

UNITED NATIONS
ECONOMIC COMMISSION
FOR LATIN AMERICA
AND THE CARIBBEAN - ECLAC



Distr.
LIMITED
LC/L.870
6 April 1995
ENGLISH
ORIGINAL: SPANISH

PROJECT

PROPOSALS FOR CHANGING PRODUCTION PATTERNS IN THE HOUSING
SECTOR IN LATIN AMERICA AND THE CARIBBEAN

CONCEPTUAL FRAMEWORK AND GENERAL METHODOLOGY

This document was prepared by the Joint ECLAC/UNCHS Unit on Human Settlements of the Environment and Human Settlements Division.

94-12-1639

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Introduction

This document sets forth the general methodology of the project, "Proposals for Changing Production Patterns in the Housing Sector in Latin America and the Caribbean",¹ which is part of a series of national and regional initiatives to be taken to modernize the guidance and functioning of the housing sector with the aim of increasing its capacity to meet the serious problems that have accumulated and to realize more fully the sector's potential for contributing to development in all aspects —economic, social and environmental.

The project now in progress on changing housing production patterns will be supplemented by another project on housing construction technologies, which will get underway in 1995. The purpose of the first project is to propose changes in all phases of housing production and to devise a set of policies and strategies to serve as tools for putting those changes into effect. It will focus on formulating a production development strategy for the sector that is consistent with the overall development strategy of each country. It will therefore consist primarily of a set of guidelines for action. The purpose of the project on housing construction technologies is to assemble, evaluate, make accessible and promote a set of technologies of proven value, or new or improved versions of them, including both simple and advanced technologies. It will relate specifically to construction methods and will be essentially technical.

The present project will serve a technical assistance function in all phases of its execution, primarily in the form of horizontal cooperation, since most of the studies will be done by specialized public-sector professionals in the various countries. The work process as designed will be a learning experience in certain respects for the professionals participating in it, since there will be topics on which they will require assistance from project personnel in order to stretch the limits of their special field of knowledge to encompass, in particular, the economic and environmental aspects of the project.

The methodology to be described will be useful in planning, organizing and guiding the work of the professionals from the countries who participate in the planned activities and the work of the national and international consultants to the project. The procedures to be followed in carrying out specific tasks will be determined by their authors, within the framework of the general methodology and with the support of the project expert where necessary.

Chapter I of this document sets forth the assumptions and rationale of the project; Chapter II explains why production issues should fall within the purview of public institutions dealing with the housing sector; Chapter III sets forth the working hypotheses and some preliminary comments on how the proposals should be structured and on that basis arrives at a definition of the subject matter of the project; finally, Chapter IV presents the content, aims and authors of the studies to be conducted by the various countries and sets forth the programme for the subregional workshops, to be held as a means of providing guidance during the course of the project studies, and later of evaluating and approving them, and the programme for the regional seminar that will provide the final wrap-up for the project.

The aim of the project is to achieve results by working in concert with the Latin American and Caribbean countries the project is designed to benefit. The hope is that Governments and institutions of the countries can be induced to participate in a variety of ways that may range from merely supplying data, results of previous studies and official documents to becoming involved in the work of the project on an ongoing basis.

The plan is not only to involve professionals from government agencies in the work of the project, but also to draw upon the opinions and efforts of research institutes, universities, business organizations, municipalities and other associations involved in the demand side of housing, which would be invited to participate by mutual agreement between the top-level housing authority in the given country and the project expert.

The anticipated project outputs are intended to be the product of joint reflection based on the information or results supplied by the countries or obtained by project personnel and synthesized into combined documents prepared as agreed with the participating governments.

Based on a series of studies to be done in the various countries and the intermediate outputs synthesized by the project personnel, the final product will consist of a summary document presenting the production component of a new housing policy and the rationale for it, together with a strategy for putting it into effect.

Project activities will include subregional work sessions, workshops and seminars to provide a forum for synthesizing the studies and developing a uniform concept of the housing sector and of the functions and issues that fall within the purview of housing institutions.

It is planned that the process of synthesizing the studies and discussing the proposals generated by the project will culminate in the regional seminar to be held in Santiago early in 1996.

Following the seminar, the project personnel will draw up in final form the general proposal for changing production patterns in the housing sector in the region and a general outline of policies and matching strategies, in order to facilitate their adaptation to the specific situation in each country and, finally, their implementation in the countries that ultimately decide to adopt them.

It is planned that before the project is completed, steps will be taken with the collaboration of the Joint ECLAC/UNCHS Unit on Human Settlements to provide assistance, in the form of specific projects, to countries that decide to implement the proposals on changing production patterns that they feel to be most feasible and beneficial.

I. ASSUMPTIONS AND RATIONALE OF THE PROJECT

1. The first assumption on which the working hypotheses of the project are based is that there is increasing political recognition in the region that housing shortages² have developed due to an insufficient growth in supply combined with unequal access of individuals to opportunities for progress;³ in urban terms, this situation translates into a prevalence of urban areas lacking or inadequately supplied with infrastructure, facilities and services, particularly in the major cities of each country.
2. In consequence, given increasing evidence that only significant progress in terms of both growth and equity can first stem and later reverse the increase in the number of concrete manifestations of inequity, including the housing deficit in all its aspects, one may assume that Governments will mobilize all their resources to promote dynamic, equitable development, and in order to do so will harness the full potential of the relevant sectors.
3. In light of the foregoing, it is reasonable to hope that the countries will concern themselves not only with successfully applying macroeconomic policy, improving fiscal performance and capital formation, and restructuring production patterns in order to protect the domestic market and compete in the international market, but also with using economic, social and mixed sectors to their fullest extent as tools of development, thereby enhancing and expanding their contributions, which are only conceivable and feasible in the context of sectoral activities (Soza, 1993).
4. If the political powers of the various countries accept the validity of the above assumptions, government agencies dealing with the housing sector will need to start broadening their scope of action or influence. It will be necessary to act on the sectoral level to harmonize the functioning of the area of the economy that generates investment in housing and the impact that it has with the development goals that each country sets for itself.
5. The aims, the scope and —in methodological terms— the subject of this project may come as a surprise, because they go beyond the role normally assigned to public institutions in the housing sector. Intervention by the political and technical arms of government in the area of the economy that generates investment in housing is justified principally by the fact that economic sectors are useful avenues for implementing the development strategies conceived and pursued on the national level. In other words, there are ways of doing things that can contribute to development, and that potential is often lost if planning and implementation are not done right at the sectoral level.
6. The truth of the above statement will be demonstrated if the project comes up with fresh, convincing evidence, like that provided on earlier occasions (ECLAC, 1981a and 1981b), that the physical component and the way in which intermediate or finished products relating to the housing sector are produced are not neutral in terms of the contribution to development implicit in their production and use.

7. The uniting and guiding principle that will inform all project activities derives, as the project name indicates, from the ECLAC proposal on changing production patterns with social equity, which was adopted by most of the countries in the region in a form adapted to their particular situations. The present project represents an attempt to apply that general proposal to the housing sector and to recycle the specific findings from the sector as feedback.

8. The technical assistance function conceived for this project, as for all projects carried out by ECLAC, will consist of support for the countries in carrying out the development strategies they ultimately decide to adopt, involving, in this case, appropriate management of housing production. These are the project's development and intermediate objectives.

9. Finally, with the aim of changing the focus of sectoral management and institutional functions, the project stresses that the real solution to housing problems depends on accelerating the development process and that actions taken to meet the most urgent social needs, regardless of budget limitations, can be designed to contribute towards that same goal.

II. PURVIEW OF PUBLIC INSTITUTIONS IN THE HOUSING SECTOR

1. The project is based on the conviction that the serious problems that have accumulated in the housing sector should be seen not as an overwhelming burden but as a tremendous opportunity to create a more modern, strong and energetic institutional structure capable of contributing fully to the development of the countries.
2. In general terms, the housing sector will be able to turn the accumulated problems facing it into an opportunity for development if and only if it undergoes the modernization process that forms the crux of the strategy for changing production patterns adopted by most of the countries of the region as a means of accelerating their development.
3. With specific regard to this project and its methodology, another condition can be extrapolated from the general one stated above, namely, that in the process of redefining the purview of public institutions in the housing sector —as part of the modernization of government— their capacity to set guidelines and to arrive at decisions and plans of action in concert with the private sector should be extended to all production processes relating to housing.
4. A redefinition of purview is needed, because it is obvious that public institutions in the sector have lost ground in the area of guidance of housing production, urban development and land-use planning in general, functions they had for the most part assumed and expanded until a few decades ago.
5. The situation is probably due to the transition from the old system, in which the State was a builder of housing, and the guidance function was inherent in the construction activity, to the present system, in which the ideal is for the State to act in concert with the private sector by setting guidelines and standards, a function it cannot delegate, for all areas of the housing sector.
6. The changes that have taken place or are taking place in the countries of the region call for new methods of guidance for the sector on the part of the public authorities concerned, whether national, regional or local. In recent years, there have been some successful experiments in realizing a multiplier effect with public funds by using them to subsidize demand for privately executed real estate projects.
7. The new methods require the capacity to carry out programmes with a social focus, linking resources with results, along with other programmes directed at the entire spectrum of housing and human development, in an effort to multiply the effects of investment in a way that benefits all those involved in the sector, including the public sector proper, municipalities, service firms, developers, corporate entities and other organizations on the demand side and, last but not least, individual consumers of housing.

