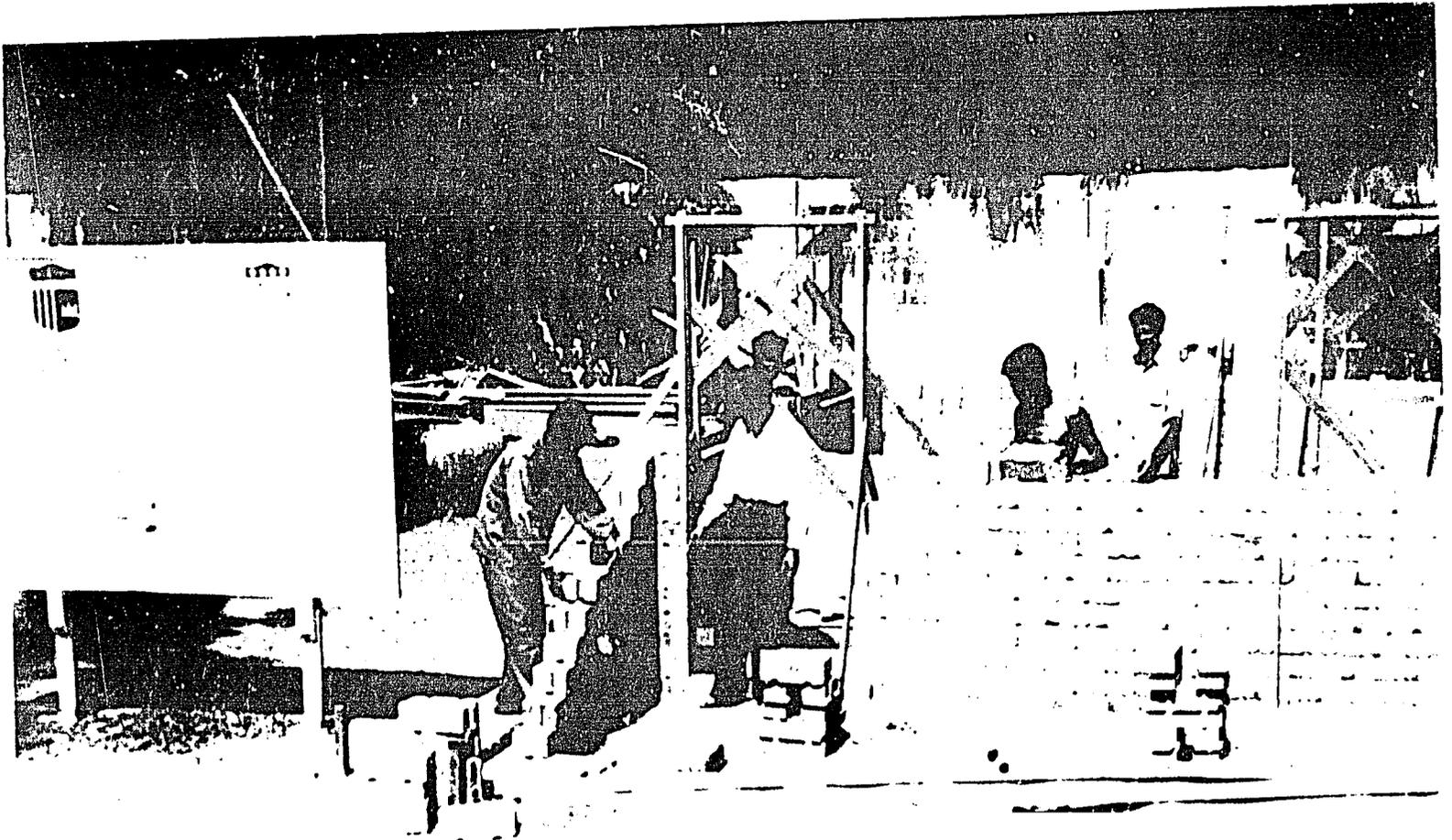


Ideas and Methods Exchange No. 18

AIDED SELF-HELP IN HOUSING IMPROVEMENT

Prepared for the AGENCY for INTERNATIONAL DEVELOPMENT
By the U. S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT Robert C. Weaver, Secretary
Division of International Affairs, Washington, D. C. 20410



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IN HOUSING IMPROVEMENT

Prepared for the
AGENCY for INTERNATIONAL DEVELOPMENT, DEPARTMENT OF STATE

By the
U. S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Division of International Affairs, Washington, D. C. 20410

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INTRODUCTION

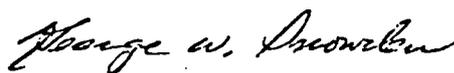
Ideas and Methods Exchange No. 18, first released in 1954, has proved to be extremely popular and valuable to those interested in and participating in Aided Self-Help programs. Several revisions have taken place to keep the material current, and new projects have been added to broaden the scope of this document.

Contributors to the document at various stages have included E. Douglas Stone, George A. Spear, Jacob L. Crane, Roy J. Burroughs, J. Robert Dodge, Rafael Mora-Rubio, Bernard Wagner and Thomas R. Callaway.

To supplement IME 18 as background data for aided self-help activity, it is suggested that the films "It Can Be Done" (1956); "Housing Adventure in Chile" (1957); and "Djoliba" (1963), which can be obtained on loan from the Division of International Affairs, Department of Housing and Urban Development or the Agency for International Development, will prove of value. The first is a prize winning documentary covering experience in several countries. "Housing Adventure in Chile," and "Djoliba" (made in Mali, West Africa) show individual programs of particular interest.



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PART I - GENERAL

Better Housing

With the widespread recognition that better housing is an important part of improved living conditions and a prerequisite to economic development has come the realization that it is a slow and expensive process--often impossible in significant volume under methods which have traditionally been employed to provide it.

As a result, there has been an increasing interest in aided self-help as a means of improving living conditions at reduced costs and at an accelerated pace. Suitable for any form of living improvement, aided self-help is especially effective for housing. It will be discussed as a means to that end in this paper. Although we consider better housing to include rehabilitation of the community, as well as the dwelling structure, we will nevertheless confine our discussion here generally to the improvement of the dwelling.

Aided Self-Help - What It Is

Aided self-help is a method to utilize the many man-hours that are available in most areas in the form of unused leisure time together with some form of aid from the community or other source so that man may improve his shelter to an extent that he never could alone and unaided.

It may be well here to list a few of the things that aided self-help is and things which it is not:

- Aided self-help is the old fashioned self-help plus some form of aid so as to achieve an improved product.
- It is a principle which may be adapted to an infinite variety of techniques, ranging from those which produce a complete modern house in Sweden to a system whereby Burmese may replace their insanitary thatched roof covering with metal sheets.
- It is a principle which must be tailored to each particular situation where it is to be used.
- It is a method which capitalizes on heretofore unused leisure time, thus increasing the economic wealth of a community. Often the increased wealth is considerably in excess of the cost of the aid.
- It is a very effective method to encourage home ownership.

- **It is relatively inexpensive per family housed. However, if done on a large scale, even the simplest sort of a program can add up to staggering totals when the number of families receiving aid is considered. Remember that more families can be housed under practical aided self-help for any given money expenditure than by any other method.**
- **It is the only known method which offers hope for large-scale housing improvement in many parts of the world.**

On the contrary:

- **Aided self-help is not an easy principle to introduce.**
- **It is not a technique which may be used everywhere without modification.**
- **It is not a cure-all which will soon eliminate all unsatisfactory housing.**

Some Aspects of Aided Self-Help

In highly organized societies acceptable housing is usually constructed by qualified builders, under contract, using commercial materials assembled by skilled labor. After construction the family moves in and undertakes to pay for having the house built for them. For many this process costs too much. It often costs too much even for the state which subsidizes the family. However, if the greatest resource of all--the otherwise unused man-power of the families themselves--can be combined with aid from the community, improved housing may be provided within the means of the individual and the community.

On the other hand, in many underdeveloped countries where traditional self-help is the accepted way to build a house, local materials and the family's labor are used to construct a home which, far too often, is a small, insanitary, vermin-ridden hut. Although this is unsatisfactory it is the best they can do unaided. Under the aided self-help principle the family's labor and the use of local materials will be supplemented by aid in forms which will help them to build better houses, perhaps on better sites. Again, improved housing is within the means of the individual and the community.

In practice the examples outlined above cannot be separated--people live in insanitary huts in highly-organized communities and build their own houses of local materials in many rural areas throughout the world. But each example cites a case in which better houses may be built for more people without excessive costs. Cost is a factor which cannot be ignored but is perhaps not the greatest value of aided self-help. When the family and the community cooperate in providing better homes, their pride and satisfaction in creation and accomplishment provides a mutual bond which may assist them in jointly meeting other difficulties that call for mutual respect and trust.

Aided self-help does not avoid many of the problems common to any housing program and often introduces additional complexities. In any event, the end result seems

to justify the means. To the usual problems of governmental organizations, lack of trained indigenous personnel, and the difficulties of planning and programming must be added the realization that, under aided self-help once a solution is found, the attitudes, emotions, traditions, customs, and beliefs of the public will determine the pace of housing improvement.

PART II - POLICY, RATIONAL ANALYSIS, AND PROGRAMMING

No matter where the assistance provided in connection with aided self-help housing programs may come from--individuals, communities, industry, foundations and philanthropists, or government--a policy, an appraisal of resources, and a program for orderly procedure are needed.

When resources are carefully appraised, it will often follow that the most economical means possible will have to be found if the advantages of improved housing are to be spread to the greatest number of people. Aided self-help housing programs will usually be found to attain the utmost in the economy of the resources of both the sponsor and the participating families. The available resources of manpower, materials, and money must be skillfully merged with other available aid to provide the maximum assistance to the greatest number. Therefore, policy and programming will be discussed in considerable detail in this paper and, since a general pattern is common to all--governmental or otherwise--will be discussed in the light of governmental planning.

The Need for a Rational Analysis

Any group can establish a policy on housing. In the absence of other information, it may only be an expressed desire to improve housing to the full extent of its ability. Once a policy is established, it is necessary to develop all available information and to analyze it in order to formulate the best possible program to implement the policy. However, many persons, governmental and otherwise, do proceed without an analysis and a program in the mistaken belief that a program and a policy will eventually develop from the experience to be gained from a project or a series of projects. Urgency and a desire to "do something" immediately about some segment of the problem are often factors in influencing such a decision. This just does not work out. All too often available resources are soon exhausted, little headway is made on the overall problem and shaken confidence results from partial or total failure.

Partial Analysis Better Than None

While a good case can be made for undertaking a complete analysis before embarking upon any program, this is sometimes not possible or practical. Therefore, remember that a partial analysis is better than none. It can give proper weight to traditions, customs, desires, and pressing issues and may incorporate certain basic information. For instance, an underdeveloped country may not have census data but it might be known that about one third of the families live in hovels, how much they can pay for their shelter, and what resources the government will have available per year for the first few years.

Steps in Rational Analysis

Even if the analysis must be short range or quick, it is essential that four steps be taken. They are: (1) reviewing the nature and magnitude of the overall problem; (2) reviewing the available resources; (3) identifying specific key problems; and (4) recommending a program. These very important steps are outlined in Appendix A.

Responsibility for Programming

Because of the complexities of programming a principal center of responsibility must be created in the national government. This could be a ministry or a department. Without this centralized responsibility, wise program making is extremely difficult. This central group should make the analysis, prepare recommendations, and service and advise the governing body as to necessary legislation.

In analyzing the problem it should appraise public opinion as expressed by consumer and interest groups and private and producer groups. It should insure adequate participation by local governments since they often become aware of problems long before national government becomes aware of them. The central group is then in a position to define spheres of national-local relationships and thus take a most important part in formulating policy and program.

Evolution in Programming

The rational analysis concludes with the selection of specific measures for action. Once these measures are selected it becomes important, in most cases, to determine the next steps which are practical and consistent within the known limitations. Standards must be established or tentatively assumed. The program then can be directed to the achievement of these standards but only to the degree that resources make possible. It may consist first of only a single measure pending further experience and analysis. A recommended program can, however, make explicit the manner in which the rational analysis may be continued and expanded and the way in which the policy and program may be periodically reviewed and modified.

PART III - ORGANIZATION AND MANAGEMENT

Earlier in this paper we have said that the otherwise unused leisure time of the families to be housed was the greatest resource available for housing improvement in many countries. We also have pointed out that the attitudes, emotions, traditions, customs, and beliefs of the public reflected in the extent of its cooperation will determine the pace of housing improvement.

These facts are basic in aided self-help, and the problem of insuring maximum cooperation in the utilization of these unused manhours is the most important one faced in any aided self-help program. The methods pursued in making certain that this is squarely faced and satisfactorily solved are also vitally important. Here we meet two schools of thought--divergent as two schools can be--which indicate the wide range of methods which may be adopted.

One group maintains that "there is a tendency to think and plan in terms of bureaucratic schemes that depend too much on governmental initiative and finance--an utterly futile approach, because resources of . . . government are so limited and have to be spread over such a vast area." They add, "the only practical solution is one that stimulates people to be their own self-starters in building better houses." Thus, it is advanced, the only kind of aid which is practical is the nature of a catalytic agent to start people to think of living improvement and, perhaps, to guide their thinking as to ways and means. There is much merit in this approach and, no doubt, many areas where this kind of aid is all that is necessary.

At the other extreme is a group which believes that the only way to make real progress in aided self-help housing improvement is to "start with experts identifying peoples' particular felt needs, and then proceeding to plan specific solutions to these needs and imparting them to the people concerned." Of course, we all know that in most cases plans superimposed or forced upon people accomplish little even if they, apparently, are wise and practical. However, we also know that there are many instances--especially in emergencies, when desperate, homeless people are eager to have their government recognize their problems, appraise its resources to meet them, develop a solution, and impart it to them so that they may, in cooperation with their government, quickly embark upon a program of rehabilitation. The latter is an example, possibly, of aided self-help at its best certainly its easiest, from the standpoint of obtaining cooperation from the families to be housed.

Between these two extremes lies a middle course including the best thinking of both. In pursuing this course, it is possible that a politically responsible government and an inspired and enthusiastic people at the village and community level can identify their problems, appraise their resources, and develop a plan of action. It will be upon this basis, and considering all possible degrees of governmental and community action, that community participation will be discussed here.

Inspiring the Desire for Improvement

Thus, after a practical basic solution for housing improvement is at hand, this matter of inspiring among the mass of the ill-housed the desire to improve their lot often becomes of utmost importance. Unfortunately, it is often extremely difficult.

Lower income groups, sometimes not only ill-housed but ill-fed and often ill too, are sometimes almost hopelessly lethargic. They do not understand or believe that anyone would want to help them to help themselves. Worse, once being convinced of this point, they question the motive. What, they wonder, is behind such an attitude? What do they who offer assistance expect to gain? What new scheme to exploit the poor is in the wind now?

