

EVALUATION

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(Translation of Spanish Version)

AID PROJECT: APPROPRIATE TECHNOLOGY FOR RURAL HOUSING

AID PROJECT NUMBER: 517-0164

Prepared for:

USAID/DOMINICAN REPUBLIC
SANTO DOMINGO, DOMINICAN REPUBLIC

and

OFFICE OF HOUSING AND URBAN DEVELOPMENT
AGENCY FOR INTERNATIONAL DEVELOPMENT
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FREEMACE

Center for Appropriate Technology for Popular Housing

The ~~Centro de Tecnologia Adaptada para la Vivienda Popular~~ (CETAVIP) is a relatively new organization which was formed as the executing arm of the ~~Comision Inter-Institucional~~ ^{for the Coordination of Housing Programs} ~~Comision de Coordinacion de Programas de Viviendas~~ (CII-VIVIENDAS). AID/RD has supported its ~~Departamento de Difusion~~ ^{Information Department} through an Operational Program Grant (OPG) since March 1983. After one year's operation, all concerned parties ~~here~~ believed that an evaluation of the ~~XXXXXX~~ OPG-supported program was required. The main ~~purpose~~ ^{and analyze} of this evaluation is, therefore, to review the first year's activities and to provide guidelines to ~~XXXXXX~~ improve the program for the second ~~year~~.

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account

The question is always asked for which audience a report is prepared. In the case of the evaluation of ~~XXXXXX~~ ^{this} the OPG~~XX~~, ~~XXXXXXXXXXXX~~ two principal audiences are envisaged. ~~Obviously~~, the detailed analysis of CII-VIVIENDAS/CETAVIP's ~~Departamento de Difusion~~ ^{Information Department} (courses, seminars, bulletin and library) and ~~specific~~ ^{the} guidelines for improving the program ~~is~~ directed at the professionals and administration of CII-VIVIENDAS/CETAVIP. On the other hand, most of the present participants in the implementation of the OPG, including the new management of CII-VIVIENDAS/CETAVIP, were not present at its inception. Therefore, the authors ~~XXXXXXXXXXXX~~ strongly believe that sufficient background must be provided in order to place the present evaluation within the context of CETAVIP's formation, of the institutional framework of the OPG, and the OPG's original goals and objectives and their evolution over time. Certainly more detail is provided in these areas than would be necessary if the report were only being prepared for CII-VIVIENDAS/CETAVIP.

The evaluation was undertaken in June 1984 by ~~James~~ Lee W. Baker, ~~AID contractor to the CII~~ ^{USAID Regional Housing and Urban Development Office} ~~of the AID Oficina de Vivienda y Desarrollo Urbano~~ in Kingston, Jamaica, and ~~Area~~ Santiago Moreno, professor de arquitectura de la Universidad Nacional, professor of architecture at the National University,

Bogota, Colombia. The authors wish to thank the many people associated with the implementation of the OPG from AID/RD, CARE, INVI and CII-VIVIENDAS/CETAVIP who gave freely of their time during the undertaking of the evaluation. A special thanks is in order for ~~Lie~~. Luis Martinez and ~~Ing.~~ Bolivar A. Senior of CII-VIVIENDAS/CETAVIP who, in addition to spending long hours discussing the evaluation, provided the authors with invaluable comments on a first draft.

~~Ing.~~ Lee E. Baker
Kingston, Jamaica
October 1984

EVALUATION

EVALUATION OF AID PROJECT Nº 517-0164

OPG To CARE-Dominicana for the Purpose of Strengthening
The Center for Appropriate Technology for Popular Housing

(CETAVIP)

CETAVIP: CENTER FOR APPROPRIATE TECHNOLOGY FOR POPULAR HOUSING

AID PROJECT NUMBER 517-0164

I. INTRODUCTION

The Center for Appropriate Technology for Popular Housing (CETAVIP) is presently at a critical stage in its development. It has just completed the first year of the implementation of the CARE-USAID OPG. During the first year, CETAVIP underwent a series of management/personnel crises in which the directors of CII-VIVIENDAS and CETAVIP, as well as many of the organization's key professionals, were either replaced or resigned. In addition, the institution also suffered through a period of ^{financial} ~~cash-flow~~ problems which have only recently been resolved between CARE and USAID. But that is past history. Most of the positions left vacant by the personnel changes have now been filled. CETAVIP, as it enters its second year of the OPG implementation, finds itself in the best financial and administrative position of the past six months.

