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STATE OF THE ART REPORT:
METHODS FOR ANALYZING AND PROMOTING EMPLOYMENT IN LOW-COST
HOUSING IN DEVELOPING COUNTRIES

Report G-5

by

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Introduction

Since the literature and practice of employment promotion with low-cost housing was surveyed by the writer in 1978, this report is primarily an update of that work, Housing and Building Technology in Developing Countries, (East Lansing: MSU International Business and Economic Studies, 1978; pp. xix, 243). Both the collection of data and its presentation here reflect that wellknown dilemma: breadth versus depth. A special effort was made to learn of work in progress in the four countries other than the United States that have given this issue the most attention: Britain, France, the Netherlands, and the Federal Republic of Germany. The principal institutions were visited during the period mid-April to mid-June, 1981. This report will present the results as found chronologically, beginning with work in a fifth center, Geneva, Switzerland.

Geneva

The two organizations in Geneva most concerned with housing and employment abroad are the Committee on Housing, Building, and Planning of the United Nations Economic Commission for Europe (ECE) and the World Employment Program of the International Labor Office (ILO). According to F. Raes at the ECE no further research and meetings have been held on cost analysis and labor intensity. The Working Party on Building recently worked on harmonization of regulations in order to standardize products and components. Of interest was a Seminar on the Forecasting and Programming of Housing held March 30-April 3, 1981 in Madrid. A set of preliminary papers for this meeting was obtained. The finished summary report by Mr. M. Lukanen of Finland was due in late 1981. According to Mr. Raes, the best European laboratory for comparing the effectiveness of alternative housing policies is the Netherlands.

At the ILO the following were interviewed: Antoinette Beguin, Ajit Bhalla, Felix Paukert, Jean Movly, Jacques Gaude, S. Sethuraman, G. Edmonds, Chris Baron, Moise Allal, and Sasumu Watanabe. Housing is included as a "Basic Need" in a number of ILO reports, but the assessments of its availability have not recently explored the conditions of its production. Victor Tokman of the ILO's Santiago, Chile, branch (PREALC) has a general study of the employment implications of investment under way. Since 1974 ILO studies of construction employment have stressed such non-housing projects as roads. In these studies, the role of materials-making and small contractors has sometimes been included. Of more interest are S.V. Sethuraman's studies of the informal sector. Activities in this sector are carried out to a large extent by single individuals. The extent of which such enterprises operate out of dwellings is Jakarata 46%, Lagos 61%, and Kano 67%. The implications

with respect to housing have not been pursued at the ILO. Useful technical papers on the informal sector by David Todd and on housing by Chambo Kawonga are part of an ILO report on Zambia, Basic Needs in an Economy under Pressure (Addis Ababa: Nov. 1980).

France

In Paris information was obtained from the Organization for Economic Cooperation and Development (OECD) and four more or less government-sponsored agencies. The field of housing and urbanization in developing countries is perceived as one of rapidly growing importance; and apprehension prevails that without greatly strengthened research, French experts may be excluded from international influence. Previous efforts are believed to have given too much stress to developing markets for French products, especially pre-fabrication systems. The firms who benefited will nevertheless continue to be an important constituency for international housing/urbanization agencies.

On June 1 - 3, 1981, a meeting on "Recherche Française et Habitat du Tiers Monde" (French Third World Housing Research) was held at the International Conference Center, Paris. Twenty-six papers were presented and discussed by some fifty participants. The meeting was sponsored by the Ministries or Secretariats of Construction, Environment (Housing etc.), and Research. Practicing builders, architects, and technicians were invited so that the relevance of research to their problems might be tested. Another objective was to "situera la France dans l'évolution des échanges internationaux de bâtiment."

