “present replacement needs” and “present shortage”. For the purposes of this report the expression “present housing requirements” will be used as meaning total needs at a certain point of time, that is the number of additional dwellings needed to provide housing accommodation for the population concerned at a level regarded as satisfactory from the point of view of social policy. It includes “present replacement needs”, i. e. the dwellings needed to provide adequate accommodation for the people currently living in housing units which are considered to be unfit for human habitation, as well as “present housing shortage”, i. e. the number of dwellings required to reduce the number of doubled-up households and overcrowding. “Present housing requirements” do not include in this context provision for urban renewal or future replacement of existing conventional (permanent) dwellings.

(c) *Housing requirements and housebuilding requirements*

145. A distinction ought to be made between the housing requirements of the population at a given time in the future, and the housebuilding requirements in the course of a future period, that is the number of dwellings which ought to be built over the period in order to make it possible to meet the housing requirements at the end of the period, taking into consideration what will then remain of the housing stock existing at the outset.

146. With regard to the time reference, housing requirements may be divided into present housing requirements and future housing requirements. Housing requirements at any given time can be understood to mean: (a) the number of dwellings that should be available to make it possible to offer a separate dwelling to households which, according to some normative judgment, ought to have one; or (b) the number of dwellings in effective demand at the same time. It is obvious that concepts (a) and (b) are not identical. Owing to the ratio between annual housing costs (rents) and incomes in different population groups, the demand for dwellings can be less than what would appear to be desirable according to the first concept (so-called “objective” requirements). But effective demand can, of course, for the same reason be greater than the number of dwellings “objectively” required, although in underdeveloped countries this would merely be the case for high-income groups.

147. When calculating housing requirements concepts (a) or (b) may be used. The first is the *normative* concept postulating that housing requirements exist so long as the existing levels of housing remain below the aims of housing policy. The second is the *market* concept defining the housing need as a situation in which the demand for dwellings exceeds the supply at the existing levels of rents, prices and incomes.

148. The evaluation of housing requirements on the basis of the market concept is very difficult, for it implies the evaluation of “effective demand”, which shows housing requirements as they appear from demand on the housing market at a given moment in the particular circumstances of that market. The “national market” is composed of many sub-markets, determined by regions as well as by types of dwellings, each of them with its own ratio of supply and demand. The problem is still further complicated by the fact that in many countries, owing to the existing housing

<sup>25</sup> Including foster-children as well as adopted children.

shortage, the supply of dwellings is conditioned by rent regulations and other measures.

149. Because of the difficulties involved in assessing "effective demand", taking into account all the many factors determining it, many countries resort to the normative (or objective) concept of housing requirements.

150. The choice of the normative approach, however, is not determined merely by the difficulties just mentioned; there are also certain advantages. For example, it enables the aims of housing policy to be taken into account in estimating present housing requirements – which is troublesome when the market concept is used. This is so because the normative method takes account of what is desirable from a social point of view, especially for the lower social-economic groups. To a great extent the housing requirements of these groups will not be revealed when the market concept is used, since special social measures are necessary before these requirements are transformed into effective demand. Furthermore, the normative approach, being much simpler from the methodological point of view, needs fewer and more objective data. These data will, moreover, also be available, as a rule, for the different regions of the country, thus enabling housing shortages also to be calculated separately for each of the regions. This is much more difficult if the market concept is used, since in that case it will be difficult enough to make available, even for the country as a whole, the more subjective data necessary for the calculation of effective demand. Finally, the normative concept enables each country to take account of the aims of its own housing policy, in other words to determine its own housing requirements on the basis of its effective housing situation and its own economic and social possibilities of improving the housing standard. This means that the use of the normative concept will enable countries to raise their norms as their economic and social possibilities and/or their effective housing situation improve.

151. Paragraphs 149-150 do not imply that effective demand will not be considered at the implementation stage of the programme. On the contrary, effective demand ought to be taken into account in setting up priorities for the geographical distribution of the programme as well as in adopting measures designed to stimulate investment in low-cost housing.

152. The difference between the housing need in a normative sense and in a market sense is much greater in Latin American countries than in most countries in Europe, so that the use of the concept of effective demand in the circumstances prevailing in Latin America would necessarily lead to a serious under-estimation of the existing requirements and of the efforts needed to improve the housing situation to a socially desirable level. For the purpose of establishing housing programmes the normative concept is therefore recommended by the Seminar.

#### 4. Evaluation of present housing requirements

153. The analysis of present housing requirements should be regarded as an essential statistical basis for housebuilding programmes. This is true especially when there is a substantial housing shortage and the limited resources available hardly allow even the minimum requirements to be met. First of all such an analysis gives an insight into the

present housing shortage, specified according to the different categories of household not having a separate dwelling and thus providing a basis for deciding on the direction in which to steer the programme to be established. Secondly, the results of the analysis of present housing requirements enable more reliable assumptions to be made for calculating future housing requirements. Finally – and this is probably the most important reason for making such an analysis – it enables a clear distinction to be made between the requirements that exist at the starting-point of the programme and those that will be needed as a result of future developments. In countries having limited resources, in particular, this permits the establishment of a minimum programme intended, at least, to prevent deterioration of existing housing conditions; if resources make it possible to go beyond the minimum programme, the rate at which the housing situation may be expected to improve on the basis of more or less extended housing programmes can also be calculated.

154. An evaluation of present housing requirements can be made on the basis of several criteria. One which has been used in Latin America consists of evaluating the number of dwellings which would have to be built in order to give the population a level of living – from the housing standpoint – regarded as satisfactory by the population concerned, that is to say, the number of additional dwellings needed to provide adequate accommodation for the people currently living in housing units which, because of their structural characteristics, ought to be considered unsatisfactory, and to reduce the density of occupation so as to eliminate overcrowding. In Europe special attention has been paid to the evaluation of housing requirements for the elimination of doubling-up of households.

155. Determination of the existing replacement needs in Latin America has been a matter of concern to regional and national agencies. The Pan American Union, in a study published in 1954<sup>26</sup> estimated the replacement needs in Latin America in 1951 at 19 million dwellings, a situation resulting from "houses that are not in keeping with human dignity and that should be demolished."<sup>27</sup> Estimates have also been made of current deficits in ten countries, but no comparison can be made between them because they were obtained by different methods and are based on very different standards with respect to the conditions which a dwelling must meet to be considered satisfactory.

156. When the recommended separate concepts for dwelling and households are used, present housing requirements may be calculated as the number of dwellings needed to absorb:

- (a) Present replacement needs
  - (i) To replace the number of private housing units not falling under the definition of conventional dwellings, and

<sup>26</sup> Pan American Union, *Problems of Housing of Social Interest*, Washington D.C., 1954.

<sup>27</sup> It should be pointed out that there is a serious problem of interpreting housing statistics and studies, not only in Spanish but also in English and French. For example, what is referred to in the Pan American Union document as "present shortage" is called "present housing needs (shortage)" in United Nations, *Proposed Methods of Estimating Housing Needs* (E/CN 3/274). The PAU also uses the terms "deficit due to deterioration" and "demographic deficit" for the dwellings needed to replace present dwellings in a state of disrepair and to absorb the population increment.

- (ii) to replace the number of "sub-standard" conventional dwellings, as established on the basis of a special investigation.
- (b) Present shortage of conventional dwellings
  - (i) to accommodate the number of secondary families involuntarily forming part of multi-family households;
  - (ii) to accommodate the number of households involuntarily doubled-up with other households;
  - (iii) to reduce excessive density of occupation (overcrowding).

157. The components of the present housing requirements as indicated in previous paragraphs, are not independent from each other, and care should be exercised in order to avoid over-estimating the requirements. For example, if involuntary doubling-up of families and households were eliminated, the arithmetical average density of occupation would be brought down. However, there may still remain an unduly large proportion of small dwellings occupied by large families or households which would require additional rooms or a corresponding number of additional larger dwellings.

158. It was stressed at the Seminar that the components shown in paragraph 156 could not be easily determined unless the definitions, concepts and classifications of housing units, dwellings and households recommended in paragraphs 136 to 144 have been used in housing population censuses.

159. The most reliable statistical source for the data needed for the calculation of housing shortages, according to the normative approach described above, is a housing census. In the absence of such a census, partial censuses or sample surveys may also be very valuable for this purpose. A housing census, however, provides a far better basis, since it gives the regional breakdowns needed for the calculation of regional housing requirements thus enabling priorities to be established, and it also provides more extensive background information. In the discussion on the methods of calculating housing requirements set out above, it was pointed out that the lack of statistical information in most Latin American countries made it impossible for the time being to assess the present (and future) housing requirements in a reliable manner. While in view of the extremely bad housing situation in these countries precise measurement of the housing requirements is not required as a basis for immediate action, the conclusion should not be drawn that there is no urgent need for a reliable and detailed account of the housing situation. On the contrary, it is desirable that efforts be made to develop an adequate statistical basis for estimating housing shortages not only because this would enable a long-term housing policy to be developed on a sound basis, but also because a reliable and well designed comparison of the existing housing situation with the situation that it is deemed necessary to attain in Latin American countries may result in the mobilization of the resources needed to extend housebuilding activity to its maximum possible level.

160. In estimating present replacement needs it was generally agreed at the Seminar that the following category of housing units should be regarded as "fit for human habitation" (in terms of the classification of housing units recommended by the United Nations):

- 1.1.1. Conventional (permanent) dwellings.

161. On the other hand not all conventional dwellings should be regarded as fit for housing human beings, and an attempt should be made to establish the number of sub-standard units among conventional dwellings.

162. It was generally agreed that the following categories should be regarded as "unfit for human habitation":

- 1.1.4. Improvised housing units

2.0.0. Housing units not intended for habitation.

163. The following types may, or may not be satisfactory and their fitness for habitation would need to be determined by actual inspection:

- 1.1.3. Mobile housing units

- 1.1.2. Rustic housing units.

164. In addition to the above there is the question of private households living in collective housing units some of which may be unsuitable for occupancy by private households. These may include the following:

- 1.2.1. Hotels or rooming houses and other lodging houses

- 1.2.3. Camps

- 1.2.4. Multi-family housing units.

165. Since housebuilding programmes are generally restricted to the provision of dwellings for occupation by private households, the housing units classified under 1.2.0. (collective housing units) may not be considered.

166. In estimating the present shortages the essential factor to be taken into account is the right of adult human beings to live their personal life in privacy. This suggests as a norm that each private household should have a separate conventional dwelling. As set out in the European Programme for National Population Censuses drawn up by the Conference of European Statisticians<sup>28</sup> a household may comprise more than one family nucleus. The norm suggested would not safeguard the right of each family nucleus to enjoy the privacy of a separate dwelling. It would therefore be desirable that the norm should be extended to include in addition to private households, at least those secondary families which involuntarily form part of multi-family households.

167. Methodological studies carried out under the auspices of ECE<sup>29</sup> indicate that present housing shortages should preferably be calculated on the basis of treating "dwelling" and "household" as separate concepts, as recommended in *General Principles for a Housing Census*; not only because they allow for a better and clearer insight into the housing situation than other concepts that might be used, but also because the classifications recommended by the United Nations in relation to each of these concepts provide a clear and acceptable norm which should be established with reference to housing supply as well as to housing requirements.

168. Although no figures are available for most Latin American countries giving the number of households doubled-up with other households, the problem exists in the region and should be regarded as one of the elements determining the housing shortage. As regards the inclusion of secondary families in calculating the housing shortage, it was pointed out that the situation in which two related fam-

<sup>28</sup> See footnote 24.

<sup>29</sup> *Techniques of Surveying a Country's Housing Situation, including Estimates of Current and Future Housing Requirements* (ST/ECE/HOU/6).



ilies constitute a household together might be regarded as normal, but that where a household comprises two non-related families, the secondary family involved should be taken into account in calculating the housing shortage.

169. In the discussions reference was made to the document *Proposed Methods of Estimating Housing Needs*,<sup>30</sup> where another element determining housing shortages is mentioned, namely "the number of dwellings required to reduce the density of occupation". Attention was called to the fact that, as indicated in the document, this element overlaps with the other components of the housing shortage, since by constructing the dwellings required to provide separate accommodation for households doubled-up or living in sub-standard dwellings or in housing units unfit for occupation, the density of occupation will automatically be brought down, although not necessarily to the low levels determined in particular instances as a matter of policy. High density of occupation may be caused by single households living in dwellings which do not have a sufficient number of rooms. The requirements of these households should be taken into account in the housing programme by providing for construction of new dwellings of sufficiently large size. But by satisfying these requirements the dwellings originally occupied by the households in question would eventually become available for occupation by smaller households, and this fact should be taken into consideration.

170. Attention was likewise drawn to the possibility of calculating the number of dwellings required to bring down the average density of occupation to a given level, as an alternative albeit rough method of calculating housing shortages. It was noted that this method would be useful when statistical data on the doubling-up of households and families are lacking, as is the case for most Latin American countries, though it does not permit interpretation of the significance of overcrowding in relation to families or households which are affected by lack of privacy, or the number of them which would benefit by the elimination of the existing housing shortages.

171. The methods recommended above may be refined in various ways, without changing their substance. This would not normally be required in order to obtain sufficiently reliable estimates of the housing shortage. It is desirable, however, in applying the methods in a given country, to consider carefully whether any particular adaptations or refinements are required under the domestic conditions obtaining in the country in question. It should also be pointed out that the methods described relate to the calculation of requirements in terms of the number of dwellings to be constructed. For the purpose of drawing up housing programmes additional studies would have to be made of other aspects of the requirements, e.g. the number of dwellings to be repaired, enlarged, or provided with essential facilities such as piped water, toilets, etc.

172. While it was generally agreed at the Seminar that the analysis of housing requirements in Latin American countries should be based on the methods outlined above, it was pointed out that the statistics at present available do not permit the application in all cases of these methods. The methods themselves, however, were considered to be sound and equally valid for Europe and for Latin Am-

erica. Stress should therefore be laid on the desirability of including the items and classifications required for the application of these methods when future housing censuses are taken. It was also felt that consideration should be given to the possibility of obtaining the information needed by means of sample surveys.

173. As regards the definitions of household and dwelling, it was recognized that separate definitions for these concepts, as recommended by the United Nations, provided the best basis for the measurement of housing requirements. In previous censuses in Latin America the "household-dwelling" approach has frequently been used. It was agreed, however, that in future censuses and sample surveys, an effort should be made to apply separate concepts.

174. The view was also expressed that the introduction of the concept of the secondary family, in addition to that of the household, raises a number of problems, since the enumerators would have difficulties in applying both concepts simultaneously. In this connexion, it was pointed out that it may not be necessary to identify families during the enumeration stage and that they can be identified during the processing stage, on the basis of a special question regarding the relationship of the members of the household to the head of the household.

## 5. Evaluation of future housing requirements

### (a) *The necessity of considering future housing requirements*

175. One of the purposes of any housing programme is to indicate the amount of resources which have to be allocated to housing within the framework of development plans, in order to reach certain social and economic aims within a specified time. As part of the housing policy the programme should indicate the various measures to be taken and the kinds of building activity to be undertaken in order to reach the targets set. Even if the aims of housing policy are so modest that they are intended merely to prevent the deterioration of the existing situation, it is necessary to assess the future increase in the housing requirements. The formulation and implementation of housing programmes should not be delayed. Housing programmes are considered particularly necessary in countries undergoing rapid industrialization, as a means of securing a balanced distribution of resources for the various investment requirements.

### (b) *Methods of calculating future housing requirements*

176. As a housebuilding programme is always intended to be executed within a specific time, the target can only be attained if the increase in housing requirements during the relevant period is taken into account when evaluating it. This increase is mainly determined by: (a) demographic development; (b) internal and external migration; (c) deterioration of the existing housing stock during the relevant period; (d) social and economic development.

177. The main specific components of future housing requirements are, therefore, as follows:

- (i) The number of dwellings required as a result of demographic change;
- (ii) The number of dwellings required to replace dwellings lost over a certain period of time;
- (iii) The number of dwellings required to allow for a vacancy reserve.

<sup>30</sup> E/CN.3/274.



The methods to be applied will depend on the availability of statistical data as well as on the purpose for which the estimates are made. Different approaches may be followed in long-term and short-term estimates. This is particularly true in the case of estimates intended for national, regional and local plans. The general character of the problem should be analysed first without regard to the availability of statistical information, in order to clarify what factors determine the housing requirements and their future size, and the relationship between these factors. The development of a method which as far as possible takes into account the different factors that determine the future housing requirements, and the relationship between these factors, can in itself serve as a guide for the improvement of the existing statistical information. The inadequacy of the available statistical data may be a reason for attempting to distinguish between simple and more elaborate methods, and trying to assess the limitations and reliability of the different methods.

178. There is no statistical method by which a satisfactory assessment can be made of present housing requirements, let alone future requirements; the attitudes and ambitions of peoples with respect to housing are bound to change with time, and the standards that apply today will undoubtedly prove inadequate in thirty or forty years. Nevertheless, there are clear indications that housing conditions are deteriorating in most Latin American countries as well as in many other countries in underdeveloped regions, because not enough dwellings are being built; and this has caused national and international agencies to try to determine how many dwellings would have to be built to ensure, as a minimum, the maintenance of existing conditions, or to raise them to a given level. International experience, particularly in Europe, shows that useful results can be obtained, and the methods described below, which were fully discussed at the Seminar may be used in the future in estimating housing requirements in Latin American countries.

179. Three alternative methods may be considered. One, which is being used in Europe, requires census tabulations of heads of households according to age, sex and marital status by urban, rural, and similar categories of the population living in private households at the time of the census; population projections with the same breakdowns are also required. Since such statistical information is generally not available in Latin America, less elaborate methods were also discussed as interim procedures until more detailed statistics become available in the region. The application of any method is dependent upon assumptions regarding future norms, standards and levels of living as well as hypotheses concerning the future size of households, future migration of the population from rural to urban areas, and average duration of existing dwellings. The various aspects to be considered in making such estimates are discussed in the following paragraphs, each of the components of future housing needs mentioned above being considered separately.

(c) *Dwellings required as a result of demographic change*

180. The housing requirements that arise over a period in the future are caused partly by changes in the population existing at the beginning of the period or, in other words, by demographic development. This implies changes in three respects: the size of the population, its structure, and its

geographical distribution. Thus, as will be pointed out more clearly below, there are good reasons for preferring the expression "demographic development" to the misleading term "population increase" as a component of future housing requirements.

181. The number of dwellings needed as a result of "demographic development" must be determined. The basic problem is how to estimate the number of new private households that will be formed in future years. Once this figure has been arrived at, the number of new dwellings required to accommodate such households can be determined by assuming that the new households should have, as a minimum, housing conditions equal to the standards existing at the time of the last census, or the estimate can be made on the assumption that housing conditions are to improve to a certain level.

182. It ought to be stressed, however, that even the expression "demographic development" can be misunderstood – as if the housing requirements caused by it were entirely assigned to purely "demographic factors". Certainly the development of the population and the resulting housing requirements partly depend on biological factors (fertility and mortality) and their effect on the size and structure of a given population. And to this extent one can speak of demographically determined changes in housing requirements under assumptions unchanged in other respects. But there is obviously an intimate relationship between technical, economic and social development in general and the development of the population of a country, on the one hand, and changes in its housing requirements on the other, not only through internal migrations and their consequences, but also through changed conditions of household formation, apart from the effect of purely demographic factors.

183. Children do not represent requirements in terms of the number of dwellings (although, of course, they do as regards size in terms of number of rooms), and yet it is primarily by the number of new-born children that the population increases. It may therefore be misleading to draw conclusions as to changes in requirements for dwellings from changes in the size of the total population. This has been clearly illustrated in the following way: the population of a housing development newly occupied by recently married couples could double within a few years without a single extra dwelling being required, as the additional population would be small children, and there would be no change in the number of households. Conversely, a large requirement for additional dwellings could arise twenty or thirty years later when the population of the development was stationary or even decreasing. It is by no means unusual that, owing to the structure of the population and the general economic development of a country, the increase in the total number of dwellings is much greater than that of the total population over the same period, though in spite of this an acute housing shortage continues to exist.

184. It follows that the decisive question is what will happen to the household-forming part of the population existing at the beginning of the period, that is the population over fifteen years of age. For the next fifteen to twenty years, this is obviously a question unrelated to the birth factor during the same time.

185. Inasmuch as the consumer units in the housing market are households or families rather than individuals,

it is the growth in the number of married couples, families, or households rather than the growth in the number of individuals which is of interest to housing programmes. In other words, in the consideration of housing requirements, households rather than individuals are the more important demographic unit for study because, in general, one housing unit is occupied, or required for occupancy, by one household.

186. A small proportion of the population of each country lives outside private households in so-called institutional or non-family households. In addition to the population living in institutions (such as prisons, homes for elderly persons, hospitals for chronic illness, etc.) some persons live in such types of group quarters as boarding houses, lodging houses, hotels, convents, military barracks, etc. Data on the proportion of the population living outside private households are not available for all the countries in Latin America. The proportions vary greatly but they are all well below 10 per cent and, with one exception, below 5 per cent. The proportions for the countries of North-Western Europe fall below 5 per cent. This similarity seems surprising. One would expect a somewhat lower average for Latin America than for North-Western Europe, as a result of the reduced institutional facilities available and the more cohesive family structure, etc. In view of the small proportion of the population living in non-family households, and the fact that this part of the population does not have to be supplied with regular dwellings, the population living in non-family households can be left out of consideration in evaluating future housing needs.

187. In spite of the fact that information on the number and characteristics of households is highly important for various planning purposes, the data on families and households available for the Latin American countries are quite limited. Data on households from the few censuses taken around 1960 are not yet available. The 1950 censuses are still the only major source of data for any substantial body of statistics of this type. For fifteen countries (excluding Bolivia, Chile, Guatemala, Honduras, Peru, and Uruguay) data are available from the 1950 censuses on the total number of private households, and for fourteen countries (excluding these areas and Argentina) on the number of households by size and on the number of persons in private households by size. Eleven countries provided data on the relationship between members of private households and the head of the household. Beyond this, very few data on households are available from the 1950 censuses. Only a few countries furnished data on households distributed by the age of the head of household, and none furnished data on households classified by structural type following the general lines suggested by the United Nations. Panama represents an outstanding exception with respect to the type of data published: data are given, for example, on households by age, sex, and marital status of the head, on households by age of the head of the household and number of children under fifteen, and on presence of wife in the case of male heads of households, by number of children and number of other relatives.

188. It is evident that the number of households in a population bears a roughly constant relationship to the number of persons. In general, people live in family groups and the average size of these family groups does not vary

widely from one date to another in a given country or even from country to country. Although the ratio of households to population is fairly stable from year to year, relative changes in population and in households in a given period may, however, show only a rough similarity and may, in fact, diverge greatly. Households may grow more – or less – rapidly than population, and the direction of the difference may not be the same from one period to another. Unfortunately, historical data on households are lacking for most Latin American countries. Illustrative figures are given below for four Latin American countries with comparative figures for Sweden and the United States:

	Period	Percentage increase	
		Households	Population
Brazil	1940–50	27.2	24.1
Costa Rica	1927–50	50.4	69.6
Panama	1940–50	17.2	33.2
Puerto Rico	1940–50	21.1	18.3
	1950–60	6.3	12.8
Sweden	1945–50	1.0	4.8
United States	1940–50	22.6	14.5
	1950–60	25.1	18.5

189. The differences in the rates of change result from the fact that although general population growth is likely to be accompanied by roughly similar growth of the adult population (the population from which the heads of new households come), the specific factors involved in the growth of population and households are different. Over-all population growth in a given period is largely a function of the birth and death rates in that period. Growth of households is dependent on the rate of growth of the adult population (or changes in birth and death rates in prior periods), its age distribution, age-specific marriage, divorce, and widowhood rates, and tendencies of family nuclei and individuals to live doubled-up. Whether or not the number of households will increase, and what will be the magnitude of the increase or decrease, depends on the shape of these factors. High age-specific divorce rates support high growth rates for households; widowhood contributes to a decrease in households. The effect of marriage depends on the relative proportion of younger marriage partners who tend to create new households and the proportion of older ones, who tend to merge previously existing households, thus decreasing the number.

190. Households vary in size, age, structure, and other characteristics pertinent to an evaluation of housing needs. Household size and structure have an important impact on the need for living space, and the age of the household or of the head of the household tends to bear an important relationship to household size and structure. Data on the average size of private households for the Latin American countries indicate the tendency for households to run relatively large, as would be expected from the age distribution of the population and the level of fertility. The regional totals indicate that around 1950 household size was about 56 per cent greater in Latin America than in North-Western Europe. Households in Latin America averaged about 4.9 persons. None of the fourteen countries for which data are available had a figure below 4.3, and several had figures over 5.3. Argentina, Mexico and Panama are on the relatively low side, with figures between 4.3 and 4.5, and Colombia, Nicaragua, and Costa Rica are on the high side,

with figures above 5.5. In contrast, average household size for the countries of North-Western Europe around 1950 stood at 3.1 persons per household, varying from 2.9 for Sweden to 4.2 for Ireland. These figures are well below the levels for Latin America.

191. Associated with the high average size of household in Latin America is the very large proportion of children. This is a direct result of the high fertility rate. In most Latin American countries, between 35 and 45 per cent of the population is under fifteen years of age, whereas in North-Western Europe and in North America, the proportion varies generally between 20 and 30 per cent. At the same time in Latin America the proportions of persons in the 15-64 and 65 and over age groups are relatively low.<sup>31</sup> The smaller proportion of older adults contributes further to raising average household size in Latin America in comparison with north western Europe.

192. Because censuses in Latin America have not made a careful distinction between households, families, nuclear families, and married couples, and have not generally tabulated statistics of this kind, little is known about the tendency of families, married couples, or individuals to share the same dwelling unit. Valuable indications are given by data on the relationship of persons to the head of the household in which they live, particularly in combination with data on marital status. Data on the marital status of individuals are not only important in describing the household arrangements under which they live, but they are also useful in interpreting changes in the number and size of households, in the measurement of the current need for dwellings, and in the preparation of projections of households, families, and married couples. Data on marital status by age are directly useful for estimating the potential number of housing units required or desirable where various assumed levels of "undoubling" were to occur currently or at various future dates.

193. For Latin America, no analysis of households or of housing needs is adequate which fails to take into account *de facto* (consensual) unions because of their effect on the level and interpretation of the relevant data.<sup>32</sup> The incidence of *de facto* unions varies widely among Latin American nations. The proportion of persons reported in "stable" *de facto* unions in the censuses taken around 1950 exceeded 20 per cent of the population aged fifteen and over in El Salvador, Guatemala, Haiti, Honduras, Nicaragua, and Panama, and ranged between 5 and 20 per cent in most other countries of the region. The proportion which this group represented in the total "married" population aged fifteen and over rose to 68 per cent in Guatemala and 75 per cent in Haiti, but was only 7 per cent in Chile. The validity of the number reported for consensual unions is very much open to question as a result of the tendency on the part of many persons living in consensual unions to report themselves as legally married or as single. The type of marriage clearly has an effect on the stability of family units and hence on the rate of formation of households and the requirements for dwellings. Differences in the

nature of marital unions also give rise to the possibility that the type of marriage (legal or *de facto*) has an effect on fertility; the most defensible hypothesis is that legal marriage tends to be associated with higher fertility and thus with larger families.

195. Alternative procedures for making projections of the number of households vary according to whether the results are intended essentially to represent extensions of past trends, which reproduce the basic features of past household composition and the associated tendencies toward doubling-up of families, or whether they incorporate the use of norms relating to the size and composition of households under more favorable conditions of housing supply, housing cost, family income, and similar factors. When there is considerable doubling-up of families resulting from a housing shortage and the high cost of housing in relation to family income, the projected number of households obtained by merely extending past trends may be viewed as a type of "minimum" estimate of the number of households to be accommodated. Minimum estimates of future housing requirements would be obtained by establishing the norm that, of the future households added, as indicated by the projection of past trends in the number of households, only a proportion equal to the proportion of current households occupying conventional dwellings needs to be furnished with dwellings.<sup>33</sup> On the other hand, an excessively high ("maximum") estimate is obtained by applying the norm that every nuclear family and every individual not living in a family group should have a separate dwelling. A practical and reasonable norm would appear to lie somewhere between these two approaches. The additional households to be accommodated in the future according to the first approach would be the excess of the projected number of households over the present number; in the second approach it would be the hypothetical increase in households resulting from the application of the norm stated, at both the base date and the future date.

195. Several procedures have been developed for projecting the number and characteristics of households. The so-called crude methods are, of course, easier to apply, but they do not take as fully into account the various factors affecting the future growth of households, and do not provide any of several desirable types of by-products relating to the characteristics of households. The crude rate of future population growth would give a very rough indication of the percentage increase in the number of households and over a given future period. Although the average size of households and the proportion of the population outside private households change slowly over short periods of time, the number of households tends to grow at a somewhat different rate from the total population. The similarity in the growth of population and households may be closer if the adult population (say, eighteen years of age and over) is used rather than the total population, inasmuch as household heads fall almost wholly in this age range.

196. Over the longer run, the average size of household (and the average number of adults per household) is almost

<sup>31</sup> United Nations, "The demographic situation in Latin America", Economic Bulletin for Latin America, Volume VI, No. 2, October 1961.