This evaluation comes at an ideal time. The involved institutions agree that the OPG's first year activities must be reviewed and evaluated in order to determine what changes might be required to properly structure the organization for its second year of operations.

Efforts to be made to include a full introduction to the following sections -

II. BACKGROUND

A. Origins of USAID-CARE OPG To Strengthen CETAVIP

This section will provide a very brief overview of the steps leading to the signing of the USAID-CARE OPG. The latter chapters will develop in greater detail many of the points initially raised in this section.

The Center for Appropriate Technology for Popular Housing (CETAVIP) was established in September 1981 as ~~the~~ ^a ~~implementing arm~~ ^{division} of the Inter-Institutional Commission for the Coordination of Housing Programs (CII-VIVIENDAS) with responsibility for implementing CII-VIVIENDAS programs. CETAVIP ^{initially} was created to be the local housing sector institution responsible for the application of appropriate technology to the improvement of rural housing. It was to undertake this mandate through the collection and dissemination of information pertinent to the subject, through original research and studies, and through the provision of technical assistance.

Shortly after the ^{formation} ~~creation~~ of CETAVIP, ^{within CII-VIVIENDAS,} USAID was approached to provide financing to strengthen this new organization. During December 1981 and January 1982, CARE-Dominicana, with the assistance of a consultant, prepared an OPG proposal for submission to USAID/DR. This proposal was submitted to the AID Program Committee in March 1982. After a lengthy review process, the final proposal was approved and filed until funding became available.

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The three-year OPG between CARE and USAID/DR was finally signed in March 1983. The total authorized amount of the grant was for US\$478,000. A sum of US\$150,000 was initially obligated to partially cover CETAVIP's first year activities. In December 1983, an additional US\$185,000 was added by USAID to cover the second year's activities.

The tripartite agreement establishing the inter-institutional arrangements for the implementation of the OPG was signed between CARE, the National Housing Institute (INVI) and CII-VIVIENDAS during May 1983.

B. Institutional Structure

The following sections provide the institutional setting for the three organizations which signed the agreement providing for the implementation of the OPG.

1. National Housing Institute (INVI) was created in May 1962 to provide a full range of housing services to low income households. It was also given the responsibility to formulate national programs and policies for the housing sector. It was to promote and encourage the contributions of the private sector to the production of low income housing.

4/ The majority of the information contained in this institutional section is summarized from the original OPG proposal (pp. 8-11), "Development of a Local Organization for the Introduction of Appropriate Technology to Low Cost Housing Programs", Richard Steelman, CARE-DR and P. Thompson, INTERTEC, January 29, 1982.

Over the last 20 years, INVI has been the primary public sector supplier of low income housing. The destruction caused by ~~the~~ hurricanes David and Frederick galvanized the country's public and private sectors into a coordinated reconstruction effort. The INVI management of that time was at the forefront of this coordinated effort. INVI repaired and reconstructed over 12,500 housing units after the natural disasters of 1979. It was probably most responsible for the creation of CII-VIVIENDAS and later CETAVIP.

2. CARE is a U.S. based non-profit organization with many years experience in a wide variety of shelter and development projects. It has carried out housing programs and disaster reconstruction programs around the world. CARE-Dominicana has recently completed a low cost housing project in Palenque with financing from USAID. The project ~~cons~~tructed 200 concrete block houses of 36 square meters each. The units included asbesto-cement roofs, hurricane bracing and treated wood trusses. CARE-Dominicana also has had ample experience with the implementation of other USAID OPGs.

3. CII-VIVIENDAS was formed in September 1979 as an inter-institutional agency to coordinate the reconstruction efforts following hurricanes David and Frederick. INVI was ~~the prime institution responsible for~~ ^{at the forefront of} its formation. It comprises institutions in the public, private and international sectors that are involved in shelter and other general development programs. This organization serves as a forum

for the interchange of ideas and the coordination of programs. Initially, CII-VIVIENDAS was not seen as a permanent organization. However, during the two years following its formation, additional public and private sector groups joined CII-VIVIENDAS. Based on its important role within the housing sector, it was decided to incorporate CII-VIVIENDAS as a private, non-profit organization. This was accomplished in May 1982 through Presidential Decree N° 3280 under Law N° 520 dealing with non-profit organizations.