The first session reviewed French policies toward research and experiments abroad, surveyed the rising housing demand in developing countries, and

stressed the need for low-cost housing. Next came a session on building materials -- especially earth, clay, stone, and gypsum. The third session dealt with the role of international trade, contracting, finance, and foreign aid for LDC housing and construction. Fourth came a session on the way settlements were adapted to local needs in the Maghreb, the Sahel, Sub-Saharan Africa, and in large Southeast Asian cities. Roads, sanitation, and water were the subject of the fifth session. The last session dealt with innovations such as glass fibers, prefabricated basic cores, and ways of using solar energy including one for refrigeration. Employment generation was not stressed separately.

Several of the participants were among those with whom the writer had previously arranged appointments through Hugues de Fraisse and Jean de Pins at the Intergovernmental Documentation Center on Housing (CIDHEC). At the Centre Scientifique et Technique du Bâtiment (CSTB), René Urien, Chef du Service Économie, said little had gone on internationally but that more was planned. For Senegal the use of local materials was to be studied. A complete housing market study, supply and demand, had been requested by Venezuela. An engineer would study the potential of earth blocks for Morocco. However, life cycle cost analysis of industrial buildings and study of energy requirements in France were the main work of Urien's branch. The best housing model, he said, was that of M. Lerouge of the Bureau Central d'Etudes d'Outremèr. There is also a Groupe de Recherche et Etude de Technologie Appropriée (GRET) affiliated with the Institut d'Urbanisme of the University of Paris VIII. They concentrate on Africa and Madagascar.

Technological work for overseas building was mainly the province of the Centre Experimental de Recherches et d'Etudes du Bâtiment et des Travaux Publics (CEBTP). Marc Colombard, an economist, was interviewed in Paris and

M. Mayer in the laboratories at St. Rémy en Chevreuse. This semiautonomous agency operates or supports laboratories abroad in countries that were once French colonies. It has developed a road manual for Africa, studied soil mechanics, guided building codes, investigated climate and wind effects, and created uses for stabilized earth. Its study of seismic problems in Algeria typifies a recent shift from stressing road construction. With technical assistance to governments and missions on private contracts, the international work of CEBTP is now of greater scale than that within France. Some of the domestic work is routine, but much is innovative, for example, the discovery that passing an electric charge through concrete allows the earlier removal of formwork. All testing is computerized with physical observations continually transferred to magnetic tapes. ECBTP is studying the behavior of stones for Egyptian housing, building deterioration under desert conditions for Abu Dabi, and the effect of wind on a planned mosque for Islamabad. In some cases, insurance companies fund the research. Results can be secret, as in the case of a concrete study for a private nuclear contractor. One innovation has the brand name of Mono-Deko. It is a vegetable fiber and plastic form that remains in place as insulation after pouring cement. It can be plastered or covered with fiber board.

More concerned with lowcost housing and settlements, is the Agence Francaise pour l'Aménagement et Le Developpement a l'Etranger (ACA), 35 rue des Francs Bourgeois, Paris. Interviews were held with Serge Goldberg, the director general, as well as with Jean Marie Bireaud, H. Provisor, and Beatrice le Cour Grandmaison who runs the computerized documentation center, 80 rue de Turenne. ACA represents a reorganization of a predecessor, SMJH,

(Secrétariat des Missions d'Urbanisme et d'Habitat). It is moving away from ad hoc problem-solving toward experiments that cannot yet be described as research. It remains under pressure to promote commercial links for French firms, especially in Africa. More profound surveys of housing needs in a half dozen African countries had started in early 1981, following a study of the prospects for aided selfhelp housing in Mali. Other countries studied are Venezuela, Tanzania, the Sudan, India, Indonesia, and the Philippines. Physical tests of roofs, lintels, and plaster are within the purview of ACA.

The most acclaimed French study in the field is La Planète des Bidonvilles (Paris: Seuil, 1980) written by a young sociologist, Bernard Granotier, and based primarily on interviews or literature in English and by international agencies. It calls for the elimination of all slums and sees housing construction as "the best locomotive for promoting strong economic growth." He favors the standard recipe of sites and services, rehabilitation, and guided selfhelp.