<sup>32</sup> United Nations, Latin American Seminar on Population, Rio de Janeiro, Brazil, 5-16 December 1955 (ST/TAA/SER.C/33), New York, 1958, Summary of Meeting 10, pp. 60-62.

<sup>33</sup> United Nations, *Proposed Methods of Estimating Housing Needs* (E/CN.3/274). See especially page 32, table 2, which illustrates the differences in housing requirements when the percentage of the population living in conventional dwellings varies from 70 to 100 per cent.

certain to change, and hence the future rate of growth of population and of households will differ, sometimes very sharply. The number of households should therefore be estimated more directly. The more elaborate methods of projection take into account the composition of the population by age, sex, marital status, relationship to the head of the household, and other variables which have an important effect on changes in the number of households. The choice of variables used in making projections of households depends on two basic considerations: (i) the value of the variable in improving the quality of the projections; (ii) the need to include the variable because projections in the corresponding detail are sought. An illustration of each may be given: for example, statistics on age of head and computation of projections by age-of-head classes are desirable because they contribute to the quality of the final projections even though projections of households by age-of-head classes as such may not be needed. If specific information is sought as to the number of family nuclei with children who are living with other families, then variables such as relationship to head, marital status, or family type must be incorporated into the projection method.

197. A basic part of all the so-called "refined" procedures is the use of projections of population by age and sex. Highly reliable projections of adult population by age and sex are often already available or can in most cases be computed merely with the use of census figures by age and sex and projected age-specific death rates. There is no necessity to begin projecting births for the present purpose until the projection period extends for fifteen or twenty years ahead. Moreover, marital status and relationship status, and hence the number and size of households, vary with age and sex; it is desirable in making household projections to take into account, at least, the effect of changing age-sex composition on the number and over-all average size of households. The procedures for making population projections are well known and they have been described in a number of places.<sup>34</sup> In brief, a cohort-survival component method is employed. This method involves the computation in terms of age-sex groups and in terms of the components of births, deaths, and net migration. More specifically, the base population, distributed in age-sex groups and possibly adjusted for age misreporting and under-enumeration in the census, is carried forward by age cohorts, to various future dates by use of projected age-specific survival rates and birth rates.

198. The ratio between the number of heads of households in each age-sex marital status group to the total population in each of these groups is called headship rate and is derived from the census data. Similar ratios can be applied to the corresponding population groups as projected for the end of the programming period. It has been found in the past that for some population groups, headship rates have remained fairly constant (for example, for married males). On the other hand, for some groups the headship rate has increased more or less considerably (for example, for formerly married persons of both sexes). Therefore, whenever possible,

the headship rate found at the date of the census should be increased with a view to taking this phenomenon into account. The trends observed in the past could be used as a starting-point when defining the headship rates to be attained for the future.

199. It is clear from the methods described above that a large amount of statistical information is required which is not available under the conditions obtaining in Latin America. In these circumstances a more simple method should be devised, requiring, less basic data. This could be achieved by using less detailed age-groups and marital status groups. This simplification, however, also requires information on age-specific death rates for each marital status group selected. A further simplification would consist of using either age-groups or marital status groups, not both. Practical experience has shown that household formation depends more closely on marital status than on the age structure. It can be concluded that it is preferable, when taking a short cut, to work with headship rates for specific marital status groups. In any case, European experience has shown that the method of headship rates, even if limited to the broad category of married and unmarried, yields more reliable results than assessing future household formation on the basis of a projection for the total population and an assumed average size of households in the future.

200. It should be noted that a general age-specific headship rate (heads per person) varies in the same way as mean size of household (persons per head), by age of head. Use in household projections of the proportions which heads constitute of the total population in an age-group allows for: (1) the effect of future changes in age composition on the general proportion of heads among adults in the population (or on the over-all average size of households); (2) future changes in the proportion of heads in the population (or the average size of household) at each age. In the absence of data on heads by age, a model or assumed schedule of age-sex-specific headship rates could still be developed and applied.

201. In countries where such specified headship rates are worked out at census dates, there is clear evidence of rates increasing parallel with the increasing age of the groups, especially for unmarried persons. The importance of this lies in the fact that, even if the assumption that headship rates for age-specified groups remained constant over a projection period were justified, a change in the age structure of the projected population could result in a change – and increase or decrease in the headship rate for the total group (for example, unmarried males) and consequently in correspondingly greater or smaller dwelling requirements for that group – unless counterbalanced by a change of size of the group in the opposite direction.

202. In some countries it seems to be established that headship rates have remained fairly constant over considerable periods. This would seem to imply that the development of housing requirements does not depend very much, if at all, on the general economic and social development of the community. Consequently, future housing requirements can be calculated by applying group-specified headship rates, worked out at a census date, to the corresponding population groups projected to the end of a future period.

203. It is at the same time true, however, that in other countries, like Sweden, group-specified headship rates worked

<sup>34</sup> The United Nations has issued a manual describing in detail how such projections can be prepared even when some of the necessary vital statistics are lacking: *Methods for Population Projections by Sex and Age*, Manual III, ST/SOA/Series A, *Population Studies*, No. 25.

out at a number of census dates clearly show that these rates have been continuously increasing over the past decades, both for unmarried and formerly married groups. Moreover, this has occurred in spite of an acute shortage of dwellings, which means that the rates would have increased still more if a greater number of dwellings had been available to satisfy the greater actual demand. In such a country, therefore, the calculation of future housing requirements includes the problem of making reasonable assumptions as to whether these rates will continue to increase.

204. The question arises whether the different factors which have caused the increase in headship rates are likely to have a similar effect in the future. Some of the probable factors usually referred to in this respect in Sweden are: (1) the general rise in real income; (2) the general reduction in the ratio of annual housing costs (rents) to incomes; (3) the favourable labour market situation with security of employment; (4) the great influx from rural to urban areas of young persons having to choose between a separate flat and more or less scarce lodging accommodation; (5) the fact that many small flats are occupied by families, which tempts unmarried children living at home to insist on having a small dwelling of their own; (6) the large number of small dwellings suitable for households consisting of one person; (7) the special measures taken by the community to promote the building of small, high-standard dwellings suitable for pensioners and also for different categories of young persons.

205. There is no simple and exact method for making assumptions concerning headship rates at the end of a projection period as compared with those worked out at its beginning. The increase of headship rates over the period may depend on the economic (and social) factors determining the demand for housing within the population at the end of the period. But present knowledge about the relationship between effective demand for housing and its determining factors and also among these factors (incomes, consumption prices and consumer preferences) is too limited. Assumptions can only be made from general considerations based more or less on guesswork and on what is known about past development as an indication of the way in which the earlier trends of the headship rates will probably continue. The most important question here is whether the general rise in real earnings will continue.

206. It may be pointed out that an alternative application of the headship rates at the beginning of the period to the projected population groups at its end can serve the double purpose of illustrating, on the one hand, the effect of the assumed increase in headship rates and, on the other hand, the importance of changes in the size and structure of the population – in both cases in terms of the number of dwellings required.

207. It should be evident that the detailed type of projection described is something the Latin American countries cannot be expected to undertake at this time because the necessary data is lacking. A major problem is the failure to make a distinction in the censuses between households, families, and family nuclei, and to compile data for these categories. Hence, simpler methods of making projections of households must be used. Thus it can be assumed that the average number of persons per private household will have remained constant since the last census and will remain

unchanged during the period for which the housing programme is being drawn up, or alternatively that this average will change in a given direction. This method is based on the general experience of the various countries, which indicates that, according to the data available, the average size of private households changes slowly over a long period and tends to decrease within a certain range. If a projection of the total population, taking urban and rural areas separately, is available, the number of private dwellings at a future date can be estimated by means of the arithmetical calculations. The first consists of calculating what portion of the total population is expected to live in conventional (permanent) dwellings at a future date, by applying the percentage recorded at the last census or an assumed ratio to the results of the population projection for the date in question. The second consists of dividing the population of future occupants of conventional dwellings by the average number of persons per private household assumed for the date in question, so as to obtain the number of private households that will require a corresponding number of dwellings. Comparison of the total number of private households at a future date with the corresponding number at the previous census will give the number of additional private households that will require new dwellings.

208. It was recognized that this method is very inaccurate owing to the effect of the average number of persons per household taken as a basis for converting the population in private households into the number of households. Even slightly different figures for the estimated average number of persons per household can result in very different absolute figures for the future number of households. The reliability of this method therefore depends chiefly on the accuracy of the estimate of average household size. Past experience indicates that the average size of households is not a constant figure and that it is particularly difficult to estimate it for the future in such a way as to make it sufficiently reliable for defining future requirements. In this respect it is felt, as explained before, that the method consisting in estimating headship rates and applying them to various population categories would yield more reliable results.

209. Internal migration creates a serious and difficult problem for calculating the future population and its distribution over urban and rural areas. In principle, there are only two sources for making assumptions in this field. They must either be based on available data regarding the general trend of movements between different parts of the country or they must be related to concrete plans for the location of new industries or for the expansion of existing industry. The great influence internal migration has on the formation of households may make it advisable to calculate the future distribution of the population over urban and rural districts according to different alternatives, especially in countries undergoing rapid development.

210. The methods described above provide an estimate of the number of dwellings required to accommodate the existing number of households at the end of the programming period. For defining the total housebuilding programme, two further factors have to be taken into account: the changes in the housing stock that are needed, firstly, to meet future replacement requirements, and secondly, to establish a vacancy reserve.

(d) *Future replacement needs*

211. Irrespective of the way in which estimates are made and of the criteria used to determine the state of obsolescence and dilapidation of dwellings, it can be rightly assumed that the factors causing this state will continue to exert a progressive influence, so that at the end of the programming period an additional number of dwellings will have deteriorated to the extent of needing replacement. If actual replacement does not keep up with this increase in replacement requirements, the housing situation will deteriorate still further from the position at the beginning of the period. It is therefore necessary to find some way of estimating future replacement needs. One basic problem consists in determining how many dwellings existing at the beginning of the programming period will deteriorate – according to specific objective criteria – to the point where they cannot be repaired and ought to be demolished.

212. However, the demolition of obsolete dwellings is not the only way in which the housing stock can suffer a loss. It may be necessary as a result of urban renewal or other redevelopment schemes to demolish existing dwellings even if not unfit for human habitation. Some dwellings disappear as a consequence of fires or other catastrophes. Other losses arise through conversion of small dwellings into larger premises, or of dwellings into non-residential premises. By some estimates, no matter how approximate, all the different forms of losses have to be considered and added to the requirements caused by demographic development.

213. Future replacement requirements are everywhere difficult to compute. A method commonly used consist of applying certain fixed rates of replacement, corresponding to the average length of life of a dwelling, to the housing stock broken down by age groups. In the absence of information on the age structure of the housing stock and on its composition according to the type of dwelling, estimates in Latin American countries can only be very rough. The average life span of a housing unit is normally a function of a number of factors, such as the type of building, materials used, maintenance, and so forth. Under prevailing conditions in Latin America, characterized by acute housing shortages, it is to be expected that actual replacement will proceed at a slow pace, corresponding to a prolonged average life span of the dwellings. The fact that at present conventional dwellings form only a rather small part of the total housing stock may be taken into consideration by adopting less rigid criteria for estimating future replacement needs of Latin American countries.

(e) *Vacancy reserve*

214. In making estimates of future housing requirements, allowance should be made for a vacancy reserve of dwellings. The essential purpose of the reserve is to make the housing market function normally. Even in countries with critical housing shortages a certain number of dwellings are found to be unoccupied, either because they are being held for sale or rent, or for other reasons. The proportion of vacant dwellings fluctuates and there does not seem to be any generally agreed standard for this vacancy rate. However, in many countries a reserve of 1 to 3 per cent is regarded as reasonable. A certain margin for vacant dwellings must therefore be allowed for in making estimates of future housing requirements.

(f) *Minimum future housing requirements*

215. Total housing requirements at the end of the programming period can be estimated on the basis of the methods discussed earlier (see paras. 176-179 above) adding the three components of future housing requirements: (1) the dwellings needed as a result of the demographic change; (2) those required to replace the existing dwellings as they deteriorate; and (3) those required to allow for a vacancy reserve. Future housing requirements will, however, be determined on the basis of assumptions regarding levels of housing conditions at the end of the programming period.

216. In view of the present limited economic resources in Latin American countries the question was raised of the extent to which the requirements would have to be fulfilled in order for the housing situation not to deteriorate any further. In this connexion it was suggested that housing construction should be maintained at such a level that either the proportion of households living in housing units other than dwellings would not increase or, as a better alternative, that the absolute number of these households would not further increase. The programme necessary for the fulfilment of these conditions could be considered as an absolute *minimum* housebuilding programme. It must be noted that maintenance of the percentage of the population living in conventional (permanent) dwellings implies in fact a deterioration of the housing situation in absolute terms since it allows for an increase of the number of unsuitable dwellings.

217. It was indicated in this connexion that the “minimum” number of dwellings to be built per 1,000 inhabitants per year (I) may be determined in relation to the proportion ( $f_o$ ) of the population that occupied conventional (permanent) dwellings at the last census, the average size of the private household ( $S_H$ ), and the rates of annual demographic growth ( $p_r$ ) and annual replacement of housing ( $O_r$ ) as indicated below:

$$I = \frac{f_o}{S_{H_o}} (P_r \div o_r) \times 1,000$$

The values of this index are tabulated in annex F. This index is based on the assumption that the average size of the households remains unchanged over the programming period, an assumption which is not likely to be correct, as indicated in paragraph 196. This index may be useful, however, for a very rough valuation of the size of a minimum housebuilding programme.

(g) *Size of dwellings*

218. So far, only the number of dwellings required for the population at the end of the period has been considered. It seems necessary, however, to try to go a step further. Households do not demand dwellings in the abstract, but dwellings of different size in terms of number of rooms, and they are perhaps interested in choosing between detached dwellings and others in multi-dwelling buildings such as flats and apartments. Similarly constructors build residential houses containing dwellings of different size, and must therefore decide how to distribute their production between dwellings of different sizes.



219. The size of the dwellings required must also be considered in connexion with certain aspects of planning. If one of the aims of a housing policy which a community intends to carry out is to promote a higher space standard, it is obviously necessary to estimate the distribution of the required housing production between dwellings of different size, in order to achieve improvement in this respect. An estimate of future housing requirements to be included in a long-term economic programme also calls for consideration of the size of the dwellings to be built, since otherwise it will not be possible to calculate the investment costs corresponding to a housebuilding programme expressed only by number of dwellings. Furthermore in planning local land use for residential construction, the size, apart from the number, of dwellings to be built must also be considered, because the land required will depend on the size and type of the dwellings. In the last two instances it will also be necessary to consider the types of house to be built.

220. A method used in Sweden was submitted for consideration. It is based on the fundamental relationship between the size of the household and that of the dwelling. The two starting-points for estimating the distribution of housing construction according to the size of dwellings are the changes during the period in: (1) the average size of households (as derived from a forecast of total population and total number of households at the end of the period; (2) the ratio of the number of married heads of households to the number of non-married heads.

221. A cross-classification of the number of dwellings by their size (number of rooms) and occupation (number of persons per household) can normally be derived from census material. Trends in the space standard of households of different size can be observed from such data for two consecutive censuses; they can be expressed in such indicators as the "number of rooms per household" or the "number of rooms per person". Assumptions can thus be made concerning the distribution at the end of the period (taking into account possible policy targets for space standards and increasing incomes).

222. The total number of required dwellings of different size is calculated by applying certain percentages to the number of households of different size at the end of the period. The total number of each type of dwelling required is calculated by adding up the numbers of that type for all the different types of households.

223. This method makes it possible to assess the number of dwellings required at the end of the period, according to size. In determining the number of dwellings actually to be built, the number, according to size, of dwellings available at the beginning of the period must be subtracted, but excluding dwellings to be replaced (and this necessitates an assessment of the size of dwellings lost); provision must also be made for a certain vacancy reserve.

#### (h) *Types of houses*

224. It may also be considered necessary to estimate the types of houses to be built (one-family dwellings, blocks of flats, etc.), mainly for the purpose of planning land use. Some of the calculations made in determining sizes of dwellings can be of use here. The decisive factors, however, are consumer preferences, the general types of building existing in a given area, and the supply of suitable sites.

## 6. Evaluation of the resources required for dwelling construction

225. After present and future housing requirements have been estimated, these estimates will have to be compared with a forecast of the resources needed to meet such requirements. The resources may be evaluated with reference to the future capacity of the construction industry the supply of materials, labour, and funds, and the main administrative arrangements and policies calculated to influence the implementation of housing programmes.

### (a) *Capacity of the construction industry*

226. In order to make a comparison between housing requirements and the capacity of the building sector, it is necessary to make assumptions regarding future investment. Investment may be calculated by two methods: (1) the input-output model, which requires accurate information on the cost of inputs needed for house construction and the value added under construction; or (2) by using the estimates of the necessary output of housing construction, and by applying some standards concerning the average cost of the different principal types of dwellings.

227. The first method, although more satisfactory from a theoretical point of view, is in actual practice difficult to apply for the purpose of making investment calculations because it is not usually possible to divide the materials being used in construction activity between housing and other construction. In most countries, therefore, the second method is the one more commonly used and the more reliable. It is based on information concerning the actual number of dwellings of different types which have been constructed in the past. Estimates of future investment are therefore based on information about the cost and distribution by types of dwellings which ought to be built in the future.

228. For calculating future investment, information is therefore needed on the kind of dwellings to be constructed. For this purpose, some assumptions must be made concerning the future income-rent ratios for the various income groups. The importance of this point is clear from the present income distribution in Latin America and the low average level of income. The dwellings which could be constructed if households had to defray the annual costs would be necessarily of a very low standard and would soon be considered inadequate if a higher standard of living were achieved. The problem is to decide for whom the housebuilding should be carried out. Should it be for households able to pay a rent covering the running expenses, or for income groups at present unable to cover the running expenses for dwellings of even a minimum standard, taking into account social and hygienic factors? It was pointed out during the discussion that some countries – Costa Rica for instance – concentrate public aid on the construction of dwellings for the low-income groups which at present are not up to standard, but whose basic structure may be supplemented later by the addition of facilities or by an increase in living space.

229. After basic information on the average costs of dwellings of various types is obtained, investment can be calculated on the basis of the number of dwellings of each type which should be constructed under the housing programme. These estimates may be expressed in terms of

capacity units by making use of certain standards, for instance the construction carried out by a fully employed worker with average mechanical equipment. Future investment needs calculated in this way may then be compared with the current trend of investment in the construction sector. The conclusion may be that there will be a serious gap between future investment needs and current trends in investment which reflect the available resources, and it may be necessary to establish priorities in the programme, in order to cover the various stages of demand under optimum timing. However, it may be possible to take measures to accelerate investment trends, thus increasing the capacity of the construction industry.

230. It should be noted that building capacity is employed for all the different forms of construction, including housing, and maintenance and repair of the existing housing stock. This means that housing production, when total capacity is used, must compete with other building activities. Therefore, in drawing up housebuilding programmes an estimate of the possible trends in demand within the construction sector will have to be made. Only with this background will it be possible to see whether the housebuilding programmes can be carried through on an equal footing with other types of building activity. If this is not the case, it may be necessary, in the short run, to cut down building activity in one or more sectors in accordance with existing capacity and, in the long run, to take measures to expand building capacity.

231. Building programmes will always involve a good deal of uncertainty, partly because of the difficulties connected with the assembling of all relevant assumptions, and partly because building activity fluctuates with economic activity as a whole. During a period of prosperity, building activity accelerates in accordance with the increase in demand, not only for dwellings, but also for other kinds of buildings. At the same time owners to a greater extent carry out maintenance and repair work to improve the building stock. In periods of depression, on the other hand, building activity will slow down under the influence of the lower level of incomes. This oscillation makes a reliable conception of development in specific periods difficult to arrive at; on the other hand, it shows how important it is to form an objective hypothesis of the long-term trend.

232. The demand for construction work for houses, working places, repairs and maintenance work, etc. must be compared with existing and future capacity. The demand for construction is thus, in principle, divided between demand for new buildings and for repairs and maintenance work.

233. The theoretical capacity of the construction industry depends on the number of man-hours and on productivity. Building capacity cannot therefore be universally defined, as the daily output of a worker may vary according to changes in working conditions in different places. It is, however, possible to calculate the average number of working hours required per unit for the different types of new construction and thus, within this sector of activity, to arrive at a ratio between capacity and demand. On the other hand, a similar ratio between building requirements and manpower needs cannot be calculated for repair and maintenance work.

234. As already mentioned, capacity depends on the number of workers and on productivity in the widest sense. The

number of employed workers may increase in the future in line with the population growth. In some countries, such as Denmark, the total labour force will, however, grow at a lower rate than the population as a whole, owing to changes in age distribution. At the same time, the number of working hours for the fully employed worker will most likely decrease as the level of living rises. Unless workers can be attracted from other trades – for instance, former agricultural workers – the total number of working hours may remain more or less stable or perhaps decrease. In this connexion it may be said that a rising trend in repair and maintenance work, where the demand for trained workers is particularly high, will most likely lead to a decrease in the number of workers available for new construction. This may mean a serious strain on the available number of skilled workers.

235. Productivity depends on the level of training of the labour force, the mechanical equipment available, and the planning of the building process. Although training is of great importance for productivity, it can be assumed that over short periods the level of training is constant, or nearly constant, since the renewal or re-training of the working force, and hence an increase in the number of skilled workers, is a long-term process.

236. Changes in the degree of mechanization of the building process, on the other hand, are of far greater influence. The development of technical equipment over the years has made possible a reduction of the number of workers on each site. In this connexion it must be stressed that the advances achieved by many countries in the prefabrication of building parts, especially since the Second World War, has made progress in many countries and has increased labour productivity considerably. The production of building parts in larger units means a shifting of part of the work from the site to an earlier stage in the production process. The industrialization thereby achieved should increase the number of square metres to be produced by an unchanged working force.

237. Investigations have shown that mechanization of work on the sites will lead to considerable expansion of building capacity. Corresponding results, however, may be obtained without further investment in mechanical equipment by means of thorough planning of the building process, designed to avoid loss of time. This improvement of the planning side of production depends on the availability of a sufficient number of trained leaders (architects, foremen, etc.). Expansion of building capacity through a wider use of prefabricated building parts will obviously mean heavy investment costs. Countries where capital is scarce must, therefore, consider whether this solution would be advantageous to the national economy as a whole if the labour supply is relatively abundant.

238. The third factor influencing the degree of productivity, namely the question of rational planning of the building process, is far more difficult to assess. It is known that, on the basis of a thorough planning of the building process, a time schedule can be set up for the different stages of the process, including the varying demand material and labour. This alone will diminish the number of "lost hours" and thereby increase working capacity.

239. As will be seen from the above, measurements of



productivity are very difficult to carry out and will only rarely show what elements have caused variations in the general level of productivity. In this connexion regular measurements of productivity will be of only limited interest. The investigation should rather be confined to estimates of the typical use of manpower in the various main groups of building activity when traditional working methods and materials are applied.

As an example, some Danish standards may be mentioned:

	Fully employed worker per 100 square metres
Multi-storey housing.....	1
Single-family houses.....	1.1
Factories and workshops.....	0.8
Schools, hospitals.....	1.8
Office buildings.....	1.5
Agricultural buildings.....	0.4

Another point is that considerations related to expansion of capacity should be accompanied by an investigation of the factors underlying the level of productivity. Apart from these ratios, which are of general importance for the volume of the total theoretical building capacity, the actual use of building capacity is determined by a number of other factors.

240. The above-mentioned problems have been discussed with a view to comparing the demand for building with the capacity of the industry. This is a very important problem, but there is good reason to conclude that it is rather theoretical. In the long run, capacity will vary, *inter alia*, with technological developments and the introduction of new materials and equipment, and may be completely altered within a fairly short period of time, thus reducing the capacity problem in a way which cannot be foreseen.

#### (b) Housing standards and costs

241. The costs and standards of dwellings (i. e. their size, facilities and amenities) are closely interrelated, and a basic question to determine in connexion with housing programmes is whether to build more houses with lower standards and therefore at lower cost, or fewer but better houses. This question was discussed at considerable length at the Seminar.

242. The minimum number of dwellings that should be built may be determined with reference to social and demographic considerations, as indicated in this report. The average investment per dwelling possible from an economic point of view, on the other hand, would be determined by relating future housing requirements to economic projections of total investment and by formulating hypotheses as to the share of investment for dwelling construction. In the case of Latin America it may be expected that the average cost of dwellings that could be afforded in certain countries could not meet the minimum housing standards envisaged by the population and the housing agencies of this region.

243. Several solutions to the problem have been considered. Attempts should be made in the first place to bring down construction costs by improving the productivity of the construction industry and/or by reducing the standards for low-cost housing to acceptable minimum levels. Measures

that might be taken to improve productivity are discussed in paragraph 237 of this report. The question of standards is touched upon here.

244. In setting up limitations for the size and materials of low-cost housing, attention should be paid to the following factors: (1) a general improvement of living conditions and a corresponding increase in the people's aspirations regarding their housing can be expected within the programming period; (2) families and households change in size and composition and therefore the mobility of households should be facilitated by perfecting the operation of the housing market and by such measures as repurchasing agreements; (3) the policies of renting or selling low-cost housing built with public support have a bearing upon the limits for housing standards; thus, for example, houses built for rental should be fully finished, while houses built for sale may be unfinished.

245. In a word, the consensus of opinion at the Copenhagen Seminar was that housing standards for low-cost housing should not be set up at such minimum levels that they may become unsuitable – because of rapid dilapidation or as a result of improved levels of living – in a short period of time.

246. Housing costs depend first on the size and type of the house and its amenities; secondly, they vary according to location, being different in urban and rural areas and in different regions of the country; thirdly, they vary according to how building is planned and organized.

247. In order to combat high costs a complete picture of costs is essential, as is a thorough knowledge of all the cost components. Building costs consist of three main groups: land costs, construction costs proper and a third group comprising fees to architects, financing charges and some other items. Construction costs proper consist of: material costs, wage costs, and the builder's gross profit. The proportion of these cost components in Denmark a few years ago (before the increase in land costs and in the interest rate) was roughly as follows: land, 10 per cent; construction costs proper, 80 per cent; fees, etc., 10 per cent. With respect to construction costs proper, materials have normally represented twice the amount of wages.

248. Knowledge of costs is essential in order to be able to follow the trend in prices and thus to know where problems are most acute. It is also essential, in this respect, that the relative size of the different cost components should indicate the maximum advantage that can be obtained by introducing a certain method or material. Besides having the best possible statistics on the cost components, efforts should constantly be made to check and control building costs. When planning, say, a type-house, costs should be borne in mind at each step during the project work, as well as the economic consequences of the different solutions in order to make it clear what are the real costs as compared with earlier calculation. Vital problems will therefore be: well-developed systems of cost statistics, and cost control during planning and after construction. In this connexion, the desirability of co-operation between statisticians and dwelling planners was emphasized with a view to acquiring full knowledge of all the elements of housing costs. To follow the development of costs, exchange of statistical information on this matter should be established between different countries, regions and groups of countries with similar conditions.

(c) *Land, materials and labour*

(i) *Land*

249. An important element in the implementation of housing programmes is the procurement of urban land. The way in which this is effected can further or hamper housing programmes. The cost of land forms a considerable part of the cost of housing, the more so when the supply of suitable land is scarce, as is often the case when expanding house-production (perhaps as a result of a housing programme) raises the demand for land in or near the towns. Measures against such a development include town planning and control of land prices.

250. Lack of sufficient land will generally result in high prices for land. This is clear in densely populated countries, but in others the concentration of activity around big cities will also have the same effect. When securing land the problem is not simply to prepare it for housing but should also involve other aspects: roads, sewerage, schools, hospitals, etc.

251. Who should procure land? This will frequently be a natural task for the public authorities, especially the municipalities or local governments. However, land procurement is often taken over by large investors, for instance housing societies. Industry also often secures large areas. In addition, the following buyers are often found: persons speculating in sale of land and persons or institutions wishing to invest their funds in land as a safeguard against inflation. In Sweden the central organization of housing societies has large tracts of land for future housing construction. In Norway special societies have been established for buying, preparing and selling land; these societies consist of the local housing society, the municipality and the central organization of housing societies. The aim of securing land should not only be to ensure that sufficient land is available, but to acquire it at reasonable prices and to have it ready in time for carrying out projects.

252. With regard to the problem of land prices, the trend in Denmark in recent years has been towards a rapid rise in land prices. This is partly natural, in view of the growing population and the general increase in economic activity accompanied by higher wages and prices. The question is how to prevent land prices from rising more rapidly than the general price level. The particular pressure to which land prices are subjected is normally caused by a concentration of demand on certain areas. Moreover, higher standards of living will create a demand for more space per inhabitant, for instance when preference is shown for single-family detached dwellings, larger recreational areas, etc.

253. What should be done to combat high land prices? This is a question of land supply and demand. As mentioned earlier, it is also essential in respect of land prices, to have sufficient land available and to have it ready in time in order to influence the market when the demand for land arises. Several countries expropriate land for housing. This method cannot normally be applied in Denmark, although land can be expropriated for such public projects as railways, schools, etc. Expropriation raises the problem of compensation: should the amount be determined on the basis of a figure representing use of the land at the time of expropriation or should it be based on its expected use in the developing area? Arrangements may be made to give public authorities

a priority for buying land. Another method, which is applied in the United Kingdom, is to prohibit use of agricultural land for other purposes except by special authorization.