8. In addition to organizing, promoting and financing projects, the way in which government housing authorities can intervene to change housing production patterns is by influencing the area of the economy that generates public and private investment in housing. It can do this in two ways: by seeking to make agreements directly with the industrial firms involved in the sector and by putting into effect the component of housing policy related to production. To put it another way, it can establish direct communication between the large blocks of demand and industrial supply, while at the same time implementing a system of government measures, standards and regulations that will tend to channel the production decisions made by companies in the desired direction.
9. Agreements with industrial firms are particularly useful in remedying shortages or gaps in the production of materials, parts, components, machinery, power tools, hand tools and equipment required for certain construction systems that make a greater contribution to development because of their innate properties and because of the economic, social and environmental implications inherent in them or resulting from their use.
10. Policies applying to the production of inputs can help to achieve some of the same goals and, in addition, to the extent that they impact on the output of production processes and building activity, may have the effects of: i) improving the income level of those employed in the sector, thanks to an increase in productivity and more equitable distribution of the benefits of housing investment; ii) reducing the material and financial costs of intermediate and finished products; iii) bringing about an increase in the quality of housing and its surroundings; iv) making the supply of building materials, tools and equipment more competitive and complete, the better to defend domestic markets and to penetrate external markets; v) creating a healthier and pleasanter residential and urban environment; and vi) avoiding misuse of the natural resources used for housing production. In addition, the combination of such effects, particularly those relating to income and costs, would result in an increase in effective demand for housing and hence in the expansion of production activities and services related to the sector.
11. In order for the housing sector to make specific contributions to development in this way, public institutions will need to extend their purview to cover the entire housing production process, i.e., harvesting or extraction of basic raw materials; production of building materials, parts or components by industrial or pre-industrial methods; architectural design together with the phase of assembly or construction narrowly speaking; real estate development activities, whether public, private or combination; and financial activities related to marketing or facilitating access to housing.
12. The above discussion introduces the basic ideas to be debated and harmonized in order to create guidelines for the work of the professionals who will be taking part in the project. It was thought necessary to present this explanation, if only in summary form, in support of a project that might be considered surprising and even outside the scope of the housing sector in a purely technical sense.

III. GUIDELINES FOR THE WORK OF THE PROJECT

A. WORKING HYPOTHESES

1. Housing demand

a) The growing shortage

It will be shown that the shortage of housing units is increasing, rather than decreasing, and that even though potential demand increases as the number of families increases and housing stock declines, effective demand remains below potential demand. The explanation will be found chiefly by comparing three factors: increase in family units (households), production cost/selling price of housing units and mean family income.

b) Reasons for the shortage

It is a fact that the housing shortage has arisen because the benefits of development in the countries of the region have not been equitably distributed.⁴ This statement will be borne out by dynamic analysis of the three factors mentioned in the foregoing paragraph together with the general population increase and the growth in national income.⁵

c) Size of the qualitative shortfall

It will be found that the qualitative shortfall is as great as the quantitative and the idea will therefore gain momentum of formulating programmes for housing improvement and restoration, including home and community services, where necessary, which will prove to be an important step towards the change in production patterns the sector requires.

2. Housing supply

There will be differences between countries; the supply of the final product of housing production processes, i.e., the housing unit, particularly middle- and low-cost housing units, will differ to a greater or lesser degree in quality and production cost.

a) Quality of supply

An analysis of the quality of housing supply will reveal its progressive deterioration over the last few decades, due chiefly to a combination of four factors: declining ability to pay on the part of most consumers (in the face of the high cost of private housing developments); eagerness to stretch public funds to cover a larger number of housing units in the case of public initiatives, direct or indirect); use of architectural designs that are poor from a health and environmental standpoint (thrust on the market without the control of effective regulatory standards)⁶ and gaps in basic industrial production in the housing sector (irreplaceable or not filled by imports) that prevent the use of more efficient construction systems.

b) Price of supply

Production costs, and the resulting prices of available housing, will turn out to be too high as a result of five factors:

- i) the intervention of commercial intermediaries, often in situations of captive demand, at many points in the housing production process;
- ii) the highly speculative cost of land in urban areas and to a lesser extent in rural areas as well;
- iii) heavy indirect costs of housing construction projects, which could be avoided or reduced (overhead, contingency costs, fees, permits, payments to firms providing services);
- iv) material and financial costs of housing units well beyond affordable levels (Soza, 1981); and
- v) excessive financing costs in the marketing phase of housing units.

3. Industrial complex

Study of the construction industry on the regional level and in greater detail in six countries will show that the industrial complex is inadequate in all or some of the countries or regions within countries. It is anticipated that shortcomings will be found in at least seven areas:

- i) technologies related to efficiency and productivity;
- ii) coverage by national or (where there is economic integration) subregional industries of necessary materials, machinery and tools;
- iii) production of equipment enabling the use of better alternative energy sources for residential climate control and hot water;
- iv) input-output chains of industrial processes;
- v) participation by national industries in external markets;
- vi) location of plants and industrial complexes; and
- vii) market transparency.

a) Technologies

Although the situation will differ from one country to the next and within countries between product lines and similar industrial plants, studies will show that what predominates are low-productivity technologies that are relatively uncompetitive in domestic or external markets. It will be found that this

situation tends to play into the hands of those who wish to keep certain economies, or segments of them, closed, thereby depriving the countries of the benefits of real, full-scale competition and holding back progress in exporting, which is the best way to achieve a healthy international balance of trade and to stimulate economic growth.

b) Products

In some countries, it will be found that there are more or less serious gaps in the availability of building materials, parts, components, equipment and tools, restricting the productivity of construction companies and labour. Unnecessarily limited product availability means greater recourse to imports, and rather than encouraging rational economic decisions, it will be found to prolong the use of construction systems that are less advantageous than other alternatives. Some gaps will be found to exist for the sound reason that the national markets are too small to support an industry, the obvious solution being regional or subregional integration. Others, however, will turn out to be attributable merely to the lack of entrepreneurial initiative and the prevalence of speculative over productive investment.

c) Equipment needed to utilize alternative energy sources

It will be found that equipment for exploiting alternative energy sources (wind, water, solar or geothermal power) to satisfy domestic needs at lower cost is either completely lacking or in short supply in terms of both industrial and pre-industrial production.

d) Input-output chains

New research will corroborate the findings of earlier studies that in many cases there are unnecessary shortages in the production of inputs for the manufacture of basic materials (dry commodities, fibers, wood, steel, copper, cement, lime, gypsum, ceramics, chemical products and glass) and to an even greater extent of composite materials (combining basic materials with other inputs). It will be found that the countries are producing materials with a large percentage of imported inputs that could easily be replaced by domestic inputs or by alternative materials available domestically or regionally. The results of the study will demonstrate once again the potential advantages of integrating economies through regional or subregional agreements.

e) Exporting

It will be found that export quantities and values in the housing sector vary widely between countries, with a low average for the region. It will also be found that basic materials (primarily steel, copper, cement, chemicals, fibers and wood) pass primarily between neighbouring or nearby countries, but that the same does not hold for composite materials (principally wire, pipes, plumbing fixtures and fittings, hardware, ceramic wall and floor coverings, wood panelling and veneer, doors, paints and varnishes, adhesives and glass), with the more industrially advanced countries (Brazil, Mexico and Argentina among the large countries, Colombia and Chile among the medium-sized and El Salvador among the small) increasing their export volumes. A similar situation will be found with some machinery, motors and power or hand tools. Different exporting strengths, both realized and potential, will be

identified for different countries, depending on the availability of natural resources for the production of basic materials and on the development of entrepreneurial capacity and industrial design in the case of composites.

f) Location of industry

No signs will be detected of a positive change in the factors that companies consider in determining where to locate with a given city, region or country, nor will studies find that official policies and measures intended to deconcentrate the location of industry have had a significant impact, with the probable exception of Mexico. Within cities, the picture will be of a random pattern that features both dispersion of industry and some heavily polluting industrial concentrations, a situation that creates unmet transportation needs, exacerbates the damage to the environment and has a variety of negative effects on the urban setting and how well it functions.

g) Elasticity of output

Case analyses will show that the industrial complexes of the countries, especially small and medium-sized countries, have trouble handling sudden surges in demand, primarily because of the typically erratic availability of public and private funds for housing projects. It will be confirmed that the intermittent flow of funds to the housing sector is due to fluctuations in the pace of economic growth and to the decline in public appropriations for housing programmes during times of recession. Here again, one solution proposed will be to incorporate modern technologies and management methods into production and marketing processes, with the aim of exporting and thus overcoming dependence on domestic markets; this will be easier to accomplish in an environment of support for existing or new schemes for integrating regional economies.

h) Market transparency

One can predict an increase in market transparency in most countries, especially in those that have opted to open up their economies, for the sake, among other things, of stepping up competition by allowing in foreign products. The assumption is, however, that it still will not be possible to overcome the monopolistic or oligopolistic traits that in recent decades have characterized the industries that supply construction inputs, including the system for marketing the intermediate and finished products that are assembled to create housing. Apart from the impact on price and quality, it is likely that this control over some market segments is having other negative consequences by encouraging the adoption of inappropriate designs for the sake of pushing sales of certain building materials (see note 6).

B. PRELIMINARY CONSIDERATIONS ON THE PROPOSAL OUTLINES

The proposals to be developed in the course of the project will focus on areas where the outlook is most favorable for improving housing production processes; some will relate to specific phases of production, others to housing supply, since it determines the demand for materials and other construction inputs, and still others will relate to the institutional structures on which the viability of the proposals will depend.

The specific phases of construction to be considered will include:

- i) the design of construction systems and housing projects (as the stage where standards are set in the technological dimension of housing policy);
- ii) the production of building materials, parts, components, machinery and tools (the chief focus of the project);
- iii) specific construction methods for housing projects or urban infrastructure; and
- iv) the marketing of final products, especially the housing units themselves.