The local and international organizations which presently comprise CII-VIVIENDAS are the following:

Private Sector

- Dominican Association of Engineers, Architects and Agronomists (CODIA).
- Dominican Development Foundation (FDD).
- CARITAS
- Association for the Development of San José de Ocoa.
- San José Foundation
- Community Association for the Construction of Baní.
- Dominican Cooperative Credit & Savings Federation (FEDOCOOP).
- Central Housing Committee, Diócesis of Barahona.
- Community Development Foundation (FUDECO).
- Plan Sierra

Public Sector

Public Sector (Continued)

- National Housing Institute (INVI)
- Secretariat of Public Works and Communications (SEOPC)
- Office of Community Development (ODC)
- Central Bank
- Dominican Agrarian Institute (IAD)
- Southeastern Development Institute (INDESUR)
- Technical Secretariat of the Presidency

International Organizations

- Cooperative for American Relief Everywhere (CARE)
- Social Services of Dominican Churches (SSID)

Soon after the formation of CII-VIVIENDAS, it became apparent that another entity was needed to coordinate its technical activities. These activities included the collection and dissemination of information, the undertaking of studies and original research, and the provision of technical assistance to Commission members. In September 1981, CETAVIP was formally organized as the executing arm of CII-VIVIENDAS.

III. POLICY GUIDELINES FOR CETAVIP FORMATION

It should be remembered that CETAVIP was brought under the umbrella of CII-VIVIENDAS primarily to carry out programs and projects based on its ^{own} goals and objectives.

Therefore, in order to understand the functioning of CETAVIP and to be able to evaluate it, one must understand the principles, goals and objectives which guided the formation of CII-VIVIENDAS.

The Articles of Incorporation of CII-VIVIENDAS state that its principal goal is the coordination of the implementation of shelter programs for low income households. Specifically, the Articles include a series of objectives which highlight the institution's goal to promote an integrated approach to improving shelter for low income households using appropriate technology. Several of the more important of these objectives for the purpose of this evaluation are:

- Encourage the coordination of integrated rural and urban shelter plans, programs and projects for low income households;

- Stimulate and develop the production of low cost indigenous building materials;

- Suggest the best manner to apply appropriate technology to the construction of low income shelter;

- Promote activities which would assist in the undertaking and dissemination of new ideas and concepts which could be employed to improve and increase programs for low income shelter.

Since CII-VIVIENDAS is primarily a policy making

and coordinating body, the member agencies agreed that an executing office was required to carry out its stated goals and objectives. CETAVIP, which developed somewhat independently of CII-VIVIENDAS, was the organization tapped to fill this need.

In March 1981, CII-VIVIENDAS and INVI organized the "Seminar for Appropriate Technology for Popular Housing". The response to this seminar was very ~~very~~ positive. It was apparent that there was a need for a local organization to bring together the latest in ^{local} Dominican and international information and thinking in the area of appropriate technology. In September 1981, CETAVIP was ^{formally} organized at a ceremony in the same office which now houses its library.

IV. ORGANIZATIONAL STRUCTURE OF CETAVIP CII-VIVIENDAS / CETAVIP

Before beginning an analysis of the organizational structure which has evolved at CETAVIP ^{vis-a-vis CII-VIVIENDAS} over the last 2-1/2 years, it is important to keep in mind that CETAVIP was just emerging as an organization when the idea for an OPG originated. CETAVIP's founders (a small group of public and private sector individuals interested in appropriate technology) discussed the possibility of obtaining USAID funding directly to start-up the organization. However, since CII-VIVIENDAS ^(of which CETAVIP was now a part by late 1981) was not yet incorporated as a non-profit organization and INVI, as a public sector entity, could not enter into an OPG with USAID, a compatible third

party (CARE in this case), was asked to prepare the OPG and thus act as the recipient of the grant.

One gets the impression^{of} that CARE and the consultant who assisted in proposal preparation in January 1982, implicitly envisaged a much smaller organization^{for CETAVIP, and even possibly a separate entity,} than that which eventually evolved. Also, it appears that CARE initially saw the funding provided by the OPG as CETAVIP's prime source of financing.

However, due to the unforeseen delays between the preparation of the OPG proposal and the eventual availability of funding in June 1983 (a period of almost 1-1/2 years), this original conceptualization of CETAVIP, if it ever really existed, was overtaken by the necessity of events. In other words, by mid-1982, CETAVIP^{as the implementing arm} was under pressure^{of} from CII-VIVIENDAS members^{was beginning} to begin to take on technical responsibilities and to locate financing for these activities.