254. When public authorities dispose of land, prevention of speculation after the land is sold creates a problem. The land may be leased so that it remains the property of the authorities. Land may be sold only on condition that it is not resold unless it has been improved, or that it must be returned to the authorities if it has not been improved within two years.

255. Direct control may be exercised over prices. In some countries full control of land prices is exercised by the Government in respect of State-subsidized housing. This was an effective measure in Denmark, where, until a few years ago, about 90 per cent of housing was subsidized by the State. This situation no longer prevails and State-subsidized housing is now faced with the problem of having to compete on the market without paying prices above the level acceptable for State-assisted housing.

256. It is essential that sufficient land should be improved in time, for instance by being provided with roads, sewerage systems, etc. The regional authorities will often find that this involves great expense and State support may therefore be desirable so that land in proper condition may be secured at the proper time.

257. Land disposal prospects in large cities can be greatly improved by the establishment of a proper road network. The importance of this in connexion with over-all regional planning, by singling out the area where development should mainly take place, must be emphasized.

258. Taxes on land may influence demand. However, experience in Denmark has shown that under present market conditions taxes will generally reduce sales prices but not the price to the users as the purchasers of land will have to assume the tax burden and rental prices will thus be the same.

259. The conclusion with regard to the land problem should be that higher land prices must be expected in an expanding economy and around large developing cities. The aim must be to prevent a price rise beyond the level justified by economic development in general, and this can be done by the arrangements mentioned above.

260. To sum up, availability of the land near expanding cities is deemed to depend largely on the activities of the public authorities. Land is acquired in some countries by means of public tenders or other arrangements for reaching an agreement with those selling land. However, the importance of expropriation as a means of acquiring land for housing was stressed at the Seminar. Public funds available to local authorities might be a valuable means of financing the purchase of land and the sources of financing should cover not only the land itself but also the cost of development. Public plans should be implemented shortly after they are formulated to prevent the present owners from taking advantages of higher prices resulting from these plans. Experience in several countries on the effectiveness of taxes on land as a means of keeping prices down indicates that higher taxes may indeed compel the owners to sell land, thus producing a greater supply which may have the effect of reducing prices. On the other hand, the situation in areas where demand is heavy will often result in a seller's market where landowners will free themselves of the effect of higher taxes, by increasing rentals or the selling price of their land. Re-

gional planning must be considered as a valuable means of helping to overcome a shortage of land – if enough land is secured in good time, before development takes place.

261. There was a consensus of opinion at the Seminar to the effect that government agencies should assume responsibility for the acquisition in good time of urban land for housing, if possible ready for construction and for the preparation of urban and regional development plans. In this connexion it was noted that in Latin America there are extensive reserves of public land which might be allocated to housing, but that in any case provision should be made for the purchase of adequate land by negotiation or, if warranted, by expropriation. It was considered inadvisable, on the other hand, to recommend that private industry should undertake the purchase of land intended for housing.

262. The use made of building land may also influence the effectiveness of building. The authorities can provide the areas with water supply, roads, etc. and secure the use of type-designed houses or a well organized self-help scheme when selling or letting the land. Through methods like these and by securing sufficient land for large projects the profits accruing from such projects might find their way to individual builders.

#### (ii) Materials

263. The sort of building materials to be used must be largely a question of the available material in the different countries or regions. The bulk of the materials used should, however, be produced locally. This will normally be the case even when good transportation facilities are available, most building materials being heavy. Conditions may change when new types of material are developed: considering the revolution caused in many other fields by plastic materials, it will be reasonable to expect new developments in this field. This might considerably alter construction methods and the prospects of international and inter-regional exchange of goods.

264. The tendency under a more industrialized evolution of building activity is an increasing transfer of work from the building site to factories for materials and components. In order to achieve mass production on an industrial scale and thus to bring building production to the level of the results obtained by other industries, two main conditions must be fulfilled: (a) an effective production apparatus must be established; (b) the building market must be so organized as to secure a stable and continuous use of the products. These two conditions are interrelated.

265. The transfer of work to factories can be achieved through the establishment of an effective production apparatus. Machinery can thus be used to a far greater extent, suitable working routines can be established and the maximum advantage derived from duplication. Well organized working teams can be kept together, without having to be broken up after individual projects are completed, weather conditions will not have any effect on indoor production, and use of unskilled workers is facilitated. Work on the building site is correspondingly reduced to assembly of the prefabricated parts and components. The most profitable size of such undertakings must depend upon the distance from the building site and account must therefore be taken of transport facilities and of considerations related to the economic advantage of duplication in series of different sizes.

266. Stable and continuous use of prefabricated products

must be secured in order to attract investment capital and to make full use of production capacity. This is a question of a stable and effective advance demand for housing and of using standardized parts, which can thus be obtained ahead of time for future projects.

267. In order to promote building activities, public authorities might give financial support to the establishment of systems of prefabrication, and this may sometimes provide a more direct stimulus to building than aid to individual housing projects.

268. The production of building materials may, from an organizational standpoint, be linked to the contractor or even the investor. Such combinations might prove advantageous through a more effective co-ordination of these factors in the building process.

269. If a housing programme is to operate smoothly, supplies of material must be secured in order to prevent bottlenecks. If this is not done, work will be interrupted not only in the trade directly concerned, but also in the trades involved in the subsequent stages.

270. In executing a housing programme it is therefore essential that the necessary precautions for securing supplies are taken, and in this respect various measures may be introduced. Naturally, the supply of material which has to be imported will create the most difficult problem. While it is quite possible to make fairly good estimates of local and national supplies, and to ensure that such supplies are available at the right time and in the quantities required, supplies from abroad are subject to such factors as trade agreements, duties, long-distance transportation, foreign exchange, etc. Consequently, special measures may have to be taken to ensure that all the material required for the programme and unobtainable on the domestic market are imported in the quantities required. This may be done through trade agreements, tariff adjustments, the establishment of transport facilities, etc.

271. When adequate supplies have been secured, arrangements must be made to distribute the material in accordance with the time-table and the planned location of the housing projects and to ensure that supplies are not exhausted by demand from building projects outside the programme. This might be done through a system of building permits under which a permit from the local or national authorities would be required before work could be started on any building project or on some types of building. The permit would be issued only when supplies were expected to be available in the quantities required and in the regions selected.

272. Immediately after the Second World War, when the supply position in Denmark was rather difficult, such a system of building permits was introduced. Five offices under the Ministry of Housing were set up in different regions of the country, each office being responsible for ensuring that the amount of building under construction within the region would at no time exceed the capacity of the resources. Control was first exercised over the bulk of the more important building materials (bricks, timber, steel, cement, radiators, sanitary installations), but as the position improved it was possible to reduce the control to fewer items and, after some years, the system was abandoned entirely. The Danish Government still exercises control over building activities, but it does so because of the position with respect to financial resources and labour and not the supply of material.

### (iii) Labour

273. The statements made above concerning the supply of materials are, to a certain extent, and subject to certain modifications, also true of labour. Labour capacity as expressed in terms of the number of works in the different building trades sets the limit for production, and a labour shortage in one or more of the trades creates bottlenecks. A shortage of labour – like lack of materials – may, therefore, give rise to rationing in the form of building permits, and this has, to some extent, been the case in Denmark.

274. The problem of a shortage of skilled labour in building may, however, also be tackled from the opposite angle, that is to say, by measures aimed at eliminating the shortage, either through better use of existing manpower, or increase in recruitment, or the introduction of new labour-saving methods in the building industry.

275. In Denmark all three methods have been applied. The Government has sponsored extensive programmes aiming at improving the use of labour by extending the building season to include the winter months. The State has supported the efforts made by various organizations to recruit more apprentices in trades suffering from an acute shortage of labour, and has taken direct action with regard to the recruitment problem by establishing schools and providing facilities for the training of unskilled workers. Furthermore, since the Second World War, the Government has granted substantial funds for the purpose of promoting activities designed to increase productivity in the building industry and thus to ensure better use of the available labour force. In this respect, special attention has been paid to measures aimed at the introduction of non-traditional building methods, prefabrication of components, modular co-ordination, standardization, establishment of equipment pools, and building research.

276. The skills required of the labour force will vary according to the character of building and the over-all technical level attained in the different countries. The aim must in any case be to provide labour with the proper skills not only with respect to the present work but also for the jobs to be done in future development projects. This means that training should, on the one hand, not be overloaded with unnecessary or out-of-date skills and, on the other hand, should enable the worker to adapt himself to coming technical advances. Besides, he should be qualified to co-operate effectively with workers from other trades on the site. This might lead, among other things, to the following two measures: (a) organization of common basic training for different related trades before more specialized training is given; (b) the provision of short supplementary courses giving up-to-date information to trained workers. This common basic training, which has been recommended by the International Labour Organisation, should "train" the workers in skills common to other trades, after which they should receive "education" in one of these trades; this would enable the worker to co-operate far better with the other trades, to take a short supplementary course in one or more of the other trades, according to varying employment possibilities, and would encourage them to continue to improve their qualifications.

277. A problem in many countries is the sharp line of demarcation between the different trades. A smoothing of

the borders would facilitate work on site and would also help to ensure that full use is made of the total labour force; building today is often hampered by a shortage of labour in some trades even when there is a plentiful supply in others. The total volume of building must be determined on the basis of the trades where labour is scarce; avoidance of sharp distinctions would facilitate mobility of the labour force according to actual needs. Some of these problems could be overcome by a more flexible education as mentioned above; others by training unskilled labour in work requiring a low level of skills in the traditional field of a given trade, and others again by labour agreements or other regulations allowing some functions to be performed by two or more trades.

278. The wage system in some countries may create difficulties related to the introduction of new building methods. This is especially so where the piece-rate system is used, since it may result in the same payment for new methods requiring less time; as a result, only the workers will benefit from these methods, and there will be no incentive for the other sectors to accept such changes. It should be possible, through time studies, to estimate the time required by changed work procedures as compared with those formerly used, and thus produce a realistic basis for a fair appraisal of new methods.

279. Some sort of short training or instruction courses for unskilled workers would generally prove useful. Stress was laid during the Seminar on the importance of providing opportunities for the training of unskilled workers in Latin America. A shortage of skilled labour could also be relieved by a more effective use of unskilled workers, by qualifying them for work requiring a low level of skills, as mentioned above, and by increasing the use of building methods fit for unskilled workers (for instance, assembly of prefabricated parts).

280. Not only the training of skilled and unskilled labour but also that of supervisors at the general foreman level is important. This would make a great contribution to the profitable use of the whole labour force and facilitate management and supervision on the site.

## 7. Financing

### (a) *The necessary balances in programming*

281. The consistency between the objectives stated in the programme and the means for attaining them can be verified by a comparison in economic terms of the factors of production and financing.

282. The economic equilibrium of the programme is concerned with the general problems of priorities and resource allocation among the various sectors. The balance of the factors of production prevents the programme from being delayed by shortage of some of those factors. The financial balance is related to the national capacity for saving, the amount of foreign aid, and the flow of funds to ensure that monetary resources are channelled as provided for in the programme. The first of these problems is discussed as a central subject of programming for housing within the context of general planning in Part II of this report; the second and third questions are considered in this chapter.

283. It should be noted from the outset that the channelling of savings in accordance with the objectives of the programme is a fundamental factor in economic policy. The adoption of a government decision of this kind requires solid backing by public opinion if it is to be implemented.

284. Financing of housing is a question of procuring a sufficient amount of long-term credit. The more ambitious the housing programme in respect of providing dwellings for the lower-income groups, the more important it is to have a sufficient supply of long-term loans and the less important it will be to resort to direct investment as a source of financing housing. This will be particularly true if the programme is aimed at self-ownership, or ownership through public, semi-public or non-profit housing agencies.

285. The first and most important condition for creating a favourable basis for the financing of housing programmes is that the total amount of private and public savings, together with foreign loans, should equal the total amount of planned investments.

286. The second important condition is to make it possible to allocate for housing that part of the total financial resources which is needed to bring the financial resources into balance with the planned investment in housing.

287. The total amount of private saving will largely depend on the level of income, stability in prices and political conditions. In countries with a low level of income the total amount of saving will be limited and will represent a much smaller proportion of the gross national product than in countries with a higher level of income. Even fairly modest investment plans will therefore have to depend partly on other sources, such as public funds and foreign capital. Rising prices tend to reduce private saving, make short-term saving more favourable than long-term saving, and direct investment more attractive than loans.

288. A tendency towards direct investment of private savings usually creates an unfavourable situation for the fulfilment of a housing programme. This may even be so when private saving is directly invested in housing because of lack of confidence in industrial investments. When too great a proportion of private saving is directly invested in housing the type of houses which are built are usually of a rather high standard and represent an unrational way of using available resources. The distribution of these houses among the population as well as the ownership of the new houses will usually also be in conflict with the social aims of the housing programmes.

289. The tendency towards investing private savings in short-term loans may be met by transferring the savings to long-term loans through public borrowing. Short-term public loans can be used for long-term credit without later creating inflationary pressure if public control of the private credit market is sufficient to ensure that conversion of short-term public loans can be absorbed by new public loans.

290. By transferring private savings to public funds in order to finance housing programmes, other important advantages can also be obtained. The public sector can secure loans at a lower interest rate than individual private investors.

291. The distribution by regions, types of houses, types of ownership etc. is also much easier to bring into line with the programme when private savings are channelled into housing through public funds. A relatively substantial

amount of public saving seems to be a condition for creating an optimum level of saving in rapidly developing countries, and also appears to be necessary in order to allocate resources in accordance with development plans.

292. Public savings are derived from general tax revenue and special taxes. In several European countries special taxes, such as taxes on wages, have been introduced for the financing of housing. As far as the distribution of public saving for different investment purposes is concerned, there are strong reasons in favour of giving housing a high priority. Housing for low-income groups will usually be the least successful in competing for private savings, since it needs long-term credit, has a low interest-paying capacity and usually also offers lower security than other investments in general.

293. The problems of overcoming the lack of confidence in housing investments for low-income groups have in some countries been dealt with by means of a mortgage insurance system. Experience seems to show, however, that it is difficult to make a system of this kind function satisfactorily without a well-organized credit market and a relatively high level of income.

294. The use of public funds for housing further raises the question of special administrative agencies in order to free the daily administration from political control and to ensure its autonomy in technical and financial matters (for example the Norwegian institute *Husbanken*).

295. Private credit institutions for long-term credit to housing differ widely from country to country. They include savings banks, building societies and mortgage associations.

296. Although deposits in savings banks are repayable at short term, experience shows that a large proportion of deposits (probably as much as 90 per cent) can be invested in long-term housing loans without any particular difficulty. Savings banks are thus important tools for the channelling of private savings into housing.

297. The mortgage associations in Denmark are associations or co-operatives of mortgagors. They issue interest-bearing bonds secured by mortgages on properties and by joint liability. The individual borrower does not receive cash but has to sell the bonds on the capital market. By law the loans of mortgage associations can amount to a maximum of 75 per cent of the value of the property, but this limit is seldom reached.

Supplementary loans are therefore needed for the financing of social housing. Previously supplementary loans were granted direct by the State, but today they are supplied through third mortgage institutes. The loans of these institutes, which if guaranteed by the State can amount to as much as 94 per cent of the cost of construction, are based on the issuing of bonds to be sold on the open market and secured by mortgages on the properties. However, the institutes are not co-operatives but privately-established credit institutions supported by banks and borrowing organizations concerned with building.

298. Note was taken at the Seminar of the system of private savings and loan associations established in Chile and the methods of compensating for price increases. This system, established in 1960, rests primarily upon the receipt of deposits from the private sector, which are used for long-term mortgages by the same people who have made the deposits, in accordance with regulations adopted by each as-

sociation but complying with a set of minimum requirements determined by the controlling agency – the *Caja Central de Ahorros Préstamos*. The deposits as well as the mortgages are subject to readjustment on the basis of wage and salary indexes. The savings and loan associations can undertake the following operations: purchase, construction, extension and termination but only in respect of local housing (with less than 140 sq. m. floor space). The limit for individual loans is about 12,000 escudos which, when added to the amount of private saving effected by the person concerned, should not exceed a taxable value for the dwelling of 16,800 escudos. The service of mortgages granted by the associations cannot exceed 25 per cent of personal income and the maximum term is 30 years.

299. In connexion with the financing of housing the question should be considered of how to direct the available funds into actual construction, whether they are invested by private builders, co-operative associations or public authorities, whether they are used for the erection of apartment houses or single dwellings, or whether they are invested in dwellings for rent or in owner-occupied houses. Special attention should be given to the question of co-operatives and other non-profit housing associations.

#### (b) *External financing aid for housing*

300. Loans from the Inter-American Development Bank and the United States Agency for International Development may be used in the region for the financing of housing. It was noted, however, that the general policy of international banking organisations is not to undertake direct financing of housing but only to support such basic industries as steel, electric power, and transport. Furthermore bank loans are usually designed to meet foreign exchange commitments, while housing primarily involves local currency.

301. External financial aid for housing may also take the form of private investment from abroad. The possibilities in this respect depend on whether external private capital can be attracted, and that again may depend on whether there is a national plan and also a national will to find a permanent and long-term solution for the housing problem and whether efficient national institutions to handle long-term credit are available. If such plans and such institutions can be provided, it may be that they will act as the security factor needed in order to attract foreign capital as a supplement to national financial resources.

#### (c) *National financial resources for housing*

302. The methods of financing housing may influence the way in which housing programmes are implemented. The stability of demand expressed in long-term plans may be supported by public financial aid (loans or guarantees) aimed at ensuring a certain amount of housing over a certain period of years. This system has recently been introduced in Denmark, where the Government is authorized by law to issue State guarantees for private loans in respect of a still rather limited amount of new housing to be started three years ahead of time; the plan will continue to cover a period of three years, and the projects incorporated in the plan are certain to start on schedule. Besides, the law requires the Government to make three-year plans for all building in local districts and thus the probable time for starting new housing construction in the district will be indicated.

303. When choosing projects for public financial support, the authorities should also be able to give preference to projects which are planned in the most rational way. The conditions laid down in connexion with financial support may underline the importance of good and effective building. Thus a fully prepared project has for several years been a prerequisite for public support for the construction of larger multi-dwelling buildings (containing more than two dwellings), as has been the use of certain standard building measures (e.g. fixed number of floors). Continuation of building work in winter time has been ensured in the same way.

304. Financial aid to individual builders may be limited to particularly suitable projects, for instance type-houses or programmes of properly organized self-help building.

305. When financial resources are scarce, as compared with total demand, Governments may find it useful either to concentrate loans or guarantees on pilot projects suitable for duplication, or to support building materials industries instead of granting loans for building houses, thus helping to establish a production capacity which may not otherwise be available.

306. Much stress was placed at the Seminar on the fact that because of the extremely low income level in Latin America the lower income groups cannot be expected to save for housing purposes. Savings placed in such institutions as banks and insurance companies would therefore have to be used for the financing of housing. In this connexion it was pointed out that public funds were very often earmarked for specific purposes, and thus were not available for house-building (rigidity of public funds).

307. On the other hand the low average income in Latin American countries is reflected to a certain extent in a correspondingly low building cost, and in general the income level should be considered against the background of the cost of living. Furthermore, experience has shown that people living under very bad conditions are prepared to make great sacrifices in order to obtain better dwellings, and in spite of their low incomes are able and ready to save for that purpose.

308. To sum up: the essential problem in financing housing programmes is to establish a system of savings which can attract them into housing. In this connexion the system established in Chile which ensures the flow of private savings, revenues from a national tax on the profits of industrial enterprises, and loans from the Inter-American Development Bank under the Alliance for Progress into the financing of housing was discussed at the Seminar with great interest.

#### (d) *Geographical distribution of housing programmes*

309. The first major geographical division of housing programmes is, of course, into urban and rural zones. Basic criteria for this breakdown may be derived from the overall development programme and the past rate of urbanization.

310. A second level of geographical distribution may be obtained by estimating the population increases which will occur in different cities on the basis of such criteria as past growth and analysis of the housing situation in each city, the location of specific investment projects already laid down in the programme, the policy to be followed with respect to

administrative decentralization and economic activities in general, special regional development programmes, provisions which set limits to the growth of the cities, and similar data.

311. In the case of rural housing, not only must attention be paid to the replacement and improvement of existing dwellings but, in addition, the eventual creation of farming or fishing villages and other population nuclei must be envisaged in accordance with the policy to be adopted and this, in turn, will be influenced by problems of land tenure, rising income and social conditions in the sector.

312. A third level of geographical breakdown of general housing programmes stems from the master plans and remodelling projects which show the residential districts and the land available in each city. They are directly related to the planning of cities, to specific housing projects, and to provision of urban services such as water, sewerage, light-

ing, paving, schools, hospitals, postal, telegraph, and telephone services, administrative and police services, recreation, etc.

313. After a dwelling standard has been adopted in the light of existing limitations and conditions, the problem inherent in the project is essentially one of efficient use of resources, including efficiency at the architectural level. In other words, the problem is to plan the best possible dwelling for local conditions, given a maximum cost per dwelling or assuming a certain cost per square metre of building and a given surface area per inhabitant. At this stage consideration must be given to local building materials, climate, occupations and customs. The standard plans and the techniques, on the basis of which the total estimate was made, must be adapted to the specific situation of the project. This is mainly a task for town planners, architects, engineers and contractors.



## IV. IMPLEMENTATION OF HOUSING PROGRAMMES

314. The methods applied to implement housing programmes must necessarily vary from country to country and from region to region in individual countries to meet different and changing conditions. In highly industrialized countries, the problem of implementation and the prospects of solving it are not the same as in the less industrialized countries; in rural areas satisfactory solutions may not be those suitable for urban districts. For instance, when labour is scarce, wages are high and capital is available in sufficient amounts and on reasonable terms, a high degree of mechanization may be advisable; on the other hand, if labour is cheap and abundant, and capital is perhaps limited, mechanization might not provide the right solution. This would also apply to building materials; the local materials available may be a determining factor when selecting construction methods. In this connexion transport facilities may, however, again alter the position to some extent.

315. Some of the main principles treated below will nevertheless be valid in any case and others, while not susceptible of application at the moment in some areas, may be used in future when those areas are developed. Growing industrialization leads to greater concentration of population; increasing urbanization calls for mass production to overcome the concentrated pressure to which building is subjected. In this connexion it should be noted that a higher general level of industrialization produces higher standards of living, which implies higher wages. If the same construction methods are used, requiring the same amount of labour, building costs would rise steadily in line with increasing wages, and thus rise far above the price level of all industrially produced goods. A reconsideration of the building programme, aimed at reducing expenditure on labour, will then be essential if the production of good quality housing is not to be repressed by consumption in other, possibly less valuable, fields.

### 1. Planning

316. The first, and basic, means of implementing housing programmes through effective and economic building involves the planning of building activity. Much waste and many sources of difficulty arise from insufficient planning efforts, whereas good planning is the cheapest and in many respects the most direct way to successful results. When analysing planning problems, a distinction should, however, be made between the planning of building activity as such in a country or a region and the planning of individual projects.

### 2. General planning of building activity

317. Housing programmes determine the aims of building activity both as to quantity (annual volume of production)

and quality (types and sizes of dwellings, equipment, the question of permanent, semi-permanent or temporary dwellings, exploitation of land, rent policy, etc.). As a supplement to housing policy, they should point to a building policy through which the objectives of housing policy can be achieved in practice. This refers to both the technological and organizational aspects of practical building and the points dealt with in the paragraphs below would – if followed up deliberately and consistently – form part of such a building policy.

### 3. Administrative and organizational requirements

318. Just as the drawing up of housing programmes is a question of co-operation between the central Government and the local housing authorities, so the execution of the programmes is dependent on close contact between the central and local agencies. Supervision of the implementation of programmes will, naturally, be entrusted to a government agency, but will be based on the control exercised by the agencies in the regions and the municipalities.

319. The central housing agency should be responsible for adjustment of the programme (locally and nationally) to the changing situation. In the case of unforeseen developments in general economic conditions or in the supply of materials, the national programme must be adjusted and the corresponding adjustments must be made in the local programmes, due account being taken of their relative stage of progress. Similarly, if developments in some of the regions do not proceed according to the housing programme, either for lack of supplies or because of bad management, a readjustment between the regions must be made so that the target of the national programme can be reached as far as possible.

320. The central agency would normally also be responsible for supervision of the cost of building, the quality of construction and – perhaps – the size of the dwellings. The day to day control of these aspects would, however, as a matter of course be entrusted to the local authorities exercising their control on the basis of directives issued by the Government.

321. An important part of the central agency's activities in connexion with the execution of the programmes is the preparation of the programme for the next few years. Since housebuilding is a long process, execution of the annual programme must begin before the programme of the previous year has been completed. Annual programming must therefore be undertaken while the present programme is still being carried out, and should be adjusted to the experience thus available.

322. Supervision and control of the execution of housing programmes in local areas and in regions might be entrusted to the authorities in charge of regulating building activity.



If the administrative body in question does not already include representatives of builders, professional workers, producers and trade unions, it may be considered useful to widen its composition in order to ensure co-operation with the parties concerned.

323. Care should also be taken to establish close contact with neighbouring authorities so that minor discrepancies can be corrected by a redistribution within a small area. Co-operation between the agencies within smaller regions can lead to a more flexible administration. Not only can small errors in the detailed target figures be corrected by fairly simple adjustments within a limited area, but the authorities concerned can help one another by making the best possible use of materials and labour.

324. The local programme received from the central agency will provide the target for house production in the area, broken down by various types of buildings (one-family houses, tenant houses, flats, etc.) and ownership (private housing, public housing, housing associations, etc.). The target will very probably prescribe the number of dwellings to be started within a specific period, normally a year, but at the same time it is probably assumed that the time needed for construction is more or less fixed. In other words, by fixing the number of dwellings to be started, the number of dwellings to be completed within the given period has also been decided. Consequently, the local authorities in charge of the programme will have to control not only the dwellings started, but also the number of completed dwellings and the number of dwellings under construction.

325. The control of "dwellings started" will probably have to be exercised through some kind of a licence – or permit – system which may be linked with already existing systems of building permits based on building (local or national) regulations. It should be noted, though, that a building permit issued in accordance with building legislation is usually free of any obligation to build within a certain time or at all. Therefore, if such permits are used to ensure the execution of housing programmes, they will have to be strengthened by including a provision that building work must begin within a stated period of time.

326. Besides supervising and controlling the progress of the programme, the local agency must furnish the central agency with information on the progress achieved and with statistical material to be used in subsequent programming. Minor deviations from the programme may – as already mentioned – be corrected on a local basis, but more serious departures from the plans should be reported to the central agency, in order that an adjustment can be made.

327. The statistics to be collected locally should contain information on the building permits issued and the number of dwellings started, under construction and completed. All the figures should be broken down by the various subheadings of the programme. Furthermore, the local authorities should collect information on the supply of the more important building materials, including production capacity within the area, on the number of workers in the different trades and on training facilities. If possible, work on the buildings under construction might usefully be investigated by collecting figures illustrating the different stages of building. In addition, the reports of the local authorities should contain a general survey of the situation in the area and

estimates based on local experience as regards housing needs and the capacity of the resources available.

328. The execution of housing programmes must be assumed to be entirely the responsibility of the housing authorities – central or local – although the representatives of the parties directly concerned should participate. In some cases, however, it may be both possible and desirable to hand over part of the execution to private organizations or institutions. Likewise, it may be considered preferable to allocate part of the national programme to another central agency rather than to a local authority.

329. If a non-profit housing association with strong and well organized administrative machinery is available, the execution of the non-profit housing programme might well be entrusted to it. Similarly, there might be some advantage in allowing the government agency in charge of housing for special groups (e. g. for elderly persons) also to handle the part of the general housing programme relating to these groups.

#### **4. Relationship between specific projects and housing programmes**

330. The relationship between over-all plans and specific housing projects must be recognized. The programme helps to define the dimensions of the problem in terms of its large aggregates, to situate it within the framework of global planning, to verify the compatibility and coherence of the over-all objectives, and to obtain criteria for choosing a minimum dwelling standard. On the other hand, the specific projects worked out for various regions, costs, materials and construction techniques will furnish criteria for estimating the cost of standard dwellings for various income levels and these criteria will make total investment easier to estimate.

331. The process of successive approximations cannot be pursued to a point where the standard dwellings used in global programming of the sector would correspond exactly to a weighted average of the specific projects which will actually be carried out.

#### **5. Planning of the individual projects**

332. The quality and efficiency of the planning and design work depend to a large extent on the qualifications of the expert designers. However, the organization of the planning stage is also decisive. This applies both to organization within the individual planning enterprise or agency and, not least, to planning as part of the whole building process. Formerly, the usual procedure was to regard the planning for each house as an individual, independent affair, comprising the designing of all details; the whole process was repeated for the next project. This caused loss of time and produced less satisfactory results, as compared with a procedure where efforts are devoted to simultaneous planning of a series of projects. The first stage is to use standard components wherever possible, thus concentrating on the plan as a unit more than on details. The next stage is to work out model – or prototype – plans where essential elements (for instance, some of the rooms, kitchens, bathrooms) if not the entire plan are prepared for an undetermined number of projects; this allows much more time and experience to be concentrated on each plan or element and

results in better quality. It also makes for a far better knowledge of the quantities of materials and labour necessary to carry through the project, which again means greater certainty as to building time and building costs. (Knowledge of the project will also enable workers who take part in more than one project to carry through the operations much more quickly.) The subsequent stage is to organize sustained development operations based on experience gained from projects under way. The formation of development groups consisting of inventors, architects, engineers, etc. opens the way to an area of work – between research and traditional designing – which will give building the same access to well prepared products as is characteristic of the developed industries.