Under the heading of housing supply, attention will be paid to:

- i) the development of public housing programmes, since they have a major impact both directly and indirectly, through their multiplier effect, in determining the size, nature and quality of housing supply; and
- ii) the coordination of policies and initiatives between the Government, companies, municipalities and the financial system, as a way of facilitating the formulation and realization of initiatives conducive to urban renewal and sensible urban expansion.

1. The design phase and housing policy

The design phase of production is in the hands of professionals in the fields of architecture and engineering, either as individuals or as employees of construction or development firms or government agencies. It is they who decide what construction systems to use and what combination of materials to employ. Their decisions are largely determined by competitive market factors, such as cost and quality of construction; the cultural preferences of housing consumers; government standards; and the availability of building materials and of other elements, such as skilled labour. They are also influenced in various ways by the companies that manufacture materials or provide services relating to construction, who employ marketing techniques directed at the consumer, the impact of which in turn affects the designers. The factors that influence their decisions tend to create a climate that restricts them to a only few of the full range of possibilities and makes their choices somewhat automatic, the product of use and custom rather than the judgment of the professionals, companies or government agencies that design or select models for housing.

If the professionals from the various countries taking part in the project agree on these facts and consider the advantages that would result from changing the situation to be worthwhile, they will have the option of working on one of the operational proposals that go to the heart of the project. The proposal entails taking advantage of the design phase of construction in the housing sector as a tool of housing policy in areas relating to production. The rationale for this approach is that design involves making a series of decisions, each of which has an impact that may be more or less helpful for sectoral development and for the overall development of the nation.

It is anticipated that the proposal will be more acceptable to Governments and institutions if they participate in developing it within the context of the project. The process will chiefly consist of analyzing the structure of the production costs of materials and of the construction costs of projects representative of regional housing activity, which will make it possible to measure and demonstrate how the content of building materials, systems and methods varies with respect to:

- i) the quantity and quality of jobs in the sector;
- ii) the social and geographical distribution of the income generated by housing investment;
- iii) the cost of housing units or other structures;
- iv) the quality of what is built in terms of solidity, healthfulness and interior environment; and
- v) the demand for imported inputs.

In order to encourage the use of the design phase as an arena in which housing policy as it relates to production can be put into effect, the project will have as one of its goals the formulation of a simple and effective procedure for factoring those aspects into the evaluation of housing projects, using the methods that already exist for that purpose as a starting point.⁷

2. The component of housing policy related to production

The housing sector constitutes a powerful block on the demand side, largely made up of compact segments such as the public-sector institutions that carry out or control construction projects and the construction companies and development firms, often combined, all interconnected through national building industry and professional associations. This structure gives it clout in its dealings with the supply side. Often the construction companies have taken the lead in creating the industrial base of the sector through ties of ownership and equity interest that are permanent or have lasted over long periods of time. In general, this means that industrial supply was initiated and developed in response to demand, and this history determined its original features, which still persist in many countries today. The interdependence that resulted has a positive side and a negative side. The negative side is that it fosters the traditional oligopolies in three branches of the housing sector: production of materials and other inputs, construction as such and real estate development. The positive side is that it provides an opportunity to make use of these linkages and of the power of the blocks of demand to achieve three major goals:

- i) expanding the industrial complex so that it will provide products that will make it feasible to use more advantageous construction systems;
- ii) incorporating new technology that will lower costs and hence expand the domestic market and provide access to external markets, in addition to offering environmental benefits; and
- iii) rationalizing the location of industries on the national, regional and local levels.

Given the leading role that public institutions play in the housing sector, the power of demand can be used to adjust supply and to channel it towards the above three goals and others even broader in scope that come under the global development strategy that most of the countries have adopted, with adaptation to their particular needs (ECLAC, 1990).

a) Expanding the industrial complex

While there are significant differences between countries, it is probable that the project will show that none is exempt from the need to expand its industrial complex in regard to construction, although the quantities, quality levels and technological objectives aimed at will differ widely. It is anticipated that gaps will be found in five categories of products required for the development of construction:

- basic materials that could be produced domestically, thereby avoiding unnecessary imports and expanding the choice of combinations of materials, making it possible to use a variety of construction systems;
- composite materials offering a greater choice of finishings and fixtures;
- composite materials of a quality that enables them to penetrate external markets;
- machinery and tools that enhance the productivity of labour in the construction field; and
- equipment that makes it feasible to use alternative energy sources for housing units, other structures and residential utilities.

i) Basic materials. There are countries or regions within countries in which there is no or insufficient production of basic materials as essential, for example, as fired clay brick, whether produced on a pre-industrial or industrial scale. It is likely that such a situation is attributable in part to the fact that cement plants have pushed for the use of cement block or other materials involving an intensive use of cement. That may also be the reason for the displacement of lime as an alternative material for mortar and plaster. Other gaps have been identified that have the effect of limiting the number of technological combinations that are possible with current industrial output, which in turn impacts on cost and quality and prevents better adaptation to the climate and cultural patterns of the particular region or locality. One of the tasks the project will undertake is to do an inventory of current production and compare it with the advantages of introducing alternative materials and construction systems and the need to ensure enough output to meet foreseeable increases in demand.

ii) Composite materials. In this category, it is likely that serious production gaps will be discovered, in both general materials and specific varieties needed for the construction, finishing and proper functioning of the housing units. Materials in this category are often key to the use of alternative construction systems, which means that assessment of current production should take into account the proposals for changes or additions that come out of the project. Achieving greater structural complexity in this category of materials will also require considering the possibilities for production and trade integration between countries.⁸

iii) Exportable composite materials. Also to be explored are the possibilities of expanding a balanced exchange of trade in composite materials. It will be up to the national professionals to evaluate the product lines that seem the likeliest and to select the products that can best illustrate such possibilities in detail.⁹

iv) Machinery and tools. This production category is critical for increasing the productivity of labour in construction tasks. Manual tools and processes should be replaced by machinery and mechanized tools and processes. Of particular importance are the replacement of the handsaw and axe for woodcutting, the sledgehammer and pickaxe for demolition, the manual screwdriver, the hammer and chisel for drilling, the wheelbarrow and spade for mixing cement or mortar, the hand plane and sandpaper for planing and smoothing wood, the scraper for removing paint, ramps or arms for lifting materials, and the manual beetle for tamping down fillings.

v) Equipment. The obstacles to large-scale use of alternative energy sources —some of proven efficacy and feasibility— with all the advantages they offer are the initial heavy investment required and the commercial unavailability of equipment at prices that would make alternative energy sources competitive with conventional energy sources. Among the tasks the project should accomplish are cost-benefit analyses of the advantages of the various alternatives and an objective assessment of the feasibility of pushing for an change from energy sources such as town gas or liquefied gas, electricity,

petroleum, kerosene and firewood to other more beneficial forms. The alternative sources that will be the subject of study (or on which existing studies will be recompiled and synthesized) in the course of the project are geothermal energy for hot water and heating; solar energy for hot water, heating and dehumidifying interiors; and wind energy for pumping water.

b) The incorporation of new technologies

The assessments of the industrial complex related to the housing sector and the construction industry will in all likelihood reveal major differences between and within countries and between different lines of products, manufacturers and construction companies. The general refrain, however, will probably be the need to introduce more advanced technology in order to overcome what will in many cases prove to be serious lags in the production of building materials and the use of higher-productivity methods of construction.

It will probably be found that the technological lag, by depriving industries of the ability to compete with imports, is making it harder for them to retain their shares in the domestic market and preventing them from entering others, even though in many cases they clearly have comparative advantages; it will also be found to generate forces opposed to the opening up of the national economies, with the resulting cost to the country in terms of higher prices, at times lower quality and —possibly with even more serious effects on the cost structure— a scarcity of external inputs to fill gaps in domestic production.

Finally, it should be possible, by acting from within the sector, to encourage the national or transnational industries established in the countries of the region to accept the challenge of incorporating technical advances and intensifying, expanding and varying production in order to help those economies free themselves from unnecessary dependence on imports and to offset the truly necessary imports for the sector with exports.

c) Industrial location

As we know, there is ample room for improvement in the use of land on the national, regional and local levels and in the lay-out and zoning of urban space. In most of the countries, one of the characteristics of development has been an unequal distribution of economic activity between the country and the city. Often, these situations have arisen for no better reason than the existence of direct or indirect government subsidies for transportation and external economies from which companies benefit, generally involving public- and private-sector use of services and facilities and the infrastructure nearly always provided free of charge by the Government. This has impeded the free operation of the market and imposed a trend towards the excessive concentration of population, services and economic activities in urban centers or certain regions, to the detriment of the growth of the rest of the nation and the opportunities for advance for those who live there. The diseconomies inherent in large concentrations, which translate into fewer public funds available to meet the needs of urban systems, make it harder to achieve development that is spatially and socially more balanced.

Since industry integrates primary and tertiary activities, its location has is a tremendous potential for redirecting the use of land on the national and the urban scale. This being so, the project proposals will include policy suggestions relating to industrial location and containing guidelines that are directly

relevant to the design and implementation of changes in the production patterns of the industrial complex related to the housing sector.

d) What the housing sector can contribute to overall development strategy

The housing sector, like all other sectors, is one of the avenues through which the strategy adopted by the countries to accelerate development can be implemented. The contributions the sector can make to development are two-fold: social, on the one hand, because one of the functions of the sector is to provide the housing stock and the residential and urban infrastructure and services that affect the quality of life of individuals; and economic, on the other hand, because investment in housing generates a complex, powerful and well-defined economic field. The social significance of the sector is due to its direct impact on daily life, and its economic importance is due to the vast volume of manufacturing and service activities that housing investment generates, directly or indirectly. Its potential as an instrument of policy derives from the fact that the manufacturing, construction and service and financial activities that make up the sector or are directly tied in with it are heavily dependent on government policies. Government has a number of tools it can use to get its policies put into effect, including fiscal policy, the appropriation of public funds to subsidize demand or supply, direct investment and pooling of demand in order to influence trends in supply in an organized fashion. Another powerful tool at the Government's disposal is the coordination of initiatives among agencies of the national government, between these agencies and regional and municipal governments, and between this complex of government institutions and private sector companies, either individually or as a group.