Under even more favorable conditions than those outlined just above, a resistance to change or improvement is often encountered. Sometimes people are not aware of their real needs even though they are conscious of frustration.

There seems to be only one answer--community education. If people are not aware of their real needs, then measures must be taken to help them realize what their needs really are and to get them ready to do something about them and, of still greater importance, help them realize that a sound solution is available or can be developed.

Community education may take many forms ranging from the mere announcement that the state does stand ready to assist with a practical plan for action, as was the case with a large number of Greek refugee families, to the other extreme--a complete grass roots campaign to impart "basic teaching on the nature of man, his history, his life, his way of working" and incidentally, the way he may improve his shelter. The latter program is well under way in Puerto Rico.

Whatever the nature of the problem, one fact stands out. The people must be convinced. And from this has emerged one cardinal principle--before irresponsible talk about a program can start be sure that the leaders (chiefs, priests, mayors, political leaders, etc.) of the group affected are fully informed or at least understand the facts involved and are convinced of the worth of the program. If this step is taken, these leaders will be in a position to influence mass thinking and correct adverse talk and erroneous interpretations before the gossip gains some sort of credence through repetition.

Organization of Communities for Aided Selp-Help in Housing

Regardless of who recognizes the need, the people or their government, once a program is developed which has the support of the leaders, it is time to go to the people for the necessary cooperation to put the particular plan into action. This phase of the program can be divided into three main parts: presentation to the general public; presentation of the scheme in some detail locally; and detailed presentation to families who believe that the proposed solution is practical and who have shown an interest in participating.

Presentation to the general public is accomplished through media including radio, television, newspapers, books, pamphlets, posters, lectures, exhibits, group discussions, and demonstrations.

Presentation of the scheme in some detail locally uses many or all of the same techniques. Community meetings are valuable. Visual aids and posters are useful. Direct personal contact is effective in acquiring an insight into the community's real reactions and in clearing up misconceptions.

Detailed presentation to families who have shown an interest in participating is often accomplished in group meetings and personal interviews. It is imperative at this point that the details of the plan be ready for presentation. Here both the scheme itself and the characteristics of the family are explored in considerable detail. During this phase, the family reaches its decision as to the applicability of the scheme to its particular problem and the eligibility of the family is investigated.

The Cooperative Extension Service, United States of America Department of Agriculture, in getting information concerning agriculture to people in ways that will encourage action,^{1/} has found that:

- Methods applying to groups of people are effective about 30% of the time;

^{1/} America's Roadside Teachers--Adult Leaderships. Vol. 2, No. 9 February 1954. pp. 4-7.

- **Methods applying to individuals are effective about 25% of the time;**
- **Mass media techniques are effective about 20% of the time.**

With other audiences and under other conditions, the percentages might, of course, be different.

The Service also found in group meetings that straight lectures were the least effective technique; if local leaders formally participated in the meeting, effectiveness increased. Charts or drawings were still better. A lecture supplemented by a film strip was the best of all.

Group and Individual Methods of Construction

Another matter concerning the people's participation in building their own houses should be discussed here--the manner in which they work once they are convinced that the whole approach is reasonable and practical.

The first thing to keep in mind is the fact that the individual and his family are about to invest many many hours in gathering or preparing materials and building their house. Any tool which will make the working conditions even slightly more tolerable is of great value. The manner in which the people will work, therefore, becomes of vital importance.

Perhaps too much emphasis in recent publications has been placed upon group activity (where a group builds all of their houses as a building team)--to the point where many believe that the only way to build aided self-help houses is by group action. Group action is often a very effective way to get houses built by those who are to occupy them. Sometimes it is the only way. Again, insistence upon this principle might jeopardize the whole program. At times it might result in total failure.

Many factors affect the way in which the people will work. Their own nature is the most significant. As an extreme example, if one were to consider aided self-help in an area where, normally, all work in the fields is done in groups moving from one man's farm to another, he would expect group construction activity to be best. Again, should a reinforced concrete house involving heavy forms and rapid pouring be considered, then group action would be in order--or a change to another type of construction. If, for any reason, the people require almost constant supervision during construction, group action may be best.

Even then, a further refinement comes into the picture. In some areas, members of groups work best if they do not know, until completion of all of the houses, which one will be theirs. In other cases, people just will not work until they know which one of the houses the group is building is to be their own eventually.

Perhaps the most effective program where group activity has been a fundamental part of the aided self-help housing approach is in Puerto Rico. Pilot or demonstration projects using this same principle have been initiated in the Caribbean area, in Surinam, Barbados, and Trinidad, among others.

On the other hand, in a nation of rugged individualists, where people do not normally work in groups or where they never have trusted each other, it would be folly to attempt to build group of aided self-help houses by group action. In cases like these, and there have been many of them, the family working as a unit builds its own house. This does not preclude informal group action, such as when the neighbors or relatives help frame the roof, but it does leave the major responsibility upon the family, rather than upon a formally-organized group.

An example of a successful aided self-help program which placed the entire responsibility upon the individual family is in Greece where, in 1950, about 70,000 families rebuilt their homes which had been destroyed during World War II and the revolution which followed. Sweden, of course, has used aided self-help in housing for years and has found the family group a satisfactory unit, even when the row or terrace house is built.

Where individual action is contemplated, it is always best to consider houses of simple straight-forward construction, using mainly materials and methods of construction with which the public is somewhat familiar and thereby avoiding the need for constant technical supervision. This is of special importance where the houses are to be built on scattered sites, as on individual farms. It assumes lesser importance where everyone is working nearby, as in a village.

Thus, it becomes apparent that there are no hard and fast rules for group vs. individual activity. A solution must fit the particular set of circumstances involved. What is important, of course, is that those concerned be aware of the advantages and disadvantages of each method of procedure.

PART IV--FORMS OF AID AND FAMILY PARTICIPATION

The "something" added to self-help--the aid--which makes it possible for man to improve his shelter to a greater extent than he could unaided, comes from many sources and takes almost every imaginable form.

As we have seen, aid can and usually does include help in the very important phases of policy making; developing some sort of a practical solution which is in the best interests of the people; programming to insure that the most important things are done first and that in the long run, the available resources are made to serve the greatest number; and assistance in drafting legislation, if necessary, to implement the program.

Aid also takes more tangible forms including, among others: technical advice in design, use of materials, and assistance during construction; financial assistance; labor, more often than not skilled labor to assist in the difficult phases of housing construction; land, or some form of secure land tenure; and the administration, organization, and guidance of the whole improvement program.

On the other hand, the means by which the families may contribute to the cooperative venture called aided self-help include, among others: assistance to the authorities during analysis of the housing problem; provision of labor, usually

unskilled; the contribution of their financial resources, even if meager; land upon which to build the house; and building materials, especially those of local origin.

These various forms of aid and the contributions by the families involved will be briefly discussed in the paragraphs which follow and in Part V, where typical aided self-help programs are outlined.

Technical Aid

Those who have worked with aided self-help housing have found technical advice and assistance one of the most effective tools for housing improvement. New uses for old materials, improvement in commonly-used materials, and the development or introduction of new materials all are examples of technical contributions to better housing, in aided self-help as well as in the more conventional building procedures. Stimulation of the local building industry and technical assistance during its development are important functions.

Of special interest at this time is the introduction into many parts of the world, where earth is a common though often unsatisfactory building material, of simple hand-operated machines to process earth so that it is a more durable product.

Technical ingenuity applied to aided self-help in Sweden resulted in the design of prefabricated wooded structural frames for modest houses which could be quickly and easily assembled by the family and its friends, neighbors and relatives under the direction of a trained technician. This resulted in a sturdy structure to be finished by the family to be housed.

In Puerto Rico engineers have designed hurricane-resistant cottages so constructed that they may be built by groups of unskilled workers, under the supervision of an expert, for their own occupancy.

Thus it may be that technical ingenuity, directed so as to find more ways to build better houses with reduced requirements for special skills, finds its greatest challenge in the aided self-help approach.

Financial Assistance

Financial problems appear in all phases of aided self-help housing schemes, and they are just as plaguing as they are in the more conventional programs. When resources are investigated, prior to programming, careful appraisal is made of the financial resources of the state and the country-side at large and the families who may eventually participate in the aided self-help program. These financial resources together with the estimated cost to provide minimum facilities usually limit the scope of the program at any one time.

Together with the broad financial planning, and a part of it, a host of questions arise upon which decisions must be made concerning detailed financial arrangements. Such questions might cover the following:

- 1. Who is eligible to participate in the aided self-help housing program? Will there be a means test, i. e., must participants have low income and meager**

wealth? Will there be a limit placed on the ratio of income of participants to cost of a house or to monthly payments? Must a member of the family be employed in an occupation that contributes significantly to economic development?

- 2. Who will advance the initial capital cost of the land? of materials? of the construction equipment? How will funds be obtained for this purpose?**
- 3. Will technical guidance to the self-builder be combined with the loan process? or kept separately? and who will pay for it?**
- 4. Who will make ultimate payment for costs? Will it be the government? the householders? or someone else? That is, will there be any subsidy and if so, how much? How will funds be obtained? Will costs vary if occupant obtains a fee simple title to land as contrasted to a long term lease?**
- 5. How much cash down-payment will be required of each home builder? What is the maximum (or minimum) loan limit? What is the stipulated relationship between the amount of the loan and the cost of building?**
- 6. What rate of interest, if any, will be charged the borrower?**
- 7. During what term of years and under what amortization plan will loans be repaid? Will these items vary depending on the variation from year to year in the income of the borrower?**
- 8. Who makes collections? when and where?**
- 9. What arrangements are made for collecting taxes? for paying insurance against risks to the structure such as fire and wind-storm? for preventing or making recovery for waste (damage to property)?**
- 10. What action or penalty is provided for cases of delinquent payments? Is there any variation in policy in the event of the illness of borrower? loss of income on part of borrower? death of borrower? other?**
- 11. How may compliance with standards for construction and for land development be enforced?**
- 12. Is there any insurance of the mortgage risk to the lender who makes the loan?**
- 13. May borrower withdraw funds after down-payment has been made? Should refund, if any, depend on reason for withdrawal?**
- 14. What restrictions are there on resale or transfer of title by the occupant?**
- 15. What provisions are made to protect governments in power from political pressures that may arise in the course of making loans or collections?**

Unless these questions are resolved before a project is started, the resulting uncertainties and misunderstandings may wreck the entire undertaking.

Eligibility of Persons

The nature of the self-help program will largely determine who is eligible to participate. If the government is providing a substantial subsidy, a means test may apply, and the participants probably will be limited to the very needy families. If the government is providing only a minimum of technical help and nothing more, a means test may not be requisite. In Puerto Rico the rural aided self-help housing program originally was limited to the "agregados" or squatters who were resettled to permanent locations with government help and guidance. In continental United States the U. S. Extension Service operates a Farm House Plans Exchange which provides house plans to any farmer regardless of his economic status at no, or only nominal, cost. In some countries projects are promoted by private industries for their own employees. In Sweden a maximum and minimum income limit is set. In free China (Taiwan) emphasis is given to helping families that contribute to economic development. In the Philippines the occupants of slums have first consideration. The point here is that very specific standards of eligibility must be decided in advance before anything else related to finance is considered.

Source of Funds

Closely related to the question of eligibility of participants is the problem of who advances the initial capital costs and who pays the ultimate charges for use of the product of aided self-help housing. This depends on whether the sponsorship is governmental, philanthropic, or industrial. It depends on whether there is a capacity and willingness on the part of the sponsoring agency to assume little or much of the initial capital costs. It depends on whether the sponsor is able and willing to subsidize the occupant and if so, to what extent?

The source of funds may vary with respect to land, materials, skilled labor, and technical supervision. In general, the government will have to provide the initial capital for financing aided self-help housing but other resources should constantly be sought.

To illustrate, in free China (Taiwan) welfare funds of labor unions are being loaned to families who build their own houses. These resources have been supplemented with counterpart funds controlled jointly by the government of free China and the ICA Mutual Security Mission to China. The counterpart funds were loaned to the labor unions for relending to member families. In the case of dock-workers, the amount of counterpart funds was made dependent upon savings in shipping costs made possible by speedy discharge of cargo. Incidentally, a sharp reduction in time required for unloading was achieved both because of direct incentives and because of a sharp reduction in the incidence of tuberculosis. Miners' unions received loans from counterpart funds without a direct tie to productivity. Gains in productivity of mine workers are expected because of improved health and morale of the workers.

Other non-governmental sources of funds such as cooperative building societies, credit unions, farmers' associations, city governments, etc. are being examined or used in Taiwan. Though not for the most part entirely suitable for financing aided self-help, some of these sources have been used for financing at least a limited volume of loans for families using aided self-help methods.

In Jamaica the participants in an aided self-help housing scheme are expected ultimately to make monetary payment, in part, for materials and certain services which initially are advanced by the Government. A unique aspect is the organization of "study-savings groups" in connection with which are "savings unions." The groups come together each week for study, before actual construction is begun. Concomitantly regular savings are begun. Governmental advances are to be repaid with these savings.

According to a governmental official, "Membership in the 'savings union' is open only to persons participating in the building scheme. On starting, the union members decide on the time and place of meetings and the 'unit' of savings. Each member states the number of units he or she will save each week. No member may save less than one unit. A unit is an amount small enough for any member of the group to put aside without undue financial strain. The development of the thrift habit will see an increase in the number of units saved by each individual.

"Members are provided with passbooks in which their savings are recorded. The group by resolution decides the purpose for which savings should be used. This would be in accordance with the objects set out above. The financial records of the union are kept by the treasurer of the group who sees that the bank passbook of the group is on display at meetings for the scrutiny of members. Group savings are lodged in a bank within forty-eight hours of collection."

It is expected that savings unions will sometimes materialize as cooperative thrift and credit societies, i. e., savings and loan associations.

In Surinam funds initially are provided by the government. As soon as a house is completed, a mortgage loan is obtained from a private lender. The government loan is then repaid. Such a system is workable only for families whose incomes are high enough to assure bankable credit.

Increased tax revenues sometimes constitute a greater potential resource than private funds for financing aided self-help housing. For example, in Greece, after World War II and the revolution which followed, the rehabilitation of the villages was not confined to repair or rebuilding of damaged or destroyed houses but also schools and water supply systems.

The schools were often repaired or rebuilt under directives of the mayor to the effect that each family must participate in its reconstruction by furnishing (1) labor, usually one man-day per week or (2) the cash equivalent of the labor. Cash thus accumulated was used to buy materials peculiar to school construction, such as blackboards. Village contributions were supplemented by assistance from the state in the form of drawings and specifications, technical advice, lumber, nails, roofing materials, and school desks.