333. Another aspect of planning work is the importance of thorough and detailed planning before work starts on site. The formulation of a project with all the details worked out before operations start will save much time and money as compared with a plan where alterations are introduced during actual construction, with the resulting delays and changes in the work already done. This is a general principle readily accepted by planners but one which it seems extremely difficult to achieve in practice.

334. Preparation of a fully planned project will also compel the planners to think of the plan not only as a finished product but also as being fit for rational execution on the site. Planning and design have hitherto been considered essentially a question of planning a product, not of planning its production. Here again the experience of the developed industries shows the importance of planning the work, so far neglected in building activity. The nature of the plan, the choice of materials and construction units, etc., should take into consideration the possibility of fitting them into an effective plan of work on the site. In this connexion, some designers follow the most useful practice of contacting the contractors, or at least one of them, as early as the planning stage, thus enabling the designer to profit from his practical experience to the maximum extent from the very beginning. By seeking advice from a few contractors simultaneously, the possibility of competition when the work is ready for execution is not excluded.

335. The rapid and economic execution of the project will, even for smaller houses, require some sort of site management, including more or less elaborate work and time schedules. An investigation by the Danish National Institute of Building Research has proved that the construction time for one-family houses varies between three and nine months, the difference arising from the planning, or absence of planning, of work on site. The type of planning may vary from relatively simple systems to very detailed plans, fixing the time of operation for each worker. The most important thing is in any case to co-ordinate the different groups working on the site so as to ensure smooth co-operation. Site management also depends upon the availability of qualified foremen.

336. Careful preparation likewise includes a complete cost calculation based on experience and a detailed analysis of the project. This should come, not at the end of the planning phase, as is often the case, but step by step as the planning procedure progresses, thus enabling the planners to take continuously into consideration the price relations between the different solutions in question.

## 6. Organization within the building trade (the contractors)

337. It is characteristic of building in most countries that much of the work is done by a large number of small firms working independently of each other. When a specific project is about to be carried out they are brought together and some sort of co-operation is established on a working site until the project is completed, when they separate once again and new combinations are set up for the next project. In many cases sound, centralized leadership is lacking; in a number of countries it is common practice for contracts to be signed with a contractor from each of the different trades (bricklayer, carpenter, joiner, etc.) without a responsible person in charge. The position with respect to labour is often equally lacking in homogeneity. On the whole, building activity is scattered and divided, unlike other industries where organized leadership has been established.

338. In rural areas small contractors or craftsmen – or self-help builders – will often be the only practical solution, at any rate where transport facilities render participation by larger centralized firms unprofitable. The problem here involves better education, advice, and information, besides improved co-operation when several of them are working on the same projects. In urban districts there are in principle three ways of tackling the problem: to close down the smaller firms, to merge them into a smaller number of larger firms, or to provide for close co-operation between more or less independent firms.

339. Larger enterprises will usually have more capital to invest in production; they can as a rule easily obtain credit for the purchase of materials, and are able to make plans for a longer time ahead, thus ensuring the best possible use of their capacity; they will often have specialists at their disposal and, as a result of these advantages, they will be better equipped to keep abreast of developments and maintain better control of building time and building costs. Such firms could no doubt participate directly in industrialized mass production.

340. With the help of a well-organized system of mutual co-operation, smaller firms should also be able to participate in this development, provided that they co-operate closely and that a far-reaching division of labour, essential specialization, and presumably a system of sub-contracting are established. The problem of co-operation on the individual project is primarily a question of site management.

341. Co-operation might also be established between investors and contractors. In several countries a public authority, usually at the municipal level, undertakes housebuilding operations; this authority could gradually be expanded to take charge of sustained production on a fairly large scale. When sufficient knowledge is thus accumulated concerning true building costs and reasonable building times for certain types of houses, private builders could be invited to build groups of these houses at prices fixed by the public authority. When large housing societies are established, a similar sort of co-operation between investors and contractors could be established. On the whole, long-term housing plans made by public authorities and followed up by housing societies will encourage well-planned activity by contractors.

342. In some countries the building workers have pooled their resources and act as contractors. In Sweden this process

has gone still further, the building trade unions having formed their own building society (*Svenska Riksbyggen*). At the same time, the trade unions have established their own factories which manufacture several types of building materials and components; thus full co-operation has been established between production co-operatives and housing co-operatives.

343. In other cases, investors and contractors form part of the same organization. The advantage of full co-operation and complete exchange of experience between the two groups must be weighed against the risk of reduced competition, as the investor may not be free to choose other contractors even if they are considered more suitable for the project.

### 7. Aided self-help

344. Building operations may in some cases be carried out with good results through aided self-help. However, this requires a well-organized plan, sound leadership, and sufficient knowledge on the part of the builders. Common services should be organized by the community; this applies to such services as water supply, sewage disposal, paved roads and electricity, which the individual cannot provide for himself. The same is true of the design of the house – where typeplans would be appropriate – and of community planning, including provision for schools, markets, etc. To enable the builders to carry through the work without professional training, prefabrication of the more complicated components, either at the factory or on the site, will be desirable. The help of special advisers would be of great value for such projects. Such self-help methods are likely to prove successful only in rural areas where a special personal atmosphere of mutual interest prevails.

### 8. Other factors in the building process

345. The basic element in building activity is, in principle, the investor, for it is he who decides to start a project, procures capital and land, gives instructions for the planning of the project, and, as in the case of the larger investor, co-ordinates the various parts of the building process.

346. The role of the investor and his ability to fulfil his functions will vary very much from the small, one-time builder, to the large organizations which plan and build houses by the hundreds or thousands. In the case of the small builder it is generally others who procure the necessary advice. The larger organizations, such as non-profit-making housing associations, should be able gradually to take an active part in the development themselves, using the experience gained from continuous building activity and, at the same time, taking advantage of the experience of other similar associations. To this end, a well-organized co-operation between the various associations should be established, not only to use their common experience but also to enable them to organize common planning of their activities, including type-projects for large residential buildings, the purchase of building materials and components in large quantities on better terms, the establishment of close co-operation with building enterprises (e. g. co-operative building firms) and producers of materials, possibly in the form of a common organization with such enterprises. This would, on the whole, constitute a far more advanced method of dealing

with problems and exploiting possibilities where building has reached an industrialized stage.

347. In order to support non-profit-making housing associations, special organizations could be established to provide them with technical, legal, and administrative assistance and to promote new associations where none exist. In Denmark, management-organizations of this type have been established, the first being *Arbejderbo*, which was established in order to help smaller associations in the provincial towns. These organizations make preliminary as well as detailed surveys of housing needs, help to select the site, engage local architects whose plans are reviewed by the technical division of the organization, prepare all the cost estimates, call for bids on the project and appraise those submitted, and prepare the plans for financing and for the payment of construction costs at the various stages. When construction work has been completed, accounts settled and loans adjusted, the project is turned over to the local housing association. If the housing association so desires, the management functions related to the operation of the houses can also be taken over by the organization itself or by an affiliated organization.

348. The management organizations concern themselves with the construction not merely of houses, but also of other buildings forming part of the common facilities belonging to a housing district. In this connexion, they also build for the municipal authorities and for private and co-operative firms (e. g. town halls, libraries, shopping centres, etc.), thus making available an experience which the investors would not usually have.

349. The planning of housing is normally entrusted to an architect. As development proceeds, the role of the architect is gradually changing, especially under the influence of the increasing use of standard components and model and type-plans. The task of the architect could briefly be described under the heading of form, function, construction, and production. The form of a house and the question of how it will function have been and will probably continue to be the traditional working fields of the architect, even if his work will to some extent tend to change to type-designing of complete houses or of parts of houses.

350. Construction is a problem to be solved by both architects and engineers. The same is true of production planning. In connexion with the two latter concepts, assistance may also be rendered by technicians of a less advanced level of education. Designing of building construction, estimates of building costs, quantity surveying, elaboration of work schedules, management and supervision on site, cost accounting, etc. are fields where architects and engineers will perform functions of co-ordination and guidance, but will not necessarily have to do the work themselves. Technicians with average qualifications acquired through a shorter and cheaper training course may suffice in many of these cases.

351. The problem of co-operation between the different groups involved in the building process can be solved by an organizational merger of all or some of these groups. Where this has not been achieved, the architect has traditionally been considered the natural co-ordinator of all the groups concerned, since it is he who is assumed to have mastered the synthesis of the whole project. No fixed rule in this respect should be accepted. The larger investors

(public authorities or non-profit-making housing associations) should feel free to choose the person judged to be best qualified in the light of the nature of the different projects.

### 9. Standardization

352. In a narrow sense standardization means the fixing of well defined sizes, shapes, qualities or other properties of a product. In a wider sense, standardization comprises any activity aimed at establishing greater uniformity, clear-cut rules, or a fixed practice in areas hitherto marked by heterogeneity, arbitrariness, or confusion. Standardization means, in any case, a reduction of the number of variants, the prospect of simpler solutions (elimination of doubts and misunderstandings and limiting of the problems of choice), better solutions (concentration of planning efforts on fewer projects), and cheaper solutions (exploiting of the advantages of duplication, use of industrial mass production principles).

353. A fundamental field of standardization is the co-ordination of the measures within the buildings, that is to say, modular co-ordination. This ensures that the different standard components fit together when they are assembled on the site.

354. Standardization of sizes, shapes and types of building materials and components has in most countries made only slight progress compared with the position in other industries. Long-term planning is essential if production of standard parts is to be developed. When standards are introduced in new fields, it may often be better to start by fixing provisional standards until experience is gained. In any case, fixed standards should be revised at reasonable intervals in order to prevent standardization from hampering development. On the other hand, standards should be valid for a sufficiently long period to encourage the start of production on an industrial scale.

355. Standardization of qualities will generally have to be combined with rules for testing and controlling the qualities required.

356. The extent of standardization may vary not only in respect of the absolute number of standardized components, but also as to the parts of the building included under the system. Different states of standardization may be developed, from single materials and components to the different rooms of the house (standardized kitchens or bathrooms to be included in individual projects) or to the plans of the whole house (model or type-plans).

357. A useful field of standardization in a wider sense may also be that of contract procedures, contract documents, rules for tenders and for description of building work. Such standardized contract rules and documents may save much time and prevent uncertainty, errors, and misunderstandings they make it possible to influence development in a desirable direction by standardizing the most appropriate procedures and establishing reasonable conditions for both parties to the contract, besides helping the small builder (both investor and craftsman), whose knowledge in these matters is insufficient.

358. Standardization requires a stable demand and also a market of a sufficient size. The market may be enlarged and strengthened through the establishment of government-

sponsored housing programmes as well as by regional or international co-operation if common standards are introduced in several countries or regions. The effects of standardization are to a high degree based on the advantages of repetition. The profits from this may not only be obtained by mass production in factories or workshops, but also during work on site. The use of standardized components and type-designed plans will give greater practice and familiarity to the workers than constantly changing objects. The same will be true of the execution of large projects involving repeated operations on a large scale. When organizing mutual self-help building, these advantages may also be obtained, e.g. by having certain persons perform the same operations for all houses instead of each doing all the work on his own house only.

### 10. Mechanization

359. Adequate mechanical equipment requires capital and can only be profitably used if the capital can be amortized over a long period, or if the machinery is employed for a large number of buildings. The investment therefore – like other sorts of investment in building construction – will be dependent in principle on the existence of long-term housing programmes. In order to ensure that firms without much capital have sufficient mechanical equipment, three courses of action might be envisaged: having specialist organizations do part of the work on a sub-contracting basis; granting loans to firms for the purchase of machinery; or establishing equipment pools which would lease machinery to firms not large enough to provide their own machinery or to make sufficient use of it for the purchase of equipment to be economically profitable.

360. In Denmark a building equipment pool was established some ten years ago, as a company started by the State (which owns two-thirds of the share capital) in co-operation with the employers' federation and the housing construction associations and co-operatives, which divide the balance of capital between them. These three groups are equally represented on the board of directors. The company maintains warehouses in various parts of the country for leasing equipment to users. It is also authorized to engage in research with a view to developing more efficient construction methods. The sort of equipment the company offers comprises: (a) stationary cranes, hoists and belt conveyers; (b) pipe scaffolding and equipment for modern form work; (c) boilers and heaters for cold seasons; (d) mobile cranes; (e) trucks and lorries; (f) compressors and field power stations; (g) excavators, scrapers; and (h) other machinery and tools.

361. The problem of mechanization is a question not only of getting more and better machines, but also of making improved use of the machines. Much unfavourable experience is due to the fact that expensive machinery is not put to the best use on the site, the result being increased costs instead of savings. The planning of operations should be adapted to the most effective use of the machinery at hand, and the question of machinery should also be taken into consideration, an effort being made at the project stage to avoid the use of a small number of heavy components requiring big machines not otherwise needed and therefore not likely to be put to full use. Thus mechanization is also a question of production, planning and work schedules.

## 11. Building research

362. In most countries, whatever their technical and economic level, the special structure of the building trade will generally exclude the possibility of comprehensive building research being undertaken and financed by the industry itself. This is a consequence of the proliferation of small firms working more or less independently of each other, without the resources to organize systematic work in these fields (and with the risk that other firms will benefit from their efforts). Even when research is undertaken by a branch of the building industry, it usually involves an attack on isolated problems. No privately organized research will consider the interrelationship between the manifold detailed problems within the whole area of building.

363. This is chiefly why the National Institute of Building Research was established in Denmark fifteen years ago by the Danish Government. The purpose of the Institute has been defined as follows: "To supervise, foster and co-ordinate technical, economic and other types of research and investigation designed to improve and lower the cost of construction beneficial to society."

364. So far, the Institute has mainly based its activity on knowledge available in Denmark or in other countries, collecting and processing this knowledge and presenting it in an easily understandable form so that the results can be utilized effectively in actual practice. During its first few years the Institute mainly concentrated on short-term subjects bringing comparatively quick results. The work will be organized in the future with the following main objectives in view: a clearer understanding and definition of the functional demands to be fulfilled by the house and its parts, a more effective exploitation of the technical possibilities to meet these demands, and a continuous rationalization of the whole production process. As to the first point, not only the functional demands of dwelling as such should be examined but also the different rooms, the walls, and all other parts. This work must be done in co-operation with specialists in several other fields, such as hygiene, physiology, sociology, etc. However, the task of co-ordinating this aspect with the common aim, namely the house and its functions, must be the responsibility of building research.

365. Research into the technical ability to meet the functional demands should comprise not only the building materials – where the object is to improve existing materials and to develop new materials with as many of the desired qualities as possible – but also the various building parts. Increasing rates of prefabrication will make development of building parts and components a central feature of this work.

366. Active co-operation by all the groups involved in the housebuilding process, based on a full understanding of what to do and why to do it, is a condition for the successful implementation of housing programmes. It is essential to present the results of research in a form easily accessible to the practical builder, and to make sure that they are actually used. This has hitherto mainly been done through publications of various kinds. Strengthening the contacts between research and practice is a fundamental task, and the Danish Institute is working in a number of ways to this end. The dissemination of information is particularly difficult in the building industry for the same reasons as complicate the organization of research by the industry itself, namely, the special structure of the industry, with a large number of small firms working independently. Within the framework of large organizations and firms, knowledge can be easily, quickly and effectively disseminated, whereas in housebuilding special and more active efforts are necessary. Pamphlets and leaflets giving practical advice in simple and easily understandable language are one of the means. Special subscription arrangements, with a discount for publications appearing more or less regularly, could attract a wider circle and maintain contacts once established. Courses, of shorter or longer duration, might also prove valuable. They could be held, for example, in rural districts, and given by travelling lecturers in the evenings so as not to take workers and craftsmen away from active production. Besides giving more vivid information than books, courses also have the advantage of bringing people from different circles together for the discussion of common problems as seen from different angles. A course serves as a sort of supplement to former education, partly acting as a means of refreshing knowledge already acquired, and partly helping to bring earlier education up to date.

## V. STATISTICS REQUIRED FOR THE FORMULATION AND IMPLEMENTATION OF HOUSING PROGRAMMES

### 1. Statistical information required for housing programmes and sources of information

367. The main points to be considered in drawing up and executing national housing programmes are discussed in the third and fourth section of this report. This section is concerned with the statistics required for the implementation of the various programming stages, in particular: (a) for the assessment of housing conditions and requirements; (b) for evaluating the economic implications of housing programmes, (c) for estimating the supply of materials, labour and equipment; and (d) for estimating the financial resources needed to meet the objectives of housing programmes.

368. The amount of information required for the formulation of housing programmes may differ widely, according to local circumstances, time and place, whether there is a serious housing shortage, and whether the programme is merely to meet minimum housing requirements (see paras. 215-217). In the early stages of programming it may well be useful to have even a few figures roughly indicating the number of dwellings at present required in the various regions, and the production that appears possible with the available resources, while at a later stage it will be necessary to collect more detailed information on these points and to extend the collection of data to include other subjects. Nevertheless, a fairly realistic programme can be prepared with the help of comparatively few basic figures, and this is more true the greater the housing programme. Elaborated and refined statistics may be useful when it comes to preparing programmes involving detailed planning, but in many cases they will probably not have a major effect on the general results prepared from basic figures. In other words, the lack of detailed statistical information should not necessarily prevent the preparation of a housing programme. However, certain minimum official statistical figures will be required, in order to make it possible to determine the general lines to be followed by housing policy.

369. If official statistics include population and housing censuses, these will provide the main information necessary for estimating actual and future housing requirements. From the censuses it should be possible to obtain information on the number of households, household sizes, number of dwellings, inhabitants per room, and other information concerning the levels of living in respect of housing. But censuses are not very often up-to-date when finally completed and published; neither do they in most cases contain information on local conditions to the extent needed for planning. Some supplement may, therefore, be required, and can probably be obtained from sample surveys, vital statistics and similar sources. However, in developing countries, where the housing needs are very large, even a very rough assessment

of the housing situation can serve the purpose as a background for long-term housebuilding programmes. In such cases housing needs for localities may be based on local estimates of needs (for instance on lists of applicants for dwellings) for which information is collected through municipal and other administrative authorities. At the early stage of programming of the construction activities a thorough assessment of possible supplies of capital, labour and materials should be made. Financial difficulties and organizational problems such as lack of skilled labour and building materials may be a serious blow to the success of the housing development in the area if provision is not made for them beforehand.

370. Valuable information on housing requirements may in some cases be obtained from the lists of applicants for dwellings prepared by local authorities or by housing associations. It should be remembered, though, that statistics collected locally and for a local purposes are often heterogeneous and therefore can be used as part of the national statistics only if the necessary corrections are made.

371. The establishment of a basic list of statistical data which are needed for housing programmes is an important problem. The OAS Advisory Committee on Housing in Latin America, which met at Bogotá in 1961,<sup>35</sup> adopted criteria establishing the requisite categories and the procedures for obtaining the data and information needed for a critical appraisal of housing conditions in Latin America to provide realistic bases for the preparation of national housing programmes; for the preparation of long-term housing plans and their incorporation in national socio-economic programmes; and for determining the permanent mechanisms needed in each country for compiling, analysing and using the data and information.<sup>36</sup> A tentative list of basic information required was prepared by the Committee.

372. The Seminar provided an opportunity for programmers and statisticians to discuss the statistical requirements for housing programmes. The results of the discussion are summarized in the following table.

373. This table was prepared with a view to indicating the kind of statistical data which housing programmers consider essential. It was noted that for the time being it would hardly be possible to apply such a statistical scheme to any country in Latin America. It was felt, however, that the information in the table shows the statistical goals that should be attained in relation to housing programmes.

374. The table shows also the great variety of statistics

<sup>35</sup> Pan American Union, Organization of American States, *Informe de la Reunión del Comité Asesor de la OEA sobre Vivienda en América Latina*, Bogotá, Colombia, 4-9 September 1961.

<sup>36</sup> See annex B to Report mentioned in footnote <sup>35</sup>.

TABLE 1

*List of statistics required for housing programmes and sources of information*

Aspect of programming	Statistical information, estimates, and projections required	Sources of information
1. Macro-economic analysis (see part III, section 1, paras. 89-114)	Gross domestic product Fixed capital formation Construction expenditure Dwellings (investment) Rent Product of ownership of dwellings Other items of national accounts <sup>a</sup>	National income estimates and related tables, and basic statistics for these estimates
2. Analysis of the housing inventory and housing conditions (see part III, section 2, paras. 115-132)	Number of dwellings, classified by types; number of households, classified by types and class of housing unit which they occupy; rates of occupancy of dwellings and other kinds of housing units. Statistical indicators of housing conditions. Estimated value of the housing inventory	Housing censuses Population censuses Housing surveys Current housing statistics Special studies Lists of applicants for dwellings in conjunction with other information
3. Evaluation of present housing requirements (see part III, section 4, paras. 153-174)	Number of inadequate housing units: "improvised", "multi-family", "not intended for habitation", "rustic", etc. and occupants thereof. Number of doubled-up and potential households. Number of "substandard" dwellings. Number of over-crowded dwellings and occupants	Housing censuses Population censuses Housing surveys
4. Evaluation of future housing requirements (see part III, section 5, paras. 175-224)	Estimates of the future number of households, for urban and rural areas Assessment of the number of dwellings that should be replaced during the programming period Projections of future levels of housing conditions Estimates of the maintenance and repairs which will be required by the increasing stock of dwellings	Analytical demographic studies Population projections, for urban and rural areas, by age, sex, and marital status Vital statistics Life tables Internal migration statistics Historical data on headship rates, and size and composition of households Housing surveys Housing inventories and registers
5. Geographical distribution of housing programmes (see part IV, paras. 309-313)	Indicators of housing conditions and population census data by small geographic breakdowns of special interest for regional and town planning Future balances of labour	Population censuses (special tabulations) Housing censuses (special tabulations) Sample surveys
6. Capacity of the construction sector (see part III, section 6, paras. 226-240)	Projections of the economically active population in the construction industry Estimates of the labour force in trades of special significance in relation to dwelling construction by level of training Estimates of typical use of manpower per unit of production in main construction activities	Population censuses Special studies Economic censuses
7. Estimates and control of cost of dwelling constructions (see part III, paras. 241-248)	Estimates of the actual composition and projections of cost by inputs and geographical areas, for significant type-dwellings Statistics on prices of building materials Statistics on wages and salaries	Special studies and surveys Statistics of prices and salaries
8. Building materials (see part III, section 6, paras. 263-272)	Statistics on the production and prices of building materials, imports and exports, construction enterprises, materials and techniques used in dwelling construction in the past Trade in building materials Transport facilities	Statistics on building materials production and trade Price statistics Special studies on imported inputs for dwelling construction Economic censuses

<sup>a</sup> Reference is made here to items described in United Nations, *A System of National Accounts and Supporting Tables, Series F, No 2, Rev. 1, New York, 1960.*

(Table 1 continued)

Aspect of programming	Statistical information, estimates, and projections required	Sources of information
9. Paying capacity of households (see part III)	Estimates of the distribution of urban and rural households by levels of income Data on the composition of household expenditure, according to certain characteristics of the households and heads of households Interest rates Levels of rent Cost of type-dwellings Indexes of consumers' prices and salaries	Household surveys on income and expenditure Statistical series of indexes of consumers' prices and salaries Housing surveys Housing censuses Special studies
10. Evaluation of the financial resources required for housing programmes (see part III)	Estimates of the amount and composition of credit by sources for the construction of dwellings. Historical data on the financing of dwelling construction in recent years. Statistics on mortgage loans, terms and cost of loans. Table showing the flow of funds in relation to investment for dwellings	Financial statistics Items of the national accounts Estimates of future housing requirements Banking statistics Government accounts Special studies and surveys
11. Implementation of housing programmes (see part IV)	Statistics of the number of new dwellings built, according to their characteristics, financing, constructor, etc. Comparison of programme targets and actual dwelling construction	Current housing statistics Administrative records of housing agencies Current financial statistics

required for housing programmes, which makes it impossible for any one agency to collect the basic data, prepare the estimates and projections, and undertake the special studies required. Hence close co-ordination among the various agencies concerned with the statistics shown in table 1, as well as between housing and statistical services, will be indispensable for achieving the statistical goals related to housing programmes.

375. The following sections of this report deal with methodological aspects of some of the major statistical fields related to housing programmes, namely: (a) items of the national accounts statistics used to assess the economic significance of housing; (b) demographic statistics and projections; (c) housing censuses; (d) housing sample surveys; (e) permanent housing records; (f) current housing statistics; and (g) statistics required for estimates of cost of construction and the value of construction.

## 2. Items of the national accounts statistics used to assess the economic significance of housing

376. In formulating a housing plan it is necessary not only to have a clear picture of the need for additional housing in physical terms – the number of dwellings – but also to gather as much information as possible on the significance of the housing sector for the economy as a whole. This information is essential if an idea is to be obtained of the repercussions which expanded housing construction is likely to have on the economy, and to evaluate the economic feasibility of the housing plan. Economic and social development takes place on a broad scale, and in order to assure proper consideration of housing problems by the authorities in charge of co-ordinating the planning effort, it is important for these authorities to be able to present statistical informa-

tion relevant to all aspects of their plan. This will ensure co-ordination and consistency of the actions which are proposed in this sector in relation to the corresponding programmes of the other economic sectors.

377. The data required for obtaining a picture of the economic significance of housing are mainly of a macro-economic nature and a considerable amount of relevant information could be obtained from the national income accounts of the countries concerned if these were presented in great enough detail and were sufficiently reliable. Information from employment statistics, family living surveys, government accounts, etc. is also needed to supplement national income data in throwing light on various aspects of the problem.

### (a) National accounts data of interest in assessing the economic significance of housing

378. Table 2 shows in synoptic form the national accounts data currently available in the region which are of interest in assessing the economic significance of housing in the context of economic and social development. Data on fixed capital formation in dwellings and its relationship to other macro-economic magnitudes are of most direct relevance in this respect.

379. The number of dwellings which can be built during a given period of time is limited by the funds available for fixed capital formation in housing and by the manpower and materials on hand for the purpose. The supply of both the funds and the resources in manpower and materials which can be channelled into this activity is to some extent elastic. However, if the share of resources used for dwelling construction has already reached a relatively high level, the scope for further increase is in general relatively limited.



TABLE 2

*National accounts data currently available in Latin America for an assessment of the economic importance of housing*

Country	Gross domestic expenditure	Gross domestic fixed capital formation	Construction expenditure		Consumption expenditure		Gross domestic product by industrial origin	Product of ownership of dwellings sector
			Total	Dwellings	Total	Rent		
Argentina .....	X	X	X	O	X	O	X	O
Brazil .....	X	X	O	O	X	O	X <sup>a</sup>	X <sup>a</sup>
Chile .....	X	X	X	O	X	O	X	X
Colombia .....	X	X	O	O	X	O	X	X
Costa Rica .....	X	X	O	O	X	O	X	X
Cuba .....	X	X	O	O	X	O	O	O
Ecuador .....	X	X	X	X	X	X	X	X
Guatemala .....	X	X	O	O	X	O	O	O
Honduras .....	X	X	X	X	X	X	X	X
Mexico .....	X	X	O	O	X	O	O	O
Peru .....	X	X	X	O	X	X	X	O
Venezuela .....	X	X	X	X	X	X	X	X

a Net product  
X Available  
O Not available

380. The total resources available for capital formation of all kinds depend on various factors, and in any case it is hardly to be expected that the efforts that may be made to increase investment could produce spectacular results in a short period of time. At present, of the share of domestic expenditure used for capital formation of all kinds, very few countries allocate more than one-third for dwelling construction.

381. Foreign aid could increase the total funds available for consumption and investment and, if used primarily for capital formation, might also raise the investment coefficient. Aid earmarked specifically for housing development could also lead to an increase in the share of total capital formation used for this purpose. But even substantial amounts of aid are not likely to increase available resources by a high percentage and will essentially be marginal to the funds available from domestic sources. Also, the supply of manpower and materials for all purposes is limited and if too large a part of these resources is diverted to capital formation, there is a danger of creating or worsening economic imbalances.

382. In the industrially advanced countries, total employment in construction is usually about 20 to 30 per cent of that in all manufacturing industry, and housing probably accounts for about half of the total direct and indirect employment in construction. In the less developed countries, a national housing programme can provide a similar large employment potential. In rapidly developing and urbanizing countries, employment in construction appears to be the first step in the shift of rural migrants from agricultural to industrial pursuits. On the other hand, housing shortages result in a high and inflationary rent level which can lead to high wages and production costs and these in turn will have an adverse effect on economic development.<sup>37</sup>

<sup>37</sup> United Nations, Group of Experts on Housing and Urban Development, *The Role of Housing and Urban Development in National Development Programmes*, Working Paper No. 4, New York, 1962.