Concepts such as these all come under the heading of modernizing the Government, a process that relates not only to its size and structure, the functions it performs and the issues it handles, but also to the operating style required in order for the management potential of institutions (both public and private) to be brought to bear on correcting and overcoming the many complex problems confronting the sector.

This topic, which relates to the major role the housing sector can play in national efforts towards development and other general issues that affect the feasibility of the proposals coming out of the project, should be considered as part of the general policy into which the proposal concerning the component of housing policy relating to production will fit.

3. Construction methods

Increasing productivity is a major aim of the proposals on housing production that will be formulated during the course of the project.¹⁰ In some countries, the building methods used for structures intended for the top stratum of demand—and this applies especially to highly profitable services—have incorporated advanced equipment and procedures, in contrast with the persistence of old-fashioned methods in the construction of most housing projects. The growth in effective housing demand will depend primarily on a drop in production costs, reflected in selling prices, and an increase in the income of the family units that make up potential demand, or an increase demand subsidies as a substitute for higher incomes. The incorporation of advanced technologies into construction tasks will have a positive impact on those two determinants of effective demand; it will reduce construction costs chiefly by increasing labour productivity, and it will increase wages by employing more highly skilled labour. Although skilled labour costs more, experience has shown that the greater output more than compensates

for the higher labour cost. The way this equation balances out will determine the cost reduction that can be achieved in this segment of the housing production process.¹¹

In the top stratum of advanced construction methods that involve intensive use of mechanized labour are various construction systems that incorporate prefabricated units and mechanized assembly. Between the highly-mechanized and the heavily labour-intensive, there is a range of alternative systems using some precut or prefabricated elements, such as prestrained-steel-reinforced or prestressed concrete, standard-sized multi-ply or single sheets, plumbing blocks, plain or acoustic partition walls, prefabricated roofs and complete flooring and ceiling slabs.

In order to come up with a sound basis for the proposal concerning construction methods, the project will have to procure and evaluate or carry out cost-benefit analyses on such methods, with an emphasis on the various prefabricated construction systems and on the incorporation of machinery, equipment and power tools into conventional construction activities.

4. How housing is marketed

One of the most serious obstacles to converting potential into effective housing demand is the cost of money under current financial systems. The problem in essence is that low- and middle-income families have to compete in the financial markets with borrowers in manufacturing and trade, who are in a better position to pay well for credit. In addition, borrowers seeking mortgages or home improvement loans must compete with the vast horde of users of consumer credit, who are more apt to accept the high interest rates that are common in the financial systems of the countries of the region.

The cost of money has an even greater impact than the material cost of the housing in determining the extent of effective housing demand and hence, ultimately, of the volume of production. This means that from the standpoint of economic growth, it makes good economic sense both for business and for the country to reduce the profits earned from money-lending in order to recoup them through the resulting increases in production. Hence the need for government institutions in the housing sector to assume as one of their responsibilities the implementation of policies and instruments tending to lower the cost of money, so that housing needs, particularly in the middle- and low-income segments, can be met.

The project will measure the financial component of the price that buyers of housing units pay; it will evaluate the cost of the money to which they have access under the systems that exist or have existed in the various countries;¹² it will sound out the political will to find a way around this problem and convert it into an engine of economic growth; and it will incorporate this aspect into the general policy that will form the framework for the housing policy relating to production to be proposed at the outcome of the project.

5. Demand and public housing programmes

Public housing programmes —including actual construction of housing units, housing infrastructure and services and urban infrastructure and facilities— constitute a block of demand for the non-industrial or industrial products that are assembled during the construction phase of the production process. This block of demand, while small in comparison to total demand in terms of number of housing units and building volume in general, nevertheless has a strong impact because it functions as a model and because it is

concentrated, which gives it power vis-à-vis supply. This makes public housing programmes a complementary but highly effective tool for bringing about changes in the initial phases of the production process. This possibility links the proposed changes in the production base with the various ways of meeting housing needs in general.

The usual policy in the countries of the region has been to concentrate public funds on the construction of housing projects in new urban developments, generally on the perimeters of cities. Only rarely have government-initiated programmes considered the possibility of improving or expanding existing housing, either directly or through incentives. In general, initiatives of this sort have been limited to providing related services to residential areas, such as paving or street lights, and, more slowly in the outlying urban areas, to creating health, education and recreational facilities. Nor has concept of restoring and converting older run-down areas for housing, services, administration and light industry really caught on in the region.

The proposals relating to the formulation of housing programmes will point out all the advantages to be gained by supplementing new housing construction with initiatives for expanding, improving and restoring existing housing and will be based on census data, household surveys, existing reports¹³ and studies (Soza, 1986), and the information obtained in the course of the project (ECLAC, 1994b).

a) New housing

It will be advisable to resist the tendency to concentrate public resources solely on the construction of new housing and housing developments. The information already possessed by the authorities and institutions in charge of the sector and the studies to be carried out will show that the percentages of new housing and new developments that need to be built gradually to reduce the accumulated shortage will vary depending on income level. The percentage will be higher for low-income groups, lower for middle-income groups and approaching zero for high-income groups.

b) Expanded and improved housing

i) Advantages. The advantages of this course of action are obvious: living space can be increased and the quality of the housing improved at a lower cost; additions and improvements can be staggered to accord better with a family's ability to pay for them; the occupation density of urban land can be increased; it fosters a sense of belonging because families are not forced to break the ties they have established in their communities; it assuages the sense of frustration of those who have long been unable to improve their living conditions in the home they inhabit; and it helps to check the outward expansion of the city.

ii) Proposal. In view of the magnitude of the problems, the scarcity of resources to resolve them, the progress that can be made following this course of action and the social acceptability of the approach, the decision should be made to put it into effect, backed by a substantial and sustained appropriation of public funds.

iii) Institutional feasibility of the proposal. In order to come up with a proposal that will avoid management problems, consultations will be necessary with government agencies involved in housing on the feasibility of involving municipal governments in this approach. The assumption is that in most

municipalities, its success would depend on the availability of public resources of two kinds: financial and human, and the latter would have to be primarily professionals trained or who could be trained in the field. The financial resources would probably come from a rotating fund, supplemented periodically by government contributions and used to make indexed loans, so that the programmes could grow and expand. Professional human resources would be made available to the municipalities but would be answerable to both the municipal government and to the national, state or regional authority in order to provide them with a secure environment for implementing national housing policy and to establish a double system of oversight that would ensure their accountability for their actions.

c) Restoration of urban areas

i) Advantages. The restoration of run-down urban areas and the housing that already exists in such areas offers a wealth of possibilities for tackling housing problems, with great advantages in a number of directions. There is a better return on public appropriations, whether invested in government projects or used to back the projects of individuals, groups or companies. Living space is expanded, and the environment both inside and outside the housing is improved, along with the plumbing facilities and physical plant in general. The inhabitants are closer to work places, schools, services and shops, with the resulting savings in time and transportation costs and easing of urban traffic and communications problems. The approach encourages social integration and helps to arrest the literal, physical process of social marginality in cities. Finally, it slows the process whereby agricultural land near cities is swallowed up for housing.

ii) Proposal. For the same reasons expressed in support of the previous proposal, the restoration of run-down urban areas and of the housing and other facilities already existing there is to be recommended. This approach, in addition to helping to resolve housing problems per se, would encourage the revival of the older neighborhoods and often that of the newer developments, as well, thereby preventing excessive expansion fueled by the desire to move out of deteriorating areas.

iii) Institutional feasibility of the proposal. This third approach would require the active coordination, initiated by the government authorities, of the municipalities, demand groups,¹⁴ private development companies and banks or other financial institutions. It is likely that complex projects or projects aimed primarily at middle- or low-income buyers would have to be backed by public funds on a temporary or indexed basis, in order to cover the transition phase between the development and construction of the projects and their final sale. Such projects could be facilitated through the inclusion and sale of fixed assets owned by the Government, primarily land and buildings.

6. Coordination between Government and business

The project will not focus on the management aspects of implementing housing projects and programmes, but some reference to them will be necessary, because the approaches discussed above, particularly the restoration of urban areas that have deteriorated or were inadequately provided with infrastructure, facilities and services from the start, require coordination between all actors in the sector. The latter approach provides the opportunity to undertake programmes and projects that contribute to the revival of the city, which is housing in the broadest sense of the word. It represents a reaction to the ineffectiveness of isolated or spatially discontinuous subsectoral projects in repairing the damage caused by uncontrolled urban development. This situation, which must be confronted by the government housing

authority together with the other actors in the housing sector, makes modernization of the Government a prerequisite for overcoming inertia and taking back control of the urban structure.¹⁵ The housing sector institutions in a small, but flexible, dynamic and efficient State (Fajnzylber, 1990) can act as promoters of integrated housing programmes and projects, with sufficient territorial and subject coverage to reinforce physical planning, thereby making urban revival viable and forcing the course of new urban expansion back into channels that are healthier and more socially equitable.

Considerations of this nature will form part of the general housing policy framework to be borne in mind when the project proposals are developed. This is indispensable from the standpoint of methodology, because the component of housing policy related to production is inconceivable without an institutional context that allows for its implementation.