^{At} At the time this evaluation was undertaken, the principal participants involved in the formation of CETAVIP and the preparation of the OPG were no longer involved with the program. The Director of CARE who participated in writing the OPG left the country in March 1984. The USAID Urban Development Officer who oversaw the approval process of the OPG and was instrumental in the successful implementation of the first year's program was transferred to another post in early June 1984. The original directors of CII-VIVIENDAS and CETAVIP were replaced in early 1984 during a management reorganization. Thus, while the scope of the evaluation was discussed in general terms with all of the above individuals (with the exception of the ex-director of CII-VIVIENDAS), none was available for the kind of in-depth day-to-day discussions required for a thorough understanding of the initial organization of CETAVIP vis-a-vis the OPG.

In November 1982, the GODR provided RD\$22,000 in seed capital from its FY'83 budget to make CETAVIP a reality. At about the same time, INVI, CII-VIVIENDAS and the Organization of American States (OEA) entered into an agreement in which CETAVIP would provide the technical assistance required to train professionals from several other Dominican institutions in appropriate planning and design of shelter projects for low income rural households. (See Section XI.B on PDIPC program.)

CETAVIP continued to expand its organizational structure when in January 1983 an agreement was signed between Appropriate Technologies International (ATI) of the U.S. and CII-VIVIENDAS to undertake research on the possible uses of sisal-cement in the production of roofing materials for low income shelter. (See Section XI.C). Furthermore, directors for CII-VIVIENDAS and CETAVIP had already been named by September 1982. Each additional project and/or responsibility added to CETAVIP's portfolio signified an increase in the size of the organization.

This is all by way of saying that when the OPG was finally signed and funding became available in June 1983, USAID and CARE were confronted with an already functioning organization with its own projects and financing. When the OPG came on-line in June 1983, it was only natural for the directorate of CII-VIVIENDAS and CETAVIP to

simply add another box to the rapidly expanding organization chart. The chart which appears in Figure ^{IV.1} 1 is the organizational structure existing in CETAVIP by mid-1983.

V. GOALS AND OBJECTIVES OF CETAVIP

It was important to the evaluation team to define the initial goals and objectives of CETAVIP (whether explicit or implicit) in order to properly evaluate whether the organization's first year program was oriented toward responding to these goals and objectives. This task proved more difficult than originally anticipated due to the divergence of views between CETAVIP's philosophical base as articulated by its founders and the goals and objectives as established in the OPG proposal.

The OPG proposal took as its prime objective the rather narrow view that the OPG should strengthen CETAVIP so that it will be able to develop, compile and disseminate information regarding the entire spectrum of appropriate technology with emphasis on low cost rural housing" (emphasis added by author).

The OPG proposal goes on to add that "our primary goal would be upgrading the housing of rural poor through the application of appropriate technology". The USAID Program Committee, in its review of the OPG proposal²⁾, rightly³⁾ See the April 14, 1982 USAID/DR Memorandum from D. Soules, Acting Program Officer, which summarizes the issues raised by the Program Committee at the OPG review session.

raised the issue of the potential incompatibility of ~~the~~^{this} objective to strengthen the promotion and dissemination capacity of CETAVIP with the primary goal to improve the quality of rural housing. Successful implementation of the former does not necessarily imply achievement of the latter. CARE responded to these questions by modifying the proposal to place greater emphasis on the upgrading of rural housing through appropriate technology.

On the other hand, CETAVIP's founders (who did not participate in writing the OPG) had a much broader view of the organization's role. CETAVIP's first issue of FOCO^{A)} (the organization's ~~monthly~~ bulletin) provides an overview of its goals and objectives. Appropriate technology is seen as "the most appropriate alternative to resolve the shelter problems of the informal sector through the mobilization of human resources and local materials". CETAVIP's program envisaged the integration of appropriate technology into an overall approach to resolving man's basic necessities in small rural communities: energy, food health, education, employment and recreation. This program was to be based on four main activities:

- Basic research and studies;
- Field testing of research and study results;
- Financial coordination for CII-VIVIENDAS members;
- Information, dissemination and training.

^{A)} "Foco of Appropriate Technology", N° 1, CII-VIVIENDAS-CETAVIP, September 1983, pp. 7-11.