383. An adequate rate of savings is a pre-condition of economic progress. Creation of the saving habit is often difficult, even when incomes allow it, and since housing offers a tangible, desirable and personal objective people can be more readily induced to save for housing than for other forms of investment. A housing policy and programme, therefore, which provide the means and the incentive for individuals to amass their own saving for housing will contribute to general economic development both by the actual savings realized and by the saving habit created.

384. Investment in housing and urban development programmes, together with education and health, belong to the category of social overhead projects, and, like economic overhead projects such as transport, communication and power, are basic to economic development. These overhead projects provide little or no yield in foreign exchange. They usually furnish low returns in the short run and take a considerable time to realize any yield in financial terms. Their benefits, however, are derived from the more balanced development of economic activities which they are supporting.<sup>38</sup>

#### (b) Fixed capital formation in dwellings

385. In its proposal for a standard system of national accounts and related tables, the Statistical Commission of the United Nations<sup>39</sup> recommends that fixed capital formation in dwellings be shown as a separate item in the table on the composition of gross domestic capital formation by type. Total gross fixed capital formation in dwellings is defined as including "all expenditures on new construction and major alterations to residential buildings including the value of the land before improvement. The expenditure covers the cost of external and internal painting and all permanent fixtures

<sup>38</sup> United Nations, *Report of a Special United Nations Fund for Economic Development* (United Nations publication, Sales N°: 1953. II.1), para. 107.

<sup>39</sup> *A System of National Accounts and Supporting Tables*, Studies in Methods, Series F, N° 2, Rev. 1, United Nations, New York, 1960.

such as furnaces, fixed stoves, central heating and water supply installations and all the equipment customarily installed before renting." This definition is applied by countries of the region which estimate fixed capital formation in dwellings.

386. Various breakdowns of total expenditure on dwelling construction would be very useful for a full analysis of its economic significance. For instance, it would be useful to know its distribution by urban and rural areas, by size and characteristics of dwellings and by new construction and major repairs. The distribution of the total expenditure by public and private sectors would also be of interest, to show the part played by Governments in dwelling construction.

387. It is equally important to know how large a part of the total annual expenditure on dwelling construction is needed to replace houses worn out as a result of normal wear and tear or destroyed. Depreciation allowances on the actual replacement value of the dwelling stock estimated for national income purposes would give an approximate measure of this. Estimates of the replacement value of the dwelling stock are, of course, also of the greatest interest in themselves and not only as the basis for calculating annual depreciation allowances.

388. It should be noted that gross fixed capital formation classified by type in the national accounts refers only to items which represent an increase in the capital stock from the point of view of the country as a whole. As a consequence of this, the value of the land on which the buildings are constructed is not included in fixed capital formation in dwellings. A special item for "land" is included in the classification recommended by the United Nations, but this item refers only to net expenditure, including legal and other fees connected with the transfer of land from one owner to another and not to the value of the land itself.

389. In the classification of fixed capital formation by industry, however, the United Nations recommends that the movement of already existing capital goods should be taken into account as positive capital formation of the industry of purchase and negative capital formation of the industry of sale. Acquisition of land by the "ownership of dwellings" industry should therefore include the value of the land purchased or rented for residential construction. In practice, however, the few countries of the region which estimate capital formation by industry have not been able to adjust their figures for transactions between industries in existing fixed capital, including land. Since the cost of acquiring land in the countries of the region often amounts to a considerable part of total cost of the housebuilding projects, it would be very useful if the Latin American countries, in developing their estimates of fixed capital formation by industry, could take this factor into account.

390. In opening up new areas for dwelling developments it is necessary to put down new water mains and sewer-pipes, to construct light and telephone lines and to provide new streets and roads. For the purpose of assessing the total cost of a housing programme it is of interest to know the present ratio between this expenditure and the direct expenditure on fixed capital formation in dwellings. In the Latin American countries this is all the more important since the cost of many public utilities is not borne by the Government but by the private builders themselves, and therefore directly increases the cost of dwelling construction. At pre-

sent, however, no information is available in the national accounts or elsewhere making it possible to evaluate the importance of these items.

391. Construction expenditure is one of the most difficult items to estimate in the national accounts anywhere in the world, because the basic statistics on which these estimates have to be built are usually inadequate. Two main methods have been applied in Latin America. The method most widely used bases the estimates on building permit statistics for the private sector and on data extracted from the government accounts for the public sector. An alternative method based on domestic production and imports of building materials with appropriate mark-ups is used in at least one country of the region.

392. Building permit statistics are available for many Latin American countries, but as a rule they cover only the capital city or selected urban areas. A few countries have building permit statistics which also cover the rural areas, wholly or in part. In addition to being limited in geographical coverage, building permit data also suffer from other weaknesses such as the fact that some building takes place without permits, that not all buildings for which permits are issued are actually completed, and that there is a time-lag of varying length between the issuing of a permit and the completion of a building. When used for estimating totals covering the whole country these data must therefore be adjusted both for geographical under-coverage and for incomplete coverage of housebuilding in the areas for which they are available.

393. The adjustments of the building permit statistics with respect to geographical under-coverage appear in general to be incomplete in the region and several countries prefer to make no such adjustment at all in their estimates. Others make an adjustment by assuming, for instance, that new dwelling construction has the same relationship to the existing stock of dwellings as at the time of the most recent housing census in the areas covered by building permit statistics as well as in the areas not covered by them. Statistics of finished building based on the certificates of occupation required in most countries of the region are sometimes used for the adjustment of the time-lag between the issuing of building permits and the completion of the dwelling, as well as for the non-utilization of permits. In countries which use the values stated in the building permits directly in their estimates of the value of dwelling construction, rough adjustments are usually made for possible under-valuation. All these adjustments are, however, necessarily very approximate, and it is on the whole likely that the use of the building permit method leads to some under-estimation of construction expenditure for most countries of the region.

394. Some countries use the building permit method to make full estimates of the construction component of fixed capital formation for bench-mark years only, while for other years they extrapolate total fixed capital formation by means of volume price indicators.

395. Only three countries of the region currently publish separate figures for dwelling construction in their national income accounts, while the other countries which use the building permit method publish data on total construction only. The same three countries are also the only countries of the region which publish data on fixed capital formation by industry. The figures they show for capital formation in

the "ownership of dwellings" sector are, however, identical with those shown as capital formation in dwellings in the breakdown by type of capital goods and therefore are not adjusted for purchase or lease of land for purposes of house-building.

396. It is clear that the data now produced by the Latin American countries in their national accounts fall far short, in detail and quality, of what is ideally required to analyse the economic significance of dwelling construction. Fuller utilization of whatever basic data are available, combined with further surveys based on building permits, may be one way of obtaining improved estimates in the relatively short run without the expenditure of much in the way of extra resources. To become really satisfactory, however, the national accounts estimates of dwelling construction ought to be based on more solid data obtained from construction censuses and annual sample surveys based thereon. This long-term goal should therefore not be lost sight of.

397. Very little statistical material is available for a comparison of expenditure on dwelling construction with expenditure for other social purposes in the region. There are, however, indications that fixed capital formation in dwellings is approximately equal to or somewhat higher than total expenditure on education by Governments plus the private sector in the regions, which probably amounts to about 2 to 3 per cent of the gross domestic product. It is generally recognized that the present level of expenditure on education is also grossly inadequate.

#### (c) *Input-output tables*

398. Several countries of the region have prepared or are in the process of preparing input-output tables which, among other things, make it possible to draw broad conclusions as to the direct and indirect effects on the economy of an expansion of total investment. Because of the difficulty of estimating the total value of dwelling construction, and still more, of the inputs in this activity, it has not been possible so far to show dwelling construction as a special item in the input-output tables.

399. As more basic statistics permitting an extension of the input-output tables become available, very useful information on what an increased programme of housebuilding implies in terms of greater production in the various domestic sectors and increased imports can be obtained. This would provide a good basis for judging whether or not a specific programme for increased dwelling construction is economically feasible.

#### (d) *House-ownership as an economic activity*

400. The existing stock of dwellings contributes to the national product by producing housing services, that is by making dwelling space available for occupation. The economic value of these services is measured in the national accounts as the difference between rents paid or imputed for owner-occupied houses and current expenses incurred by the owners.

401. Although data on the value of dwelling services currently produced are not as directly relevant to the problems of planning and financing a housing programme as are the data on fixed capital formation in dwellings, such data still

help to shed light on some aspects of the housing problem. A comparison between countries of the value of housing services in relation to total gross product may also give an approximate indication of the relative share of income spent on housing. This is important in dealing with the countries of the Latin American region since information on total rents is scarcer than information on value added in the "ownership of dwellings" sector.

402. In the United Nations recommendations on national accounts, value added in the "ownership of dwellings sector" is considered part of the domestic product and is defined as including the compensation of employees and the gross operating surplus originating from the use of dwellings. The sector should cover the contribution to gross domestic product originating from the use of dwellings owned by individual landlords (including rent of owner-occupied dwellings) and in corporate and non-corporate enterprises principally engaged in hiring out premises to other transactors. In principle, all the Latin American countries which estimate value added for the housing sector have adopted this definition.

403. A breakdown of domestic product by industrial origin is available for most Latin American countries, but some countries include ownership of dwellings under the heading of "other services" because their basic statistics do not make a separate estimate possible. However, more than half the countries show value added for the dwelling sector as a separate item in their national accounts.

#### (e) *Consumer expenditure on rent*

404. If housing is scarce and the income level of the population is low expenditure on rent tends to constitute a large part of total consumer expenditure, particularly for the lower income groups. High levels of rent also tend to increase the part of the total product used for consumption and thus prevent an increase of private savings necessary to finance additional housing construction.

405. The rent component of personal consumer expenditure in the national accounts provides information on total paid or imputed rents for the population as a whole. This item, if related to such relevant macroeconomic magnitudes as total domestic product or total private consumption, gives over-all averages which conceal broad variations for the different strata of the population. Family living surveys relating to the lower income groups provide supplementary data which help to provide some idea of the size of these variations.

406. In the United Nations recommendations the rent item in private consumer expenditure is defined as including "all gross rent (actual and imputed gross rents on owner-occupied houses as well as actual and imputed ground rents payable) including water charges and local rates. Rent will generally be space rent, covering heating and plumbing facilities, lighting fixtures, fixed stoves, wash basins and other similar equipment which is customarily installed in the house selling or letting. Expenditures of tenants on indoor repair and upkeep (for example, indoor painting, wall paper, decorating, etc.) are included." This definition is in general accepted by the countries of the region which estimate consumer expenditure on rent, with the modifications required by differences in local practice.

407. Local rates and water charges are included along with rent in the United Nations definition because this expenditure is considered to be inextricably connected with rent expenditure proper. The same could perhaps also be said of the item "fuel and light" and to a lesser extent of the item "furniture, furnishing and household equipment", which are both kept separate from rent in the standard recommendations. For a consideration of the economic significance of housing where it is necessary to consider rent in relation to, say, building costs, it would seem preferable, however, to apply a definition which limits the concept of rent as closely as possible to actual house rent paid and imputed.

408. In family living surveys, several countries both inside and outside the region make it a practice to group rent expenditure together with expenditure of related items, often electricity and sometimes fuel or water. Another reason for the incomparability of rent data from family living surveys is the fact that they refer to samples of different groups of the population and of different sizes in the various countries. Most frequently, a sample is taken of worker families in the capital city, but sometimes salary earners are also included and occasionally rural families as well. All these factors have to be taken into account when data from family living surveys are used in comparing levels of rent expenditure.

409. Family living surveys with varying coverage have at one point or another been made in practically every country of the region. However, several of these surveys are ten or more years old and none relates to a more recent year than 1954. They cannot therefore be assumed accurately to reflect the composition of expenditure today. The countries concerned are aware of this and several have set themselves the urgent task of conducting new surveys which should provide a better weighting base for their cost-of-living indexes.

410. The methodology of family living surveys is generally arrived at by obtaining from a sample of families data on their specific expenditure, item by item, over a period of time. This is done by requesting them to keep detailed accounts or by sending enumerators who get the information by direct questions at different points during the period. Since rent is an item on which the families are easily able to give accurate information, expenditure for this purpose and its share in total expenditure may be assumed to be accurately reflected in the family surveys.

411. On the basis of the above considerations the statistical position may be summed up as follows. Although national income statistics are well developed in the region, only a few countries estimate separate figures for expenditure on fixed capital formation in dwellings, and there is virtually no breakdown of this item according to characteristics useful in assessing whether its distribution is the best one from the point of view of the nation as a whole. Several countries publish figures on the product originating in the "ownership of dwelling" sector but few countries have a breakdown of consumer expenditure allowing them to present figures for total rents. Data from more or less obsolete family living surveys are nevertheless available for most countries, showing the share represented by rent in the expenditure of low-income families. Information on labour and materials consumed in the housebuilding industry *per se* is not provided in ordinary statistical sources but could prob-

ably be obtained relatively easily by engineering type surveys. Input-output tables exist for several countries of the region but they are not yet presented in sufficient detail to be used for estimating the effects of increased expenditure for dwelling construction on the different sectors of the economy.

412. The quality of the available national accounts data is uncertain and varies from country to country, but on the whole such data are not likely to be more than fair approximations. Some improvements may be made and more detail obtained by making fuller use of available basic data. However, in order to develop national income data sufficiently detailed and accurate to be really useful for an assessment of the economic significance of housing, more ample and reliable basic statistics are required. Considering the importance of the fullest and most accurate information possible on the place of housing in the economy, the countries of the region will, it is hoped, make every effort to produce such statistics by improving their building permit data, conducting housing censuses and surveys of the construction industry and undertaking new family living surveys.

### 3. Demographic statistics and projections

413. The need for demographic statistics in evaluating present housing needs and estimating future requirements was stressed at the Copenhagen Seminar. Attention was devoted primarily to the methods for making the required projections of population and households and to the organizational arrangements for the preparation of such projections.

414. To provide a realistic background for the discussions, the demographic situation of Latin America as a region was reviewed. It was noted that in previous years housing programmes were often planned without the benefit of information on demographic trends. Recognition of the essential nature of the demographic aspects in planning economic and social programmes in general and in the formulation of housing policies and programmes in particular has been a fairly recent development. However, it is now well accepted that demographic factors need to be taken into account not only in the analysis of the housing market, but also in the evaluation of the current housing situation and in the determination of current and prospective housing needs.

415. The salient features of the demographic situation that must be taken into account in estimating housing needs can be classified into six principal groups, as follows:

1. Population growth rates
2. Household growth rates
3. Changes in size of household
4. Changes in composition or structure of households
5. Changes in the life cycle of households
6. Urbanization (internal migration)

The extent to which statistics are available for assessing each of these features in Latin America was discussed at length.

#### (a) *Population growth rates*

416. At the present time, national population growth rates in Latin America are mostly determined by birth and

death rates, international migration being in most countries unimportant in this connexion. Internal migration, however, is extremely important for subnational purposes.

417. Latin America is the fastest growing region in the world. The annual rate of growth for the region in 1955-65 has been estimated by the Economic Commission for Latin America,<sup>40</sup> to be in the neighbourhood of 2.9 per cent, as compared with a corresponding world rate of 1.8 per cent. Within the region, the rate varies from a high of well over 3.0 per cent (Brazil (3.3), Costa Rica (3.9), Ecuador (3.2), El Salvador (3.1), Honduras (3.4), and Mexico (3.1)) to a low of 1.3 per cent for Uruguay.

418. This high population growth rate has resulted from a high and relatively stable level of fertility (over 40 per mil) combined with a decreasing mortality rate which in recent years (1955-60) has reached a moderate level of around 13-15 deaths per mil. Whether this rate will be accelerated in the future by a further and perhaps precipitous decline in the death rate while the high birth rate is maintained, or whether births will show a substantial decline in the next decade or so, is a matter of speculation. Estimates of the future population of the region prepared by the Economic Commission for Latin America in co-operation with the Latin American Demographic Centre imply a stabilization of the rate of population increase in the next few years, followed by a decline of the rate of growth in the next decade. In the light of the results of the 1960 census in Brazil, as well as those of other countries, the average annual rate of increase for the region in 1960-70 should be about 2.9 per cent, rather than the 2.6 per cent estimated earlier. High as this rate appears, it may well prove to be markedly underestimated, if the results of the 1960 censuses of population continue to reveal the inadequacies of pre-censal estimates as they have in Brazil.

#### (b) *Households - number, size and composition*

419. Inasmuch as the consumer units for housing are private households rather than individuals, the number of portion of the population living outside private households; number is changing are of primary importance. Housing programmes normally do not provide for the small proportion of the population living outside private households; this small part is therefore not taken into consideration in evaluating housing needs.

420. It was pointed out that the demographic factors determining the number and size of households are: the size of the adult population; the age-sex distribution of population; the age-specific marriage rates; the age-specific divorce rates; the age-specific death rates; and internal migration. Composition and structure of households are affected by these factors and, in addition, by the number and sex of children born, by the age of the heads of households, and by changes in the types of families making up the households.

421. It was agreed that in order to evaluate housing requirements fully statistics on all these topics should be available but, in spite of the considerable importance of information on the number and characteristics of households for

planning housing programmes, the data available for Latin America are quite limited. The most recent information available shows that the average size of households in Latin America is about five persons, but the rate at which this parameter is changing is not available.

422. On the average the length of life of dwellings is greater than the length of life of households, and there is a constant movement of households from one dwelling to another. Frequently the movements will be originated by changes in the size and composition of existing households, as for example marriage of one of the members, new children born, death of some members, members passing from one category to another, that is from childhood to adulthood, etc., new members incorporated into the household, or members leaving the household group. The different stages in the family and household cycles correspond, approximately, to different housing needs; as, for example, the need to secure or give up a separate housing unit or to transfer to a larger or smaller unit.

423. The typical life cycle of a nuclear family originates with marriage, grows in size as children are born, contracts as children marry or leave home, and terminates when both parents die, or when one parent dies and all the children leave home or get married. The pattern is not static, however, and secular and cyclical changes in age of marriage, spacing of children, size of completed family, and length of life can affect the pattern of family formation, growth, and eventual dissolution. These family changes, of course, affect the pattern of housing needs. From the available statistical data, mostly based on the 1950 censuses, only a few of the dynamic aspects of the family in contemporary Latin America can be described. More will be known with the accumulation of the results of special research studies and with the tabulation and analysis of the 1960 censuses.

424. The life cycle of a household differs from that of a family in its date of inception and its date of demise. A typical household begins somewhat later than the corresponding family and terminates somewhat later also. Its period of life extends from the establishment of a married couple in a separate housing unit to either death of the first (usually male) spouse and the transfer of the survivor (usually widow) to the home of relatives, or to the death of the surviving spouse (usually widow) in her own home.

425. The period of time between marriage and the establishment of a separate household is not known. The change may coincide with the arrival of the first child but more often it will come several years later. In addition to custom and personal preferences, the availability of suitable housing and the income level of the couple exert a strong influence on the decision to set up a separate household. Were it not for these limiting factors, it is assumed that the interval between marriage and the establishment of a household would be negligible. It should be possible to work out an estimate of this kind on the basis of data on marital status (married couples) and relationship (heads), by age, which would make it possible to determine the proportion of married couples at each age who do not have their own homes. Sample survey methods could throw light on this question. At the other end of its "natural" life, the original household may last perhaps thirteen years after the corresponding nuclear family has terminated if the surviving widow continues to maintain her own household after the

<sup>40</sup> *Economic Bulletin for Latin America*, Vol. VII, N° 1, Statistical Supplement, October 1962.

departure or marriage of her children and subsequent death of her husband, or the household may last exactly as long as the nuclear family when an unmarried child remains in the household until the death of his widowed mother.

(c) *Life cycle and household mobility*

426. The demographic factors determining changes in the life cycle of families and household include, therefore, age at marriage, age at birth of first child, number of children born, and death rates by marital status. The need to secure a separate housing unit or to transfer to a larger or smaller unit is determined by one or more of the factors set forth above, and these are determinants of housing needs.

(d) *Urbanization and internal migration*

427. Housing needs have to be evaluated not only in terms of the national situation as a whole, but also in terms of specific geographical areas, such as local administrative units. Housing needs may vary from area to area, the local situations being determined, as the national situation, by differences in the number and characteristics of households and varying rates of household formation and dissolution. Geographical differentials in the demographic situation are especially pertinent in view of the fact that housing is an immovable good which, when no longer needed in one community, cannot simply be transferred to another where the need is greater.

428. The most outstanding demographic fact concerning geographical distribution of population in Latin America is that, although the region is still predominantly rural in character, urbanization has been proceeding rapidly. In 1960 over 30 per cent of the population in Latin America lived in cities of 20,000 inhabitants or more as compared with about 25 per cent in 1950, and the main factor accounting for this rapid growth in cities is net migration from small areas. Information on internal migration is certainly required for housing programmes.

(e) *Population projections*

429. Population projections are needed in order to supply future estimates of the measures mentioned above. In this connexion a projection of any type is subject to a considerable margin of error. In the last analysis, a projection is only a forecast of what would happen if demographic rates modified by arbitrary assumptions continued into the future. The population at any time in the future is determined by the size of the present population, plus births and immigrants, minus deaths and emigrants. Regardless of how accurate the basic statistics may be, there is no way of forecasting trends in fertility, mortality, and migration without error. Forecasts of migration movements will be especially doubtful. Moreover, the longer the period over which projections are extended, the greater the chances of error. Short-term population projections, i. e. projections of less than fifteen years in the future, are not, as a rule, likely to be wide of the mark if the population at the base date is accurately known and the dynamics of population (vital and migration statistics) are relatively accurate. The recent and reliable nature of census statistics is therefore an important factor in the potential accuracy of the projection.

430. In view of the limitations of population and vital statistics in Latin America, only a minimum set of population projections should be suggested for use in estimating future housing needs. The four basic cross-classifications of data would not necessarily answer all needs but would provide a considerable amount of the data required for housing programmes in the area. The suggested projections required as a minimum are:

1. Population by age and sex, for urban and rural areas;
2. Population by age, sex and marital status;
3. Number of private households in urban and rural areas;
4. Average size of household.

(f) *Methods of making population projections*

431. The method that may be adopted for projecting a population distribution into the future depends primarily on the information available. Several alternative methods have been suggested by the United Nations<sup>41</sup> depending on the basic data available. These are (a) the mathematical method; (b) the economic method; and (c) the component method. The second of these, the economic method, has relevance principally to projecting on the basis of the expected economic growth of areas.

432. The simplest method of estimating the future size of population is the "mathematical method". It consists in extrapolating into the future the rates of growth observed between two or more censuses in the past. Obviously this method will not yield accurate results if changes take place in the birth or death rates, and changes in the rates are bound to occur. However, when births, deaths, and migration statistics are not available, the "mathematical method" may have to be used to project not only the total population but also distributions by age, sex and marital status.

433. There is also the "economic method", which is similar to a method broadly applied as a "balance of labour" in countries with centrally-planned economies. In this method population projections may be obtained on the basis of projections of future production by regions and the corresponding labour requirements in agriculture, industry, transport, construction and the rest of the branches of the economy. The economic method makes it possible to take into account the internal migration movements needed in relation to expected regional economic development. Care must be exercised in order to avoid arguing in a circle in applying this method, because, in Latin America, economic projections for certain areas or local regions have sometimes been made on the basis of future projections of the population, as calculated by some mathematical method of extrapolation, and assumptions concerning internal migration and rates of participation in certain branches of the economy, in particular agriculture.

434. If the necessary statistics are available the component method is the method to be chosen. It consists in the separate projection of the numbers of males and females in each age group, or other specified category, of the popul-

<sup>41</sup> *Methods for Population Projections by Sex and Age*, Manual III, ST/SOA/SERIES A, N<sup>o</sup>. 25 (United Nations Publication, Sales N<sup>o</sup>. 1956. XIII.3).

ation using the components of population change, namely, the births, deaths and migrants in each selected segment or cohort of population.

435. The statistical data required for the application of the component method to projecting population by age and sex for a specific area are:

1. The age-sex distribution of the population in the base years;
2. The age-sex-specific death rates (or some function of them, such as life-table functions which can be used to work out survival ratios) in the base year and their estimated values in future years;
3. The estimated values of age-specific fertility rates in future years;
4. Estimates of the volume of net migration classified by age and sex in each of the future years.

436. To obtain the population projection five years after the base date, the first step is to calculate the number of survivors of the males and females who were in the age group 0-4, 5-9 and so forth at the census or base date. This is done by applying appropriate five-year survival ratios. The projected population in each age group five years and above, excluding the effects of migration, is thus obtained. The age group 0-4 is estimated by the number of births to be expected in the five years following the base date minus the expected number of deaths among those births within the same five-year period. The number of births is obtained by applying a fertility rate to the number of women in the reproductive age groups. The births are split into males and females by applying the sex ratio at birth, and the survivors of these cohorts are calculated for the end of the five-year period after the base date.

437. Estimates of the probable value of the several components in future years are usually made on certain assumptions, e.g. that the birth rate will remain unchanged, that it will decrease slowly or sharply in line with past performance; or that it will increase slowly or otherwise. Similar assumptions are made for mortality. For migration it is customary to project estimated inter-censal rates.

438. Further estimates of persons in each marital status group are sometimes derived by projecting current proportions of the population in each age-sex group falling within each marital status group according to data from the last census, and applying the projected proportions to projections of the male and female population by age. More refined methods involving specific mortality by age, sex and marital status, and age-specific marriage and divorce rates, may also be used, since the component method described above is equally applicable in respect of characteristics other than age and sex. However, it should be emphasized that these refined methods, and even in most cases the cruder method of projecting marital status, are almost completely unrealistic for Latin America, because of the lack and unreliability of data on the marital status and nuptiality rates.

#### (g) *Methods of making projections of households*

439. Several procedures have been developed for projecting the number and characteristics of households (see paragraphs 419-425). The so-called crude methods are easier to apply, but they do not take as fully into account the various factors affecting the future growth of households as do more

refined methods, and they do not provide any of several desirable types of by-products relating to the characteristics of households.

440. The crude rate of future population growth would give a rough indication of the percentage increase in the number of households over a given period. The indication is only approximate because the number of households tends to grow at a different rate from total population. The dissimilarity may be decreased by using the rates for adult population (18 years of age and over), instead of that for total population, since this is the age segment of the population likely to be involved in forming new households.

441. The number of future households may also be estimated by making assumptions on the future average household size, and applying these to the part of the projected total population that would be expected to occupy conventional (permanent) dwellings. This method is probably the only one which can be readily applied in Latin America owing to the lack of the statistical information required for the application of the more refined methods mentioned below.

442. More accurate results may be obtained by estimating the future number of households, taking into account the composition of population by age, sex, marital status, relationship to head of household and other variables that have an important effect on changes in the number of households. Among these may be mentioned the use of "headship ratios", which are the proportion of household heads in total population in each age-sex group or, more refined, in each age-sex-marital status group, and which may be estimated from census data and assumptions regarding future changes and applied to the urban and rural population projections by age and sex, or by age-sex-marital status.

443. Projections of households according to size are also necessary for planning. The simplest procedure is to distribute the projected numbers of households by size according to the size distribution observed at the last census. A further refinement would call for cross-classification by type of household, age of head or marital status of head, but these data are scarcely available in Latin America.

444. A major problem connected with projections is the lack of reliable data. It was pointed out that in Latin America the data needed for projections are either unavailable, insufficient or defective. Methods of dealing with problems created by insufficient data have been discussed in United Nations manuals. Uncertainty as to the present age distribution of the population can be resolved in a number of ways. Where data are known to be defective, errors can be estimated and adjustments made.<sup>42</sup> Special attention must be given to methods of estimating mortality and fertility and to a method consisting of obtaining survival probabilities by comparing the results of two successive population censuses, age group by age group. If it is assumed in such a method that the censuses are equally reliable and that no external migration occurred, then the difference between the population of age  $x$ , enumerated at the earlier census, and that in age  $x + n$ , in the last census,  $n$  being the number of years be-

<sup>42</sup> United Nations Population Studies - Manual II; *Methods of Appraisal of Quality of Basic Data for Population Estimates* (United Nations Publication, Sales No. 1956. XIII.2) and *Methods for Population Projections by Sex and Age - Manual III* (United Nations Publication, Sales No. 1956. XIII.3).



tween the two censuses, must be equal to the deaths occurring in the  $n$  year inter-censal interval. The method is presented in detail in a United Nations document.<sup>43</sup> Other methods make use of a schedule of future age-specific mortality rates, the model life tables, developed by the United Nations.<sup>44</sup>

445. As for the question of seeking alternative methods of obtaining demographic data where the customary sources are not available, though temporary expedients are essential to provide the best available projection of population and households based on faulty statistics, or mere assumptions, it was stressed at the Seminar that attention should be directed toward achieving improvement in the data-collecting system with a view to providing reliable primary data in the near future.

#### (h) Available projections

446. It was noted that both the Organization for Economic Co-operation and Development, and the Economic Commission for Latin America, as well as the United Nations<sup>45</sup> have published future population estimates for each country and region of the world. However, since any population projections must be based on assumptions as to the future performance of the death rate and the birth rate, they are out of date almost as soon as they are made, and, in any case, they are valid only so long as the assumptions upon which they are based are valid and the base data accurate. As soon as a new census is taken, the base data change. Projections therefore need to be revised after each census, or at regular intervals, say, every five years.

#### (i) Organizational arrangements for projections

447. The Seminar also discussed the question of the most effective organizational arrangements for making projections. The consensus of opinion was that projections should be the responsibility of the office best equipped in personnel and data resources to carry out the operations efficiently and to keep the projections under constant scrutiny in regard to the validity of the underlying assumptions.