IV. THE WORK PROCESS

A. THE OUTPUTS TO BE ACHIEVED THROUGH PROJECT STUDIES

1. Output 1

CONTENT OF THE STUDY	AIM OF THE STUDY	AUTHOR
<p>1.1 <u>Current housing situation in Latin America and the Caribbean</u></p> <p><u>Current housing situation in each of the countries of the region</u></p>	<p>To up-date the diagnostic analysis on the regional level.</p> <p>To improve the diagnostic analysis on the regional level.</p>	<p>Project personnel (consultants and project expert)</p> <p>Professionals from the government agencies in charge of housing in the countries of the region</p>
1.2 Current shortage that can be filled with new, improved or restored housing units	To break down housing initiatives by type	Same
1.3 Projected construction needs as a result of deterioration and increase in the number of households by the years 2000 and 2020	To quantify the need as a basis for computing the investment that would be required to make up the entire shortfall	Same
1.4 Investment needed to make up the shortfall and to keep need and investment in balance	To assess the size of the financial challenge and the amount of economic activity that housing investment generates	Same
1.5 Analysis of the ratio between potential and effective demand and the factors that prevent the congruence of the two	To determine to what extent individual and family income levels prevent potential demand from becoming effective demand	Project expert for the regional study and professionals from the government agencies in charge of housing for the country studies
1.6 Review of successful regional experiments in mobilizing private resources and expanding effective demand	To compile data in support of the proposals for enabling the housing sector to help overcome the income obstacle and in addition to foster growth in production and service activities in the sector	Professionals from the government agencies in charge of housing in the countries of the region

Explanations

The document describing the general state of housing in the region will initially be prepared by the project personnel and will be distributed so that the countries can make revisions and additions.

On the basis of studies previously done by ECLAC, the project personnel will compile figures for investment on infrastructure and urban facilities so that the full extent of the economic activity generated by investment in the housing sector can be assessed.

2. Output 2

CONTENTS OF THE STUDY	AIM OF THE STUDY	AUTHOR
<p><u>2.1 Current state and proposals for the development of the industrial complex related to housing production in Latin America and the Caribbean</u></p> <p><u>The same for each of the six countries in the region</u></p>	<p>Starting from the current situation, to sketch the general outlines of a plan for improving the contribution the manufacturing subsector of construction makes to development in the countries of the region, especially to housing development.</p> <p>To appraise in detail the state of manufacturing related to housing production in at least six countries in the region.</p>	<p>ECLAC: Division of Production, Productivity and Management, with support from the project expert in matters specifically relating to housing</p> <p>Professionals from the government agencies in charge of the industrial sector, with support from national consultants financed by the project</p>
2.2 Coverage of basic and composite products	To uncover gaps in production that inhibit or limit the use of alternative construction systems	Same
2.3 Coverage of equipment, machinery, power tools and hand tools	To uncover gaps in production that inhibit or limit the use of higher- productivity methods in construction or make them too expensive	Same
2.4 Production of prefabricated (modular) components	To identify areas of production useful to corporate and individual construction activity	Same
2.5 Production of prefabricated components of concrete, steel and wood	To compile information useful for formulating proposals on technological advances	Same
2.6 Productivity	To assess the level of efficiency of the industrial complex and to formulate specific proposals for incorporating technical advances with a view to lowering costs, defending domestic markets and penetrating external markets	Same
2.7 Product design	To reinforce the benefits of greater productivity with higher product quality	Same
2.8 Import and export of inputs and products	To assess the balance of trade within the housing sector for the region as a whole and for the individual countries	Same
2.9 Geographical distribution of industrial production	To assess the relationship between industrial location policy and the geographical distribution of construction activity	Same
2.10 Market transparency	To come up with data that make it possible to identify monopolistic or oligopolistic situations	Same

Explanations

The document describing the state of the construction industry on the regional level, to be prepared under the auspices of the ECLAC Division of Production, Productivity and Management, will concentrate on the following industries:

- i) cement, steel, ceramics, lumber, roofing, flooring, doors and windows, hardware, glass, fixtures, faucets, pipes and ducts, machinery, power tools and hand tools;
- ii) prefabricated (modular) components; and
- iii) prefabricated components made of concrete, steel and wood.

On the country level, the study will extend beyond the above areas to include as much information as possible on:

- i) product coverage (as a factor limiting the use of better construction methods);
- ii) the productivity of industrial plants (as a means of increasing competitiveness in domestic and external markets);
- iii) the design quality of the products (do they meet the requirements of effectiveness, durability and adaptation to national and regional cultural patterns?);
- iv) import and export of industrial inputs and products (the sector's contribution to the balance of trade);
- v) the geographical distribution of industry (as an engine of deconcentration of economic activity and hence of population); and
- vi) the transparency of the market (as a means of ensuring that the introduction of technical advances translates into lower prices and hence helps to increase effective housing demand).

The project personnel will combine these studies, synthesize them with the studies on proposed changes in construction systems and put together a final document, which will be discussed on the national level at the initiative and under the direction of the government authority in charge of housing and adopted in final form at the regional seminar that will wrap up the project.

3. Output 3

CONTENT OF THE STUDY	AIM OF THE STUDY	AUTHOR
3.1 <u>Analysis of and proposed changes in at least twelve projects representative of what is being done in housing in the region, in six countries, two per country</u>	To come up with proposals that contribute directly to the economic, social and environmental objectives for changing production patterns in the housing sector, or to compile data on which to construct system-wide proposals aiming at the same goals	Professionals from the various countries who are working on the project and/or project personnel
3.2 Detailed analysis of the material cost structure of the projects (including the cost of land, design, land development, construction and marketing of housing units)	To identify areas in which further study is required	Same
3.3 Detailed analysis of the impact of financing costs on the phases of design, construction and marketing of housing units	To identify areas where the impact of financing on construction or development activities can be avoided or reduced	Same
3.4 Geographical destination of expenditure on the phases of design, construction and marketing of housing units	To compile facts to support a policy of deconcentrating the construction industry, its taxation and its benefits (which translates into income for individuals employed in the industry or in other economic activities associated with it)	Same
3.5 Social destination of expenditure on the phases of design, construction and marketing of housing units	To achieve a preliminary approximation of the degree to which various income groups (from the highest to the lowest) share in the income generated by investment in housing and to compile data that will aid in formulating proposals to improve income distribution	Same
3.6 Distribution of the income generated by investment in housing at various stages in the production process (this part of the study depends on access to the books of industrial firms)	To expand the understanding of the social allocation of income generated by investment in housing by identifying the cost structure of the most important materials, in order to come up with data that will aid in formulating proposals to improve income distribution in all stages of the housing production process	Same
3.7 Survey of how users evaluate housing units and surroundings	To assess the policies implicit in housing projects as reflected in their outcomes in order to come up with information relevant to the formulation of the component of housing policy related to production	Same

3.8 Proposals for changes —where appropriate, depending on the design of the project— involving the use of alternative construction systems or different combinations of materials in the various building elements and the simplification of or increase in building elements	To give precise form and content to the findings, to facilitate their discussion and transmission, and to come up with data of use in formulating the strategy associated with the component of housing policy related to production	Same
3.9 Calculation of the reduction in direct and final cost of the housing units that the proposed changes would produce	To justify and assess the feasibility of the proposals	Same
3.10 Inventory of the improvements in physical quality (strength, durability, permeability, thermal and acoustic insulation) that the proposed changes would produce	To justify the proposals by relating the cost and quality factors of the proposals	Same
3.11 Inventory of the improvement in the quality of the interior environment of the housing units (lighting, natural light, ventilation, appearance) that the proposed changes would produce	To justify the proposals by relating the cost and quality factors of the proposal	Same
3.12 Inventory of the advantages in terms of the quantity and quality of jobs the proposed changes would produce	To support the adoption of the proposals	Same
3.13 Comparison between the demand the proposed changes would produce and industrial output	To assess the feasibility of the proposals from the standpoint of industrial output and hence to provide background data for the proposals relating to expansion of the industrial complex	Same
3.14 Graphic illustration of projects and proposals	To facilitate evaluation of the proposals by users of the study	Same
3.15 Explanation of the structural aspects of the project: function of the public sector or of development companies, cooperatives or other demand groups	To evaluate the advantages of the various ways of structuring housing projects, primarily with respect to cost, quality, sale price and the impact of the cost of money on total cost	Same
3.16 Supporting bibliography (as brief as possible)	To support what has been said, facilitate review and help the reader to explore the issues further.	Same

Explanations

At least twelve projects will be analyzed that are representative of what is being done in the region in terms of housing in six or more countries, if possible. The cases selected will be housing projects or projects to build facilities for health, education and recreation. The projects must be aimed at low- or middle-income population groups. The cases selected should involve a variety of technologies, both for any given country and for the six countries as a whole. The technologies represented should include concrete, ceramics and wood or other plant materials.

To broaden the sample, the project will seek the cooperation of additional countries and will use the results of previous similar studies in which ECLAC or the United Nations Centre for Human Settlements (UNCHS-Habitat) has participated.

The following will be studied and described in a working paper:

- i) detailed cost structure of each project through the final sale of the housing units, including financing costs at each stage of the production process;
- ii) analysis of the quality of the physical structure, sanitary facilities and environment created;
- iii) how acceptable the product is to the user;
- iv) what the projects contribute to the surrounding urban environment;
- v) proposals for upgrading combinations of materials within the same construction system;
- vi) where appropriate, proposals for using alternative construction systems in the project under analysis; and
- vii) rationale for the proposed changes, including an estimate of the benefits.

To the extent that the authors of the case studies are able to obtain information on the cost structure involved in the production of materials, tools, machinery and equipment, the working paper should also include an analysis of the initial phases of the housing production process and the activities related to them. If such information cannot be obtained or is incomplete, the authors will have to refer to prior studies done by ECLAC or UNCHS.