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potential for divergence of CETAVIP's underlying goals .
This ~~potentially divisive view of differing goals~~
~~and objectives for CETAVIP~~ was essentially resolved when ~~the~~ ^{the} idea for ~~this~~ ^{this} paragraph
many of the original group which conceptualized the idea for
CETAVIP were named to the principal posts in the new orga-
nization.

While the question concerning the definition of goals and objectives was adequately resolved, certain other issues were not sufficiently addressed during the preparation of the OPG nor the implementation of the first year's program. How were the various elements of the program (courses, seminars and bulletin) to be integrated and focused to properly impact on improving the quality of shelter for the rural poor? How can the original objectives be evaluated? What kinds of objectively verifiable targets could be set to successfully measure program implementation? The quantitative and qualitative review of the progress made to date on the OPG's four main areas (Section VII) will attempt to deal with these questions.

This section concludes with a brief description of the specific goals and objectives for the four program elements (courses, seminars, bulletin and the library). The OPG proposal states that the seminars and courses may cover the same material, but from different perspectives. The seminars would be given at the professional level - engineers, architects, administrators, etc. They would deal with the advantages of appropriate technology compo-

nents and how they could be integrated into plans and programs. The courses would be at the artisan level and would be more oriented to the "nuts and bolts" approach. Specifically, the OPG proposal gives the objectives of the four components as follows:

A. Seminars

- To present appropriate technology systems to participating engineers, architects and administrators;
- To encourage and assist the participants in integrating appropriate technology and housing improvements into their projects;
- To serve as a forum for the professional to present their ideas and experiences related to appropriate technology.

B. Courses

The courses (both demonstrative and empirical) would be aimed at local organizations, carpenters, masons and interested individuals.

- To present various appropriate technologies to the participants explaining their functions, advantages and limitations;
- To give the participants an opportunity to see appropriate technology systems functioning;
- To give the participants detailed explanations as to how the various appropriate technology compo-

nents are constructed and employed;

To develop within CETAVIP plans and regional model houses to be presented at the various courses and seminars.

- i. Components that would be integrated into an existing structure to strengthen and improve it.
- ii. Complete housing models, each designed for a particular region and each using technology appropriate for that region.

C. Library

The library would collect documents on appropriate technology from local and international sources and would be made available to members of CII-VIVIENDAS.

D. Bulletin

The bulletin would cover new appropriate technology systems and applications. It would also advise the recipients of upcoming courses, seminars or other functions offered by CETAVIP or related organizations. It would also serve as a forum for members' views.

VI. PROGRESS TO DATE IN THE IMPLEMENTATION OF THE OIG

This section evaluates progress in the program's implementation during the first year. In the preceding sections, the process leading to project design was reviewed in ~~order~~ order to provide a better context in which to evaluate the implementation experience.

During the evaluation process, the verifiable indicators outlined in the OIG were assessed, as well as ^{the} materials compiled during the first year which were available for review. Finally, discussions were held with ~~the~~ the C/DAVIF personnel responsible for the program's implementation.

The relationship between the overall philosophy of CII-VIVI/DAS/C/DAVIF and the specific objectives of the OIG were also taken into account during the evaluation.

The following sections review the progress in the establishment of the ^{ops} four elements ~~and~~ during the first year and their impact in improving the quality of rural housing in the Dominican Republic.

A. Dissemination Program

~~XXXXXX~~ The program defined in the OIG was used as the basis for the formation of C/DAVIF's Dissemination Department. This department is composed of three sub-departments: ~~the~~ the Bulletin, the Library and Courses and Seminars (see organization chart).

This department presently has a coordinator and ^a technical staff responsible for implementing its program.

The program's four elements, with the exception of the library which commenced operations in ~~the~~ 1981, have been in existence for slightly over one year. All staff positions for the four elements ~~are~~ are now filled and are functioning ~~as~~ adequately as called for in the OIG.

During the first year, the OIG's implementation process entailed three basic stages:

- Setting up of the different components;

- Definition of policies dealing with the dissemination of information;
- Implementation of the program.

The policies and ~~strategies~~ strategies for the dissemination of information were defined in CETAVIP's general plan of activities, ~~named~~ General Support Program (See FOCO of Appropriate Technology #1). The following sections analyze the ~~organizational~~ initial policies selected, as well as specific tasks which have been ~~implemented~~ ^{undertaken} in each of the ~~four~~ OPG's four components.