In Taiwan, the national government at one time at least gave consideration to the possibility of encouraging local governmental units, known as hsiens, to levy a poll tax on each able bodied male and perhaps each unmarried female. The tax would be payable in labor, or kind, or in cash, at the option of the taxpayer. Taiwan, like many other heavily populated and economically underdeveloped countries, has a

considerable volume of underemployed labor time.^{2/} If this labor time can be put to work through payment of a poll tax, many local community needs can be met: improved village streets and layouts; construction of community buildings, health centers, schools, etc.; laying of water lines, building of improved drains, and provision of other useful facilities. The proceeds of the tax that are received in cash or commodities would provide resources to buy materials both for community facilities and for houses. Families willing to build their own houses under technical supervision of central or local governments would be able to borrow enough from the hsien to pay for materials.

Whether or not Taiwan proceeds with this proposal, the principle of putting underemployed labor time to work on projects for community betterment has wide applicability. Likewise, the raising of additional local tax revenue payable in kind and cash as well as in labor time has wide applicability. The local governments are close to the people and in democratic countries are controlled by the electorate. If citizens decide to utilize their local governments as a device for community improvement including the financing of houses, total production is increased, both public and private capital are augmented, the democratic process is strengthened, and operations are kept within the ready purview of the taxpayers. If they see satisfactory results they will continue to support the program; if results are unsatisfactory or there is misfeasance or malfeasance, the taxpayers will resist.

The Land

The land problem is different in the country than in the city, in the case of isolated farms than in the case of the rural village economy, in the suburban fringe than in the urban center, and in highly individualistic countries with predominantly private ownership than in more socialized countries with larger holdings of public land. The common denominator of them all is that success with aided self-help housing requires that the householders shall have secure tenure.

Farmers helped by the Tuskegee, Alabama project are owners. Most of the farmers who seek advice on building from the U. S. Extension Service are farm owners. Owners of land also have built their own houses under the guidance of private lending institutions in various parts of the United States. In a case in Illinois, the local housing authority developed a subdivision and sold it at cost to persons, many of whom built their own dwellings. In many parts of the United States retail lumber dealers provide plans and limited technical guidance to their customers who construct houses on their own land.

The land for the rural self-help projects in Puerto Rico is assembled by the government and leased in small acreages for the life of the tenant and with certain rights of inheritance. The rent is nominal or nothing.

^{2/} What Professor Ragnar Nurkse of Columbia University calls "disguised unemployment." See "Some Aspects of Capital Accumulation in Underdeveloped Countries," National Bank of Egypt, Fiftieth Anniversary Commemoration Lectures, Cairo, 1952.

The "suburban self-help subdivisions" of Puerto Rico are owned by the Government of Puerto Rico and are being developed by the unpaid personal work of the lessees who receive a building lot at a nominal rental and for a secure tenure.

The title to the land in the suburban land and utilities projects of Puerto Rico is vested in the Puerto Rico Housing Authority. This type does not use self-help in preparing the land itself.

According to one observer, "The Authority acquires land, subdivides it into building lots, installs sanitary facilities and roads, leases plots to the families, and helps them to move their little houses from the slums to the lots. The former slum dwellings provide housing for the family while they build their new home. The lots are provided with water and a sewer line. A concrete sanitary unit divided into four similar compartments is constructed at the rear intersection of each four lots. Each compartment is equipped with a simple showerhead, a seatless water closet and, on the outside wall, a faucet for domestic water.

"The total cost to the Authority is approximately \$1200 per unit. The elements that make up this cost are: lot (250 sq. meters), surfaced roadways, sanitary sewers, electrical distribution system, simple street lighting, fire hydrants, sanitary units for each family, and transportation of slum house to the new project.

"The rental charge to the families, depending on family income, varies from fifty cents to \$4.50 per month. In some of the projects families may buy their lots on the basis of a twenty-year payment plan of \$8.00 per month.

"Thus far, direct aid in improving the homes has not been given. But secure tenure on an improved lot provides the incentive needed for self-help home improvement. With this incentive a great many of the families improve their houses with their own and neighbors' labor. Some build additional rooms on their small houses, while others build new houses, often as a shell around the temporary shelter, which they then take out when the new house is complete. There is a marked improvement in the living conditions of these former slum families in their environment. The old congestion, filth, and hopelessness of the slum are gone. Today they have adequate sanitary facilities for healthful cleanliness. Children can play in their own and their neighbors' yards. New hope and pride are expressed in flowers, shrubbery, and gardens."^{3/}

It is apparent from these descriptions that the self-help subdivision is far less expensive, in terms of money, to develop than is the land and utilities type of project. This is because the unpaid and otherwise unused labor time of the future occupants is employed to develop the subdivision as well as the ultimate housing that is placed on the subdivision. In each case, the fire hazard is reduced, space is provided for living, and secure land tenure is assured. Land is owned by the government and leased in "usufruct"--a life tenure with right of inheritance.

It is important to provide compensation for the value of the improvements put up by the occupant-householder should he decide to give up his lease of the land.

^{3/} Robert E. McCabe, "Puerto Rico: Programs of Suburban and Rural Aided Self-Help Housing." Unpublished manuscript, 1951.

However, if he has been subsidized substantially in getting his home, he might have nothing to claim.

If the government is to own and lease the land it will have to do so from its resources. In some cases public land reserves are owned by cities. But frequently the governments may have to buy land that is to be used for an aided self-help project. Given the right of eminent domain, the governments can assemble whatever land is determined to be proper and thus defeat owners who otherwise might refuse to sell. The assembly of urban or suburban land may be an expensive undertaking even when the right of eminent domain is available. In some cases a government may find the purchase of single scattered parcels to be less costly than purchase of entire subdivisions. Such a scheme would be more difficult to manage but would have the advantage that the ultimate householders would not be relegated to an isolated neighborhood but might have a chance to be integrated into the community life as a whole. Fort Wayne, Indiana had some experience with this plan in connection with publicly owned housing.

Costs Borne by Householder

In addition to the labor which a prospective householder and his family provide, how much money may a self-help builder be expected to invest? The answer depends on the nature of the program and the income of the families. If the government or other sponsor is subsidizing heavily then the needy householder may be expected to bear only a portion of the costs.

Occupants who have sufficient income may require no subsidy; those who move up in the income scale during a period of occupancy might be expected to repay some or all subsidies to the sponsoring agency. Families may have to be subsidized to a greater or lesser degree depending on circumstances.

The required down payment must be fitted to the capacity of the borrowers. Similarly a decision whether to charge interest, and if so, the amount, is a matter of policy based on the extent, if any, to which a group is to be subsidized. Moreover, the period during which the loan may be repaid and the frequency of payment depends in part on the ability of the borrower.

The size of any loan must be tailored to fit the capacity of the family to make repayment as well as to the resources of the lending government or other agency. The amount of the loan may be limited by an arbitrary total amount or it may be related to the cost of the house or to the income of the family.

Interest and Amortization

One method of indirectly subsidizing self-builders is to provide free interest or perhaps interest that is substantially less than the market rate for loans of similar size and risk. Since the risk of lending to families of low economic strength is relatively high and since small loans are expensive to administer, almost any rate of interest which it is politically feasible for a government agency to charge is apt to include an element of subsidy.

Lengthening the repayment period of a mortgage lightens the annual repayment burden of a borrower. Moreover, extension of the term of a mortgage lightens the annual repayment burden of the borrower much more if the rate of interest is low, say, four percent, than if it is high, say eight percent or more.

To illustrate, compare the payments required for a \$1,000 loan to be repaid at say four percent and eight percent interest over 10, 15, and 30 years.^{4/} Payments would be as follows:

Interest Rate	<u>Monthly Payments for Each Term</u>			<u>Total Payments for Each Term</u>		
	10 years	15 years	30 years	10 years	15 years	30 years
4 percent ...	\$10.13	\$ 7.40	\$ 4.77	\$1215.60	\$1332.00	\$1717.20
8 percent ...	\$12.13	\$ 9.56	\$ 7.34	\$1455.60	\$1720.80	\$2642.40

This illustration suggests how it is that in countries with high interest rates there is much less to be gained from the extension of the duration of mortgage loans than in countries with low interest rates. A combination of low interest rates and distant maturities of loans would be the most effective in reducing monthly costs, thus increasing the potential number of participants.

Materials and Equipment

Many of the materials must be advanced by the sponsoring authority or else funds must be made available for bulk purchase, where practical, for those who are participating in the undertaking. In many cases the equipment also must be made available at little or no capital outlay to the individual self-builder. Either a rental or loan arrangement can be used. If small tools as well as heavier equipment are provided by the sponsoring agency, some arrangement must be provided for issue and recovery and for collection of any money involved in the transaction.

Technical Services

Technicians to advise and perhaps assist during construction must be provided by the sponsoring agency usually without expectation of recovery of their salaries and expenses. The services of a few technicians can help many families to reduce the cost per house. Technicians can show how existing materials can be more efficiently and economically used or new materials introduced to provide a better structure with more wisely planned space of the same or less cost than would be the case in the absence of guidance.

Collections and Foreclosures

The loan contract needs to include stipulations of the circumstances under which the loan would not be foreclosed even though a default had occurred in payment.

^{4/} All illustrative figures are approximate.

Families of low-income need special protection against loss of previous savings which may arise from some contingency beyond their control. The problem is to separate the victims of hardship cases from the malingerers. A carefully drawn loan contract will help make this distinction but much remains for the careful judgment of the administering or loan authority. Foreclosure proceedings or re-possession proceedings should be a last resort. Penalties for late payments may be of some service, though experience is not conclusive on this point. If a catastrophe such as death, lingering illness, or destruction of the property by natural causes occurs, the lending authority usually may as well be prepared to repossess the property or to write off the loss, or to collect from the insurance company (if the property was insured).

If loans are to be kept in good standing, collection officials who are firm but understanding are needed. It is desirable that a fixed time and place for collections be indicated--whether at the home of the borrower, or of the collector, or at some designated public place. Payments need to be synchronized with the receipt of income by the borrower.

Usually the lending agent will find it desirable to make collections to cover taxes and insurance against risks to the property if such insurance is carried or can be obtained. If property is wasted or damaged by the occupant, there is little the lender can do, aside from using cajolery, other than forcing foreclosure and eviction. Encouragement should be given to prepayment of future obligations. In some countries laws to assure foreclosure or eviction are weak or lacking and in other countries existing laws are rarely enforced. Successful collecting depends both on adequate laws and firm enforcement of the laws.

Compliance with Standards

Unless the lender assumes some responsibility for supervision of inspection during the land development and construction process, minimum standards for security to the loan may not be met. Whether the loan is advanced by a private lender or by a governmental agency the problem is the same--guidance to the self-builder and in most cases the imposition of certain minimum standards of material, workmanship, location, livability, etc.

Reliability of the Borrower

A person or family may meet the technical requirements for eligibility to participate in an aided self-help project, yet lack the personal integrity on the basis of which a loan can be made. A desire to pay debts, a willingness to make sacrifices to pay debts, and a capacity to manage income so as to save enough to pay debts must be manifest, at least in some degree, before a family can be permitted the benefits of aided self-help involving loan funds.

Shall There be Mortgage Insurance or Guarantee?

This topic is posed as a question because it is questionable whether or not mortgage insurance as such is applicable to most aided self-help projects. Rather, a state guarantee of private loans may be feasible where private lenders advance the funds. The cost of administering small loans is so great and the risk of lending to

low income people is so considerable that, if charges to borrow are to be low, only the government can take the risk. It can use the term "insurance" and charge a "premium" for the risk but this does not change the fact that the rate of interest, if any, to the borrower would be very low compared with what he would pay from conventional private sources. Hence the lender must be paid for the high cost of administering the loans and must be protected against the loss of principal by use of a government guarantee. In most cases, government may as well do the entire operation.

Exceptions to this general position occur where a well established mortgage insurance system already operates. In the United States, a few lending institutions have assumed the role of sponsor for aided self-help on relatively large loans of standard risk. A lender in Ypsilanti, Michigan, for example, has guided self-builders among its customers who include professional and business people. Construction loan funds are advanced as required, a practical construction man hired by the bank advises the self-builders and inspects results, and finally the permanent loan is insured by the Federal Housing Administration. This program is not applicable to lowest income families but it serves the middle class very well.

Protection from Political Pressures

Any program is subject to the political pressure from groups with specialized interests to pursue. The problem is how to channel these pressures so that they serve the general rather than merely the special interest. Such instruments as advisory groups that represent diverse points of view often prove helpful for this purpose. Full publicity and public education concerning objectives and programs are helpful. The use of a civil service system for non-policy making positions is a requisite. Finally, before any borrower or cooperator in a housing project is authorized to proceed, he should have signed a paper which clearly states his rights and obligations. Compliance should become an established pattern and be firmly enforced.

Labor as a Form of Aid

In addition to providing technical guidance and advice during the construction of houses under aided self-help, it is sometimes necessary to give actual assistance during construction in the form of labor (usually skilled) to supplement the efforts of the families.

It must be recognized that the individuals who participate in aided self-help are usually limited in their construction ability. If local practices result in complex structures or if new materials or techniques are being introduced, some skilled assistance will almost always be necessary during construction. Failure to recognize this fact and to make all necessary arrangements so that such skilled assistance is available when needed causes serious delay, or worse. If this factor is neglected or overlooked in a large-scale operation, the resultant lack of progress, and actual frustrations which follow, can easily result in early collapse and eventual complete failure in an otherwise entirely workable scheme.

Administration, Organization and Guidance of Program

If aided self-help is to take its proper place in rehousing the millions of people in this world who now live in totally inadequate shelter, it must eventually be considered in the light of a series of large-scale operations. This is not meant to depreciate the value of small programs as pilot, trial or demonstration projects. These have a definite place as experiments and as stepping stones to large-volume operations. Cumulatively, they represent quite impressive accomplishments and they can serve to eliminate, at the very beginning, some serious mistakes.

However, it is the large-scale aided self-help programs which emphasize, with an impact not found in the pilot projects, the importance and necessity of efficient administration and carefully studied organization.

In aided self-help, the manner of administration of the shelter improvement program assumes increased importance. Since the basic premise of such a program is cooperation between the people and the contributor of aid, it is imperative that the people have confidence that the program will be administered effectively. The people must know not only that the plan is practical but, also, that the contributor of aid is so organized that he will be in a position to render the aid promptly and effectively if they, the people, make their contribution as proposed. Any attempt at aided self-help wherein the contributor of aid is not equipped and organized promptly to carry out his share of the bargain is doomed to failure before it starts. The spark of enthusiasm --the hope of the people--if extinguished after it is once ignited as they put forth their first tentative efforts to improve, is very difficult to rekindle again. Inefficiency, procrastination or any other factor which will result in undue delay of the aid cannot be tolerated in aided self-help housing.

An example, impressive for its size, of efficient administration and good organization is the successful effort of Greece to rehouse refugees from World War II and the Communist revolution which ended late in 1949. Greece did rehouse these people, in their damaged and destroyed farm villages, before the second winter after the surrender of the rebels--almost 70,000 of the families under aided self-help. Because she was well organized, Greece was quickly able to develop a plan for action; to get almost completely favorable response from the people; and to have the hard-to-get materials, such supplementary skilled labor as was necessary, and funds at the 70,000 building sites at the proper times. The refugees rebuilt their own houses and thus staved off possible nationwide economic and political collapse. The Greek program is, among others, discussed in considerable detail later in this book.