The authors of these studies should bear in mind that the purpose of analyzing projects representative of what is being done in the region in the area of housing is to identify changes that might promote the economic, social and environmental objectives of the project. In other words, the analysts will need to use their skills and technical experience to broaden the scope of their inquiry beyond the variables strictly applicable to the technical aspect of construction and to consider, for example:

- i) the number and quality of the jobs created and resulting wages earned;
- ii) the material and financial costs of each of the elements of the construction of the housing units and development;
- iii) the physical and environmental qualities of what is built;
- iv) the expense of living in the housing units, particularly for cooling or heating interiors and heating water for domestic use; and
- v) the social and geographical destination of expenditure on housing construction.

In the case studies where energy considerations can be included, the issue of appropriate architectural design will be approached from the standpoint of two different climates (geographical areas of predominantly high or low temperatures), and a cost-benefit analysis will be done on the replacing conventional energy sources for heating or cooling interiors and heating water with alternative sources that are expected to be better if industrial production can be expanded to provide the requisite materials and equipment. Work on this topic will be supported by specific studies done by specialists in the various countries and by project personnel.

4. Output 4

CONTENT OF THE STUDY	AIM OF THE STUDY	AUTHOR
4.1 <u>Presentation of a sequence of changes applicable to a building system</u>	To demonstrate that specific technical methods can help to achieve the goals that form the basis of the project	Professionals in the various countries, especially in universities, research institutes or non-governmental organizations, and/or project personnel
4.2 Graphic presentation and analysis of the economic, social and environmental consequences of a housing model built using the conventional mixed system prevalent in the region (brick masonry strengthened by reinforced concrete elements) using manual labour equipped with the basic tools	To document the standard against which potential progress can be measured	Same
4.3 Comparative matrix of the progress achievable by changing the combination of materials used in the conventional mixed building system and using manual labour equipped with power tools	To measure the progress achievable by the simplest means	Same
4.4 Comparative matrix of the progress achievable by incorporating prefabricated parts and components into the conventional mixed building system and using a combination of manual and mechanized labour	To measure the progress that could be achieved by taking the first step towards industrialization of construction	Same
4.5 Comparative matrix of the progress achievable by replacing the conventional mixed building system with a prefabricated concrete system using mechanized labour	To measure the progress achievable through the highest possible degree of industrialization of construction	Same
4.6 Listing and description of other sequences of changes applicable to construction systems based on wood, ceramics and steel	To extend to other construction systems the changes applicable to housing production	Same
4.7 Formulation and rationale of the policy regarding sequences of possible changes	To create an important input for the general design of the component of housing policy related to production	Same

Explanations

This output will be achieved in part with the help of the Interamerican Housing Technology Network (HABITEC), which will be instituted by the housing construction technology project to be carried out by the countries with the support of ECLAC.

HABITEC will provide the authors of the study with duly evaluated and documented information on the technologies available within the region, and also outside the region in the most highly developed countries, on the use of prefabricated components in the construction of high-density and mid-height to high-rise housing projects.

5. Output 5

The fifth and last output of the project will be the formulation of a proposal for the production component of a new housing policy and a strategy designed to extend its scope of application to the industrial base of the sector and to public, private or corporate initiatives in the area of housing, including the marketing of housing units.

The goal of this output will be in keeping with the objectives of development in general and of the project in particular, namely, to collaborate in carrying out an overall strategy for changing production patterns with social equity in the countries of the region and to formulate specific proposals for defining and implementing changes in the production patterns of the housing sector.

B. THE AUTHORS OF THE PROJECT STUDIES

1. National institutions

It is hoped that the project will have the collaboration of professionals from public, private and university institutions concerned with housing under the leadership of the government authority responsible for the sector and with the support of the project expert.

For the sake of continuity and to benefit from the progress already made in other projects on housing carried out by ECLAC or UNCHS, the project will seek to involve some municipalities in the studies to be done at the local level, especially in connection with the management of housing restoration projects and with alternative regional technologies and their match-up with pre-industrial or industrial production of construction materials.

It is of critical importance for the project that it arouse the interest and procure the cooperation of research institutes on housing issues. It is hoped that research institutes will contribute research and proposals previously developed, allow access to data and literature and carry out new studies agreed upon as part of the project.

The studies that are selected for discussion at the subregional workshops or seminars shall be written up as papers to be presented by their authors. The project will provide them with travel and per diem expenses.

These studies should be discussed at the national level and approved by the government housing authority and the project expert before being presented at the workshops or seminars.

2. Project personnel

The project personnel will comprise:

- i) the project expert, who will be responsible for coordinating the project, supporting the professionals from the various countries and synthesizing the studies into the final documents that are to emerge from the project;

- ii) international consultants to fill in where national professionals are unavailable to perform studies and formulate proposals concerning the countries' industrial complexes;
- iii) national consultants to work on studies or proposals that cannot be undertaken by professionals from national institutions; and
- iv) substantive and administrative support personnel from ECLAC.

The project consultants will produce papers in final form, so that the responsibility of the project expert in that regard will involve only the original agreements, periodic reviews and final approval. Consultants will be paid for work fully and satisfactorily completed and not for time spent.

The appropriate ECLAC units will provide support for the project by editing, reproducing and distributing the documents that are to be given wide circulation.

C. MEETINGS ON THE SUBREGIONAL AND REGIONAL LEVELS

1. Subregional seminars

a) General information

In four subregional seminars lasting three days each, the studies presented by the authors will be explained and discussed and agreement will be reached on how to proceed with them in terms of their content, the direction they should take and the schedule that will allow time for them to be synthesized into the final documents to be prepared by the project personnel.

The final documents synthesizing the studies will cite the names of the authors of each of these studies.

Preliminary workshops will be held in the countries at participating institutions to disseminate more fully the ideas and purposes of the project and to initiate the studies to be presented later in the subregional seminars; these seminars will be held under the direction of the coordinator designated by the top-level housing authority with the support of the project expert.

It is planned that subregional seminars will be held in Lima (November 1994), Belo Horizonte (December 1994), Port of Spain (March 1995) and Mexico City (May 1995), in the latter two cities at the respective ECLAC subregional headquarters.

The topics and structure of the studies to be presented at the subregional seminars will be agreed upon between the national coordinator designated by the top-level housing authority in each country and the project expert on the basis of the proposed topics and functions set forth below.

Agreement will be reached with participating institutions on the financing of the travel and lodging expenses of the authors of the project studies.

b) Proposed topics for the subregional seminarsi) Seminar in Lima

ECLAC	
	Document on the present state of housing in Latin America and the Caribbean; quantitative and qualitative shortfall, financial investment required to make up the shortfall in 25 years and potential demand versus effective demand
	The present document
BRAZIL	
	Paper on the present state of housing in the State of Belo Horizonte; quantitative and qualitative shortfall, financial investment required to make up the shortfall within a reasonable period and potential demand versus effective demand
	Paper (Step 1) analyzing and recommending design models suitable for Brazil and similar climates from the standpoint of energy and evaluating alternative sources of energy for homes or work places
CHILE	
	Paper on the present state of housing in Chile; quantitative and qualitative shortfall, financial investment required to make up the shortfall within a reasonable period and potential demand versus effective demand
	Paper on how housing is financed; housing solutions, utilities and services for the home and the neighbourhood and urban development
PERU	
	Paper on the present state of housing in Peru; quantitative and qualitative shortfall, financial investment required to make up the shortfall within a reasonable period and potential demand versus effective demand
	Production and building methods, paper on the present state of construction-related industry; <u>coverage</u> (as a factor limiting the use of better construction methods); <u>productivity</u> (as a means of increasing competitiveness in domestic and external markets and of raising quality and wages); <u>improving the design and quality</u> of products (for effectiveness, durability and adaptation to national and regional cultural patterns); <u>import and export</u> of industrial inputs and outputs (how they contribute to the sector's balance of trade); <u>geographical distribution</u> of industry (how it can contribute to the deconcentration of economic activities and hence of population); and <u>market transparency</u> (as a means of ensuring that the incorporation of technical advances translates into lower prices, thereby contributing to an increase in effective demand for housing)
OTHER COUNTRIES	
	The same topics or others, depending on what each of the countries in the region may be interested in presenting or exploring with support from the project

ii) Seminar in Belo Horizonte

ECLAC	
	Document describing the progress made at this point in the project and outlining the topics to be examined, the rationale for them and the proposed timetable
	Paper presenting an analysis of a representative example of low-cost housing initiatives in Chile
BRAZIL	
	Paper presenting an analysis of a representative example of low-cost public and private housing initiatives in the State of Minas Gerais
	Paper (Step 2) complementing the paper on alternative sources of energy for homes and work places by addressing the issue from the standpoint of industrial production of equipment and inputs; what equipment and inputs are available or lacking, costs and prices, standards for production and use.
CHILE	
	Production and building methods, paper on the present state of construction-related industry; <u>coverage</u> (as a factor limiting the use of better construction methods); <u>productivity</u> (as a means of increasing competitiveness in domestic and external markets and of raising quality and wages); <u>improving the design and quality</u> of products (for effectiveness, durability and adaptation to national and regional cultural patterns); <u>import and export</u> of industrial inputs and outputs (how they contribute to the sector's balance of trade); <u>geographical distribution</u> of industry (how it can contribute to the deconcentration of economic activities and hence of population); and <u>market transparency</u> (as a means of ensuring that the incorporation of technical advances translates into lower prices, thereby contributing to an increase in effective demand for housing)
	Government initiatives in housing and urban development; paper setting forth the vision and current plans of the Ministry of Housing and Urban Development (MINVU); will contribute to output 5.
PERU	
	Paper presenting an analysis of a representative example of low-cost public and private housing initiatives in Peru
	Paper assessing the economic, social and environmental progress that can be achieved by changing the combination of materials used in the conventional mixed construction system, using manual labour equipped with power tools; will contribute to output 4.
OTHER COUNTRIES	
	The same topics or others, depending on what each of the countries in the region may be interested in discussing or exploring with support from the project