At the OECD, the Urban Affairs Division, being concerned with European problems, has negligible contact with the Development Center, which in turn is quite separate from the Development Advisory Committee. Nevertheless, the head of the Division, Bertrand Renaud, has had extensive experience with urbanization in LDC's after many years in the Urban and Regional Economics Department of the World Bank. The studies of this Division are classified and intended for exchanges among prime ministers in a sort of Delphi process.

Although the OECD Development Center had financed extensive research on housing and employment in Mexico in the early 1970's, no such work was currently in process or prospect, given the Center's financial problems. Persons interviewed were Dimitri Germidis and Bryan Van Arcadie, Interim Director of Research.

Britain

More persons and institutions were visited in Britain than in any other country. In spite of financial straits, the most creative work continues there but not in all in institutions where it might be expected. Housing and urbanization are not stressed at either the Institute for Commonwealth Studies, Oxford, nor at the Institute for Development Studies (IDS), University of Sussex, Brighton.

At IDS conversations took place with Richard Jolly, the Director, and with Hans Singer, Emanuel de Kadt, Bernard Shaffer, and Peter Lloyd. Core funding by the British Government to IDS is being reduced by one-third in place of earlier plans to stop support altogether. That would have meant closing IDS. Research priorities now are EEC/Third World economic relations, food aid, and rural development. Similarly, research stress at Oxford (e.g. Frances Stewart) has gone from Basic Needs to Energy and International Monetary Reform. There is much concern about "restructuring" economies, but an apparent consensus that "Dependency Theory" is passé.

The Development Research Digest is an IDS publication on British research on development. The Spring 1978 issue dealt with "Urban Growth and Urban Poverty." An article by James T. Winpenny of the University of London, Development Planning Unit (DPU), dealt with "Housing and Jobs for the Poor" and is based on a 1976 Working Paper. The author of an article on "Urban Water," Alan Rew, has since left IDS. Peter Lloyd's Penguin/Pelican book Slums of Hope? Shanty Towns of the Third World (1979), however, is a best seller with sales in excess of 100,000. Relevant to the distribution of public utilities is the work of Bernard Schaffer. Martin Godfrey and Manfred Bienefeld have studied the informal sector but without much attention to the structures, whether dwellings or not, which support these activities and vice versa.

Exclusively concerned with third-world housing and urban problems is the Development Planning Unit (DPU) of the University of London. At the time of the writer's visit John F. C. Turner and Andrew Maskrey were conducting a three month program on "Housing in Development" with participants from Asia and Africa. A current interest is in disaster relief and many similarities have been found with squatter settlement improvement. Alienation is the problem that lowers the level of response, hence resources. In part it is due to insecurity which precludes the selfmanagement and autonomy on which improvements and reconstruction depend. DPU wants to promote interchanges among local groups and avoids such financial sources as the World Bank on the grounds that it would alienate its contacts among the poor. The approach is said to be "communitarian," but when a true utopian group, "Greentown" was visited at the New Town of Milton-Keynes, Turner noted how unrealistic those plans were. (The visit to Milton-Keynes, inspired later visits to other New Towns, such as Washington, Livingston, and Cumbernauld for comparative purposes).

The writer participated in a DPU session on "Appropriate Technology" in which the other speaker was George McRobie, chairman of the Intermediate Technology Development Group (ITDG). Later meetings at ITDG included Warren Adams and Marilyn Carr. Based on E. Schumacher's Small is Beautiful, ITDG started with an emphasis on building organization in 1968-70. Four manuals for small contractors, written by Derek Miles, have been published since then. Another by A.C. Lewin on Housing Cooperatives in Developing Countries: A Manual for Self-help in Low-cost Housing Schemes (NY: John Wiley, 1981) has just been published. The ITDG Journal, Appropriate Technology contains numerous references to mud houses, handmade bricks, bamboo-reinforced soil cement, corrugated asphalt sheets, etc. The ILO has given financial support to ITDG training programs on more labor-intensive buildings