448. Under most circumstances, the statistical service of a country would be likely to meet the criteria set forth above, although in some cases the central statistical service might wish to call upon other governmental agencies for technical aid. The central statistical service was thought to offer the best climate for projections inasmuch as it is also the service responsible for the census of population and also, in most cases, for the necessary vital statistics. It was emphasized in this connexion that whatever the allocation of responsibility, it is essential to provide adequate co-ordination among all agencies concerned with either the components of projections or their use, so as to avoid the use of incorrect assumptions and, more important, a proliferation of different projections for the same area and time periods. It was also sug-

gested that the revision programme be systematized, in order to avoid confusion as to which is the most recent and reliable projection.

#### 4. Housing censuses

449. Data on housing has been collected in some countries in Latin America through censuses taken in some instances as early as the last century. However, systematization of the taking of national housing censuses as defined in the United Nations *General Principles for a Housing Census*, Series M, No 28, is recent and is linked to the 1950 Census Programme of the Americas, under which a number of Latin American countries carried out their first national housing census, although some of them (Bolivia, Costa Rica, El Salvador and Guatemala) restricted it to urban areas.

450. Hence, experience in the methodology of census-taking as well as the availability of census data is confined in many of these countries to one or two national censuses, the scope of which, in terms of items included, varies from country to country. It is interesting to note that every Latin American country used census-takers to collect the census data and that it was the usual practice to combine the housing census with the population census.

451. The paper entitled *La situación de la vivienda en América*<sup>46</sup> points out interesting features in the improvement of housing censuses related to the content of the census itself: the geographic area of tabulation, the accuracy of cross-tabulations and the delay in the availability of the data.

452. Under present conditions, when Governments are pressed for statistical data in order to formulate their development plans, it should be emphasized that housing censuses constitute an essential source of information. The situation in Latin America at present is not satisfactory in so far as censuses are concerned, since ten countries (Bolivia, Colombia, Costa Rica, Cuba, Ecuador, Guatemala, Haiti, Nicaragua, Paraguay and Uruguay) did not take a census around 1960.<sup>47</sup> However, it is encouraging that two of them (Ecuador and Paraguay) proposed to do so in November and October of 1962 respectively and four of them (Colombia, Costa Rica, Nicaragua and Uruguay) intend to take one in 1963, while there are plans in Bolivia and Guatemala for using sampling methods. The remaining countries have not announced any date. The clear impression is that economic difficulties pose one of the major problems in connexion with the taking of a census. As for the ten countries which have taken a housing census, the point to be stressed is the need for speeding up the preparation of the data in order to allow them to make use of the data promptly. In this connexion, it should be pointed out that several countries are meeting this need through tabulations by sampling (Chile, Honduras, Peru and Venezuela among others). Moreover, some countries are now using electronic equipment to tabulate their census data and this should help to make the data available without delay.

<sup>43</sup> United Nations, *Methods of using Census Statistics for the Calculation of Life Tables and their Demographic Measures (with application to the population of Brazil)*, Population Studies No. 7 (United Nations Publication, Sales No. 1950. XIII.3).

<sup>44</sup> *Op. cit.*, para 438.

<sup>45</sup> United Nations, *The Future Growth of World Population* (United Nations Publication, Sales No. 1958. XIII.2).

<sup>46</sup> *La Situación de la Vivienda en América. Análisis estadístico-censal de los resultados obtenidos bajo el Program del Censo de las Américas de 1950 (COTA-1950)*. IASI-7/17/62 - 3000 - N° 4441, Clase 99, Vivienda.

<sup>47</sup> After the Seminar, national housing surveys on a sampling basis were taken in Bolivia (1963) and Uruguay (1963), and housing censuses were taken in Costa Rica (1963), Ecuador (1962) and Paraguay (1962).



453. The chief purpose of the debate at the Seminar was to try to determine the minimum essential data to be obtained through the housing census for the purpose of formulating housing programmes. As a general frame of reference in considering this matter, the item suggested in the *General Principles for a Housing Census*, the *Census Programme of the Americas of 1960 (COTA - 1960)*, and the *European Programme for National Housing Censuses*<sup>48</sup> were briefly reviewed and it became clear that the latter, which is based on the *General Principles for a Housing Census* was a broader and more appropriate programme for the purpose of formulating housing programmes. It was also noted that the tabulation plan in the European Programme was more detailed and that the second-priority tabulations emphasized classifications relating to private households.

454. In preparing the COTA-1960 Programme, account was taken of the *General Principles for a Housing Census* and, as in the case of the European programme, an attempt was made to guide it towards international comparability. It includes additional items although, as a whole, it is more reduced in view of the characteristics of most Latin American countries.

455. With respect to the scope of the national housing censuses undertaken by the Latin American countries, it was noted that several taken in 1960 or thereabouts (see IASI document 4470)<sup>49</sup> included more items than the minimum set by COTA, and this was also observed for the census taken in 1950 or thereabouts.

456. In connexion with the scope of the items included in the housing censuses, it was noted that while some countries used a comprehensive list of items, others included a more restricted number of topics. It may therefore be assumed that not every country based its selection of items on a proper analysis of national requirements. In this connexion, it was emphasized that when considering what data should be collected in housing censuses, account should preferably be taken of those needed for the formulation of housing programmes.

457. As a starting-point in the consideration of census data for the purpose of programming housing construction, it was shown that the objectives of housing censuses had changed from a mere description of housing conditions at a given time to an investigation which also made it possible to estimate present and future housing requirements. To that end, census data should provide information which would make it possible to determine the number and characteristics of adequate and inadequate private housing units and, on the other hand, the number of private households requiring additional housing.

458. With respect to the determination of inadequate private housing units, reference was made to the classification proposed in the *General Principles for a Housing Census* and it was suggested that the place of sub-group 1.2.4 (multi-family housing units) should be changed by shifting it from group 1.2.0 (collective housing units) to group 1.1.0 (private housing units).

459. The importance, for those purposes, of a classifica-

tion by types of housing unit was recognized. However, the reservation was made that, for various reasons, there was a great variety of types of construction, not only as between countries but within a single country, and that therefore data on types of housing units were not sufficient in themselves unless they were combined with data on construction materials and sanitary facilities. It was pointed out that the above data would be more valuable if supplemented by data on structural condition, state of preservation and year of construction. With respect to these last two items, however, it was considered inadvisable to include them as census items in Latin American countries.

460. The discussion on the concepts of private households to be used in relation with housing programmes showed clearly that the recommendation in the *General Principles for a Housing Census* was most suitable for that purpose, in other words that the dwelling and the private household should be separate concepts. Under this principle, a dwelling may be occupied by more than one private household. The concept of household, thus stated, is based on the following essential criteria: (1) the persons who constitute the household jointly occupy the whole or part of a housing unit; (2) they share the principal meal (unless prevented by, say, working conditions) and have common provisions for basic living needs. This is the concept of household known as "housekeeping unit."

461. In connexion with this criterion, it was noted that the practice in many Latin American countries was to equate the definition of private housing unit with that of private household and that this practice was still included in COTA-1960. However, some countries (Argentina, Colombia, Mexico) have since COTA-1950 applied the criterion referred to above (in paragraph 460) which had been suggested by the Expert Committee of the League of Nations in 1939, later proposed in the *General Principles for a Housing Census* and recommended as well in the European programme. It was agreed that in defining the private household as all the persons occupying the same housing unit, the number of "possible private households" should at least be identified by introducing the concept of "secondary family" recommended in the European census programme.

462. With respect to the above, it should be pointed out that "family" should be understood to mean the family in the strict sense of the term: a married couple without children, or a father or mother living with his or her unmarried children. In other words, the basic element of the classification of private households should be the family unit. In accordance with this criteria, households can be classified as (a) non-family households; (b) one-family households; (c) multi-family households.

463. It was pointed out that little was known in Latin America regarding the number of housing units occupied by more than one private household and that that was an aspect which required further study and consideration.

464. It was deemed that the following should constitute the minimum data to be obtained by a housing census for the purpose of formulating housing programmes.

A. Calculation of present needs:

1. Housing units classified by type;
2. Private households by type;
3. Size of private households;
4. Type of tenure.

<sup>48</sup> *European Programme for National Housing Censuses* (CONF. EUR.STATS/WG.6/82).

<sup>49</sup> *Censo de habitación. Temas investigados y definiciones de vivienda usadas por doce naciones americanas* (ST/ECLA/CONF.9/L.21).

## B. Calculation of future requirements:

1. Sex and age of heads of households;
2. Marital status of heads of households.

465. It was also considered that the collection of such data would require the adoption of more specific and detailed measures for the classification of dwellings and private households. Similarly, reference was made to data useful for the calculation of replacement requirements: year of construction, rent paid, number of rooms, availability of piped water, sanitary and cooking facilities.

466. In short, housing censuses should provide information on the basis of which present and future housing requirements can be calculated. The following should be considered the minimum data needed: type of housing unit, construction materials used, sanitary facilities (water and toilet installations), number of rooms, type of household, size of household, and tenure. The private household or households in each housing unit should be identified either during the census-taking or in the data-processing stage. With respect to the calculation of future requirements, data on sex, age and marital status of the heads of households were considered to be valuable; however, it was felt that in most Latin American countries it would be more practical in the present circumstances to take the average size of the family as the basis for the estimates. In the preparatory stage of the housing census, account should be taken of the requirements of those who will make use of the census data, particularly the agencies responsible for economic programming and housing. Countries which have already carried out housing censuses might well take further measures to make the census data available more quickly, and countries which have so far not taken a housing census should do so as soon as possible. Provision should be made for undertaking tabulations by areas of special interest for the purpose of physical and regional planning (cities, metropolitan areas, etc.).

467. The methodology of housing censuses in Latin America requires further study and experimentation and, in this connexion, IASI and the United Nations might usefully continue their studies on that particular aspect.

468. With respect to the housing census requirements which some countries might have in the use of sampling, it was noted with great interest that a post of "regional adviser on sampling" has been established at the Economic Commission for Latin America in Santiago, under the regional programme of technical assistance in statistical matters.

469. International organizations should promote more intensively the taking of housing censuses and, in this connexion, it was suggested that the supply of material and equipment would be a useful form of technical assistance. It was also suggested that there should be better co-ordination in the technical assistance provided by international organizations, and a better adaptation of such assistance to the medium in which it is provided.

## 5. Housing surveys by sampling

470. The formulation and implementation of a housing programme calls for data, many of them statistical, which must constantly be brought up to date in order to control the development of the programme properly and to introduce

such changes and new guidelines as may prove advisable as it progresses.

471. Censuses, although irreplaceable as a source of information by reason of their universality, provide a static picture of the actual situation which, while making available a variety of data for each locality, is not the most suitable means of securing certain information affected by the subjective interpretations of census-takers. For this reason census data must be supplemented by information derived from sample surveys, particularly in order to determine the state of preservation, the extent to which the population has adapted itself to its present housing, the level of rents, the type of tenure, the functional nature of the dwelling, its location with respect to the place of work of the head of family, etc.

472. It is useful to consider the following distinctions with regard to the principal methods of collecting housing information:

(i) *Housing censuses* in which, as a minimum, the basic items of housing information are collected for the country as a whole by means of a universal enumeration of housing units;

(ii) *Housing censuses* in which a count of housing units is made for the country as a whole and the information concerning facilities and characteristics is collected for a sample of the units;

(iii) *Partial housing censuses* in which information is collected by means of a universal enumeration for a specified area or population group which has not been selected by means of sampling;

(iv) *Sample housing surveys* in which the principal purpose of the enquiry is to collect housing information and all of the information is collected for a representative sample of the population.

473. The relationship between housing censuses and sample housing surveys offers considerable variations. The two are almost indistinguishable in cases where housing information is collected simultaneously by means of a universal enumeration of some housing items and a sample enumeration of others. In this case the sample survey is generally considered to be part of the housing census. However, even this relationship varies from cases in which, as a minimum, the basic items of housing information are collected by means of a universal enumeration with additional items collected by means of sampling (United States 1960), to censuses in which little more than a count of housing units is made on a universal basis, and the remaining information, including basic items, is collected by means of sampling (Canada 1961, Brazil 1960).

474. The most usual practice perhaps is for housing censuses to be supplemented by sample housing surveys taken shortly after the census. Here the role of the sample survey is to supplement the basic housing data collected during the census. What sometimes happens is that the census is used to make only an over-all count of housing units and to obtain information concerning their occupancy while the sample surveys are used to collect the bulk of the information concerning housing (Japan).

475. It is considered that the basis for the collection and interpretation of housing information is the housing inventory which implies a universal enumeration of all housing units and hence a housing census, whatever its scope, and

that other housing inquiries, for whatever purposes, may be considered as supplementing this basic information. These supplementary enquiries may vary widely in scope and purpose and may refer to such aspects of housing as characteristics, facilities and condition of housing units, rent paid, cost of construction, the relationship between housing desired and housing needs, housing conditions in old and in new dwellings, etc.

476. In taking sample housing surveys, particularly those which refer to housing conditions in general, it is usually found necessary to collect data in addition to those which may strictly be considered housing information. Some demographic data concerning the occupants of the housing units enumerated are almost always required and additional data such as economic and employment information may also be considered necessary. Thus most sample housing surveys are of a multi-subject nature with housing as the principal topic. Conversely, in connexion with sample surveys whose principal purpose is related to a topic other than housing it is sometimes found necessary to collect housing information as a secondary topic. At its meeting in Geneva an *Ad Hoc Working Group of Specialists in Sample Survey Methods*<sup>50</sup> noted that it was more important to present, tabulate and publish data concerning the indicators of levels of living,<sup>51</sup> than merely to publish data in the form of national averages. The Working Group noted also that while national averages are of value in certain types of comparisons these alone have limited usefulness in connexion with policy decisions of national Governments which may have to be differentiated in relation to special groups of the population. In order to conform to the above a survey concerning housing conditions would therefore need to include the necessary economic and social data to enable the housing data to be analysed according to socio-economic classifications of the occupants. The combining of surveys concerning housing with those concerning topics other than housing may also be done as a matter of convenience and economy, since frequently the housing unit is the enumeration unit for a survey concerning a topic other than housing, and the two surveys may therefore be usefully taken together. In connexion with the integration of surveys, the following excerpt is taken from the *Report of the Ad Hoc Working Group of Specialists in Sample Survey Methods*.<sup>52</sup> (These remarks refer to household surveys but in general they could apply equally to sample housing surveys in which the housing unit rather than the household is the sample unit.)

“(a) Integration with Reference to Household Surveys

“Throughout the meeting frequent reference was made to the integration of surveys as a means of economizing the use of resources and also as the most effective way of studying household levels of living. It became clear that there were in fact several levels or aspects of integration which should be noted and elaborated ... in the first place in several countries there is a permanent central sampling staff conducting

a series of repetitive surveys which frequently include questions on the same topics to provide continuous series deemed of special importance to the country. Questions on these topics are frequently supplemented by questions on other topics, depending upon the needs of the country. This ensures close integration and may provide cross-tabulations of considerable value. Thus, because the same investigators may be used for all aspects of the inquiry, this method assures more or less automatic integration both substantively and operationally. The method, in principle, has very obvious advantages but it is not, at present, applied in all countries for various reasons. In still other cases it may be necessary, because of various circumstances, including the level of education and institutional arrangements, to use different sets of enumerators for different topics of investigation. Nevertheless, the Group was strongly impressed with the merits of integration especially as it has already been used successfully in several countries for a number of years.

“There is also the kind of integration implied in the combination in one *ad hoc* survey of items of information on two or more topics such as demographic characteristics, health and housing. This in fact is the usual practice in a great majority of household surveys. This has the advantages of economy in enumeration and of the possibility of valuable cross-tabulations so long as the survey does not become over-extensive to the point where response and accuracy are impaired and the entire operation becomes too complicated to manage. Considerable care must be taken in these cases; it is for this reason that comprehensive surveys of too many aspects of living conditions of households can hardly be recommended as a desirable practice if all topics are to be investigated in full detail with all respondents. It is for the national authorities to decide which particular aspects of living conditions can be suitably integrated in household surveys.”

477. As an essential element in sampling, the countries concerned should have basic census data at their disposal relating to minimum territorial divisions. Such data should geographically cover areas of jurisdiction clearly defined by the census map-makers.

478. Emphasis was placed upon the value, for the Latin American countries, of the European experience with respect to sampling in the field of housing.

479. Of considerable interest in this connexion is the sampling operation carried out in Copenhagen in 1957, based on data provided by the 1955 census brought up to date by the Population Register. The survey was based on a sampling of 10 per cent of the cards relating to the 450,000 dwellings registered in Copenhagen and its suburbs, and was carried out by means of numbers selected at random, starting with a geographical arrangement of the material, which implied a certain degree of stratification. This index was kept proportionate to the universal index by periodically including 10 per cent of new units, calculated in accordance with the periodical incorporation of new dwellings taken from the municipal series of new buildings, extensions, repairs, etc. A sub-sample was extracted by taking one card out of every 20 from the total of 45,000 cards, and this produced a total of 2,250 households which were interviewed. The inclusion of households with sub-tenants and persons living in boardinghouses and collective housing units increased the size of the sample to 3,300 interviews,

<sup>50</sup> United Nations Statistical Commission, *Report of the Ad Hoc Working Group of Specialists in Sample Survey Methods*: Report by the Secretary-General (E/CN.3/284).

<sup>51</sup> United Nations, *International Definition and Measurement of Levels of Living* (E/CN.3/270/Rev. 1 – E/CN.5/353).

<sup>52</sup> See again United Nations Statistical Commission, *Report of the Ad Hoc Working Group of Specialists in Sample Survey Methods*, *op. cit.*

subsequently reduced in effect to 2,750 dwellings. This is a representative sample of all the inhabitants of the area except for the persons living in collective housing units. The main purpose of the survey was to estimate the subjective demand for dwellings, with a maximum market figure. The combined card total was representative of persons who, living in independent dwellings, might wish to have another type of dwelling, and of adults who do not have but would like to have an independent dwelling and are prepared to pay a certain level of rent for it.

480. In Latin America, while some countries have undertaken sampling surveys and are still doing so, the difficulty is that this type of operation requires a large number of interviewers with more than average training, since the data, in most cases, cover the country's whole territory. Lack of funds is not the only obstacle. Since this operation is carried out infrequently, there is no permanent staff of qualified interviewers, and, in most of the countries, the help of experts at the executive level is not available. This is so because while the international organizations have given special training to hundreds of South American holders of fellowships, the persons concerned do not, in their own country, confine themselves to the preparation and execution of sampling operations and therefore lack the experience needed in field work.

481. During the period between 1953 and 1960 sampling surveys were carried out in many countries of the world, including Canada, Peru, and countries in the Western Hemisphere. Although a sampling operation was carried out in Nicaragua, which covered the Managua area, it is felt that the size of the sample – one-third of the total inventory – is not to be recommended since the cost of each interview under this method is high, so that the total cost is prohibitive, apart from the fact that such a high number of units complicates the compilation of the results, thus defeating the time-saving element which is the main point of the sample.

482. Considering that data for housing programmes, in addition to being national in scope for certain types of information, must also provide a different set of data on a regional basis, it is advisable to plan the sample on the basis of the smallest territorial division to be represented.

483. With respect to the permissible margin of error, this should be measured in the light of the degree to which the accuracy of the estimates may produce changes in the decisions taken concerning a housing programme. That will depend upon the executive decisions reached on the basis of the data required by the programmers. Hence, it is essential, in preparing a housing sample, to provide for close contact between sampling experts and housing programmers.

484. The Latin American countries, in addition to requiring experts in sampling, technically trained office staff to prepare the data, and fully trained interviewers, also need experts capable of correctly interpreting the results of the sample, as expressed in terms of programming.

485. Perhaps a suitable measure, through which all the factors mentioned could be combined to make available dynamic statistical data deriving from sampling methods, would be the establishment in Latin American countries of sampling centres or departments in the statistical offices. If the planning and execution of sample surveys were centralized in national statistical services, better use could be made

of these operations if they were designed for several purposes and not for housing alone.

486. Training of senior staff capable of setting up such sampling centres in their countries could be entrusted to regional training centres in which the United Nations and the Organization of American States might co-operate.

## 6. Permanent housing records

487. The topic on permanent housing records was included in the Seminar agenda because of the interest shown in this matter rather than as a tool to be recommended for the preparation of housing programmes in Latin American countries. Permanent housing records are defined as records on individual housing units kept regularly up to date and including a number of important data on the individual housing units registered. They make it possible to keep abreast of the housing situation by making available a variety of up-to-date data at any given moment.

488. Permanent housing records make it possible to study problems concerning individual housing units, as well as problems of a more general nature. Data related to individual housing units provide a basis for slum clearance and other town-planning schemes, for reliable local statistics on the housing stock, for calculations concerning local housing requirements and shortages, and so forth. These records may also serve as a framework for housing surveys.

489. Although there may be strong arguments in favour of having permanent housing records which could cover all housing units over the whole country, the high costs involved in initiating and maintaining these records must also be considered. The advantages to be gained must be in proportion to the money invested and obviously in large rural areas, for example, the costs involved would be far higher than the benefits likely to be derived would warrant. The same is true of urban communities with only minor housing problems or with no problems at all. Therefore, the decision whether permanent housing records should be started or not should be left to the local authorities. When taking such a decision the latter should bear in mind that permanent housing records are of value particularly to communities with major housing problems and lacking the necessary up-to-date information to tackle them. In practice these will be large towns and rapidly-growing medium-sized towns.

490. As regards the contents of permanent housing records, a distinction should be made between the units to be covered and the data to be registered for each unit so included.

### (a) *Units to be covered*

491. Permanent housing records should include all occupied housing units, whether intended for habitation or not, together with all vacant conventional dwellings. If the units not intended for habitation were omitted, it would be impossible – especially for towns with large numbers of such units – to obtain a complete picture of the housing situation. Apart from housing units, buildings unoccupied and not intended for permanent occupancy, for example, churches, schools, shop and office buildings, could also be incorporated in the housing records. This would facilitate continuous control of the completeness of the records.

(b) *Data to be included*

492. The items to be included in the permanent records should be chosen carefully, as should also the classifications for each item. In this respect, it is very important to distinguish between non-variable data, such as location, class or type of housing unit, number of rooms, installations, characteristics of the building such as year of construction, materials, floor space – data of this kind, once gathered, need not be brought up to date since they hardly ever change – and variable data such as rents, ownership, occupants, households and household equipment. Since it is much easier to collect data of this kind for a specific period than to keep them permanently up to date, it will be clear that the amount of such data included should be reduced to a minimum. Another possibility is to exclude variable data altogether and to collect them periodically, or whenever they are wanted, by means of sampling surveys based on the non-variable data included in the housing records. This may in many cases prove to be much less costly than including the variable data in the housing records and keeping them regularly up to date.

493. Precisely what data should be included will depend on the intended use of the records and on the cost. The data recommended to be collected for housing units in the United Nations *General Principles for a Housing Census* might serve as a basis in this respect. The demands made on permanent housing records for the calculation of housing requirements need not be dealt with separately, since they coincide with those already formulated for housing censuses.

494. Since the procedure involved in initiating a permanent housing records system is very similar to that followed in taking a housing census, it is obvious that from the point of view of costs, a combination of both operations is desirable. This would imply the use of the housing census questionnaires both for housing census purposes and also for the initiation of permanent housing records. In this connexion it should be borne in mind that not all the data need be collected simultaneously. It may be found more practical and economical to start permanent housing records with only minimum data (for example, only the address and the type of housing unit) and to spread the collection of data – particularly the non-variable data – over a fairly long period. The task could then be entrusted to a smaller number of more highly trained enumerators – which would make for greater reliability in the data to be collected.

495. This is particularly true of data of a more technical character, which normally cannot be collected in connexion with a general housing census, since the enumerators are for the most part not technically qualified. It is vital, however, to begin collecting technical data only after all the relevant housing units have been recorded.

496. A long-term programme for the collection of data, taking the questionnaires for the latest census as the starting-point, should therefore be established. Such a programme would indicate clearly the different stages at which the housing records should be brought up to a more advanced level on the basis of their intended practical use. The relevant programme should preferably cover not more than one intercensus period.

497. Housing records serve in the first instance to provide

a picture of the actual housing situation. It is, therefore, necessary both to add to the records all new housing units and to remove those units that cease to exist. As far as new units are concerned, there is not much difficulty in incorporating recently built conventional dwellings, since new building is generally known to one government department or another. The same applies to other housing units intended for habitation. Units “not intended for habitation”, however, should also be incorporated in the records as soon as they are occupied, and deleted when they are abandoned. Other losses from the normal dwelling stock because of demolition, destruction by fire, slum clearance and the like will also require corresponding deletions to be made in the records. For reporting this type of change in the housing stock, a special field organization will be necessary. This organization would, at the same time, be entrusted with many other duties regarding the housing records, for example, the control of variable data on a sampling basis, the collection of variable data not incorporated in the housing records, and the like.

498. It should be stressed that more is needed than mere addition to the housing records of the addresses of any new units that emerge. The relevant data for these units, at least the data included in the minimum programme, must be collected at the same time. Most of these data will be obtainable through the administration, at least for newly-built dwellings. Should this not be the case, the use of the field organization referred to in paragraph 497 will be necessary. To avoid having too many people employed in the field organization, it is advisable to keep the records up to date as far as possible on the basis of data from departments controlling or registering important changes for housing records.

499. Thus it is of vital importance that in the preparation of housing records an inventory should be made of administrative departments that can supply data concerning changes in the dwelling stock. The maintenance of housing records should then be entrusted to the local authorities that control most of the relevant changes. However, preference should be given to the technical building authorities, even if they do not have administrative control over the majority of the changes.

500. If many variable data are included in the housing records, special measures will have to be taken to keep these data up to date. In principle, the same possibilities arise here as with regard to the changes in the units, i. e. incorporation on the basis of administrative machinery, if necessary combined with reporting by the field organization. A special warning should be given regarding the inclusion of data concerning the occupants of housing units. If too many such data are included, dwelling records *ipso facto* become population records, which means that the number of changes to be incorporated increases enormously. For apart from the changes in the housing stock all births, deaths, moves from one housing unit to another (even within the same town), marriages, divorces and so on, will then have to be incorporated to keep the records up to date. Strict limitation is therefore vital.

501. From the foregoing it is clear that up-to-date housing records, if practically feasible, would be a good basis for housing statistics, for the following reasons:

(a) Statistics on the housing stock can be derived from

the number of units recorded. It is not necessary to count all the units each year; after the first complete count of the units of each type, figures for subsequent years are arrived at by addition and subtraction of the relevant annual changes.

(b) Statistics concerning items included in the record may be calculated even without equipment, depending upon the circumstances, but it is advisable to use punch cards, especially when cross-classifications are required. This obviously means that changes will have to be recorded twice: once in the records themselves, and once more on the punch card.

(c) Housing records offer a reliable basis of enumeration in each new housing census. If properly kept, they would indicate to each enumerator exactly what addresses he has to visit in his enumeration district. On the other hand, the housing census provides a check on housing records, since enumerators may find housing units that are not incorporated in the records. In the same way, housing reports may provide a check on the completeness of the housing census.

(d) As previously indicated, housing records would provide a useful basis for sample surveys of the housing situation. If no data on the occupation of housing units is included, such surveys may be programmed in such a way as to provide the data necessary for the calculation of housing requirements. It need hardly be said that housing records can also serve as a basis for sample surveys of other types.

502. The linking of housing censuses to housing records implies the use of uniform concepts and definitions in both, as well as in record standards in the different towns of any given country. This uniformity is of vital importance, since comparable statistics can be derived where the procedure is uniform. It is not suggested, of course, that housing records in different towns should be uniform in all details. Different towns may have different needs in many respects, and local differences may call for differences of approach. Nevertheless, uniformity should be sought, at least for the minimum programme recommended.

503. Obviously it is a very difficult matter to achieve this basic uniformity, say, between housing records independently kept in different towns. It will, therefore, be necessary to set up an advisory board to help the local authorities responsible for keeping housing records to deal with problems of initiation and maintaining housing records. The members of the board should include housing policy experts and experts on housing statistics. This would to a large extent ensure the quality of the records as well as the reliability of the statistics derived from them.

#### *(c) The Copenhagen permanent housing records*

504. Permanent housing records for Copenhagen were initiated in 1945 on the basis of the 1945 Housing Census questionnaires. They were set up exclusively for two main statistical purposes: (a) to supply a basis for sampling surveys; (b) to supplement the housing censuses, which are taken every five years in Denmark.

505. The purpose of supplementing housing censuses can be explained as follows: the comparison of the results of

consecutive housing censuses has shown that the housing situation in Denmark and in Copenhagen was not changing to any great extent during inter-censal periods. Special investigations revealed, however, that the changes recorded did not represent real changes. The changes found were to a certain extent due to census errors, connected with changes of wording in the questions put, differences in non-response, and so forth. An attempt was made, therefore, to avoid mistakes of this kind by recording them after controlling and carefully correcting the questionnaires of each housing census on the basis of the permanent records.

506. The Copenhagen permanent housing records were started as complete records that comprised a certain number of invariable data and some variable data regarding the occupation of the housing units as collected during the last housing census. All data included were coded on cards, in order to make direct punching possible whenever wanted.