iii) Seminar in Port of Spain

ECLAC	
	Document describing the progress made at this point in the project and outlining the topics to be examined, the rationale for them and the proposed timetable
	Production and building methods, paper on the present state of construction-related industry; <u>coverage</u> (as a factor limiting the use of better construction methods); <u>productivity</u> (as a means of increasing competitiveness in domestic and external markets and of raising quality and wages); <u>improving the design and quality</u> of products (for effectiveness, durability and adaptation to national and regional cultural patterns); <u>import and export</u> of industrial inputs and outputs (how they contribute to the sector's balance of trade); <u>geographical distribution</u> of industry (how it can contribute to the deconcentration of economic activities and hence of population); and <u>market transparency</u> (as a means of ensuring that the incorporation of technical advances translates into lower prices, thereby contributing to an increase in effective demand for housing)
BRAZIL	
	Paper (Step 3) presenting a cost-benefit analysis of the combined introduction of new design models and alternative energy sources for homes and work places
CHILE	
	Nature of urban policy, coordination between the State, private enterprise and national, regional and municipal governments
EL SALVADOR	
	Paper on the present state of housing in El Salvador; quantitative and qualitative shortfall, financial investment required to make up the shortfall within a reasonable period and potential demand versus effective demand
	Production and building methods, paper on the present state of construction-related industry; <u>coverage</u> (as a factor limiting the use of better construction methods); <u>productivity</u> (as a means of increasing competitiveness in domestic and external markets and of raising quality and wages); <u>improving the design and quality</u> of products (for effectiveness, durability and adaptation to national and regional cultural patterns); <u>import and export</u> of industrial inputs and outputs (how they contribute to the sector's balance of trade); <u>geographical distribution</u> of industry (how it can contribute to the deconcentration of economic activities and hence of population); and <u>market transparency</u> (as a means of ensuring that the incorporation of technical advances translates into lower prices, thereby contributing to an increase in effective demand for housing)
JAMAICA	
	Paper on the present state of housing in Jamaica; quantitative and qualitative shortfall, financial investment required to make up the shortfall within a reasonable period and potential demand versus effective demand
	Production and building methods, paper on the present state of construction-related industry; <u>coverage</u> (as a factor limiting the use of better construction methods); <u>productivity</u> (as a means of increasing competitiveness in domestic and external markets and of raising quality and wages); <u>improving the design and quality</u> of products (for effectiveness, durability and adaptation to national and regional cultural patterns); <u>import and export</u> of industrial inputs and outputs (how they contribute to the sector's balance of trade); <u>geographical distribution</u> of industry (how it can contribute to the deconcentration of economic activities and hence of population); and <u>market transparency</u> (as a means of ensuring that the incorporation of technical advances translates into lower prices, thereby contributing to an increase in effective demand for housing)

MEXICO	
	Paper on the present state of housing in Mexico; quantitative and qualitative shortfall, financial investment required to make up the shortfall within a reasonable period and potential demand versus effective demand
	Production and building methods, paper on the present state of construction-related industry; <u>coverage</u> (as a factor limiting the use of better construction methods); <u>productivity</u> (as a means of increasing competitiveness in domestic and external markets and of raising quality and wages); <u>improving the design and quality</u> of products (for effectiveness, durability and adaptation to national and regional cultural patterns); <u>import and export</u> of industrial inputs and outputs (how they contribute to the sector's balance of trade); <u>geographical distribution</u> of industry (how it can contribute to the deconcentration of economic activities and hence of population); and <u>market transparency</u> (as a means of ensuring that the incorporation of technical advances translates into lower prices, thereby contributing to an increase in effective demand for housing)
PERU	
	Nature of urban policy, coordination between the State, private enterprise and national, regional and municipal governments
OTHER COUNTRIES	
	The same topics or others, depending on what each of the countries in the region may be interested in discussing or exploring with support from the project

iv) Seminar in Mexico City

ECLAC	
	Document describing the progress made at this point in the project and outlining the topics to be examined, the rationale for them and the proposed timetable
ARGENTINA	
	Paper assessing the replacement of conventional systems with prefabricated concrete blocks in housing construction in all cost brackets and determining what conditions would make the technological changeover feasible
BRAZIL	
	Nature of urban policy, coordination between the State, private enterprise and national, regional and municipal governments
CHILE	
	Paper (Step 3 for climates with cold seasons) presenting a cost-benefit analysis of the combined introduction of new design models and alternative energy sources for homes and work places
EL SALVADOR	
	Paper presenting an analysis of a representative example of low-cost public and private housing initiatives in El Salvador
JAMAICA	
	Nature of urban policy, coordination between the State, private enterprise and national, regional and municipal governments
MEXICO	
	Housing and urban development initiatives; document explaining the vision and current plans of the Government of Mexico; will contribute to output 5.
PERU	
	Housing and urban development initiatives; document explaining the vision and current plans of the Government of Peru; will contribute to output 5.
OTHER COUNTRIES	
	The same topics or others, depending on what each of the countries in the region may be interested in presenting or exploring with support from the project

2. Regional seminar

1. The regional seminar will be held at ECLAC headquarters in Santiago and will be attended by the national project coordinators and the authors of the studies presented at the subregional seminars.
2. The national project coordinators, or the authors of the papers corresponding to outputs 1, 2, 3 and 4, will present the key points of their studies, in particular their proposals and the rationale for them.
3. The purpose of the seminar is to assess the results obtained and to decide on the production component of housing policy that the project will propose to Governments of the region as part of a general housing policy, together with the basic outlines of a strategy for putting it into effect.

Notes

¹ The goals, anticipated outputs and organization of the project are summarized in annex 1 of this document.

² In its broadest sense, the term "housing" as used in this project embraces not only housing units, but also their surroundings and the city (or population centre of any size) in which they are located.

³ This concept is gaining increasingly wide acceptance. Referring to the serious shortages negatively affecting human welfare in all regions of the world, an ECLAC document states: "The reports from each region clearly show that without high quality, environmentally sustainable economic growth, whose benefits can be transmitted to all social sectors, it is impossible to solve the problems mentioned" (malnutrition, famine, unemployment, health, education, perennial armed conflicts and civil strife). "This kind of growth depends on the achievement of more favourable conditions for international trade and the absorption of technological progress by developing economies." It goes on to say: "However, the kind of economic growth that is actually taking place in the economies that are recovering and even attaining acceptable or high levels of expansion does not necessarily resolve the problem of social inequalities and exclusions; thus the need to simultaneously seek economic growth and more social equity." (ECLAC, 1994a, paragraphs 10 and 11).

⁴ In the papers presenting the results of the project studies, it will be important to indicate the real causes of the problems facing the government agencies in charge of the housing sector.

⁵ The general population increase has to be factored into the analysis, because its rate of increase has been and will continue to be, for the next 10 years at least, lower than the rate of increase in the number of families, which tends to run counter to this hypothesis.

⁶ With regard to the role played by housing project planners in the design phase, two points should be mentioned that have a bearing on the essence of the project. The first point is that in building design the choice of building materials in general and of the materials for each phase of production specifically is influenced by the message, usually self-interested, being given out by manufacturers or firms marketing imported products. The second point is that designing is a decision-making process that works either for or against the technological policy the Government wishes to encourage, and that it is the planner who ultimately forms the link between supply and demand. These facts tend to support the need for a policy that —among other things— extends beyond standards and seeks to influence design both in the public and private spheres. The implementation of such a policy in public projects or government-initiated projects is essential because of their demonstration effect, which can influence individuals and development firms in the private sector and thereby achieve a multiple impact.

⁷ It would not be practical to develop a system for evaluating only the component of housing projects relating to production, separate from the other elements of housing policy; it would be a source of confusion and delay to evaluate the various factors separately. Therefore, the project will make use of known procedures for evaluating projects and add to them the component relating to production.

⁸ Complexities of this kind will mean that the project will have to indicate the factors that condition the feasibility of its proposals. It is not possible, for example, for two or more industries located in different countries to agree to integrate inputs among themselves if up to that point no solid trade agreements exist.

⁹ One promising way of identifying potential products for export is to seek the input of the manufacturing firms themselves, since they will be able to dig deeper and go into more detail than a consultant working alone.

¹⁰ The project is functional with respect to the strategy that ECLAC will propose to the countries of the region as a way of improving and accelerating their development. The core of the proposal involves increasing productivity, both to increase competitiveness in order to protect domestic markets

and win export markets and to achieve greater social equity. It should be borne in mind that the project will represent the combined efforts of ECLAC and the countries to bring the housing sector, especially in its production aspects, into line with their overall strategy. Hence the importance of the segment represented by construction methods.

¹¹ It should be borne in mind that large effects can result from the sum of many small effects. Similar effects, some larger, some smaller, can be achieved in all phases of the housing production process, as will be seen in other sections of this document.

¹² In the region, for example, there are or have been banks specializing in home financing and savings and loan arrangements for home purchase with the support and supervision of the Government, in which their depositors have a say in how they are run.

¹³ This has been the case in Bolivia and Colombia.

¹⁴ Demand groups usually result from initiatives instituted by the Government, by companies who provide their employees with housing or help them to obtain it, or by cooperatives, communities or other associations, including home savings and loan institutions.