1. COURSES

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This component has proven ^{to be} the most difficult to evaluate. This is due, in part, to the fact that the ~~structure~~ structure of the courses directly reflects CII-VIVIENDAS/CETAVIP's failure to resolve the conflicts between the ~~org~~ organization's ^{adopted} main objectives as previously stated and the policies ~~for~~ for the dissemination of information on appropriate technology. In addition, CETAVIP's emphasis on undertaking a wide range of different courses during the first year only served to underscore the institution's operational weaknesses.

In an attempt to satisfy all the requirements of the OPG, the specific policies and strategies which were defined for the courses and seminars ^{5/} ~~selected~~ ^{identified} target groups which practically covered the entire spectrum of potential participants in a program oriented toward the dissemination of information on appropriate technology. These ranged from community groups in ~~rural~~ rural areas to urban based professionals from the public and private sectors. Also included were building contractors and the trainers of CII-VIVIENDAS member agencies.

5/ Volume IIX - Courses and Seminars, Dissemination Department, CETAVIP, Santo Domingo, Dominican Republic, October 1983.

a. Course Organization

The available documentation on course organization defines as its objective that "participants should become ~~KNOWLEDGEABLE~~ knowledgeable about the ~~APPROPRIATE TECHNOLOGY~~ different appropriate techniques being taught, and should, at the end of a course, be able to train other persons from their communities". This orientation is aimed ~~SPECIFICALLY~~ at directly benefitting the end user, rather than at disseminating programs of appropriate technology among ~~OTHER~~ building technicians and other trainers.

With respect to course organization, the choice of orientation between the two will greatly influence the type of support materials required and the ~~REA~~ depth of instruction ~~KNOWLEDGE~~ permitted. ^A The course directed at the end user is oriented ~~TOWARD~~ toward the resolution of an immediate problem, while one directed at a technician or other trainer must have a wider range of applicability and will require substantially more information and documentation.

On reviewing the courses undertaken during the first year (see Annex I 1), one is ~~STRUCK~~ struck by the wide range of orientation. The goals of the OPG (see Section V) are quite explicit in that the courses should be focused on the promotion and dissemination of the functions, advantages and disadvantages of appropriate technology. This objective implies that prior to actually ~~ORGANIZING~~ organizing and undertaking courses a set of appropriate techniques, methods and materials would have to be selected, tested and ~~ADAPTED~~ adapted to the environmental conditions and cultural factors prevailing in the rural areas of the Dominican Republic.

The demands of the OPG with respect to the required number of courses during the first year, the choice of the end user (i.e., community groups) as the focus of the ^{original} ~~initial~~ courses and the limited body of technical knowledge which originally confronted CETAVIP all forced the organization

perly tested (in the case of the sisal-cement panels);

- Were based on outdated information, in other cases, which recommended solutions (such as a certain type of latrine) which were not acceptable to rural communities because of cultural factors.

c. Support Materials

CEPAAVIL's work program for the first year envisaged the preparation of a set of supporting documentation for each course. This objective has been ~~XXX~~ only partially satisfied

CEPAAVIL's present lack of proper support materials can be traced to the authors of the OIG. They believed that the supporting documentation required for appropriate technology courses would be readily available and easily applicable to local problems. This has proven not to be the case. ~~XXXXXX~~ In fact, much of the material available on appropriate technology has a very local flavor, either with respect to language, customs or ~~XXXXXX~~ building materials, or simply that the illustrations or the human figures ~~dXXXXX~~ employed do not coincide with the local type.

These and other reasons of a more internal operational nature have impeded the preparation of sufficient course documentation. With the exception of the course materials for the fabrication of blocks with the ~~CIWA-XXXX~~ ^{machine} (which of which was translated ~~XXXX~~ literally), specific course material is generally lacking. Visual aids such as "flip ~~XXXXXX~~ charts" and posters to assist in course presentation were prepared in the majority of cases.

This ~~XXX~~ lack of proper documentation is viewed by the evaluation team as one of the major failings of this ~~XX~~ component of the OIG.

d. Target Group Selection

The choice of a site for a course or the selection of

to problems in course definition. As mentioned previously, these difficulties were caused by a lack of a clear statement of objectives and to the fact that the initial programming was overly ambitious considering the newness of the organization, ~~XXXXXX~~ deficiencies in technical capacity and the lack of a set of well documented information to disseminate.