Because conditions are so varied in different parts of the world, we will not attempt to outline what makes up good administration and organization -- perhaps it could not be done. All we have attempted to do here is to emphasize their value.

Land and Secure Tenure

If individuals are to contribute time, labor, and perhaps building materials and money toward the construction of a home under the aided self-help plan, secure land tenure is essential. People cannot be expected to make investments of this kind unless they are certain that the result of their efforts is not likely to be taken away from them at the whim of another before its value to them or their heirs has been dissipated.

Often the land upon which the home is to be located is owned by or under satisfactory lease to the family concerned. Sometimes property of, or to be acquired by, the state is used. Occasionally, industries or others provide the land upon which to build.

When properties owned by others are involved, leases are popular, usually of from 25 to 99 years; so are outright sales. If subsidy is involved, resale of the property is often restricted to an approved purchaser of the same economic or social group as the original occupant.

What is considered secure tenure in one part of the world might well be inappropriate in another. A sturdy house suitable for use in a well-developed country could be expected to be serviceable for a long time. On the contrary, in tropical or semi-tropical areas, a bamboo thatch hut is relatively short lived. Under the latter condition, even a squatter might feel that he would be justified to proceed to improve his shelter with no additional reassurance.

The Labor Contributed by the Families to be Housed

The value of the labor contributed towards the construction of their homes by the families to be housed is, of course, the big asset of aided self-help housing programs. This labor may take many forms, dependent upon local conditions.

Where traditional methods of building are simple, it might well encompass all of the construction labor and, perhaps, the gathering and preparation of all of the local building materials.

In other cases, it might be limited to most or all of the unskilled labor. It might be labor in the fields, for instance, on a barter basis or for remuneration. In any event, the pertinent fact is that the labor is performed during periods of normal leisure -- often enforced leisure resulting from seasonal employment. Because of this fact, and regardless of the form such labor takes, it results in almost pure net economic gain to the individual, the community, and the nation.

A brief description of how one housing advisor outlined his proposed techniques to use the labor of the families to be housed is quoted in the paragraphs which follow:

"Early in the program, while the site is being selected and preliminary drawings and costs estimates are being completed, carefully selected and trained community organizers determine the detailed characteristics of the group to be housed. They finally determine general suitability from the standpoints of desires, temperament, financial ability and physical stamina.

"Then, after top level discussions with civic leaders who must understand and endorse aided self-help, discussions with selected groups of families are initiated. Responsibilities on both sides are made clear. Thrift plans are introduced to prepare for down payments. Families are conditioned for the job at hand and to properly live in and maintain a decent house.

"Before construction starts the groups meet carefully trained foremen who will direct their efforts during construction. The foremen will gradually take over from the community organizers.

"As soon as the buildings are closed in the families move in and complete the construction of their homes still under the direction of the foremen."

The Building Industry and Aided Self-Help

An aided self-help program which helps those who are too poor to afford to have a home built for them by others usually does not disturb the normal balance of the supply of building labor in the community. In emergencies, self-help or aided self-help activities generally do not bring about unemployment or slow-down of the activities of construction labor, regardless of the economic status of the groups involved.

Thus, aided self-help in most instances probably does not deprive construction labor or work which normally would be its own. However, individuals and groups within the industry may feel that it will. Because of this fear, it is extremely important that the program be presented in such a way that it recognizes the interests of those who make their living by building.

On the other hand, large-scale aided self-help projects can be organized as a means to reduce unemployment and to stimulate the economy of a country generally.

Those developing aided self-help programs must be sensitive to these problems and make sure that everyone concerned is fully informed as to what is being proposed, and why. Under these conditions, it often is not difficult to obtain full support of the industry -- at times very active support, if families of workers in the industry benefit -- once the facts are known. In any event, it is extremely important to realize that this problem must be squarely faced, early in the development of any aided self-help program.

PART V - TYPICAL EXAMPLES OF AIDED SELF-HELP IN HOUSING IMPROVEMENT

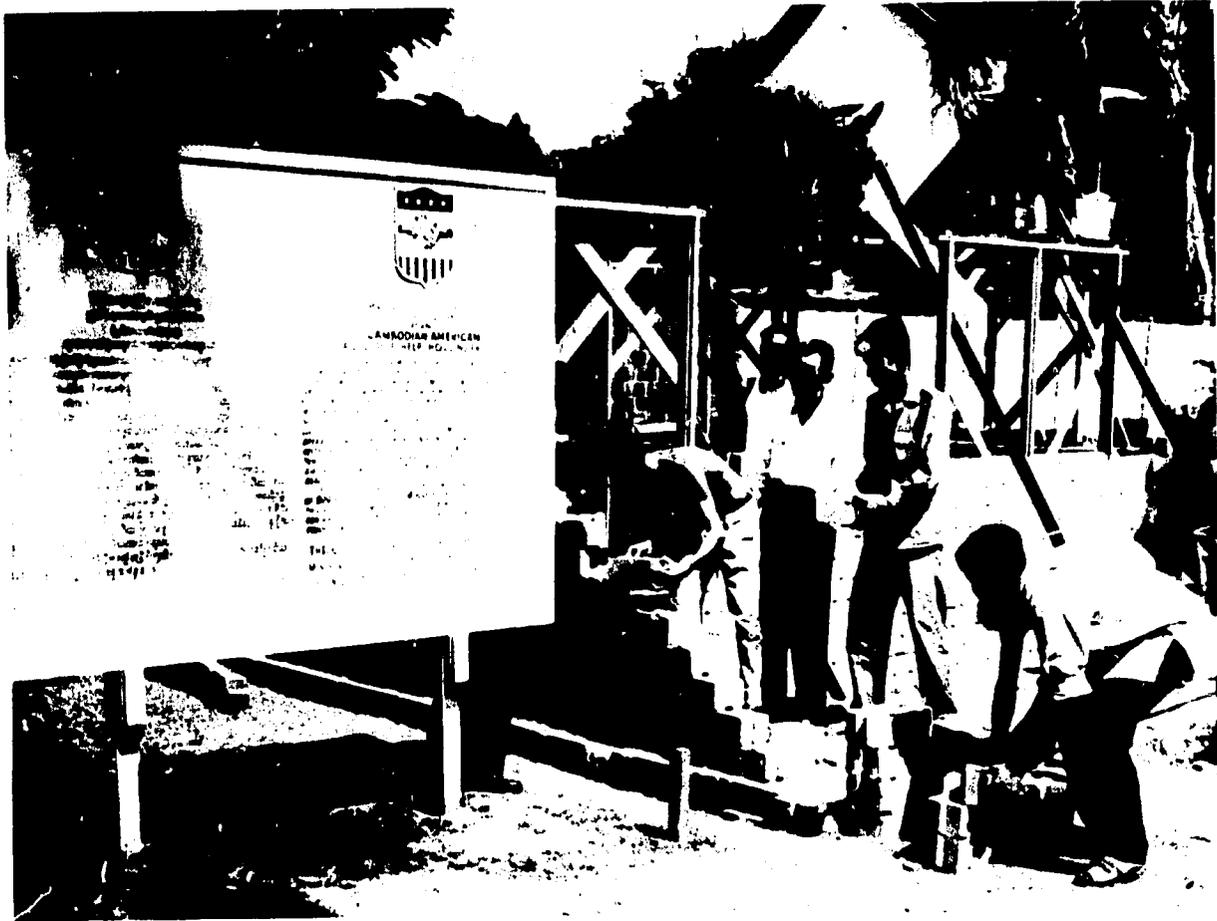
It may be helpful, in this book on aided self-help, to briefly discuss a few typical examples of how this principle has been applied to housing improvement. Those which are outlined in the following paragraphs were chosen to illustrate a wide range of techniques.

Cambodian-American Aided Self-Help Housing Project

The sign on the photograph below explains this project as follows:

"This project is designed to promote better rural housing through the self-help method and by utilization of the natural resources of Cambodia. The housing under construction here is simply designed to encourage rural families to build new functional homes during their leisure time. The building materials for the housing are compressed stabilized earth with small amounts of cement and wood, and aluminum roofing. Tests have proved that the natural soil of Cambodia contains enough clay and sand to make good bricks. Using the hand block machine you now see in operation, waterproof bricks can be made by mixing ten parts of soil with one part of cement and just enough water to make the mixture stick together. The blocks are cured by stacking in free air shaded from the sun. After 8 days of curing, the blocks are ready to be used. It has been estimated that one family can produce an average of 500 bricks a day. Since only 4000 bricks are required to build this house, this means that after eight working days one family can have earth bricks to start building this new fireproof, waterproof home.

"Through the courtesy of the Cambodian Ministry of Education, students of the College Technique are helping to build this model home."





Self-aligning stabilized earth block construction. Note block built around window and door frames.

CAMBODIA



Block making machine. Note cross bars on lid leaving depression in block.

CHILE



Aided Self-Help Housing Program, Santiago, Chile (1956)

Housing Adventure in Chile

Chile has been practicing various methods of aided self-help and has produced thousands of dwelling units in Santiago and other urban areas, such as Valparaiso. The Chile Housing Corporation (CORVI) has completed at least eight aided self-help projects during the past 6 or 7 years. Three of these were in Santiago with a total of about 3,000 houses. The program met with great enthusiasm in spite (or because of) the hard work on the part of the participants, as well as government officials. However, the demand for additional housing was so great that there was not enough time and enough staff to organize aided self-help projects properly. The system was finally abandoned in favor of building houses under contract.

INVICA, a private Catholic organization, has likewise constructed aided self-help projects with a total of 800 to 1,000 houses. Participants worked about 1,000 hours on their houses and about 300 hours on site improvements, such as sewer and water lines or streets and sidewalks. The individual families moved into the houses as soon as possible and did much of the finishing work later. Some of the work on the INVICA projects was done under contract or by labor which INVICA hired and supervised directly.

The American aid program, some years ago, also made a substantial contribution to the aided self-help program. A good record of this program is contained in the film "Housing Adventures in Chile," which is obtainable from the Agency for International Development or through the Division of International Affairs, Department of Housing and Urban Development.

Aided Self-Help in Burma

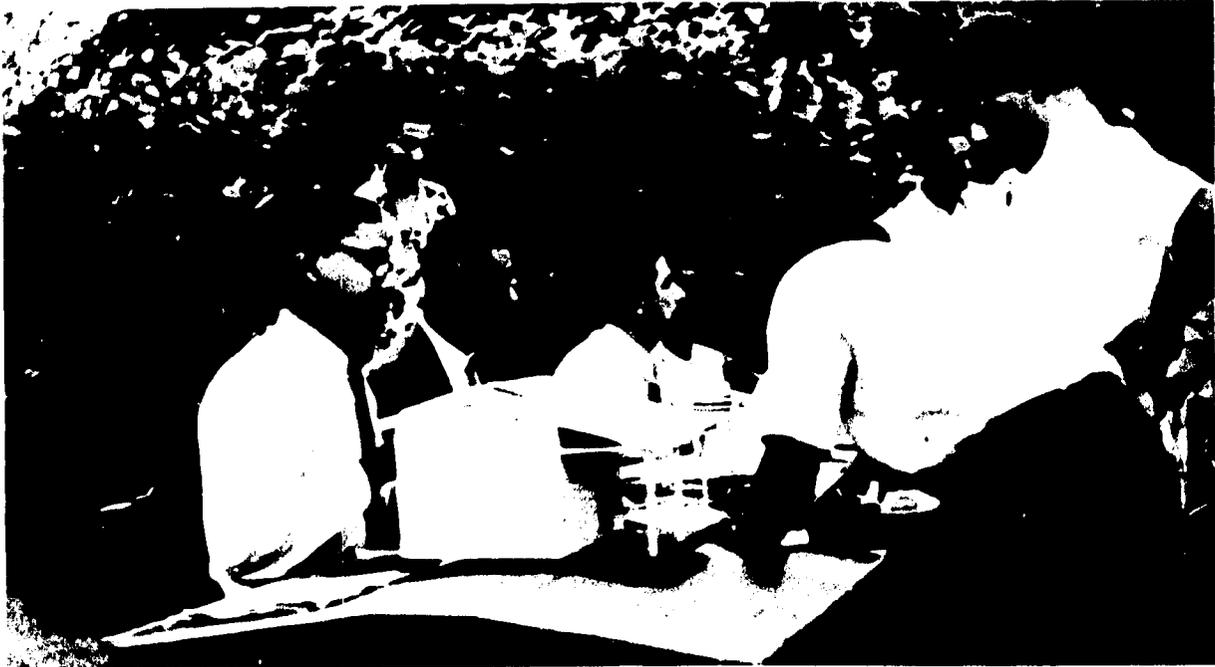
In Burma many of the lower income groups live in small thatched or basha huts. A survey among textile workers near Rangoon indicated that the dwellings averaged 300 square feet in area. The life of the thatch was from one to three years. Often it was replaced annually just before the monsoon. The structures themselves had an average life of about five years.

Thatch is a commodity on the market and, therefore, to many the regular replacement of the thatched roof means a periodic, out-of-pocket expense which they can ill afford. In addition to this disadvantage, the thatch is not a satisfactory material. It leaks, is highly flammable, and offers an excellent refuge for vermin.

The Burmese Government believed that if a durable, sanitary, and fire resistant roofing material could be supplied at about the same over-all cost, over a period of years, as the thatch, better housing would result. It was also believed that if a water-tight and fireproof roof would be possible, the structure under it would last longer, thus eventually encouraging the construction of somewhat larger areas.

After technical investigations, the Government purchased three million square feet of corrugated asbestos and aluminum roofing sheets, together with special flexible metal fasteners, which made it possible for the occupants of previously thatched huts to secure the new sheets to existing bamboo roof purlins.

Early in 1953 release of this material to the inhabitants of a few villages was begun. Quantities were limited to only enough material to cover the dwelling areas and even then a maximum was established. Release was to those owner occupants who were not financially able to purchase similar material on the open market if and when available. It was subject to certification by two elders of the village and a representative of the National Housing and Town and Country Development Board. The sale price was established at cost, with a cash payment required, amounting to one-sixth of the value upon release of the material and the balance in installments over a five-year period. Six percent interest was charged on the unpaid balance. Collections were made by the headman of the village and deposited in the sub-treasury. The Government retained title to the roofing material until all payments were completed. Violations were promptly, although sympathetically, dealt with.



Participants "signing up" for new home

JAMAICA

Aided self-help housing construction site



Thus, the Burmese Government has attempted to make it possible for the lower-income families to materially improve their shelter conditions within their ability to pay--a practical example of aided self-help.