¹⁵ It is no secret that physical planning instruments (master plans, zoning plans, and the standards associated with the plans) have been very ineffective in the region and that their rigidity has aroused the resistance of actors in the housing sector. They are passive tools that wait for construction proposals to come in for approval, acceptance or modification, but in themselves lack the thrust to move the city in the desired direction. From the 1940s through the 1960s, urban growth surged and overwhelmed sensible urban planning, creating the excesses that afflict most of the big cities today and often even the small and medium-sized. Apart from a few notable successes, the situation arose because government institutions abandoned their responsibility for guiding urban development, a function that in most countries was not adequately picked up by the municipalities. This state of affairs has deteriorated as the gap left by the Government has been filled by the market without a counterbalance to protect the overall long-term interests of urban communities.

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Annex 1

PROJECT SUMMARY - "INTERAMERICAN HOUSING TECHNOLOGY NETWORK
(HABITEC)"

ECLAC

ENVIRONMENT AND HUMAN SETTLEMENTS DIVISION
JOINT ECLAC/UNCHS UNIT ON HUMAN SETTLEMENTSINTERAMERICAN HOUSING TECHNOLOGY NETWORK (HABITEC)Summary of Project Document

1. **Background:** This project was developed in response to the recommendations made by the United Nations Commission on Human Settlements at its twelfth and thirteenth sessions and the ratification of those recommendations by the second Regional Meeting of Ministers and High-Level Authorities of the Housing and Urban Development Sector in Latin America and the Caribbean held in Cartagena de Indias, Colombia, from 29 November to 2 December 1993. On these three occasions, technological development and other practical advances in production processes were recognized as basic instruments for improving access to housing, particularly for low- and middle-income families. At the twelfth session of the Commission on Human Settlements, the countries unanimously approved resolution 12/13 recommending the creation of a mechanism (now known as "HABITEC") for transferring technologies, both simple and advanced, applicable to housing construction and other human settlement needs and offering advantages over conventional methods.
2. **Justification:** It is recognized that the housing construction methods traditionally used in the region are limited in variety and often out of date, resulting in higher costs and lower quality than necessary, and are frequently ill-adapted to local cultural patterns and local and regional climate and geography. The technological lag, through its negative effect on costs, becomes an obstacle to the expansion of effective housing demand, and that in turn stunts the economic growth that housing investment could generate. Or, to look at the situation from the positive side, the incorporation of technical advances, since it would necessarily entail greater specialization of labour, would mean that those employed in the sector would be earning higher wages, and their larger income would have a positive impact on the variables that determine the size of effective housing demand. The present project, in keeping with the functions the countries assigned to ECLAC and the United Nations Centre for Human Settlements (UNCHS-Habitat), has been developed as part of the effort to link the various sectors (economic, social and mixed) to the countries' overall development. Hence the need to approach and execute it from a broader standpoint than the strictly technical and to link it to another that deals with changing all aspects of the housing

production process, from the extraction of raw materials for the construction materials industry to the phases of marketing and financing housing projects.

3. **Description of the project:** By resolution of the second meeting at the ministerial level mentioned above, responsibility for executing the project will be shared by the Governments of Peru and Argentina and by ECLAC in the capacity of technical secretariat. It will comprise five modules, two to be set up within the government administration of Peru, two within the government administration in Argentina and another at ECLAC regional headquarters in Santiago, Chile. The Peruvian modules will handle simple (labour-intensive) technologies and the Argentine modules will handle advanced (highly capital-intensive) technologies. The fifth module, to be set up at ECLAC headquarters, will be responsible for coordinating the project and distributing and promoting the use of recommended technologies.
4. **Project objectives:** The development objective of the project is to improve quality of life, especially for middle- to low-income families. The immediate objective of the project is to compile, assess and document technologies, make them accessible to users, promote them and provide technical assistance in applying them.
5. **Project methodology:** The modules in Lima and Buenos Aires will be supported by government institutions from five subregions to be defined, which will do the work of compiling and documenting the technologies considered successful and doing a preliminary assessment on them. The Peruvian and Argentine modules will put the findings in proper form for transmittal and will communicate them as they are readied to the module at ECLAC headquarters for distribution.
6. **Programme of work:** ECLAC will provide support for two years to get the HABITEC mechanism up and running. The programme of work for the project will be agreed upon with the countries, once the Governments of Argentina and Peru have formalized their commitments to participate.
7. **Budget:** The project will be funded by ECLAC resources and the donations of interested Governments who decide to contribute.

PROJECT SUMMARY - "PROPOSALS FOR CHANGING PRODUCTION PATTERNS IN THE HOUSING SECTOR IN LATIN AMERICA AND THE CARIBBEAN"

ECLAC

DIVISION OF ENVIRONMENT AND HUMAN SETTLEMENTS
JOINT ECLAC/UNCHS UNIT ON HUMAN SETTLEMENTS

PROPOSALS FOR CHANGING PRODUCTION PATTERNS
IN THE HOUSING SECTOR IN LATIN AMERICA AND THE CARIBBEAN

Summary of the Project Document

1. **Background:** This project has been undertaken by ECLAC in its dual capacity as an organization responsible for assisting countries of the region with general and sectoral proposals for development and as technical secretariat for the Regional Meetings of Ministers and High-Level Authorities of the Housing and Urban Development Sector in Latin America and the Caribbean held from time to time, the first in Santiago, Chile, in March 1992 and the second in Cartagena de Indias, Colombia, in November/December 1993. In those meetings, the countries pointed out the problems they were encountering in dealing with the serious backlog of housing and urban development problems carried over from past decades and continuing to worsen, especially for low- and middle-income groups. The aim of this project is to develop proposals that will contribute to the gradual but steady resolution of these problems.
2. **Justification:** It is recognized that the problems confronting the housing sector in the region are primarily the result of economic growth that has outpaced social development, and hence that the problems can only be solved in an environment of steadier economic growth accompanied by greater social equity. Based on successful experiences within the region and elsewhere, ECLAC proposed to the countries a strategy of "changing production patterns with social equity" to achieve just this kind of development. The strategy is being applied, with adaptations to their specific situations, by most of the countries of the region, and some of them have seen distinctly promising results, including considerable evidence of revitalization in the housing sector. To achieve concrete results, the strategy needs to be adapted and applied to each and every sector, whether purely economic or social or a mixture of the two (as is the case with housing) and for fine-tuning it requires feedback from the countries in terms of their sector-by-sector experience and ideas. These two facts —the housing problem, given the will of the countries to overcome it, and the urgent need to devise a way to solve these and other problems— are at the heart of this project.
3. **Project description:** The project is an undertaking of regional scope to be carried out by ECLAC in concert with an active core of six countries of the region. The purpose is to propose and help to bring about changes in production processes before, during and even after the construction of housing projects, including infrastructure and facilities for urban, community and residential utilities and services. With the help of these countries, the project will produce five outputs. It will provide an overview of the housing situation in terms of housing shortages, investment needed to overcome them, and the ratio

between potential and effective demand; it will assess the status and come up with proposals for the expansion or improvement of the industrial complex that produces inputs for housing construction; it will analyze the economic, social and environmental aspects of the construction systems currently in use by studying projects that are representative of what is being done in the region in terms of housing, for the purpose of suggesting changes that would increase the sector's contribution to development; it will assess the possible ways of achieving technological progress, from simply changing the combination of materials and construction systems used to incorporating highly streamlined, high-productivity technologies, with the same purpose as the previous output; and, finally, based on the above outputs, achieved through research done under the auspices of the project, and with the benefit of the countries' own experiences, it will propose a general version of the component of housing policy related to production, together with a strategy for facilitating its application by the financial institutions, manufacturers, construction companies and developers involved in housing.

During the course of the project and beyond it, ECLAC will assist countries interested in changing housing production patterns to obtain access to technical and financial assistance programmes that will assist them in putting their decision into effect.

4. Project objectives: The development objective of the project is to help to put into effect the overall strategy for changing production patterns in the countries of the region in the direction of environmental sustainability and greater social equity. Its immediate objective is to formulate specific proposals for identifying and implementing desirable changes in housing production patterns.

The aim of the proposed changes in production processes is to achieve the following effects:

- i) to raise the income level of individuals employed in the sector by increasing productivity and distributing the benefits of housing investment more equitably;
- ii) to reduce the material and financial costs of housing units and other structures related to housing;
- iii) to raise the quality of housing and its surroundings;
- iv) to make the supply of construction materials more competitive and complete so that producers can defend domestic markets and penetrate external markets; and
- v) to promote a healthier and pleasanter urban environment and to avoid the misuse of natural resources in housing production.

These effects in combination, particularly the effects on income and costs, should also help to expand effective demand for housing, thereby revitalizing the sector and the economy in general.

5. Project methodology: It is anticipated that governmental, university and business institutions will contribute to the project studies. The mechanics of the project will include local and subregional workshops and a regional wrap-up seminar. In general, the first stage of the project will consist of studies written up as papers to be presented by their authors at workshops. The project personnel will execute and document selected studies and assume responsibility for studies that cannot be done by professionals in the countries. The project expert, in addition to coordinating the work, will put together the final documents setting forth the project findings. They will be distributed widely in the hope that they will not only be put to use by government agencies but will have an impact on the activities of both public and private sector professionals concerned with housing issues, on professional training, on those involved in industrial supply for construction and real estate development and on housing demand groups.

6. **Programme of work:** The project will take two and one-half years. The programme of work to be completed by professionals in the various countries will be agreed upon with the respective housing authorities and institutions interested in collaborating on the project.
7. **Budget:** Each participating country will provide the inputs required out of its own resources, with the support, when absolutely necessary, of the resources contributed by ECLAC under the project budget.