507. It was noted, however, during the operation that it was too expensive to keep these complete records fully up to date. It was therefore decided to reduce the work, and thus the costs involved in keeping the records up to date, by limiting the records to a sample of 1 in 10. The questionnaires of the 1950 Housing Census were therefore sorted by street and house number and a random sample was selected. Thus, a geographical stratification was also provided. The records now contain some 54,000 cards and only two persons are needed to keep the sample up to date.

508. In keeping the sample records up to date, not all changes are taken into account. On the basis of existing administrative procedures, cards for a 1-per-cent sample of newly-built dwellings are added and housing units that have deteriorated or the use of which has changed are taken out. Conversions and changes in the use of improvised housing units are not taken into account. It is therefore necessary to revise the sample records every time a housing census is taken.

509. Recently, the Copenhagen permanent housing records were used for another purpose. It is well known that the time needed for the processing of census questionnaires is relatively long, which implies that generally there is a long time-lag between the date on which the census is taken and the time that the results are known. Therefore in Copenhagen the questionnaires of the housing units incorporated in the permanent records are controlled and processed first (with the addition of a sample of 1 in 10 of the questionnaires of the improvised housing units); this allows preliminary results to be computed within a reasonably short time after the census is taken.

510. Although permanent housing records were initiated in Copenhagen only for statistical purposes, they are now also used for other purposes. For instance, town-planning offices frequently ask for data, which are provided when available and, if not recorded, are made available on the basis of the permanent population records combined with data from the files of the technical services.

511. It was pointed out that in some Latin American countries conventional dwellings are recorded for the purpose of controlling the payment of taxes. It was agreed, however, that permanent housing records, as dealt with here, and also records as kept in Copenhagen, should not be regarded as a first priority goal in Latin American countries.



## 7. Current housing statistics

### (a) Purposes for which current housing statistics are needed and types of data required

512. The purposes for which current housing statistics are needed may conveniently be discussed under three headings: (a) the establishment of housing programmes; (b) the implementation of housing programmes; (c) general economic analysis and the formulation of general economic policies.

#### (i) Establishment of housing programmes

513. The establishment of housing programmes calls for an assessment of present and future housing requirements, and a decision concerning the extent to which the requirements should be met during the period covered by the programme, that is the volume of building to be provided for and its distribution over time.

514. For the assessment of present and future housing requirements data are needed on the housing stock and its utilization and on trends in population and household formation; these are obtained from sources other than current housing statistics (see Part III, 1, 2 and 3).

515. The volume of building to be provided for in the housing programme should be decided upon in the light of the capacity of the housebuilding industry and the possibilities of increasing this capacity, and the desirable share of housing in the country's total resources (see paragraphs 226-240).

516. The assessment of present and future capacity of the housebuilding industry requires a detailed analysis of the trends in production and the factors affecting these trends. Data are therefore needed in the first place on the output of the building industry. These data should cover, if possible, all types of building operations which affect the dwelling stock, i. e. reconstruction, repairs, extensions and conversions, as well as new construction. They should be available with suitable sub-divisions, for example by size of dwelling, by investor, by type of materials, etc. A classification by different regions of the countries will also be required.

517. In order to permit assessment of the extent to which the building capacity is used and of whether there is room for further expansion, data are also needed on the main input items of the building industry: employment and unemployment, consumption and availability, key building materials, etc. In addition it would be desirable to have information on the financial resources available for the construction of dwellings and on the cost at which financing can be obtained.

518. As a basis for decisions on the allocation of resources between housing and other sectors, statistics are needed for the different sectors which can readily be compared with one another and which fit into the general framework of general economic statistics.

#### (ii) Implementation of housing programmes

519. Once a housing programme has been established, it

is necessary to check regularly whether the objectives of the programme are being implemented and whether the calculations and assumptions on which it is based are still valid. Special measures to promote the implementation of the programme or to adjust the programme to changed circumstances may be needed for various reasons, among them deficiencies in the original programme, non-realization of the targets set in the programme, changes in the general economic development, or differences between the estimated housing requirements and the effective demand for housing.

520. For the current review of housing programmes statistics are needed, on the one hand, on the demand for housing and the various factors affecting the demand, and, on the other hand, on the supply of dwellings and the various supply factors.

521. Ideally, the same kind of statistics relating to the demand for housing should be available as those on which the original programme was drawn up, that is data on the housing stock and its utilization. As such data are usually unobtainable at sufficiently frequent intervals, approximate estimates will have to be relied upon, for example by relating changes in the housing stock (obtained in current statistics) to changes in the number of households (estimated on the basis of demographic statistics). For the study of demand factors, data are also needed on the various factors affecting the decisions of households, that is, on rents, prices paid for new houses, sources available for investment in residential construction, etc.

522. The statistics required relating to the supply of housing are similar to those discussed under (i) above in respect of the establishment of housing programmes: that is, data on the output of the building industry, with suitable sub-divisions, and on the main input factors. As regards output, it would be desirable for data to be compiled in respect of the different stages of work in progress, e. g. building permits issued, dwellings begun, dwellings under construction and dwellings completed. Such data are useful because they provide an indication of the development of the building activity.

#### (iii) Housing statistics needed for general economic analysis

523. As most of the statistics referred to in the previous paragraphs relate to series expressed in physical terms, they are not suitable for direct comparison with statistics for other sectors. For the latter purpose, data expressed in terms of a unit common to all sectors, that is, in terms of value, are required.

524. Comparisons which are of particular value are the following: (1) between the output of the housebuilding industry and that of other sectors of the construction industry; (2) between the output of the different sectors of the construction industry and that of other sectors of the economy; (3) between capital formation in dwellings and in other fixed assets (non-residential buildings, other construction, machinery and equipment). In order to permit such comparisons, the different concepts must be defined consistently for the various sectors of the economy. Consistency of concepts and definitions between statistics for different sectors would, of course, also be required in respect of other

statistical series mentioned above, for example indices of rents, data on production costs and prices, housing finance, etc.

(b) *Work on current housing statistics in Europe*

525. The Working Party on Housing and Building Statistics of the ECE Housing, Building and Planning Committee has been discussing the subject of current housing and building statistics since 1953. At the outset, the Working Party's main task was to survey the statistics available in Europe and to advise the Economic Commission for Europe secretariat on the scope and contents of the *European Statistical Bulletins* in this field. In the course of time, however, the Working Party has broadened its field of activities and has been concerned with the improvement and standardization of current housing and building statistics in general, that is including those which it was not intended to include, for the time being, in the statistical publications. It has discussed, *inter alia*, the following concepts and has drawn up standard definitions for them: dwelling;<sup>53</sup> room;<sup>53</sup> floor space and volume; stage of building work (work authorized, work begun, etc.); types of building activity (new building, other types of construction affecting the size of building stock); and residential and non-residential building. The Working Party has also discussed methodological questions concerning the compilation of statistics on the value of construction, building prices and building cost and indices of building activity. The Working Party's field of activity includes non-residential construction as well as residential building.

526. The various subjects discussed by the Working Party constitute the main elements of a general statistical programme in the field of housing and building. The need was felt for completing such a programme by including a number of other subjects which had not been considered by the Working Party.<sup>54</sup> The Economic Commission for Europe Housing, Building and Planning Committee and the Conference of European Statisticians agreed that, in view of the interest which both the specialists in the field of housing and the general statisticians have in this field, such a programme should be drawn up in close co-operation between the two bodies, and decided to convene joint meetings of experts for this purpose.

527. A draft outline for a European programme on current housing and building statistics (which includes the main conclusions already reached by the Working Party on Housing and Building Statistics) has been prepared by the secretariat and will serve as the basis for further work in this field.<sup>55</sup> Reports on the various sections of the programme were prepared and were considered at the first joint meeting in November 1962.

528. The draft outline for the *European Programme of*

<sup>53</sup> It should be noted that the definitions of these concepts were subsequently approved by the Conference of European Statisticians and the Statistical Commission of the United Nations and included in the *European Programme for National Housing Censuses* and in the *General Principles for a Housing Census*.

<sup>54</sup> By "statistical programme" is meant a set of recommendations to countries concerning the statistics to be compiled, the concepts and definitions to be applied, the frequency of the different series, and the priority to be attached to each series.

<sup>55</sup> HOU/Working Paper No. 120; Conf.Eur.Stats/113.

*Current Housing and Building Statistics* covers most of the statistical series referred to above. It suggests that the following major topics should be included in the programme:<sup>56</sup>

- (i) Statistics on the output of the building industry;  
Total construction  
(indices of building activity; value of construction; price indices of output – each of these series subdivided into residential building, and other sectors of construction);  
Residential construction  
(completion of dwellings, by type of activity – new building, reconstruction, repairs, etc.; construction of new dwellings, broken down by stages of building work, by size categories, type of dwelling, by equipment, by investor, by tenure status, etc.: gross volume of residential building, output prices of selected types of dwellings);  
Non-residential construction  
(gross volume of work begun and completed);
- (ii) Statistics on the inputs of the construction industry; Manpower  
(employment, unemployment, man-hours worked, wage rates; each of these series broken down by building sector and occupation);  
Consumption of building materials;  
Prices of inputs;
- (iii) Other statistics;  
Rents;  
Housing finance.

(c) *Regional programmes on current housing statistics*

529. The value of a statistical programme of the kind envisaged in Europe is that it provides a systematic basis on which the statistics can be gradually developed. If well designed, such a programme can ensure that, in the initial stages when resources are very limited, they will be used for the development of the statistics most urgently required, and that these statistics are compiled in such a way that they provide an adequate starting-point for the establishment of a fuller set of statistics when resources permit. This implies that the programme should not be limited to the statistical requirements which can be realized in the immediate future for countries in Latin America; it should be drawn up so that it will constitute a useful basis for the achievement of the long-term objectives to be pursued in developing national housing statistics in the region. In view of the limited resources which the countries concerned can make available for the development of these statistics, due consideration should be given to the priority to be attached to the different series, and the long-term programme should be supplemented by a more modest programme for immediate action.

530. In most Latin American countries, current housing statistics are lacking, and in some cases where certain statistics are being collected, it is doubtful whether the data being collected are of the kind most urgently required. The participants at the Seminar therefore felt that there was need for a statistical programme for the countries in the Latin Amer-

<sup>56</sup> In addition to current housing and building statistics proper, the draft European programme also provides for the compilation of data on the housing situation. As these data will have to be collected by means of sample surveys, they are not considered here.



ican region, describing in precise terms the types of statistics most urgently needed for the formulation and implementation of housing programmes, and indicating the longer-term objectives to be pursued in developing these statistics.

531. It was agreed that the factors to be taken into account in selecting the items for the minimum programme should be: (1) the importance of the items in question; (2) the practical problems involved in compiling them. In connexion with the problems involved in compiling the different types of statistics, it was pointed out that three categories of difficulties should be distinguished: (1) lack of resources; (2) the technical problems of defining and measuring the various concepts; (3) the lack of sufficiently skilled staff. While a statistical programme in which these problems were not taken into account would be clearly unrealistic, it was also undesirable to give undue weight to the various difficulties. The programme to be drawn up should be sufficiently ambitious and lay adequate stress on the need for the different types of data, so that it can act as an incentive to ensure that every effort is made to solve the different problems that arise.

532. It was agreed that in national statistical programmes the highest priority should be attached to the collection and compilation of current data for the following items:<sup>57</sup>

- (a) Construction of new dwellings:
  - (i) Work authorized;
  - (ii) Work begun;
  - (iii) Work under construction;
  - (iv) Work completed.
- (b) Other building operations affecting the dwelling stock:
  - (i) Reconstruction repairs;
  - (ii) Conversions;
  - (iii) Extensions;
  - (iv) Other (demolitions, change in use of existing dwellings).

Countries which at the outset are not able to collect information for all items should, as a minimum, attempt to collect the data mentioned under (a) i.e. data relating to new construction.

533. In principle, the construction of dwellings can be measured in terms of different units: dwellings, number of rooms, square metres, cubic metres. Each of these units is useful for certain purposes. It was agreed that first priority should be attached to the measurement of output in terms of numbers of dwellings, in order to enable the data on the additions to dwelling stock to be related directly to the data on the size of the dwelling stock, as recorded in housing censuses. A useful purpose would be served, however, if, in addition, data were collected permitting the classification of the number of dwellings, completed by size of dwelling. The criteria for the classification by size should be the number of rooms, rather than floor space, because this permits direct comparisons between current statistics and censuses.

534. The need for comparisons between census data and current statistics implies that the definition of the dwelling

and the room should be identical in the two types of statistics. It should be noted that the "household-dwelling" concept (which defines the dwelling as the space occupied by a group of persons living together), as used in some censuses, is unsuitable for current housing statistics.

535. The Seminar briefly discussed the methods by which data on the construction of dwellings might be collected. A method frequently used in Europe has been to obtain from local offices, such as labour offices, town planning sources, or local representatives of statistical offices, the information provided by the builder in his application for a building permit. These data are recorded in a register of building projects maintained by the statistical office, or other authorities in charge of the collection of statistics, and are kept up to date on the basis of information on the progress of work done provided by the builder or local authorities. The Seminar noted that, in connexion with the preparation of the *European Programme of Current Housing and Building Statistics*, there was a project on foot for a detailed survey of the sources and methods used in the different European countries. It was requested that the material collected or the report of the survey be made available to the statistical offices in Latin America.

536. The Seminar discussed whether statistics relating to the evaluation of the capacity of the industry should be included in the minimum programme. It was agreed that such data would be of particular importance in the developing countries. The problems involved in defining and measuring building capacity were, however, enormous (see paragraphs 226-240). Nevertheless it was pointed out that it was possible to obtain indirect measures of the utilization of capacity from certain statistics. Thus, if data were collected on building permits issued, dwellings begun and dwellings completed, an estimate could be obtained of the length of time elapsing between the different stages, which provided an indication of the extent to which the building capacity was being utilized. For this purpose, data on the main input factors (employment, key building materials) and on unemployment, with adequate subdivisions, were also useful.

537. It was therefore agreed that capacity should not be included in the minimum programme, but that provision should be made for the compilation of data relating to the input of the building industry (and possibly the output of the industries producing the main building materials).

538. The question was raised as to the extent to which international organizations could contribute to the promotion of the implementation of statistical programmes in the various countries. It was agreed that international organizations could provide very valuable indirect assistance, for example, by promoting international contacts and discussions between experts on similar problems in the various countries, and by providing technical guidance to countries in solving their problems. The efforts to be undertaken to improve national statistics should however be undertaken primarily by the countries themselves. In this connexion, it was pointed out that it was of great importance that the users of housing statistics should be closely associated with the preparation of the statistical programme, since it was desirable that their needs should be adequately taken into account, and also in order to make them fully aware of the usefulness and necessity of compiling more and better statistics.

<sup>57</sup> The item shown under (a) (iii) relates to work under construction at a given point of time (the beginning or the end of the reference period); the other items relate to building operations carried out during the period of reference.

## 8. Statistics required for estimating the cost of construction and the value of construction

### (a) *Cost of construction*

539. The Seminar discussed the different methods used for estimating the movements of the cost of construction over time. It was pointed out that the term "cost of construction" was used in two different senses: (i) referring to the cost to the investor, that is, the price paid by the investor for the finished dwelling; (ii) referring to the cost incurred by the builder, that is the price which he pays for the different input items. A distinction should be made between these two concepts, by referring to them as "building output prices" and "building input prices" respectively.

540. While both types of price concepts are useful for analytical purposes and a fully developed system of statistics should provide for the compilation of indices for the two concepts, first priority should be attached to the compilation of indices of "building output prices", since this concept is the more relevant in connexion with studies of the resources needed for the construction of housing, financial and savings policies, etc. The concept of "building output prices" is, however, difficult to measure and, in practice, it is often necessary to rely on approximate measures.

541. The difficulty in measuring building output prices and comparing them over time arises from the fact that the output of the building industry consists of heterogeneous units, for example in the case of housebuilding, units which differ in size, type of construction, quality of execution, etc. The problem is, therefore, to find a standard unit to which prices can be related. Different methods to achieve this objective have been developed. These methods may be classified into two categories.

542. The essence of the first is that the construction of the dwelling is split up into a number of "units of work" which may be regarded as sufficiently homogeneous in the different types of dwellings. Such work units may be, for instance, a cubic metre of masonry work, a square metre of timber work, of roofing, of painting, etc. For each of these work units price data are obtained and price indices compiled. The price index for output as a whole is obtained as a weighted average of the indices for the individual work units. Although, by this method the effects of all changes in kind of equipment used, size of the dwelling and quality of execution cannot be eliminated, it is possible to allow, at least, for an important part of these features. The price index, compiled according to this method, may be regarded as a satisfactory approximation of a building output price index.

543. The main difficulties involved in applying this method are: (1) to obtain sufficiently reliable data on prices for the different work units; (2) to compile appropriate weights for combining the individual series. The basic price data have to be obtained from building enterprises. These firms should receive precise instructions regarding the type of information they have to provide. It is desirable that prices concerning work planned which does not reach the contract stage should not be taken into account. The most appropriate sources for the weighting coefficients are production censuses or similar enquiries, but these sources may not provide enough of the details required for this purpose.

544. The method described above may be simplified by

adopting as the work unit the cubic metre of gross volume of the dwelling. This simplification implies that the price of the dwelling is assumed to be proportional to its gross volume. This assumption is, probably, only justified if there are no great differences in the quality of execution and equipment of the dwellings for which the price indices are compiled.

545. The second type of method is usually referred to as "the method of the standard dwelling". According to this, price indices are calculated for the different input components – materials and wages – which are weighted on the basis of a standard house. This standard house may be a current type of dwelling actually constructed, or it may be a theoretical or average type of dwelling.

546. The weights may be constant, that is, they may relate to the inputs for the construction of the standard house during the base period, or they may be calculated on the basis of the inputs actually required at each point of time for which the price index is calculated. In this case, changes in productivity or building techniques occurring during the period of observation are not taken into account in the weighted price indices. When constant weights are used, the price index reflects price changes including those due to changes in productivity and building techniques. When variable weights are used, the price index is nearer to an index of building output prices than if constant weights are applied, but the index obtained should still be regarded as only an approximation to this concept, since it usually does not take into account certain important elements of the price of output, for example, profit, interest, etc.

547. The "method of standard dwelling" can more easily be applied than the "method of work units", since the basic price series can more easily be obtained and the weight can be calculated without great difficulties, and would therefore be a more practical method in countries where statistics are not yet sufficiently developed. On the other hand, the exclusion from the price concept of such elements as profit and interest may, particularly in these countries, lead to a significant bias in the indices thus calculated. It is, therefore, desirable that consideration be given to the possibilities of developing more refined calculations of building output price which permit these factors to be taken into account, for example along the lines of the method of "work units".

548. While indices of prices relating to dwelling construction as a whole (i.e. covering all dwellings constructed in the country or in a specific region) are of great interest, for example, in connexion with the data on the output of dwellings in monetary terms compiled in the framework of the national accounts, the first needs in developing countries may be for indices relating to certain categories of dwellings – for example, low cost dwellings provided to certain groups of the population. The compilation of such partial indices may raise fewer problems than the calculation of indices for dwelling construction as a whole, in particular as regards the weights to be applied.

549. Some consideration was also given to the question of the data required for the study of the possible reduction in cost of given types of dwellings, by changes in the design, building techniques, materials used, etc. It was agreed that this was primarily a matter of cost accounting rather than statistics, although, of course, reliable data on prices of different materials, wages, etc. would be needed as a basis for

such calculations of cost. For this purpose, however, absolute data, rather than indices, would be required.

(b) *Statistics on the value of residential construction*

550. In order to be able to relate statistics on housing to statistics on other activities, data are required which are expressed in terms of a unit common to all sectors of the economy, that is in terms of value. The statistics to be compiled should allow for at least three types of comparison: (1) comparison of the level of output of the housebuilding industry with that of other branches of building and construction; (2) comparison of the output of the construction industry with that of other sectors of the economy; (3) comparison of capital formation in residential building with that in other types of capital goods: other building, public works, machinery and equipment.

551. This implies that data are required both on the output of the housebuilding industry and on capital formation in residential buildings. These concepts should be defined consistently with the related concepts in other sectors, that is in particular with those adopted in the national accounts.

552. While the output of the housebuilding industry and capital formation in residential building overlap each other to a large extent, the two concepts are not identical. For example, part of the output of the building industry, namely current repairs and maintenance, are normally not treated as capital formation.

553. Data on the value of construction can be obtained in different ways: (1) directly from the firms which carry out the construction work; (2) through the authorities concerned with the regulation of building on the basis of data furnished in the applications for the building permits; (3) on the basis of domestic production and imports of building materials (with appropriate mark-ups for wages, profits, etc. in the building industry).

554. The collection of data directly from the building firms has the advantage of providing the most direct estimate of the value of construction, and, in principle, of making it possible to obtain the data in accordance with the definitions adopted and with the sub-divisions which are needed for the estimation of capital formation in residential building.

555. When the data are obtained through the information supplied in applications for building permits, periodic progress checks must be made in order to adjust the estimated cost to the actual value of construction. Such progress checks might be made on the basis of a sample of building projects. A disadvantage of this method is that it does not cover work for which no permits are required, for example, repairs or construction below a certain value. It is also difficult to apply the definitions and sub-divisions needed for the purposes of the national accounts, e.g. to obtain an estimate of the value of work put in place, but not yet completed during the period of observation.

556. The third type of method – sometimes referred to as the commodity flow method – has the disadvantage that it does not directly provide data in accordance with certain sub-divisions which are needed for analytical purposes. Moreover, this method involves many estimates, for example, of the proportion of the different building materials which go to the housebuilding sector and of the different mark-ups.

557. It would appear that theoretically the first method gives the best results. In practice, however, the method may raise several important practical problems – for example, when there are many small building firms whose accounting system is not sufficiently developed to provide the different data needed – and it may therefore be necessary to rely on one of the other methods. In this case, the second method is generally to be preferred, since it involves fewer estimates and is therefore likely to provide more reliable results. The third method may, however, be adequate in countries where the building industry is simple in structure, and a large part of the building materials is imported.

558. Capital formation in residential buildings is defined in the system of national accounts of the United Nations<sup>58</sup> as “all expenditures on new construction and major alterations to residential buildings including the value of the change in work in progress, but excluding the value of the land before improvement. The expenditure covers the cost of external and internal painting and all permanent fixtures, such as furnaces, fixed stoves, central heating and water supply installations and all the equipment customarily installed before renting”. This definition is referred to as the definition of “capital formation in dwellings”, and its wording implies that the construction of housing units other than conventional dwellings should not be included. In Latin American countries, it may be desirable also to include in capital formation (and therefore in gross domestic product) at least certain types of other housing units.

**9. Statistics needed on household income and cost of housing**

559. Much has been said concerning the extent to which the population in the developing countries is able or unable to afford a minimum dwelling but very little information is available concerning the methods employed to arrive at these conclusions. The success of housing programmes ultimately depends upon the ability of the population either to purchase or rent the dwellings constructed and the financial aspects of housing programmes are based not only on the investment required for the construction of dwellings but on the ability of the population to pay for the occupancy of the new dwellings. It seems essential, therefore, that statistical data to be obtained to estimate, as accurately as possible, the distribution of households by income groups and the proportion of the incomes than can be devoted to housing. The quality of the dwellings to be constructed (size, materials, facilities) may be graduated to match as far as possible the ability of the population to purchase or rent the housing provided. There comes a point, however, in the process of decreasing the cost and quality of dwellings to meet the ability of the population to pay, where a minimum level is reached (minimum dwelling). Beyond this minimum level there will be a population group (substantial in developing countries and existing also, but to a lesser extent, in developed countries) unable to afford to pay for even a minimum dwelling. For these groups estimates must be made of the amount of financial or other assistance required, and the form in which the assistance is to be made available (rent

<sup>58</sup> United Nations, *A System of National Accounts and Supporting Tables*, Studies in Methods, Series F, No. 2, Rev. 1, New York, 1960.

subsidies, purchase subsidies, self-help construction, etc.), will have to be decided. The use of statistics to determine the extent to which households are able to finance their essential social needs out of their regular income is essential. The question which needs to be answered can be formulated as follows: given a certain average level of income, a distribution of households by income groups and corresponding patterns of expenditure, what proportion of the households can, or cannot, afford minimum satisfactory dwellings at current or expected prices? The question whether households can afford a type of minimum satisfactory dwelling is normally dealt with in the formulation of national housing programmes.

560. As far as possible, data should be obtained on income and consumption patterns for all important sectors of the population. These may include population groups distinguished by income classes, social and economic characteristics, and national groups, urban and rural sectors, household or family types and geographical areas. Such studies should be instituted with a view to evaluating regional differences in income and consumption patterns and to analysing sources of income and distribution of expenditure at different income levels, for specific industrial and occupational groups, etc. Each important sector of the population (farm labourers, salaried workers, miners etc.) have their own consumption patterns and there is often a marked difference between major areas. In particular, a special study should be made of the differences of the industrialized and less developed areas and those in which specific industries and agriculture are predominant.

561. Total consumption and savings can sometimes be assessed on the basis of information concerning household income, but it is generally agreed, in the light of available experience, that expenditure data are often more accurate and more readily obtainable than information on total household income.

562. The quality – and thus the cost – of dwellings constructed in housing programmes will be influenced by the total amount devoted to housing within over-all economic and social development programmes, the quality of existing housing, the urgency of housing needs and the ability of the population to pay for housing. The problem becomes one of providing as many dwellings as available resources will permit, corresponding as far as possible to the housing requirements of the various population groups and to their financial ability to pay for housing, while maintaining certain levels in respect of quality.

563. Important factors in establishing the ability of the population to pay for housing will be the purchase price or rental of the dwellings to be provided in the programme and, in the case of dwellings to be purchased, the amount of the down payment to be made by the purchaser, the period fixed for amortization of the mortgage and the interest rate to be charged. Special research will be required to discover how far various standards of quality can be maintained while reducing the costs of the dwellings constructed. In addition to variations in the costs resulting from size, layout, facilities, construction techniques, type of material, etc., costs may vary according to whether the dwellings are being constructed in rural or urban areas, according to the region in the country in which they are being constructed, and according to the system used in checking building costs.

Statistical information concerning all elements of building costs for various types of housing in different regions of the country should be made available with a view to reducing the costs wherever possible.

564. In the lowest income groups the proportion of income that can be devoted to housing may be estimated by taking into account the minimum expenditure required for such essentials as food and clothing. As income levels rise, however, household expenditure patterns will have to be studied more closely since the proportion of income devoted to housing will depend not only upon the ability to spend a certain proportion of income on housing but also on the importance attached to housing as compared to other items of household expenditure.

565. Preliminary estimates of the ability of the population to pay for housing may be obtained from national income figures available annually from the national accounts. By taking the average size of households a rough estimate can be made of household income which may serve to provide a general idea of the possibility of household purchasing or renting dwellings of a certain price. It has been stated<sup>59</sup> that in developing areas mass housing on the scale required can be provided only within an average cost of dwelling ratio to *per capita* national income ranging between 2 to 1 and 5 to 1 rather than the 10 to 1 now frequently found. This would imply for a programme of ten dwellings per 1,000 inhabitants a financial investment of 2 to 5 per cent of the gross national product. It would suggest average national costs of not more than 200-300 dollars in Asia and Africa and 500 to 1,000 dollars in Latin America (see paragraph 66). In El Salvador it has been estimated that 17 per cent of the total families have monthly incomes of 50 colones or less and that 45.5 per cent have monthly incomes of not more than 150 colones. The average cost of a dwelling (excluding the cost of the land and of urbanization) is estimated at 6,000 colones. Assuming a 1 per cent monthly payment of interest and amortization, the monthly payment on such an investment would be 60 colones. However, it is estimated that the families in the lowest income group could pay only 7.4 colones monthly for housing and that the group with incomes of 150 colones or less could pay between 11 and 18 colones a month.<sup>60</sup>

566. Private consumption expenditure, also available from the national accounts, will provide a very general idea of the proportion of total household expenditure represented by housing. Income data collected during population censuses would also be useful since, in general, housing census data are available as of the same date as the population census and levels of income can thus be compared with housing conditions as well as being used to provide an estimate of the extent to which households can afford to pay for housing. There still remains the problem of examining expenditure patterns, and another fact to be borne in mind is that since censuses are normally taken at ten-year intervals the data available may be too out-of-date to be useful.

<sup>59</sup> United Nations Group of Experts on Housing and Urban Development, *Mobilizing National and External Resources for the Extension of Housing and Urban Development*, Working Paper No. 6, 5 February 1962.

<sup>60</sup> United Nations *La vivienda y la industria de materiales de construcción, programa de integración económica del Istmo Centroamericano* (ST/SOA/41), New York, 1960.

567. For housing programmes, data will be required on income and expenditure for specific areas and for specific population groups and sample surveys will probably provide the most convenient and efficient method of collecting the data. Since this information is required for many other purposes besides the investigation of housing expenditure there should be a good possibility of such enquiries being undertaken. Information concerning the methodology that might be employed in connexion with such surveys will be included in a *Handbook of Household Surveys* which is being prepared by the United Nations. The information obtained according to these recommendations would yield data on income, expenditure patterns in general, expenditure on housing, and savings, all of which would be of signi-

ficance in establishing the capacity to pay for housing. Information might also be obtained from households concerning their desires in relation to housing and their financial ability or willingness to satisfy these desires (the type of dwelling, number of rooms, etc. they would like and the amount of rent, down payment, instalments, etc. they would be willing to pay for such a dwelling).