After The Jamaica Hurricane

Following the hurricane of 1951 which, it was estimated, destroyed or seriously damaged about 75,000 structures on the island of Jamaica, the principle of aided self-help housing was introduced into the emergency building programs of both the Hurricane Housing Organization and the Central Housing Authority. A grant of £2,250,000 extended by the Government of Great Britain provided most of the funds. The bulk of the aided self-help in housing was accomplished under the rural program of the Hurricane Housing Organization. The Central Housing Authority, however, made a considerable contribution through a demonstration introducing aided self-help in the construction of urban houses.

The Program of the Hurricane Housing Organization

The Hurricane Housing Organization attacked the repair of damage through a four-point program, including an emergency program for widespread provision of limited funds for quick repair; a scheme for the construction, under contract, of urban houses; a loan program for repair of damaged urban houses; and a rural reconstruction program.

Of these four schemes, the rural plan included aided self-help housing in the fullest sense of the word, and it is this plan which will be reported here in detail.

In developing the rural aided self-help housing program, the Hurricane Housing Organization investigated the experience of other countries in the area and based its whole proposal on the belief that the participants in the scheme would and could make payment for materials and services and that a system of collections could be found and a savings program developed which would make this basic feature of the scheme possible. Under this plan, rural families were eligible for assistance if:

1. The 1951 hurricane had destroyed or seriously damaged their previous quarters;
2. they were financially unable to rebuild permanent shelters;
3. it was believed that they could make regular payments toward repaying the State loan;
4. they agreed to provide the incidental labor and make other proposed contributions in connection with the reconstruction of a minimum house.

The rural scheme provided for the erection of cottages for farm laborers and small farmers under the aided self-help principle. Under this plan, the landless farm workers were resettled on small plots in land assemblies acquired by the State, and they, as well as the small farmers who rebuilt upon their own small farms, were to contribute local materials (mostly sand and gravel) and labor to assist with the construction of their homes. Two basic house types were contemplated with floor areas

of approximately 120 square feet and 170 square feet. The cost of aid was estimated at approximately £ 120 for the smaller type of house and about £ 130 for the larger unit. In addition, the value of the materials and labor furnished by the families themselves has been estimated at £ 13.15.0 and £ 19.10.0, respectively. 5/

Of the estimated cost for the smaller house (£ 120), £ 78 is considered a grant and £ 42 as a loan. Of the £ 130 representing the cost of aid for the larger unit, £ 85 is a grant and £ 45 is considered as a loan. Both loans are repayable over a period of twenty years.

As the plan developed, the Hurricane Housing Organization expected families who participated to clear and level their building site, excavate for foundations, provide local materials such as sand, gravel and stone, and, assisted by a limited amount of skilled labor, to erect the basic structure. In addition, they were expected to build a kitchen in the rear garden and erect a latrine using a precast concrete platform and seat provided by the State. The Hurricane Housing Organization, as its contribution toward the plan, provided lumber, cement, roof covering material, windows and doors, rough and finished hardware, a limited number of skilled mechanics to advise and assist in the construction, and limited supervision.

The technical staff of the Hurricane Housing Organization had designed a minimum house built in the traditional pattern for permanent structures of the Island, incorporating what was believed to be the maximum amount of local materials and labor with minimum cost to the State. The buildings were designed with a basic frame structure of accurately precut and predrilled lumber bolted and reinforced with iron so as to be hurricane resistant, with corrugated aluminum sheet roofing and mass produced window and door frames. As designed, the vertical spaces between the wood structural members of the exterior walls are filled with concrete nogging, which together with strips of expanded metal laid at the points of contact with the wood, formed a base for exterior stucco and the interior plaster on the walls.

Almost before the program got under way, it was discovered that the small farmer often did not hold proper title to his land. At that time, it was believed that it would be impossible in many cases to clear these titles expeditiously and the emphasis of the program was redirected to include more and more of the landless farm laborers who were to be housed in housing projects. They built their houses on small lots in large land assemblies acquired by the State. In many instances large estates, particularly the sugar producing ones, provided land to the Government for this purpose at nominal sums or for token payments.

As the program proceeded, the Hurricane Housing Organization developed two basic forms to insure participation by the families to be housed. The first it called the "mutual assistance group" which was usually comprised of from 5 to 15 families who would be housed on land acquired by the State. They might previously have been neighbors but most often were dwellers in the same general community who elected to work in a group project. They exchanged labor and built their houses together on the "day for day" basis, working together until the required number of houses had been completed. In the interest of speed, it was hoped that the members could give part of each day to their cooperative activities. This usually was not possible and the division of

5/ One Jamaican pound equals \$2.80 (U.S.).

labor was arrived at by common consent within the group. On Sunday all members usually worked. If a worker could not attend on the days on which he agreed to work, he was required to send a substitute. Members were also encouraged to work extra time on their own units when other members of the group were not at hand. They often worked at night when the weather permitted. Each group chose its own leader who was responsible for seeing that proper records were kept and work schedules were maintained. Often women were elected as the group leaders.

The second form was the "family group" which usually constructed a single unit, possibly in an isolated area and often on small farm holdings. The head of the family, in these cases, sought the assistance of the members of the family and neighbors and friends in the construction of his home. At times the "mutual assistance groups" did not work out as planned and the former members of the group each proceeded "on his own" under the "family group" plan.

Regardless of what form, group or individual, the construction activity finally took, the Hurricane Housing Organization acquainted large groups of possible participants with the full scheme through general publications, the distribution of simple brochures which spelled out the basic elements of the program, and through organized study savings groups. The groups met for the purpose of having the entire plan explained to them and to explore ways and means through which they might accomplish their objective. They studied plans and specifications and discussed the acquisition of local materials and their problems in connection with loading, transporting, unloading, storing, and the safety of building materials. No length of time was arbitrarily fixed for the study period, but it was considered important that ample opportunity be provided to the applicants so that plans were well understood and each individual made aware of the part he was to play in carrying out the project. Experience showed that there should be no lapse of time between completion of the study period and the beginning of the actual building.

During the study period, the Hurricane Housing Organization introduced what it called the "savings plan." Under this plan, and taking advantage of the regular meetings for study purposes, it attempted to develop the thrift habit to provide members with funds with which they could meet their financial obligations. Under the plan members of the group each decided upon the amount he could save in the period between the meetings of the study group. Members were provided with pass books in which their savings could be recorded. Group savings were banked within 48 hours of collection, and it has been reported that the groups often finally formed formal savings and credit associations as a result of their initial activities in the savings plan.

The Hurricane Housing Organization believes quite strongly that these study and thrift meetings should be extremely well organized with well planned programs lasting not over one and a half hours. Group discussion techniques are used and the meetings usually held on a weekly basis.

Although the aided self-help houses are built to standardized designs, after the structure is erected and roofed the families are encouraged to use their own individuality and color schemes. The selection of one of several types of windows and doors are left to their individual choice. During this period with enthusiasm running high, it is found that the work progresses at an accelerated rate. Building teams are willing to carry on at night, and it has been reported that during moonlight nights operations



The Executive Director of the Social Programs Administration (left) shows house in rural community to foreign visitors. (1965)

PUERTO RICO



A rural housewife and daughter greet official of the Social Programs Administration and foreign visitor. (1965)

proceed very rapidly. Even at this time, however, those in charge of the program attempt to keep the operations proceeding in an orderly manner and to see that the rate of construction of each building keeps reasonable pace with others in the group. This principle is even carried on in connection with the construction of the outbuildings, the garden kitchens and the latrines, to insure that these facilities will be in order at the time of occupancy.

The Puerto Rican Experience

Most of the aided self-help housing in Puerto Rico is carried on under a program of the Social Programs Administration. For several years this Administration has been carrying out a program of rural resettlement incorporating the principles of community planning and development with initial emphasis on improvement in agriculture, roads, water supply, and sanitation and the formation of cooperative enterprises. It has also included a program of aided self-help in housing with emphasis on the formation of study groups to teach families to organize themselves for direct cooperative action in building their own houses with aid from the Government.

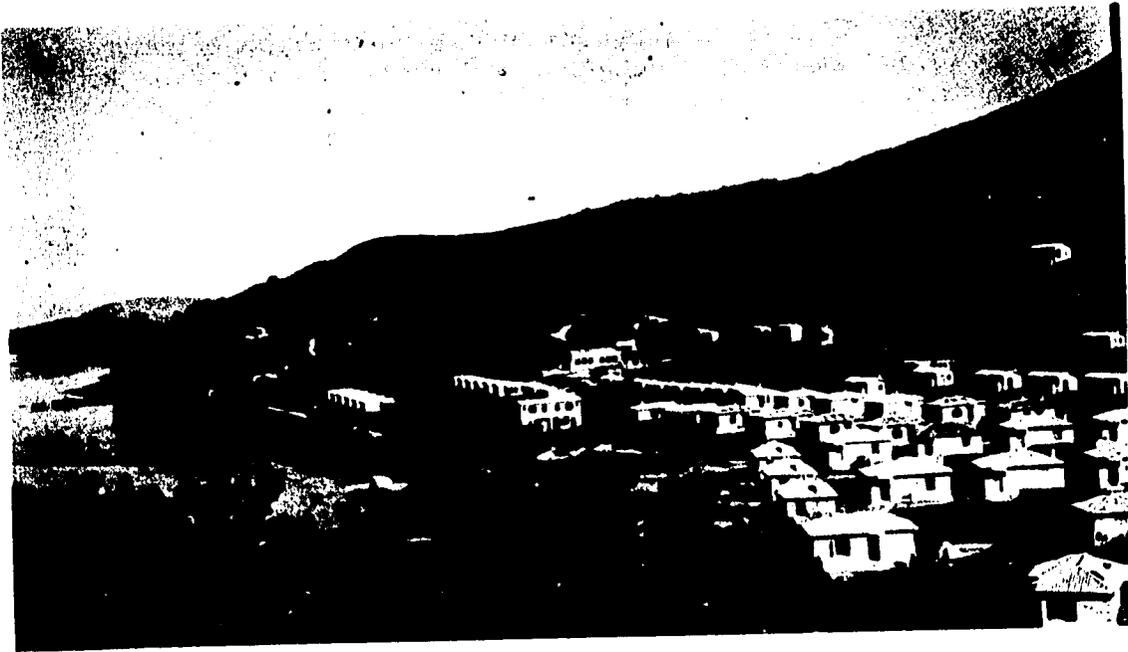
The low cost rural housing program is a direct follow-up of the Rural Resettlement Program, under which over 67,000 landless farm laborers (agregados) have been resettled on plots of land ranging up to three acres in size.

Under the aided self-help housing program, which was started in 1949, the original 324 square feet house of reinforced concrete, stuccoed and plastered, has been expanded to 483 square feet. The new type house consists of two bedrooms 8'6" x 8'6" each, a combination living-dining room 8'6" x 10'0", a kitchen 8'6" x 8'6" and a porch 8'6" x 8'4". These new houses cost approximately \$550, of which the family pays \$50 as down payment and the balance in monthly payments ranging from \$4.25 to \$4.75 over a period of 10 years.

The families, organized in groups of 15 or more families, provide free of cost all the required labor. The price of the house includes electrical conduit, but does not include inside plumbing. However, water service is provided in each lot for future installation of running water and bathroom facilities. The design of the house is such that additional rooms can be added later. The program has been extended to small farmers with farms averaging 17 acres.

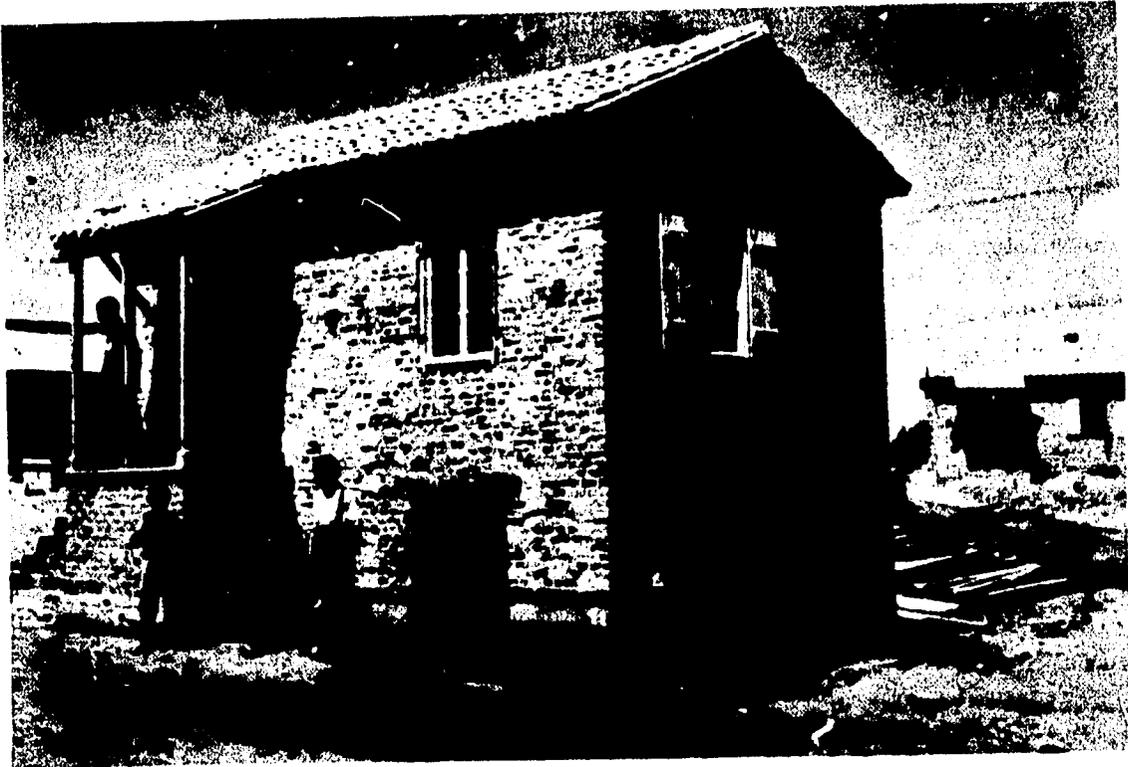
The participating families become accustomed to working together in community planning and development as a result of their group activities in improving roads, sanitation, etc. Under the housing program they attend a series of meetings prior to starting work on their houses and during the construction period. These meetings are intended to bring the group together on their common tasks, towards an adequate understanding of what is involved, both socially and technically.

Since available funds are limited, the communities selected for inclusion in the housing program must meet rigid requirements. Housing must be inadequate and the interested families must have demonstrated a positive attitude toward cooperation in group action by successful participation in group programs for the construction of roads, community centers, etc. The community must have adequate roads for transportation of building materials and a local supply of stone, sand, gravel, and water



Aided self-help housing project site (1950)

GREECE



Typical self-help dwelling of masonry construction

must be readily available. In a selected community, families are carefully screened for participation. Eligibility is determined after general investigation, a visit to the home, and an analysis of living conditions, economic resources, family size and composition, and the attitude toward the community in its ultimate development. To qualify, a candidate must be a family head, be inadequately housed and desire to improve his housing, have a good record in the area and title to the site upon which he would build, and have financial resources sufficient to meet the obligations resulting from the construction of the housing. In addition, he must agree to demolish his existing sub-standard house upon completion of the new one.