Between ITDG and the Building Research Establishment (BRE) of the Department of the Environment (formerly Housing), there is only a partial agreement about means and objectives. BRE has an Overseas Division, and its work is comparable to that of CSTB and CEBTP in France. The writer spoke with the Head, Robert Stevens, and with a number of experts, including Ray Smith, John Harris-Bass, and Ron Carroll. The overseas work of BRE is on contracts paid for by the British Overseas Development Administration (ODA) after requests by governments abroad which, however, may have been stimulated by BRE experts in the first place.

Employment generation is not considered per se at BRE, nor the precise income level of the beneficiaries. The focus is on solving physical problems primarily associated with lowcost housing. If roof purlins are set up vertically and nailed in differently, dwellings become more expensive but much more hurricane resistant. The CINVA ram hand-operated block molding machine can eliminate 30-50 percent of wastage if improved with a hydraulic jack. Latrines can be redesigned as acceptable alternatives to expensive waterborne sewerage systems if they can be made safer and odorless through better design. Other issues tested are: What difference does it make for comfort if walls of various types of housing are shaded with rash matting? Can vegetable fibers be used for practical roofing sheets? Meanwhile, the "BREcast System" of site-made heavy panels, described in Housing and Building Technology in Developing Countries, pp. 122-126, has been sold to a private firm that is promoting it in Indonesia, Malaysia, and Mauritius, but not among the poor, for whom it is too costly. Apart from research and consulting, BRE publishes Overseas Building Notes and technical reports, assists with building codes and regulations, and organizes training courses at Watford as well as abroad.

At several British universities economists, geographers, planners, and architects who are primarily concerned with domestic problems may occasionally (or frequently) apply their analytical and research techniques to housing and employment in the Third World. One of these is Roy Wilkinson at the University of Sheffield who has studied housing demand elasticities and externalities. Another is Christine Whitehead of the London School of Economics, Cambridge University, and the Center for Environmental Studies. She has not only made recent studies of tenure preference and of the effect of interest rate changes on the housing market but has also worked on various publications for the World Bank. Similar to a number of studies by the U.S. Bureau of Labor Statistics is How Flexible is Construction? A Study of Resources and Participants in the Construction Process (London: National Economic Development Office, 1978). It includes a section on overseas work. Peter Ward of the Department of Geography, University College London, has been adviser to the Mexican Ministry of Human Settlements and Public Works (SAHOP). Typical of his work is "Financing Land Acquisition for Self-build Housing Schemes," Third World Planning Review, Feb. 1981, pp. 7-20. A book is forthcoming.

Apart from graduate student research on land laws and formal and informal housing in Lagos, urban aspects of developing countries do not get much attention at the Department of Land Economy, Cambridge University. But the approaches developed in other contexts are suggestive for the questions that should be studied in LDC's. For example, Barry Pearce is developing methods for analyzing avoidance and evasion of rent control laws through short term tenancies. He has surveyed 200 landlords and 300 tenants in two cities. Previously Pearce worked on property rights and instruments for land policy. Summarizing much other work, Richard Kirwan has made a comparative international study of Recent Developments in Housing Policies (Oct. 1980).

The work of Gordon Hughes, Faculty of Economics, Cambridge University, is of interest because he has been concerned with two of the countries where the MSU group has made surveys: Kenya and Tunisia. For Kenya he has made detailed cost breakdowns of building and infrastructure, using shadow price adjustments. He~~x~~ then estimated the social benefits of low-income housing in the proposed Dandora project, including the effect on rents throughout Nairobi. Result: Net present social value is very high. In May 1980 Hughes completed Shadow Prices and Economic Policy in Tunisia, and he is now appraising their use for fiscal and trade policy in Indonesia.