568. With reference to the availability of statistics required for a preliminary estimate of the ability of the population to pay for housing, *per capita* national income figures are available for most of the countries in Latin America, although not on a comparable basis. Private consumption expenditure figures are available for only eight Latin American countries and solely in respect of the principal cities.

## VI. ADMINISTRATIVE AND ORGANIZATIONAL ARRANGEMENTS REQUIRED FOR COLLECTING STATISTICAL DATA FOR HOUSING PROGRAMMES

569. The administrative and organizational arrangements required for collecting statistical data for housing programmes will depend largely on the type of programmes adopted and the extent to which a central housing agency is responsible for the execution and the following up of the programme. It will also depend on how far the national statistical service has been developed and the extent to which analysis of available data can be made by this service, along the lines necessary to formulate housing programmes. The administrative and organizational arrangements required will also depend on the general pattern of the public administration and the extent to which it has been possible to co-ordinate the work of the public bodies responsible for general economic planning and development.

570. There is a broad field of statistics, very different in substance, needed for drawing up housing programmes and for following up the execution of such programmes. The various types of statistical information needed call for different types of administrative and organizational measures. Some of the statistics needed for housing programmes will have a much wider use than as a mere basis for housing programmes. In some cases, however, the authorities responsible for housing policy may need a special and more far-reaching classification than is necessary for general statistical purposes. In other cases the statistics required may be mainly of interest to the housing authorities.

571. The approach to the administrative and organizational problems implied in producing and assembling the different types of statistics will also be different, depending on the types of statistics that have been gathered. The different sources for getting primary data may also have implications with regard to the administrative and organizational problems involved in producing the statistics. The public bodies working within the responsibility of a central housing agency may sometimes be the best sources for getting a certain type of primary data, and the creation of new public bodies for the execution of a housing programme may also provide the possibility of collecting statistical data not previously available. Under such circumstances it may be important that the housing agency should have the necessary capacity to organize the collection of primary data, and to prepare programmes for the use of such data.

572. In principle, however, the production of statistics should be centralized as far as possible. This avoids duplication and enables the best possible use to be made of available experts and technical equipment. In cases where it is preferable for the information to be collected and controlled by the housing agency, the computation and tabulation of the data should as a rule be done by the national statistical

service. Even if the statistical service is well developed, a special statistical branch under the housing agency may still be required.

573. There is first of all a need for a special branch to co-ordinate and analyse available data and to make estimates on the basis of the information for the purpose of formulating housing programmes and in order to follow up the execution of these programmes. Secondly, there will usually be a need for statistical experts within the central housing agency to explore the possibilities of improving and extending the available statistical information. Thirdly, the housing agency will need statistical experts to design sample surveys and special statistical investigations, even though these may be carried out by other agencies. As housing policy develops and regional authorities become more actively engaged in the execution of housing programmes it will also be necessary as a rule to provide statistical services for local bodies, such as town-planning offices, etc.

574. A fourth point is the need for having a small section for collecting and producing primary statistics of special interest to the housing agency or for initiating the production of statistics which are not being produced by the national statistical services but which subsequently can be transferred to their responsibility.

575. A discussion took place at the Seminar concerning the situation in the Latin American countries with respect to the organizational and legal status of the national statistical services. It was indicated that in most countries the production of statistics was centralized, but that in many countries the analysis of the statistics had to be done by the consumers. In some countries the housing agency also had a special statistical section, but this section did not produce all the statistics needed by the agency. It was generally considered that the present programmes for housing statistics were far too modest and incomplete. It was also stated that there is frequently a lack of co-ordination and co-operation between the producers and consumers of statistics needed for housing programmes and policies.

576. It was agreed at the Seminar that it would be an advantage if the housing authorities could have experts on their staff who could stimulate the development of statistics in this field, make better use of existing data, and formulate programmes for an extension of the statistics related to housing policy.

577. It was agreed also that the production of statistics should as far as possible be centralized, in order to avoid overlapping and to make better use of existing experts, technical equipment and economic resources.

578. It was recognized that in Latin American countries there is a strong need for a considerable expansion of the

existing statistical programmes in the fields related to housing programmes and housing policy.

579. It was considered that there is a need for a closer co-ordination, between producer and consumer, of the statistics needed for economic planning, in particular between statistical services and housing agencies.

580. It was agreed that it was necessary to have a special statistical section closely related to the agency responsible for the housing policy and that this section should be developed in order gradually to undertake a work programme with the following objectives:

(a) To collect and analyse statistical data and make

estimates on the basis of existing statistical information;

(b) To explore the possibilities of improving and extending existing statistics;

(c) To formulate programmes for sample surveys and special statistical investigations related to housing to be carried out by other specialized agencies;

(d) To provide advice on statistical matters to authorities responsible for economic planning, regional development, town planners, building material industries, etc.;

(e) To produce statistics for internal use on the basis of the information which will become available through the work of the housing institutes.

## VII. GENERAL CONCLUSIONS

The following conclusions were adopted by the Seminar:

581. To recognize and reiterate the importance that long-term national housing programmes be formulated within the context of general economic development plans as a means of achieving the most effective utilization of resources and of ensuring consistency between the measures adopted to improve housing conditions and the requirements of general economic development. For such programmes to be carried out it is necessary that there should be a national agency fully responsible for formulating the national housing policy and with the necessary authority and means to implement the national programmes which may be adopted in accordance with established housing policy.

582. To recommend that, on the basis of the experience accumulated hitherto and of the general principles discussed at this Seminar, a suitable methodology be developed for the formulation of housing programmes including, in particular, methods for estimating building requirements to satisfy minimum housing needs. Such methods should be developed with due regard to their applicability in Latin American countries.

583. To recommend to the Governments and to the international and regional agencies that priority be given to the collection and improvement of the basic statistics needed for housing programming, in particular to population and housing censuses and to current housing statistics. In this connexion the following methods were considered to be effective:

(a) The establishment of a department or section on housing statistics in each national statistical office and to provide for effective co-ordination of the activities of such a department with those of housing institutes and other agencies concerned with housing programmes in the countries;

(b) The establishment of sample survey units in the national statistical offices;

(c) The strengthening of the co-ordination between the national statistical offices, housing institutes and economic planning offices by forming national housing committees or by other means;

(d) The organization of national seminars on housing statistics and programmes along the lines of the present Seminar or with the purpose of dealing with certain specific subjects, as for example: to develop concepts and statistical methods for estimating investment for housing; measuring the construction capacity; evaluating construction costs; estimating housing shortages and future housing needs; developing specifications for current statistics on housing financing and marketing; or simply in order to produce an objective interpretation of census results and changes in housing conditions.

584. To provide frequent opportunities for the exchange of experience between housing experts and statisticians of the various countries in the region. In this connexion the experience of the Sub-Committee on Housing, Building and Planning of the Central American Economic Co-operation Committee, as well as that of the Housing Committee<sup>61</sup> of the United Nations Economic Commission for Europe were considered to be valuable precedents which might be useful in extending the system for regional promotion of housing conditions in Latin America.

585. To recognize the need for the training of personnel in the general fields of housing programming and housing statistics and, in particular, for physical planning and data processing (by means of electronic equipment) methods.

<sup>61</sup> After the Seminar was held the title of this Committee was changed to Committee on Housing, Building and Planning.



## Annex A

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**Annex B**

**AGENDA**

*(3-21 September 1962)*

Date Meeting	Item	Chairman	Rapporteur	Organizer
3 morning	Organization of the Seminar	Mr. Engberg	Miss Le Long	--
3 afternoon	Inauguration of the Seminar Inaugural speeches: Mr. Andersen Mr. Engberg Mr. Cabello Mr. Raes Mr. Jensen			
4 morning	Housing conditions in Denmark and the northern countries	Mr. Engberg	Mr. Skarum	--
4 afternoon	Housing conditions throughout the world	Mr. Ortiz de Zevallos	Mr. Panzone	Mr. Brzoza Mr. Anonsen
4 afternoon	The housing situation in Europe and recent trends	Mr. Ortiz de Zevallos	Mr. Gomien	Mr. Raes
5 morning	The Latin American housing situation and prospects (Central America)	Mr. Cabal	Mr. Vargas	Mr. Ortega
5 afternoon	The Latin American housing situation and prospects (North and South America)	Mr. Gomien	Mr. Espino	Mr. Harris
6 morning	Continued			
6 afternoon	Principal aspects to be considered in the formulation of housing programmes	Mr. Cilento	Miss Mera	Mr. Melnick
7 morning	Continued			
7 afternoon	Statistical indicators of housing conditions	Mr. Utrera	Mr. Estupiñan	Mr. Cabello
10 morning	Estimates of present housing requirements	Mr. Bravo	Mr. Labadía	Mr. de Jonge
10 afternoon	Estimates of future housing requirements	Mr. Zertuche	Mr. Dávila	Mr. Gustavsson Mr. Anonsen
11 morning	Continued			
11 afternoon	Evaluation of the present and future resources required for dwelling construction	Mr. Mora	Mr. Fitipaldo	Mr. Lohse
12 morning	The implementation of housing programmes: materials, land and techniques	Mr. Estupiñan	Mr. Bendaña	Mr. Salicath
12 afternoon	Financing of housing programmes	Mr. Bendaña	Mr. Mora	Mr. Skarum
13 morning	Conclusions concerning the formulation and implementation of housing programmes	Mr. Kanudt	Mr. Labadía	Mr. Melnick
13 afternoon	Statistics required for the formulation and execution of housing programmes	Mr. Viveiros de Castro	Mr. Ruiz	Mr. Cabello
14 morning	Housing censuses	Mr. Espino	Mr. Mendoza	Miss Casis
17 morning	Sample housing surveys	Mr. Barsoba	Mr. Chaparro	Mr. Cabello
17 afternoon	Current housing statistics	Mr. Chaparro	Mr. Suárez	Mr. Jansen
18 morning	Continued			
18 morning	Permanent housing records	Mr. Fonseca	Mr. Lubin	Mr. de Jonge
18 afternoon	Demographic statistics and projections for housing programmes	Mr. Fonseca	Mr. Lubin	Miss Powell
19 morning	Statistics on prices and costs of construction	Mr. Fitipaldo	Mr. Ortiz de Zevallos	Mr. Jansen
20 morning	Continued			
20 afternoon	Administrative and organizational arrangements required for collecting statistical data for housing programmes	Mr. Bolaños	Mr. Loayaza	Mr. Anonsen
21 morning	Report of the Seminar	Mr. Engberg	Miss Le Long	Mr. Cabello
21 afternoon	Continued			

## LIST OF DOCUMENTS

Title	Symbol
<i>Working Documents</i>	
Aide-Memoire on the Latin American Seminar on Housing Statistics and Programmes	ST/ECLA/CONF.9/L.1
List of participants	ST/ECLA/CONF.9/L.2
Outline of the report to be prepared by the participants concerning housing programmes and statistics in their countries	ST/ECLA/CONF.9/L.3
Housing in the northern countries (Spanish version)	ST/ECLA/CONF.9/L.4
Report on the Seminar on Housing Surveys and Programmes with particular reference to problems in the developing countries (Spanish version of ST/ECE/HOU/5)	ST/ECLA/CONF.9/L.5
European Programme for National Housing Censuses (Spanish version of CONF.EUR.STATS/WG.6/82 and Rev. 1)	ST/ECLA/CONF.9/L.6
Housing censuses as a statistical tool for the establishment of housebuilding programmes	ST/ECLA/CONF.9/L.7
Permanent housing records	ST/ECLA/CONF.9/L.8
Analysis of the national housing programmes of five Latin American countries	ST/ECLA/CONF.9/L.9
Statistical evaluation of housing conditions, existing deficits and future housing requirements in the Latin American countries	ST/ECLA/CONF.9/L.10
The use of national accounts statistics to assess the economic significance of housing	ST/ECLA/CONF.9/L.11
Demographic information required for housing programmes with special reference to Latin America	ST/ECLA/CONF.9/L.12
Present housing requirements	ST/ECLA/CONF.9/L.13
The implementation of housing programmes: materials and techniques	ST/ECLA/CONF.9/L.14
Sample surveys in which housing information was collected, 1953-1960	ST/ECLA/CONF.9/L.15
World housing conditions and estimated housing requirements	ST/ECLA/CONF.9/L.16
Administrative and organizational requirements in the drawing up of housing programmes at all levels and the execution of such programmes	ST/ECLA/CONF.9/L.17
Basic features of the housing plan for Chile, with special reference to financing by means of a system of adjustable savings and credits	ST/ECLA/CONF.9/L.18
Future housing requirements	ST/ECLA/CONF.9/L.19
The housing situation in Europe and recent trends	ST/ECLA/CONF.9/L.20
<i>Censo de habitación: temas investigados y definiciones de vivienda usados por doce naciones Americanas</i> (Spanish only)	ST/ECLA/CONF.9/L.21
<i>La situación de la vivienda en América. Análisis estadístico-censal de los resultados obtenidos bajo el Programa del Censo de las Américas de 1950 (COTA-1950)</i> (Spanish only)	ST/ECLA/CONF.9/L.22
Note on the situation of current housing statistics in the American nations	ST/ECLA/CONF.9/L.23
Survey of components of change and residential finance. Principal data collection forms and procedures (USA)	ST/ECLA/CONF.9/L.24
Components of change in the nation's housing inventory in relation to the 1960 census (USA)	ST/ECLA/CONF.9/L.25

Title	Symbol
Recent progress in measuring construction (USA)	ST/ECLA/CONF.9/L.26
Housing censuses in Denmark	ST/ECLA/CONF.9/L.27
Current housing statistics	ST/ECLA/CONF.9/L.28
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<i>La Programación de la vivienda en el esquema de la programación global del desarrollo económico y social</i> (Spanish only)	ST/ECLA/CONF.9/L.32
General principles for a housing census	ST/STAT/SER.M/28
Statistical indicators of housing conditions	ST/STAT/SER.M/37
International definition and measurement of levels of living	E/CN.3/270/Rev.1 E/CN.5/353
Proposed methods of estimating housing needs	E/CN.3/274
Report of the <i>Ad Hoc</i> Group of Experts on Housing and Urban Development	E/CN.5/367 and Add.1
<i>Segundo Plan Trienal/Corporación de la Vivienda</i> (Spanish only). Corporación de la Vivienda, Departamento de Planeamiento y Estudios Económicos, Santiago, Chile	
<i>Reference documents</i>	
<i>Subcomisión de COINS para Censos: Informe de la VI Sesión</i>	COTA-1960 Doc. 403406
<i>Investigaciones censales sobre edificios y viviendas con anterioridad al Programa del Censo de las Américas de 1950</i>	IASI Doc. 1413 Sp. 1953
<i>Censo de Habitación. Análisis de los conceptos y procedimientos usados bajo el Programa del Censo de las Américas en 1950</i>	IASI Doc. 2052 Sp. 1953
<i>Censos de Vivienda en las Américas</i> , by Ana Casís, 1948	Reprint of ESTADISTICA, Vol. VII, Nos. 24 and 25, 1949
<i>Comité Asesor de la OEA sobre Vivienda, Informe Unión Panamericana</i> , 1962	Estudios y Monografías VI
<i>Estadísticas de habitación. Lista preliminar de referencias seleccionadas</i>	IASI Doc. 4328 Sp. 1961
Techniques of surveying a country's housing situation including estimates of current and future housing requirements	ST/ECE/HOU/6
European programme for national population censuses	CONF.EUR.STATS/WG.6/81 and Rev.1
Locality statistics and the urban rural classification	CONF.EUR.STATS/WG.6/83
European programme for current housing and building statistics	HOU/Working Paper No. 120
<i>Statistical Yearbook 1961</i> , United Nations	Sales No. 62.XVII.1
<i>Demographic Yearbook 1960</i> , United Nations	Sales No. 61.XIII.1
<i>Expert Committee on the Public Health Aspects of Housing</i>	World Health Organization Technical Report No. 225

# OUTLINE FOR THE REPORTS PREPARED BY THE PARTICIPANTS CONCERNING HOUSING PROGRAMMES AND STATISTICS IN THEIR COUNTRIES

## 1. General

(a) Give a brief description of the housing situation in your country.

(b) What future developments, legislation, changes or modifications in organization or methods are planned that may affect:

- (i) The collection and use of statistics for housing programmes;
- (ii) The formulation and implementation of housing programmes?

## 2. Government activity in connexion with housing

(a) Have the aims of government housing policy in your country been stated in legislation, directives, etc., or are they implied in the national programmes undertaken by the Government? If so, give the references of the published sources.

(b) Has a national housing programme been formulated? If so, give the following information:

- (i) What kind of government and private activities are contemplated in the programme (dwelling construction, investment, financing, etc.)?
- (ii) Does the programme refer to the whole country or is it concerned with improving housing conditions in a selected area only?
- (iii) Period of time used as reference for the programme.
- (iv) Indicate the programme targets for construction of new dwellings by the public and private sectors in the period covered.

## 3. Organization for housing programmes

Describe the organizational structure within which housing programmes are formulated, implemented and administered at the national, regional and local level.

## 4. Statistical organization

(a) Indicate what departments of the national statistical organization have the responsibility for producing the following statistics, and describe briefly their organizational structure:

Housing censuses

Sample housing surveys

Current housing statistics (new dwellings constructed; conversions or major repairs which result in additional dwellings becoming available; dwellings lost from the inventory because of demolitions, disaster, etc. If information is not available concerning dwelling con-

struction but information concerning total construction is collected, describe the organization employed for the collection of statistics concerning total construction)

Population estimates and projections

National income estimates

Price indexes of building materials and dwellings.

(b) How are the activities of the departments responsible for the above-mentioned statistics co-ordinated with the agencies which have major responsibility for the formulation and implementation of housing programmes at the national level?

## 5. Statistical data required for housing programmes

(a) Give a brief description of the basic statistical data, estimates, and projections which have been used in your country in connexion with the formulation and implementation of housing programmes.

(b) Do you consider that the statistics at present available for the formulation and implementation of housing programmes are adequate?

(c) If you do not consider that the statistics are adequate:

- (i) Indicate additional items of information that you consider necessary.
- (ii) Is the information sufficiently up-to-date?
- (iii) What suggestions have you for improving the statistical data available?

## 6. Statistical activity

(a) Give the date and coverage of housing censuses taken in your country. In addition, for the latest census, give the date on which preliminary results and complete census data respectively were published. If the census reports have not yet been published, give the estimated date of the publication of preliminary results and of complete data.

(b) Give the date on which it is planned to take the next housing census.

(c) Give the date, coverage and purpose of any housing surveys taken. State by whom conducted and give a reference to the report.

(d) Describe the information that is collected concerning new dwellings constructed, conversions or major repairs which result in additional dwellings becoming available, and losses from the inventory because of demolition, dwellings falling out of use or disaster. Indicate the frequency with which data are published.

(e) Describe the methods used to estimate the existing housing deficit in your country and indicate what this deficit is according to the most recent estimates.

(f) Describe the methods used to estimate the number of new dwellings required annually to provide for the population increase and replacement needs and indicate what these annual requirements are.

*Note concerning preparation*

One report may be prepared for each country irrespective of the number of persons participating in the Seminar or a separate report by each participant if so desired. Reports should be submitted on letter-size paper (original plus one copy), double spaced, and should not exceed thirty pages.

Supporting reference documents would be welcome, but the reports should be self-contained so that they can be used without reference to other materials. Reports should be sent not later than 30 June to:

Mr. Octavio Cabello,  
Co-Director, Latin American Seminar on Housing  
Statistics and Programmes,  
United Nations Economic Commission for Latin America,  
Av. Providencia 871,  
Casilla 179-D,  
Santiago, Chile.



## ACTIVITIES OF THE HOUSING, BUILDING AND PLANNING COMMITTEE OF THE UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE (Geneva, Switzerland)

This Committee like other committees of the United Nations Economic Commission for Europe is an all-European inter-governmental organ in which the United States of America also is represented and in which the representatives of the United Nations specialized agencies and the international professional and technical non-governmental organizations concerned with various aspects of housing, building and physical planning take part. The Committee meets in plenary session at least once a year to review the work in progress, to consider conclusions and recommendations arising from work completed and to give directives for further work. The programme of current and future activities is thus periodically reviewed, modified as necessary and formally adopted by the Committee. Throughout the year there are a number of subsidiary meetings in the form of seminars or symposia, standing working parties and smaller *ad hoc* groups of experts or rapporteurs. The preparatory work is carried out partly by the secretariat and partly by or with the help of expert rapporteurs, provided freely for this purpose by the participating Governments. The activities are co-ordinated and the Committee is serviced by a small staff of professional international civil servants who are part of the United Nations Secretariat. It may be useful to summarize the Committee's current and future activities, indicating where necessary reference to recent work, under the following headings:

### *Socio-economic aspects of housing policy*

Once a year the Committee holds a full debate on European housing progress and policies. Every other year the secretariat prepares and publishes a survey describing and analysing major changes in housing and related policies.<sup>a</sup>

Problems of housing finance have continued to occupy the Committee's attention. A comprehensive study on the subject with special reference to public financial aid, was published in 1958.<sup>b</sup> A pilot inquiry on the private financing of housing was completed in 1961.

A new enquiry into the housing situation of European countries has been undertaken. The study will examine housing requirements (taking into account the extent of the housing shortage in different countries, the quantitative and qualitative aspects of the existing housing stock and normal additional requirements), using for this purpose a carefully worked-out and commonly agreed methodology.<sup>c</sup> This report

<sup>a</sup> The latest such report was *European Housing Trends and Policies in 1960* (ST/ECE/HOU/2), ECE, Geneva, 1961.

<sup>b</sup> *Financing of Housing in Europe* (E/ECE/328), ECE, Geneva 1958.

<sup>c</sup> *Techniques of Surveying a Country's Housing Situation, including Estimating of Current and Future Housing Requirements* (ST/ECE/HOU/6), ECE, Geneva, 1962.

will draw extensively on data made available by the housing and population censuses undertaken in 1960-61 in practically all European countries.

A report is being prepared reviewing different methods used or under consideration for assessing future effective demand for housing. The immediate objective of this work is to assist Governments which are endeavouring to estimate future effective housing demand. The ultimate objective is to perfect methods that will help Governments to ensure that available resources are effectively deployed.

A study on major problems of government housing policies has been started. There will be an analysis of the changing aims of housing policy and the instruments of housing policy, with an assessment of the advantages and disadvantages of different approaches in the light of actual experience in different countries.

An enquiry on housing for the elderly will soon be started.

### *Methodology, collection and publication of housing and building statistics.*

The Committee, through its Working Party on Housing and Building Statistics (i) advises the secretariat on the preparation and issue of an Annual Bulletin of Housing and Building Statistics for Europe and a Quarterly Housing Construction Summary; (ii) examines statistical and methodological questions relating to the housing situation, including housing censuses and housing requirements; (iii) carries out methodological studies concerning current housing and building statistics, including sample surveys; (iv) exchanges information on problems of collecting housing and building statistics. This work is co-ordinated with that of the Conference of European Statisticians and also takes into account the work of the United Nations Statistical Commission.

### *Technical policies affecting the cost of building and the industrialization of house construction.*

A comprehensive study on the effect of government measures designed to promote the technological development of the building industry, to reduce housing costs and to improve or increase productivity was published in 1959.<sup>d</sup> In that year an *ad hoc* meeting on standardization and modular co-ordination was also held, to consider the practical application of standardization from the point of view both of reducing building costs and of developing trade in building materials and components.<sup>e</sup> This was followed by

<sup>d</sup> *Government Policies and the Cost of Building* (E/ECE/364), ECE, Geneva, 1959.

<sup>e</sup> *Proceedings of the Ad Hoc Meeting on Standardization and Modular Co-ordination in Building* (E/ECE/361), ECE, Geneva, 1959.

another *ad hoc* meeting on preferred dimensions of large building components. In the same year a comprehensive report, together with illustrations, on the utilization of space in current types of dwellings was published.<sup>f</sup>

The next stage of work consisted of three specialized enquiries: trends in housebuildings costs and the elements thereof; the effect of repetition on the cost of production of selected building materials and components; and the economic and technical aspects of the lifetime of a house, with particular reference to maintenance costs. The results of this work were published in 1963.<sup>g</sup> As a result of the conclusions reached in this study, follow-up work on a number of specific questions will be undertaken over the next few years.

A seminar is being organized to consider the modifications in the structure of the building industry necessary to improve its efficiency and to increase its output. It will be held in the early spring of 1964.

#### *Town and country planning*

A study on problems of rural housing was published in 1962.<sup>h</sup> The report laid stress in particular on the administrative, financial and technical measures which were being taken in various countries to improve the rural housing situation. A pilot field enquiry on the planning and cost of new residential areas was completed in 1962. The Committee made a contribution to a United Nations European Seminar on problems of urbanization, which was held in 1962.<sup>i</sup>

A first inter-governmental symposium on urban renewal policies and programmes, with special reference to problems of conservation, rehabilitation and redevelopment, was held in 1961. The report on the proceedings was published.<sup>j</sup> Next, a standing Working Party on Urban Renewal and Town Planning Aspects of Housing was established. It adopted a programme of enquiries over the ensuing years on the following subjects: (i) techniques of appraising the quality of neighbourhoods, housing areas and individual

<sup>f</sup> *Utilization of Space in Dwellings* (E/ECE/350), ECE, Geneva, 1959.

<sup>g</sup> *Cost, Repetition, Maintenance: Related Aspects of Building Prices* (ST/ECE/HOU/7), ECE, Geneva, 1963, and *Housing Costs in European Countries* (ST/ECE/HOU/8), ECE, Geneva, 1963.

<sup>h</sup> *The Rural Housing Situation* (ST/ECE/HOU/3), ECE, Geneva, 1962.

<sup>i</sup> *European Seminar on Urban Development Policy and Planning* (ST/ECE/HOU/9), ECE, Geneva, 1962.

<sup>j</sup> *Report of the Urban Renewal Symposium* (ST/ECE/HOU/4),

dwellings; (ii) redevelopment, rehabilitation and conservation policies, including machinery and finance; (iii) economics of urban renewal; (iv) relationship between urban renewal and town planning, regional and national planning; and (v) allocation of land, and the control, where appropriate, of land prices for housing.

#### *Housing and related problems in the developing countries*

A seminar on problems that arise in the preparation of housing surveys and housing programmes was held in 1961.<sup>k</sup> Within the framework of the "concerted programme of international action in the field of housing and related community facilities" approved by the United Nations Economic and Social Council and carried out by the United Nations family, the Committee co-operates with other regional commissions, other organs of the United Nations and specialized agencies, *inter alia*, by making available the results of its work and by helping to organize seminars, expert meetings and study tours on specific subjects for the benefit of developing countries. Thus, in 1963, a seminar on housing policies, programmes and statistics for the benefit of countries in the ECAFE region will be held in Denmark and a study tour on building technology and other aspects of housebuilding for the benefit of countries in other regions will take place in the USSR.

#### *Development of contacts and technical co-operation*

There has been increasing collaboration between the Housing, Building and Planning Committee and the more important international professional and technical organizations, many of which take an active part in carrying out the Committee's work. The Committee shares experience also through comprehensive study tours which are organized for this purpose once a year. A long-term programme of group visits to different countries has been established. Such visits have taken place in the past to Switzerland, France, Poland, Belgium, the Netherlands, Austria, Czechoslovakia, Italy, the USSR, the four Northern European countries, the Federal Republic of Germany, Ireland and the United Kingdom (in that order). The next visit, in 1963, will be to France, Spain and Portugal.

ECE, Geneva, 1962.

<sup>k</sup> *Report on Seminar on Housing Surveys and Programmes, with Particular Reference to Problems in the Developing Countries* (ST/ECE/HOU/5), ECE, Geneva.

NEW DWELLINGS REQUIRED PER 1,000 INHABITANTS IN  
ACCORDANCE WITH GIVEN VALUES FOR THE VARIABLES INDICATED

*(At five persons to a dwelling)*

Percentage of the population in conventional (per- manent) dwellings	Annual replacement rate of housing stock	Annual population growth rate (Percentage)								
		1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
		Number of additional dwellings required per 1,000 inhabitants								
50.0	1.0	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
	1.5	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5
	2.0	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
	2.5	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5
80.0	1.0	3.2	4.0	4.8	5.6	6.4	7.2	8.0	8.8	9.6
	1.5	4.0	4.8	5.6	6.4	7.2	8.0	8.8	9.6	10.4
	2.0	4.8	5.6	6.4	7.2	8.0	8.8	9.6	10.4	11.2
	2.5	5.6	6.4	7.2	8.0	8.8	9.6	10.4	11.2	12.0
90.0	1.0	3.6	4.5	5.4	6.3	7.2	8.1	9.0	9.9	10.8
	1.5	4.5	5.4	6.3	7.2	8.1	9.0	9.9	10.8	11.7
	2.0	5.4	6.3	7.2	8.1	9.0	9.9	10.8	11.7	12.6
	2.5	6.3	7.2	8.1	9.0	9.9	10.8	11.7	12.6	13.5
100.0	1.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0
	1.5	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0
	2.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0
	2.5	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0