The solution, in many respects, is extremely well thought out. It has provided over 30,000 durable, sanitary, earthquake and hurricane resistant houses with an appraised value of (approximately) \$2,000, which are quickly erected by the participating families, (twice as quickly as the previous combination of reinforced concrete and concrete masonry units).

The Greek Emergency

An example of the adaptation of the principles of aided self-help to a housing emergency is represented by experiences in Greece. While the rest of Europe was already repairing war-caused damages, Greece was fighting a communist-inspired revolutionary army. To the damage caused by World War II, she was suffering daily from additional destruction caused by the new fighting.

Almost a million refugees from the rural areas were temporarily housed in makeshift shelters in security centers. Agricultural production was at a standstill in some of the most productive areas.

Late in 1949 the rebel army was defeated and reconstruction -- to get the refugees re-established in their farm villages -- was imperative. Over 90,000 homes in over 2,100 villages had to be rebuilt. If the economy were not to suffer too severe a strain, this reconstruction work had to be completed before the winter season of 1950-51 set in -- slightly over a year.

The construction or major repair of the 90,000 houses could not be assumed by the existing building industry; it was not equipped for a program of that size. There were not enough building mechanics, materials, or money in Greece to accomplish the task.

At that time Greece made two decisions. First, she decided that the returning refugees must be content with a nucleus of a house, to be expanded to required size at some later date. The nucleus was to be about 30 square meters in size. This reduced the requirements for materials and money to a point where it seemed possible to accomplish the task. There still were not enough building mechanics to even build the nuclei.

It was at this point that Greece turned to aided self-help. She decided that the returning refugee families themselves must build their own houses. The responsibility was put on each family and, almost without exception, it was accepted. The families were to gather the locally available materials--stone, adobe earth, and sometimes timber. Then, with what aid as was to be provided, they were to finish construction.

Aid was in the form of hard-to-get materials and limited amounts of cash to buy locally-produced materials and to hire, for short periods only, skilled mechanics who would instruct and assist in the most difficult phases of wall construction and roof framing. It also included, of course, technical assistance in design and advice during construction and effective administration of the whole program.

The hard-to-get materials furnished as part of the aid consisted of nails, lumber, finished hardware, roofing materials and, where other locally available materials did not exist, bricks for wall construction. Nail wire, lumber, and lightweight roofing sheets were procured abroad.

The administration of the program by the Ministry of Housing and Reconstruction was very effective. As the war torn areas became secure, the Ministry sent all available personnel to the damaged areas to survey the destruction and estimate the materials and funds which would be needed. Damaged brick and roofing tile plants were rebuilt using all sorts of make-shift materials. Limited available supplies of building materials were transhipped from unaffected areas in Crete, Corfu, and Rhodes.

Over nine million dollars worth of scarce lumber, nail wire and lightweight roofing sheets were purchased for earliest possible delivery from foreign areas.

As the refugees were returned to their damaged or destroyed villages they were met by representatives from the Ministry. The aid was made available as necessary. This was no mean accomplishment since many of the 2,100 villages were without telephone or mail service. As the supplies reached the ports they were unloaded, moved in commandeered trucks to the villages, or to the nearest road head if the villages were high in the mountains and accessible only by paths. From these road heads the

GREECE



Mules carry building materials where roads do not exist

materials were carried by the families to their home sites. Sometimes they used the few pack animals which were left after their stay in the refugee centers. Army pack units were pressed into action where available. Supplies of lightweight roofing sheets were reserved for use in these remote areas.

In a manner to match the effectiveness of the administration of aid, the families accepted the responsibility for the rebuilding of their homes and made remarkable progress. In August of 1950, 14,000 moved into reconstructed homes. Through September and October, 31,000 houses were completed. In November, 15,000 were ready for occupancy and 30,000 more were nearing completion. Unusually good weather continued until late in December and there were few, if any, refugees who were forced to return to the security centers because of lack of shelter.

The distribution of cash was not abused. Release, in installments, to the families was the responsibility of local committees made up of civic leaders, the village priest, the mayor, and a representative from the Ministry of Housing and Reconstruction and was on the basis of eligibility for aid and progress of construction. The Ministry maintained one paid representative in each village, if possible, although in many instances one person was, of necessity, made responsible for the activity in several adjoining villages. This person served on the committees which released the funds and was responsible for the actual issuance of the materials. He also advised the families on their construction problems. Periodic review of his work was made by a competent engineer of the Ministry.

When the final tally was taken, it was found that almost 70,000 of the 90,000 houses which were rebuilt during the spring, summer, fall, and early winter of 1950 were done by the families themselves under the aided self-help plan. The exceptions, whose nuclei were built by the Government, were for (1) those near the borders of the country who were forced to spend most of their time fighting for their lives and their scanty supply of livestock against unofficially sanctioned raiding parties from their communist neighbors and (2) those returning to the arid grasslands without their sole prewar source of income, their livestock, and who could not be aroused from their hopelessness.

As the program finally developed, the minimum house, on an average, received aid in the form of hard-to-get materials, valued at slightly less than \$300 (US), and cash assistance amounting to somewhat over that same amount--a total of \$600 (US), including warehousing, transportation of materials and overhead in the field. Some of the families, able to salvage some materials from their destroyed houses, built larger houses than the minimum 30 square meters, upon which the release of materials and cash was based. Others, embarking upon too ambitious plans, found themselves in difficulty. On the whole, the facilities average about the same in size as the comparatively few nuclei which were built under contract at an average cost of \$1,200 (US). Thus, the 70,000 houses built under the self-help plan reflected a gain to the national economy of about \$600 each--a total increase in the country's resources over outgo of something over \$40,000,000.

The Greek program is an example of how aided self-help may be applied in a housing emergency so that a government and its people may work hand-in-hand with effective cooperation to the mutual advantage of all concerned.

View of some of first
36 dockworkers' houses,
during construction
(1953-54)



TAIWAN, CHINA

Dockworkers' families
pay visit to houses in
which they are going
to live. (1953-54)



The Taiwan Experiment

After the hurricane of 1952, housing conditions, especially in the port areas of Taiwan, were unsatisfactory by almost any standard. Many families were forced to live in hastily thrown together huts, while others found what shelter they could in doorways, under bridges, etc. Perhaps the dockworkers were the hardest hit of all. In any event, their unions had accumulated some welfare funds which were used, together with funds from the government, to initiate experimental housing projects using the aided self-help principle.

The first project to get underway was at Keelung, where a total of 66 dwelling units were planned as a start. The houses were to be built in short rows. They were to be a typhoon-resistant type, of reinforced concrete, and either cinder or soil cement blocks which were to be made in small portable block making machines. Dunnage was to be used for doors, windows and forms for the reinforced concrete. Estimated costs were in the neighborhood of \$8,000 NT, about \$520 (U.S.). It was estimated that each householder would have to supply about 480 manhours to complete his house, including 120 hours for landscaping and community improvement.

Actual construction started on the anniversary of Confucius' birthday, September 27, 1953, it having been determined that September 27 was a good day to commence work according to the astrologers.

As a start, the foundations were completed for 22 houses, the future householders supplying the labor as a group operation with everyone working on all of the houses. Interest soon lagged and work progress dwindled to almost nothing. At this point, it was decided that each family would be responsible only for the work on its own house. Thereafter, interest increased rapidly and each day a larger percentage came to work on their own houses. Soon, on a voluntary basis, they were again helping each other in the more difficult phases of the work.

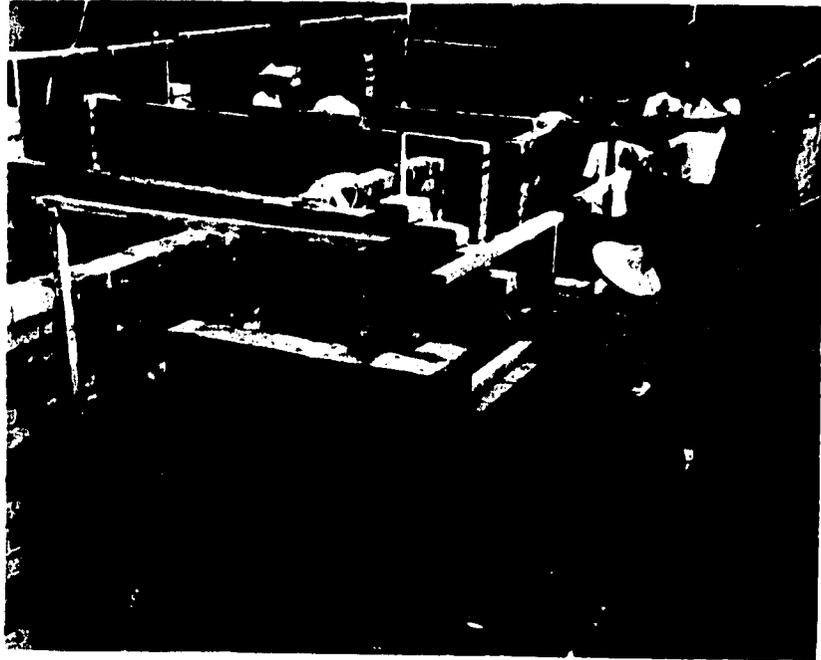
A similar program was soon underway for the dockworkers of Kaohsiung, sponsored by the Kaohsiung Dockworkers' Union. This group of houses was to take care of 75 families, averaging six people per family. It was planned to build 75 houses a year thereafter.

Land and simple site utilities were to be provided by the Municipal Government of Kaohsiung. The occupants were to eventually own the land and the houses. As at Keelung, monthly payments will amount to a minimum of \$60 NT -- about \$4 (U. S.) per month. Joint deeds will be held by the householders and the Dockworkers' Union until repayment is completed.

The Keelung families moved into the first 22 houses on May 1, 1954. The other 44 houses were then nearing completion. The houses at Kaohsiung are likewise completed.

In the meantime, similar programs have been established and construction has been started at the University of Tunghai and by the Aid Refugee Chinese Intellectuals. Other projects have been sponsored to assist salt workers and coal miners of the Island.

Construction of
aided self-help
housing



TAIWAN, CHINA

Block-making machine



Swedish Pioneering

After experiments in 1920 and 1921, the Municipality of Stockholm, Sweden, in 1927, inaugurated a "Small House Cooperative" which was the first, or at least one of the earliest, large-scale examples of aided self-help in housing improvement in modern times.

Under this plan, which came to be known as "The Stockholm Plan," the city authorities provided low-income families who were ill-housed and were willing to help build better shelter for themselves, with an improved site upon which to build a new home. If desired, the city purchased and distributed all of the required building materials and gave such advice and instructions as were necessary. Repayment, with interest usually at 4 and 5 percent, was over a period of 30 years.

From the very beginning the houses were modern with gas, water, sewer, electricity, central heat, and bath. Often a Finnish type steam bath is also included in the basement.

Eligibility standards established at that time have continued. The families must have demonstrated reliability, be residents of Stockholm, and be within the range of the lower-income group. At recent price levels, they must have an annual income of at least 4,500 Kroner, about \$870 (U.S.), since little, if any, ultimate subsidy is contemplated. The top limit is 12,000 Kroner, about \$2,320 (U.S.), for a family with one child and increases by 1,000 Kroner per child up to 16,000 Kroner, about \$3,100 (U.S.). Expenditures per year for amortization and maintenance average about 1,100 Kroner, about \$200 (U.S.).

Every family carries on as an independent contractor during construction, taking full responsibility for its enterprise. They may sell their houses if they like but, to prevent speculative building, having once sold they can never again participate in the plan.

Although most of the families do not represent skilled building trades (55 percent are industrial workers, 25 percent are policemen, taxi and tram drivers, firemen and foremen, and the remaining 20 percent are clerks or sales people in shops), the average family group can build its house in slightly over a year when working on weekends, holidays, and some of the evenings during good weather.

In a number of Swedish cities--notably Stockholm--virtually all of the surrounding land not already built up, extending for miles in all directions, has been bought up by the municipalities and is held as a land reserve for future needs. It is retained in agricultural use until ready for development. When developed for urban use, the land is leased, usually for 60 years. The leases are renewable, with provision made for an increase in the annual rate, or for termination at that time. When portions of this land are to be used for housing for the lower-income groups, the sites are improved to quite simple standards and are released to the families who will improve them under the aided self-help plan.

Although the families are free to buy the building materials from any source, they are usually purchased and provided by the municipality since everyone may then gain from the lower prices resulting from mass purchase. They are delivered as

**Finished aided
self-help wood
home in Stockholm**



SWEDEN

**Erection of
exterior pre-
fabricated
wall panels.**



needed--the large pieces directly to the site, the smaller ones and those subject to damage to a nearby warehouse for withdrawal as needed. The city handles all financial arrangements and keeps all records. It arranges for such work as the families are not equipped or permitted to do, such as connections for gas, water and electricity, and sees to it that workmen to perform these tasks are on hand when necessary.