The University of Glasgow is an important center for the study of international urban development. Urban Studies is edited and published there by the Center for Urban and Regional Research, and work goes on in the Departments of Political Economy, Social and Economic Research, Geography, and Town and Regional Planning. Extensive interviews took place with Douglas McCallum, Duncan McLennan, Allan Middleton, Mary Gregoy, W.J. Money, M.G. Mueller, Ian Thompson, Alan Findlay, and Stella Lowder. McCallum edits Urban Studies and has made a sophisticated analysis of housing and land use trends in Bogota. McLennan has improved knowledge of housing demand with rigorous studies of Glasgow and Aberdeen. Middleton has studied the informal sector in Ecuador. Gregoy worked in India. Thompson and Findlay have studied changing land use in Tunis. Lowder has worked on urban migration in Peru. For none has employment generation in building been the primary focus.

The University of Edinburgh's Department of Urban and Regional Design has a program for planning studies in developing countries. Philip Bowers, an economist, and John Leonard, an architect, direct this work. Research is not yet under way. At other British Universities, Roger Sandilands of

Stratclyde has worked on indexation in Colombia, David Pasteur of Birmingham has analyzed squatter upgrading in Lusaka, and Margaret Peil of Birmingham has examined housing in West Africa. Other work goes on at the Center for Urban Studies (London), the Overseas Development group (East Anglia), and the Center for Development Studies (Swansea). These were not visited.

The Netherlands

Three organizations in the Netherlands seemed to be of interest: the Institute of Social Studies, the Hague (Louis Emmerij, Rector); the International Union of Local Authorities (IULA), the Hague; and the Bouwcentrum, (Building Center) Rotterdam. As it turned out the three have a division of labor and a formal agreement about cooperation. The Institute of Social Studies has no emphasis on construction and related fields. The IULA is interested in administration, decentralization, and citizen participation in physical and other planning. Its relations with developing countries (mainly in South Asia) consist of training and of promoting technical assistance by European experts. There are contacts with UNESCO's Urban Technology Exchange Program and with the UN Center for Human Settlements, Nairobi. The Annual Report mentions "the goal of decent housing for all," and the Director of Training, H.J.B. Allen, has written a review of squatter upgrading, but the primary focus is elsewhere.

Three days were therefore spent at the Bouwcentrum International Education (BIE), interviewing the Director, Cor Dijkgraaf, as well as Arnold Noorduyn, Reinhard Skinner, and Richard Martin. It was the writer's third visit to the Bouwcentrum in fifteen years (the others: 1966, 1974). BIE is supported by the Netherlands Universities Foundation for International Cooperation.

The fourteen university-trained staffmembers of BIE give postgraduate training in 5-month programs on "Housing Planning, Building" to LDC architects and urban planners. The staff is expected to do research and to publish. A recent shift has been toward encouraging LDC governments to set up their own similar training programs. BIE would train the counterpart staff. The approach has begun in Indonesia, Sri Lanka, Tanzania, Thailand, and Colombia. Though "action-oriented," a part of the approach is developing a research program on self-help housing, extendable housing, sites and services administration, and slum upgrading. Annually students are taken to Tunisia to report on the squatter upgrading and core-housing schemes of that country.

The BIE training and research program takes as its point the departure that professionals in LDC land and housing authorities were not trained to deal with the mass provision of housing through upgrading and sites and services. With given funds they must deal with 10 to 100 times as many households as before and with many small builders instead of a few large contractors. Their agencies are no longer the sole, dominant actor. Instead of running a completely government-managed housing project, they have to develop knowledge and skills in working with poor but independent families, community groups, and small businesses, using designs below previously recognized standards. BIE has to teach about policies and problems that are largely outside the modern experience of industrial nations. A new knowledge base has to be developed about non-conventional housing finance, community associations, cooperative construction, self-help building techniques, materials production, monitoring small contractors, evolutionary infrastructure, residential turnover in upgraded neighborhoods, land tenure problems, and the employment structure of squatter neighborhoods. These are exactly the questions with which the MSU/AID project has been concerned.