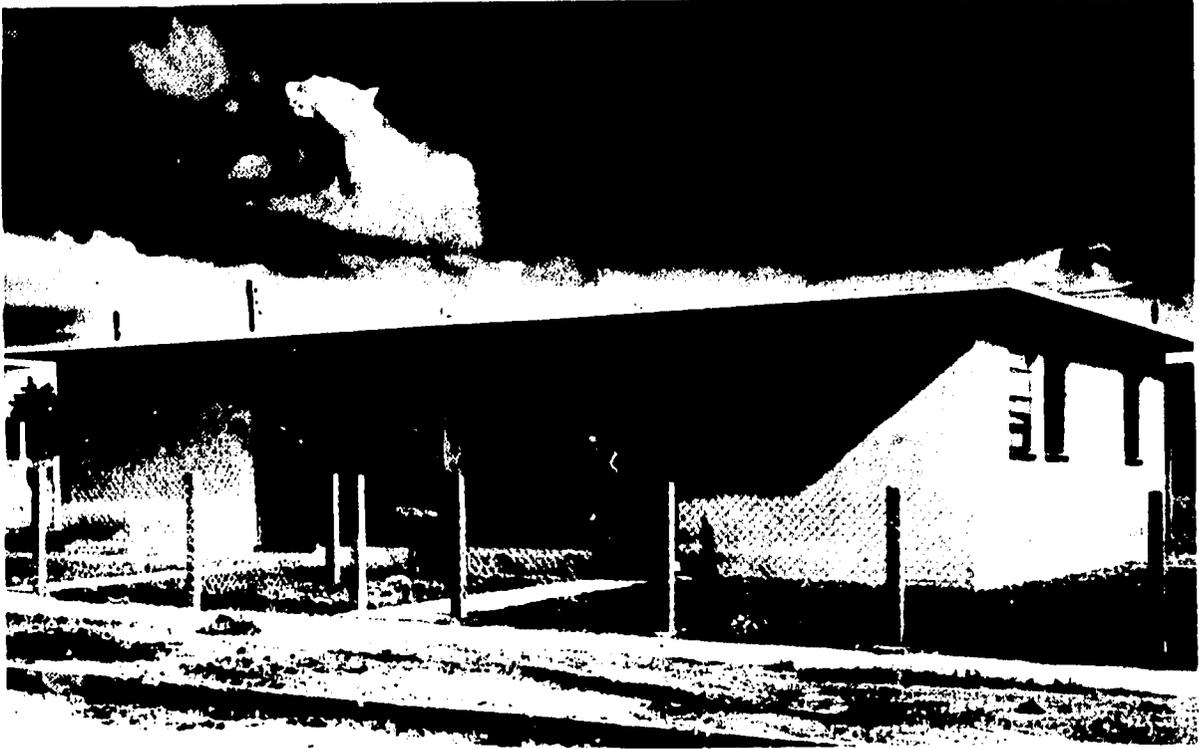
As soon as the basement walls are completed, a prefabricated structural frame is delivered to the site. Assisted by experienced technicians, the family, its relatives, neighbors, and friends complete the erection of the frame usually over one weekend. The other materials are placed by the family. Pieces come pre-cut to size. Pipe is threaded ready for connection. Special chimney blocks permit safe chimney construction by inexperienced labor. Types of houses are limited, of course, since standardization is employed to the maximum degree. Floor areas range from about 60 square meters to slightly over 80 square meters. In 1946, costs averaged from 18,000 to 19,000 Kroner, about \$3,500 to almost \$3,700 (U.S.) for the one story and basement houses containing three rooms and kitchen, to 20,000 to 21,000 Kroner, almost \$3,800 to a little over \$4,000 (U.S.) for two-story houses with four rooms and kitchen units. The labor of the families, savings resulting from mass purchase of materials, and prefabrication and standardization are estimated to have reduced the costs by about 30 percent when compared to other construction.

The Guatemalan System

In 1956, the Government of Guatemala, with financial and technical assistance from the Government of the United States, developed an Aided Self-Help Housing Program to build about 3,000 houses. Ten projects were planned and built in various locations throughout the country, each project ranging from 100 to 1,000 dwelling units.

Under the Guatemalan system, only part of the work was performed by the participants. They worked 20 hours per week, mostly evenings and weekends. They were trained to do simple operations such as casting stepping stones, fence posts, or roof beams, and operating a hydraulic block making machine producing about 6,000 blocks per day. These operations took place at a large centrally located shed which was later converted into a school house. In this manner training and supervision of participants was an easy matter (as against supervising people scattered over the project site). Furthermore, the fabrication of building elements could continue during the rainy season. The system also saved electricity; at night, only the area inside the shed had to be illuminated, not the total area of construction. The big saving, however, was one of time. Performing the more skilled functions (plumbing, wiring, etc.) under contract or force account, it was possible to complete houses at a rate of one per day. Total man hours per house were reduced from 1,800 at the beginning of the program to 1,200 three years later.

The Guatemalan system was successful in retaining the important features of self-help, i. e., the spirit of cooperation and of having a personal stake in the program, while reducing the disadvantages to a minimum, i. e., the difficulty of proper organization and of keeping construction work down to a reasonable period of months. Thus, participants had to work for only four months (after the program gained momentum) which is much less than the average working time in projects elsewhere. Nevertheless,



Aided self-help duplex home in Guatemala City (1959)

GUATEMALA



Rural aided self-help home and indigenous hut

they were proud of having built their house with their own hands; whether this was done in the shed or at the individual house site was immaterial.

Most houses were of the semi-detached type with a floor area of 57 square meters and containing living-dining space, three bedrooms, kitchen and bath. Lot sizes were 200 to 400 square meters.

Financial arrangements called for a 20-year mortgage contract with payments of \$15 per month. Total development costs per house amounted to \$2,500 to \$3,000 including land, utilities, roads, landscaping, overhead, and fees and services.

The breakdown of the total development cost of the average house was approximately as follows:

Materials	\$1,200
Hired labor	500 (plus \$200 self-help labor)
Urbanization	300 (materials and labor)
Land	200
Water tax	200 (one half paga=60,000 liters per month)
Architects and engineers	40
Foremen and social workers	50
Office personnel	200
Office expenses	100
Equipment and tools	200
Transportation	<u>10</u>
	\$3,000

Prospective home owners had to save \$5 per month during the period of construction. The accumulated amount (usually \$20 or more) was held as a deposit and was credited to future mortgage payments. The \$15 per month includes a charge of \$1 for life insurance. If the breadwinner of a family should die, the mortgage of the house is considered paid off and the family can remain in the house and own it outright.

The criteria for the selection of participants limited the age of the applicants to between 18 and 45, the size of a family to a minimum of 4 and a maximum of 7, and the income range to between \$65 and \$130 per month.

For the purpose of carrying out the program, the Government of Guatemala had created a Cooperative Housing Institute. This Institute was later (in 1965) transformed into a permanent housing agency charged with all problems of housing (including aided self-help) and the creation of complete communities financed in whole or in part with public funds.

Nicaragua Uses Tilt-Up Method

During 1959 and 1960 a model project was built in Managua, Nicaragua. The project contained 104 houses and was financed jointly by the Governments of the United States and of Nicaragua.

The house type built was an individual detached home of about 465 square feet of floor area. This comprised living area, 2 bedrooms, kitchen and bath. Construction was done almost entirely by the participants and took as little as 938 man hours per house. The time required for completion was 43 weeks. The method employed was the tilt-up method of reinforced concrete panels with L-shaped corners. The roofs were of corrugated iron on light-weight wooden trusses.

Participants had to be married and had to have a minimum of two children but not more than four. Their minimum income was fixed at \$70 per month. Of the participants selected, 59 percent earned between \$70 and \$85, 29 percent between \$85 and \$115 and 12 percent between \$115 and \$140 per month. Some 76 percent of the participants were between 25 and 35 years old. Their occupations were mostly mechanics,



Nicaraguan aided self-help home

chauffeurs, carpenters and clerks. Groups of participants (usually 6 per group working on a house) worked 20 hours per week from 6 to 9 p. m., on weekdays and from 7 a. m. to 3:30 p. m. on Sundays. No work was done on Mondays and Saturdays.

The total development costs per house amounted to approximately \$2,000 and were paid by the participants in monthly installments of \$13.18 over a period of 20 years. The interest charge was 5 percent. Mortgage loans were serviced by the Nicaragua Housing Institute (INVI) which planned additional aided self-help demonstration projects in other parts of the country. A breakdown of the principal cost items (rounded off) follows:

Land	\$ 750
Water, sewer, and lights	100
Building materials (This includes hired labor for plumbing and floor installation.)	938
Equipment	34
Salaries, paid labor and overhead	<u>178</u>
	\$2,000

Rhodesia's Urban African Home Ownership Project

In 1960, at the request of the Government of the (then) Federation of Rhodesia and Nyasaland, U.S. housing technicians began research necessary for an urban aided self-help project near Salisbury, the capital of Southern Rhodesia.

The first step was a survey of 32 families newly moved from slum dwellings to standard government housing to determine needs and desires of those in the general economic (approximately \$30 to \$60 U.S. per month), tribal, and skills range proposed for the aided self-help project. From this data, plans and models were prepared for a 513 square feet dwelling with three bedrooms, living-dining, kitchen and bathroom. To allow for lodgers--an accepted part of Rhodesian urban living--one bedroom was made directly accessible to the bath and rear entry without access to the rest of the dwelling. To allow maximum use of available floor space, bunk beds and recessed closets were provided, arranged to allow the use of wardrobes where these were already owned. A two-burner kerosene stove, a plastic (paint) covered asbestos cement sink (finished on site) and a worktable incorporated in a moveable screen wall to allow flexible use of space were included in the standard kitchen. The bath was provided with a W. C. and shower stall, arranged to allow room for a future bathtub, corner basin and water heater in a 24 square feet area.

Construction was evolved as a site pre-cast reinforced concrete structural system, with block or brick infilling, and an asbestos cement roof on a wooden frame. The prefabricated columns, slung in place over the foundation trench in simple "A" frames, with steel projecting at the bottom, were tied to footings when the concrete was poured.

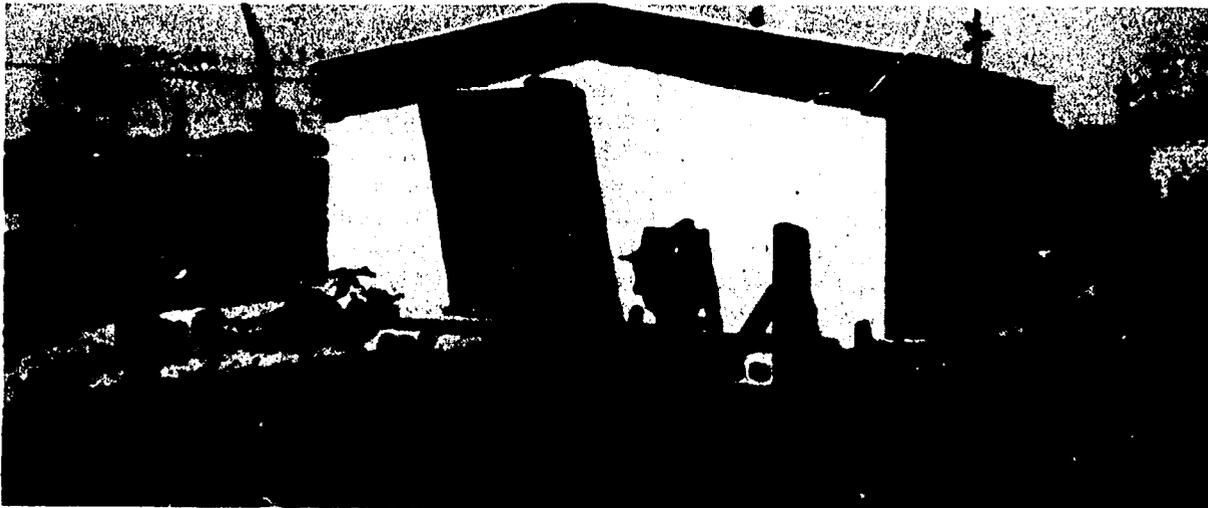
RHODESIA



Aided self-help participants place a set of 12 precast columns in A frame which will support them while the foundation is being poured



The first group of aided self-help participants to carry out 100 hours of work receive blazer badges and certificates of achievement



The completed model home in Highfield Township was used in training aided self-help staff and was visited by prospective participants, as well as several thousand other interested persons

A single rod projecting from each column head automatically clinched through the rafters, completing a continuous system.

Plans and model of the proposed dwelling were submitted to various groups, including representatives of the civil service, teachers, housewives, etc., for comment. Several minor changes were made as a result, and a good deal of interest and confidence were generated in the project due to community participation.

Participants were chosen from numerous applicants, with 28 families representing 16 tribal groups as a working force, plus several alternates to cover possible dropouts. Participants were to be legally married, be citizens by birth or long-term residents, have regular employment or be self-employed, be in good health, have clear police records and be willing to cooperate in a group construction effort until the completion of all homes at the rate of 20 hours per week. It was decided that all would move into their new homes at once. Choice of units were by lot, after completion, to insure equal interest in each house.

A "Self-Help Brotherhood" was formed by the participants, with elected officials to enforce group discipline, organize social activities, and represent the group interests in case of questions or grievances. A similar women's group was organized with social activities and classes in child care, sewing, etc.

Costs Per Unit

(1 £ = \$2.80)

Administrative Costs and Overhead:

Wages, tools and equipment, water and transport,
equipment operation and maintenance £ 38.1 -

Construction Materials and House Equipment:

Including all finishes, stove, sink, bunk beds,
fencing, etc. £206.11

Plumbing:

Fixtures, materials and installation for on-site
water and sewerage systems. £ 53.11

Land Cost: £ 25.00

Legal Fees: £ 15.00

Contingencies: £ 21.10

Total all costs £359.13

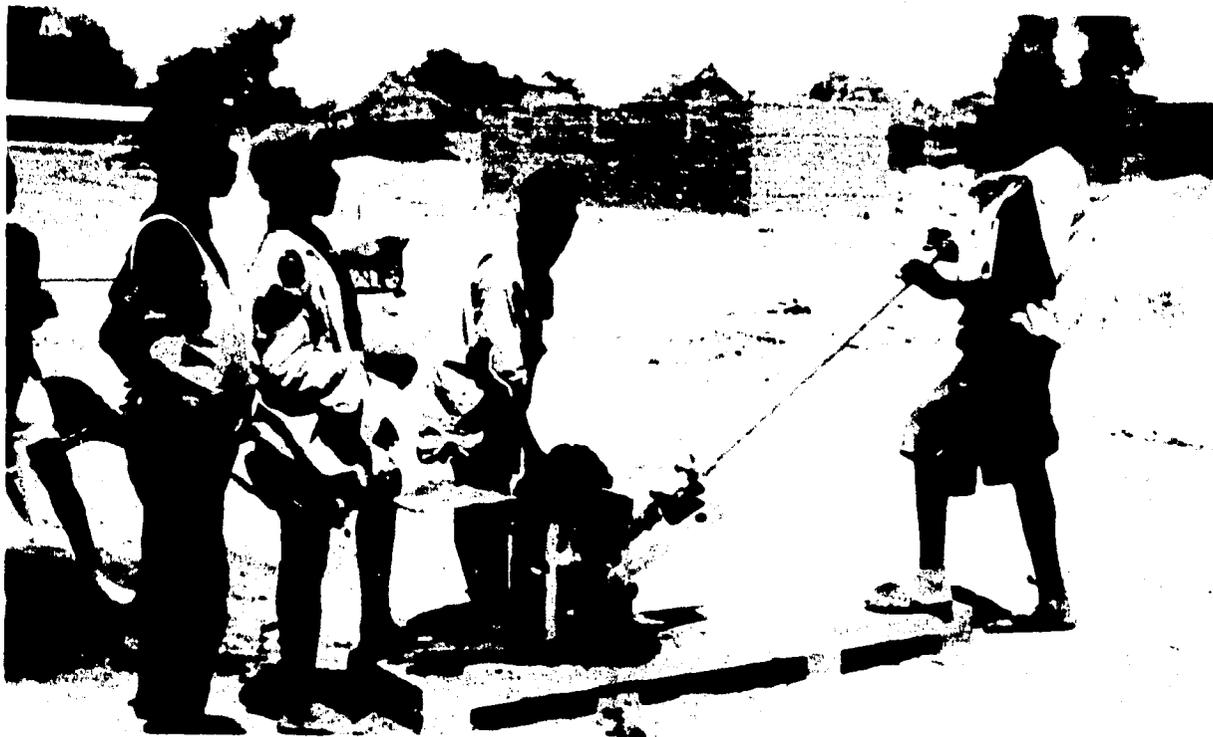
(Approximately \$1,000)

Note: From the total cost of £359.13, the sum of £9.13 can be deducted for salvage of tools and equipment.

Mali Builds Rural Community

With 92 percent of its population on the land, and little in the way of nonagricultural resources, American technicians were requested to aid in a model village program in the region of Bamako, Mali. The intention of the project was not simply to provide housing, but to create a suitable environment for increased, diversified economic development.

Various existing villages were investigated, and most ruled out due to health hazards (tsetse fly), lack of water, etc., which made them poor sites for market centers and expansion. In July of 1962, the village of Djoliba, some 45 kilometers southwest of Bamako on the Niger River was chosen for development. This community of 1500 persons lies between the river and a road leading to Guinea, making it a natural market and distribution center. Approximately 4,650 hectares of land are in the village domain, with some 1,000 hectares as open grazing and about 420 hectares flooded by the annual rising of the Niger River. The latter allows controlled flooding of rice-lands which form a major source of staple food for the area. As well as its natural features and industrial potential, the deciding factor was an evident desire on the part of the people for improvement, and eagerness to participate in an aided self-help program.



Villagers making soil cement blocks with the Cinva-Ram machine. The lower portion of new bedroom blocks can be seen in the background, as well as an old family compound.

A total of 82 family heads were interviewed, and data collected on the general way of life, both family and community, and needs and desires for the future. Most of the village compounds were visited for visual inspection, and the degree of crowding, water and sanitary facilities, etc., noted.

An air reconnaissance was made by means of slow, low flying biplane and a series of photos were taken for stereoscopic examination. From these photos, maps of the village and surrounding area were drawn, and a determination was made of density, condition of structures, number of buildings abandoned, circulation patterns, etc. These maps were immediately used for planning of the new village, and were later used for detailed agricultural surveys and projections.

Detailed plans of the self-help units were evolved, based on all available data and further discussions with the villagers. To allow continued close association with the family head (family in the larger sense), but given each son a dwelling and land of his own, a system of duplex units was evolved. Each 4 dwellings are supplied with water by a well at the junction of the 18 x 35 meter lots. Each unit includes 3 bedrooms, kitchen, bath (and sanitary pit), with a wall at the street, and room for a second kitchen, and further bedrooms at the rear. An enclosed courtyard and space for a garden is provided.

As relatively few men had more than 2 wives, the central room constitutes the men's visiting area and private domain, with the wives bedrooms on either side (see floor plan sketch). The kitchen is across the court, back to back with its neighbors. Included are a two burner "chula" stove and chimney of soil cement blocks and a granary and pot storage shelf of the same material. The shower area is paved with soil cement, with a raised platform for the pit privy. The pit extends under the common wall and is shared by 2 families.

The village is divided into neighborhood units of 4 to 6 blocks (each block has 16 dwellings) with buffer strips between to be used as play area and parkland. A central mall runs through the village with a view toward the river. This mall contains the school, youth building, mosque, market, etc. Athletic fields and parklands act as buffers between school and housing areas and the light industrial sites.

The first phase calls for approximately 300 dwelling units, with future expansion plotted to care for population and commercial growth for the next 25-year period.

Construction, which has included a maternity clinic, is of soil cement blocks fabricated with the CINVA-RAM machine.

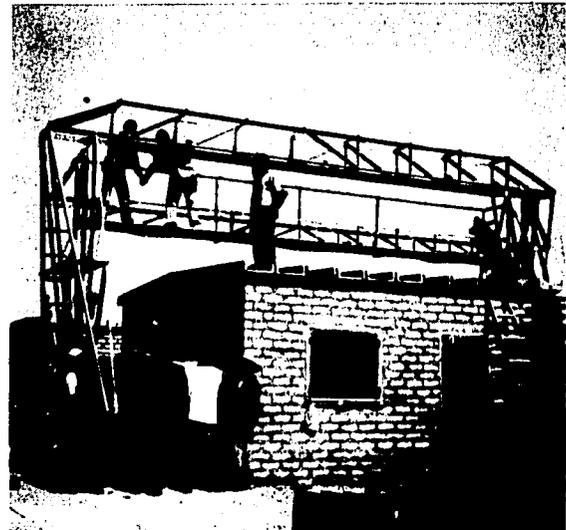
<u>Costs per unit of 1st dwellings:</u>	<u>Malian Francs</u>	<u>U.S. Dollars</u>
Paid technicians, tools & equipment, transport, etc.	6,832	\$ 28
Lumber	13,121	53
Roofing iron	53,333	214
Cement	38,579	157
Misc.	<u>2,635</u>	<u>11</u>
Total	114,500	\$463

MOROCCO

Row housing and courts built
of stabilized earth (1964).
Note ventilation at gable ends.



Movable crane to facilitate
setting of roof panels. Note
window and door frames are
also prefabricated.



Finished houses with roof
panels (double roof) in
place.



Morocco Rehouses Squatters

With technical assistance from the French, the Government of Morocco, through the Ministry of Public Works, has constructed a completely new community at Marrakech. This includes outright public housing for rental as well as aided self-help housing units of various types. The first 715 units were completed in 1962, another 894 in 1963. During 1964 an additional 588 houses were built so that the total number of dwellings as of early 1965 amounted to 2,197, i.e., approximately half of the number envisaged. Financing was provided by the Government of Morocco although part of the cost was contributed by the municipality.

The number of dwellings built under the aided self-help plan was 1,800 by the end of 1965. A substantial number of additional units is planned to be built in the coming years because the program is very popular with the people. The average construction cost per dwelling unit was approximately \$500 and total development costs could be covered by a mortgage loan of \$700 repayable over a period of 10 years at 6 percent interest.

Each house is on an area of 6 x 8 meters surrounded by a 2.23 m. high wall. Only one room is built to start with (2.57 x 4.96 m). A second room can be built in the rear of the lot in the future. A turkish toilet and a water tap with basin are provided in the courtyard. While the units as built are extremely small and would not meet minimum standards for permanent housing construction elsewhere, they can be expanded by eliminating one or more party-walls, i.e., by making one unit out of two. This flexibility may be of great advantage a few years hence when income will have risen; some families will move out into better quarters and the demand for more space will become urgent. Foundations and site improvements (including water and electric meters) are provided by the Ministry of Public Works but the prospective owner constructs the rest of the house. He can buy building materials with the money derived from the \$700 loan.

The average family in the self-help project earns about \$100 per month. They are mostly civil servants and small merchants. The Ministry of Public Works and the municipality have made the project particularly attractive by the provision of a shopping center, school and play areas. The site plan calls for additional amenities including a public bath and a mosque.

Construction of the walls was carried out by means of stabilized earth blocks made by Cinva-Ram machines. About 20 machines were used at a time each making some 500 or more blocks during the day. Window and door frames were precast in metal forms. The toilet, including trap, and the wash-basin were similarly prefabricated.

Prefabrication operations were very well organized to ensure efficient production. Roofs were made of precast concrete panels used in two layers with an airspace in between for better protection from solar radiation. A special movable scaffold was designed for ease of installation of these panels. Workmanship was surprisingly good and the project has a clean and attractive appearance. It is a brilliant example of the contribution the people themselves can make in eliminating squatter areas if they are given some aid and the proper guidance.

Self-Help in Colombia

In 1959 the Territorial Credit Institute of Colombia established an aided self-help program which has produced 51,551 homes. Aided self-help activities have been instrumental in increasing the Institute's total production of units by all methods from its earlier level of 3000 units to 30,000 in 1960 and 20,000 per year since.

An early attempt at self-help with 12 families in 1956 was not completely successful, but the 1959 effort in Cali produced 569 units. The present program, which stresses a maximum of cooperation between the departments of construction and social services, has proved very popular--so much so that 10 applications are received for each programmed house.

The design is a simple one, and provides an area of approximately 78 square meters (840 square feet). The original design has been modified to allow complete modular planning, allowing prefabrication of many of the components, including the precutting and bending of much of the water and electrical supply systems. This has resulted in a saving of 5.5 percent in materials, and 17.4 percent over-all.

Labor is supplied through a combination of self-help and skilled artisans. The total work time per house is 878 man hours, of which 480 represent the efforts of the participants on the basis of 10 hours per week.

The construction program and training processes are paralleled by efforts in the social area, which are intended to form a basis for community cooperation beyond the completion of the houses. Each work group is composed of the future occupants of a single block of dwellings, with each group electing its own provisional (and later permanent) council. This council is responsible for the administration of the construction process and the group loan.

Lots are provided by the Institute, complete with streets, water and sewer mains and electrical service. Materials are distributed to the group through a warehouse foreman chosen by the members. This foreman has responsibility, with a representative of the Institute, for requisitioning material as needed.

Social workers provide advice and training, with responsibilities ranging from seeing that members attend their 2:00 to 6:00 Saturday and 8:00 to 2:00 Sunday work session, to grooming future community leaders. A part of this program is the organization of savings programs to cover the cost of moving to the new dwelling and assuring the participant's ability to meet his mortgage payments.

The 15-year loan provides a year of grace to cover the "settling-in period." Interest is at 5 percent per annum, plus 1 percent for administration and 1.5 percent for life and fire insurance. This loan covers the cost of land, materials, administration and social services. The municipality or the residents, through their own efforts, construct the necessary schools, clinics, churches and markets.

On completion of the dwellings, responsibility shifts to the Department of Social Services, which attempts to ensure that the new community will become an integral part of the city. Specialists provide leadership for community improvement through both physical and spiritual means. Results have been encouraging to date, 43 percent of the units occupied two or more years have been significantly improved and 34 percent have been expanded.

APPENDIX A

A RATIONAL ANALYSIS FOR HOUSING PROGRAMS 1/

Experience indicates that program making involves a technique of analysis. Many factors have to be surveyed, evaluated, analyzed in relation to each other, and brought to a reasoned set of conclusions. Of course, they are not peculiar to aided self-help but may assume greater importance in a program of that kind.

Often the urgency of a situation does not permit long delay. Here, the short-range analysis may be the sensible thing to do--to be followed by long-range analyses and programs as rapidly as possible. However, partial or total, long-range or short-range, it is essential that four steps be taken. They are:

1. reviewing the nature and magnitude of the over-all problem;
2. reviewing the available resources;
3. identification of specific key problems; and
4. recommending a program.

1 -- Reviewing the Nature and Magnitude of the Over-All Problem

Assemble the available data and judgements from surveys and reports concerning the current situation in its several aspects. This assembly of written information may be supplemented by observation and consultation to fill in gaps. Get as much information as possible, in as specific terms as possible. However, remember that even rudimentary data once assembled are valuable. Gather data on:

- a. Characteristics of present economy and development--urban and rural, physical and social.
- b. Population--its trends, distribution, migration, occupations, and earnings.
- c. Current housing--its livability (size, crowding, privacy, comfort, sanitation), and its cost.
- d. Present processes by which homes are built or improved.
- e. Customs, desires, and aspirations of those living in less desirable homes and the peoples' views of the types of improvement most necessary.
- f. The standards which serious students believe essential or desirable--or standards developed by the staff, or both.

1/ In preparing this appendix, we have drawn from a report "The Experience of National Governments in Preparing Programmes for Housing and Community Development" prepared by Jacob L. Crane, Consultant, Housing and Town and Country Planning Section, United Nations, and presented to the United Nations Seminar of Asia and the Far East, New Delhi, early in 1954.

2 -- Reviewing Available Resources

Assemble information about resources and supplement it by observation, consultation, and special investigation. Estimate the unutilized potentiality. Even incomplete information will help in identification of key problems.

Available resources consist of:

- a. Manpower--self-help labor (skilled and unskilled), building trades, architects, engineers, management, sociologists, economists, etc. Deficiencies can be rectified by training and importation.
- b. Materials--quantities (potential, too), availability, usability, and costs. Conservation and restoration must be considered. Domestic controls and imports are a function of the government.
- c. Money--programs require some materials and labor which householder can procure only by medium of exchange. Some subsidy may be involved. The real problem is to discover some means to improve conditions rapidly without overtaxing resources of family, social groups, and government. A crucial phase in the whole review of resources is that of identifying and evaluating the present and potential resources of the family, social groups, and local and national governments.
- d. Organizations--not less important is the appraisal of organizational resources which can be called upon by the family, group or the community including existing and potential neighborhood, religious, occupational, and governmental organizations. Public and private agencies which build for owners and sometimes provide the financing must be appraised.
- e. Land--the availability of land is often critical. Sometimes fundamental land policies are a key.
- f. Miscellaneous items--these include supply, or lack of, water, fuel, power, etc.

3 -- Identification of the Specific Key Problems

In the identification of specific key problems, the objective must be kept in mind: "to aid and stimulate the improvement of housing conditions as widely and as fast as the available and known resources will permit" by proper measures.

Key problems will emerge in two categories, direct and indirect. Direct, for example, include the stimulation of local organizations for aided self-help; stimulation of utilization and conservation of natural resources in production of building materials; importation of scarce building materials; assistance in the provision of land or community services; assistance in regional and local planning and technical assistance in general in making improvements or new construction; and the many key problems in the financing phase.

Indirect key problems include training; research and experimentation; securing statistical data; popular education in the principles of aided self-help; general economic development; allocation of materials; land use and tenure; and migration and its control.

4 -- Formulation of Policy and the Elements of a Program

To be feasible, a program must reflect policy; must be appropriate for the local situation; must use natural resources as far as practical; and must be in harmony with the culture and resources of the area.

In formulating policy and program, conclusions must be reached as to the most needed kinds of housing improvement which will go furthest towards reaching the most urgent needs with the resources available, taking into consideration both the housing needs and the competing demands for available resources.

Fiscal considerations involve measures for the formulation of increased private capital, incentives to stimulate savings and investments, low-interest loans, small down payments and long amortizations and, of course, consideration of measures by which the individual households may be enable and interested to build or improve their own living conditions (with or without direct financial aid as such) gradually out of current income. Appropriate measures must be taken to achieve the goal without serious inflation, such as limit of volume, use of plentiful materials, credit controls, elimination of profiteering, and maximum use of aided self-help at cost.

The program must reflect measures for the production and distribution of building materials with minimum waste in use and minimum destruction of natural resources; policies to provide land or some form of secure tenure; policies with respect to manpower including sources, recruitment, training, skilled and unskilled and, finally, self-help labor.

Publicity and education to build popular support for the aided self-help scheme must be included, as must research to insure maximum economy in achieving best results from available resources.

The program must include (1) organizational arrangements outlining the roles of existing or new agencies, public or private; (2) fixing responsibility for different phases of the program; (3) methods to follow through for timely review, and (4) revision of goals as indicated by experience, changing conditions and new knowledge.

Finally, all of these measures must be reflected in a set of recommendations for consideration by the proper authorities.

APPENDIX B

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