As examples of research with this outlook, Arnold Noorduyn has examined the relevance of the standard urban economic model of the functioning of land markets to the cases of Ankara, Bangkok, and Mexico City. Paul Baross and Edgardo Martinez have looked at the way upgrading has been hampered by problems with tenure, deficient public services, and inadequate cost recovery. Reinhard Skinner has studied problems of community participation in Villa El Salvador, Lima, Peru. Richard Martin has synthesized his 12 years as architect and (chief) town planner, National Housing Authority, Zambia, for a book.

Federal Republic of Germany

The West German approach toward the urban housing and employment problems of developing countries is more like the French than the British, Dutch, or American approach. There is great eagerness to become involved but a need to see the problem in terms of Third World realities, not as a purely physical matter of adapting to tropical conditions and inventing suitable prefabricated components. This need is recognized by some but not yet predominant. Like the French, the Germans have a competitive urge to reduce what they perceive as an Anglo-American dominance in this field. As the newsletter of the Deutsche Entwicklungshilfe für Soziales Wohnungs- und Siedlungswesen (DESWOS, German Foreign Aid for Low-income Housing and Settlements) says:

Ganz Überwiegend kommen sie bisher aus dem anglo-amerikanischen Sprachbereich. Verstärkte Mitarbeit technischer and nichttechnischer Fachkräfte aus dem deutschsprachigem Raum ist erwünscht. (Jan.-Mar. 1981, p.9).

(Anglo-Americans have been predominant. More German-speaking technical and nontechnical participation is desired).

A difference with France is that most things are not centralized in one city but dispersed in a dozen or more. DESWOS is in Cologne. The Ministry for Foreign Aid is in Bonn. The Regional and Urban Development Branch (Dr. Wirsig) of the German technical assistance bureau is at Eschborn near Frankfurt. Institutes for tropical building are at Darmstadt and at Starnberg near Munich. One could go on.

The World Association for Element-Building and Prefabrication (WAEP) at Hamburg (Dr. Günter Haase) publishes a quarterly journal, Building and Prefabrication in English. It has an engineering orientation and stresses such developments as "Portakabin Xporta" a system for quick housing in remote areas of oil-exporting countries. More recently, conventional boards and concrete blocks have qualified as rational "well-considered systems of prefabricated small building-elements which may be easily processed manually without lifting devices." (March 1981, p. 21).

Unlike the British, French, and Dutch, the German building research institute at Hannover has no section for overseas work although individuals may take on technical assistance contracts on their own. In that city, Eckart W. Peters has a small Institute for Building and Planning in Developing Countries, but this does not seem to carry out research beyond routine problem solving.

In West Berlin the Deutsches Institut für Wirtschaftsforschung has one out of ten branches concerned with developing countries. This branch has seven professionals, of whom one, Siegfried Schultz, has studied the employment potential of the construction sector. The Technische Universität in Berlin has an active program "Fachbereich 8", of training and research for architecture, building, and planning in developing countries. The emphasis is on physical design. Dr. Heinz Kull, however, has studied the informal sector in Abidjan and Jakarta.

In Tübingen, the Institut for Scientific Cooperation with Developing Countries held a meeting on Urban Problems in the Third World on May 22-23, 1981. Papers were delivered by participants from eleven German, Swiss, and Austrian cities. Two of these papers dealt with selfhelp, the informal sector, and squatter settlements. They were given by Peter Herrle and Horst Reichert, both from Stuttgart.

Also in Stuttgart is a branch of the large industrial research organization, Fraunhofer Gesellschaft. It has an information exchange center for land and building, Informationsverbundzentrum Raum and Bau. The Director Wilhelm Wissmann and Dr. Jaime Acevedo Alvarez demonstrated the computerized information retrieval system. The printout showed what research on LDC housing etc. has been completed or is in process in various German centers.

Evaluation

Since not all research centers in all European countries were visited, a definitive evaluation of work in progress is impossible. So far it has not even been possible to study in detail the numerous documents and references obtained in the centers that were visited. Certainly it is true that without such visits one would have heard of many accomplishments only much later, if at all. As it is, this evaluation of work in four countries compared with MSU/AID work will remain partial, selective, and in many ways subjective.

The overall impression is that research financed by AID and the World Bank (not only at MSU, of course) remains the most advanced in the world. It compares well, not only with that in the European centers, but also with Canadian-supported research (see Laquian and Yeh, Housing Asia's Millions) and Australian work (see Murison and Lea, Housing in Third World Countries).

The complexity of the field makes a division of labor necessary, but specialization too often has meant compartmentalization. Physical design studies take little note of organizational problems. Organizational studies are either economic or social-administrative. Economic studies usually deal separately with one or two of such issues as the cost of construction, building labor, use of the old housing stock, finance, land, rent control, and demand elasticities as if all other issues were irrelevant. No research can simultaneously deal with all that matters, but one can treat three or four instead of just one or two elements and, whatever the number, not make the choice blandly conventional.

Not surprising but unfortunate is the way European approaches have been shaped by Europe's own urban experience. The large volume of needed postwar reconstruction made highrise heavy prefabrication necessary and possible there during the 1950's and 1960's, but attempts to transfer that experience to developing countries failed time and again. Volume in LDC's is too low and costs too high. Now urban growth has virtually ceased in Northern Europe, and the stress is on qualitative improvements that are far beyond the reach of the LDC poor. Europeans also have difficulty conceiving a housing policy that does not combine rent control with a large measure of government ownership. Yet LDC governments do not have the capability for executing such policies without quickly impairing their stock of housing, primarily because of disastrous effects on maintenance. European Marxists, we should mention in passing, believe that no improvement of housing for the poor is possible anywhere without first changing the structure of society.

In the light of all this, many Europeans had trouble grasping the meaning of a "stock-user matrix diagonal" as a research and policy tool. How could the diagonal be simultaneously descriptive and normative? (It is normative insofar as it shows what disequilibrium should be corrected and

descriptive insofar as it accepts the given income distribution and elasticity of housing demand.) Moreover, Europeans have great fear of correcting disequilibria if that gives more scope to "profiteering and speculating" landlords. They are certain that less rent control could not stimulate rehabilitation, for example, in the inner city.

For those Europeans who are recommending to their Third World clients and fellow consultants a shift toward selfhelp housing, serviced sites, and slum upgrading these policies are so obvious and desperately needed that they apparently do not need to be examined in a quantitatively rigorous way. Exceptions are Peter Ward at the University of London and Gordon Hughes at Cambridge University. Our work can benefit from their experience and methodological innovations. No one, however, has anticipated the major results of our surveys of the extent and reasons for owner-occupant upgrading in nine LDC cities. Nor has anyone begun to look thoroughly at the way lodgers and shops depend on the dwelling while making its construction and expansion possible. But the problem has been recognized by a few. As Madhu Sarin of the DPU (London) concluded about Chandigarh in India:

It must be recognized that incremental improvement of dwellings depends heavily on the household's ability to sustain and improve its income. For this purpose, the multi-use of dwellings for petty trading, small industry etc. must no longer be banned, and income opportunities must be encouraged within residential areas. (Development Research Digest, Spring 1978, p. 20).

Finally, there are no studies besides ours which have examined the employment generated by an identical physical structure in different settings at various stages of development, with different absolute and relative costs of factors of production.

This report should not, however, end on such a note of self-congratulation. To contemplate the vast knowledge of urban affairs that the eighty or so experts interviewed have is, above all, humbling. But the task of learning how to replace mistaken policies with better ones has only begun.