Also, these problems were compounded by the fact that the requirements of the OIG with respect to informational needs were out of phase ~~XXXX~~ with the Research Department's ability to provide sufficiently substantiated ~~XXXXXXXXXX~~ test results. It is only recently that the findings of this department are ready for general dissemination.

2. SEMINARS

The seminars were organized by CII-VIVIENDAS in collaboration with its member institutions. According to the evaluations carried out after each seminar, they were well received by the participants who attended from both the public and private sectors, as well as the academic community.

In general terms, the seminars ~~which~~ were conceived as a forum for the exchange of ideas and relevant experiences on appropriate technology ^{they} benefitted ~~BY~~ CETAVIP from a promotional as well as an intellectual ~~perspective~~ perspective.

a. Content ^{1/}

The topics which have been developed to date in the seminars correspond to the basic interests of CII-VIVIENDAS/CETAVIP. These include the protection of traditional housing against the effects of hurricanes and the application of *appropriate*

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methods and techniques to the construction of shelter.

The participation of INTERTEC, a U.S. consulting firm internationally known for its work in disaster planning and preparedness, contributed greatly to the success of the first seminar.

The second seminar was more of a workshop for the training of architects and engineers involved in the construction of housing. It is questionable whether this workshop achieved its primary objective to ^{involve} ~~convin~~ these professionals ~~to~~ ^{in the} use appropriate technologies in the design and construction of housing. This is due to the fact that at the time of this workshop CSTAVIP had not ~~completely~~ ~~investigated~~ ~~its~~ ~~investigations~~ ~~which~~ sufficiently proven or tested the disseminated information.

b. Preparation Of ~~XXXXX~~ Support Materials

~~XXXXXX~~ Particularly with respect to the seminar on hurricane ~~XXXX~~ resistant design, the support documentation responds well to the objectives of the seminars. It combines general conclusions with specific recommendations and includes proposals for follow up discussions.

The support materials for the seminar on hurricane resistant design were prepared by INTERTEC. In addition to providing ^{information} ~~XXXXXX~~ directly applicable to hurricane resistant design, the methodology presented in the paper by INTERTEC, "A Proposal for a Housing Improvement Program in Disaster Prone Areas", can be applied to shelter improvement in its more general context. The objective of this methodology is to ensure the personal safety of ~~the~~ rural communities, as well as ~~XXXXXX~~ to guaranty its investment in ~~X~~ housing. The methodology also presents a framework which would serve as the basis for future investigations and the provision of technical assistance.

The documentation produced for the seminars is on sale ^{the} ~~at~~ ~~the~~ ~~VIVIEDAS~~/~~CSTAVIP~~ library. The majority of this material is simply a reprint of materials produced by other

organizations such as OXFAM, World Neighbors and Catholic Relief Services. The name of CETAVIP does not ~~appear~~ appear on these publications. CETAVIP, therefore, is not receiving any promotional benefits from their sale.

c. Programming and Implementation

The overall programming and implementation of the ~~XX~~ seminars has been satisfactory taking into account CETAVIP's limited initial experience in this area.

3. Bulletin

FOCO of Appropriate Technology, the bulletin of CIP-VIVIEDAS/CETAVIP was first published in September 1983. The bulletin was to be published monthly as an information medium for other national and international institutions and associations in the areas of appropriate technology and integrated development. As of June 1984, ~~FOCO~~ four editions of FOCO have been published.

a. Content Definition

The content of the bulletin is based on a format which includes a number of different sections which would appear in each edition. These include ~~an~~ lead article, news on CIP-VIVIEDAS/CETAVIP, an editorial and notices of upcoming events. ~~The~~ ^{each} lead article would focus on a different aspect of appropriate technology or integrated development.

b. Design

From its inception, CETAVIP chose a novel style for its bulletin. ~~The bulletin was created with the help of the staff of CETAVIP.~~ ^{published} ~~The bulletin is the result of a group effort.~~ ^{which} The editions published to date have been created and produced with CETAVIP's own staff resources. Even the selection of the name, FOCO (Focus) of Appropriate Technology, was an arduous task in ~~W~~

which most of the staff participated. The resulting design of this collective effort is not without its faults, especially in the quality of its graphics.

For the design of the title, a logo was selected which in a sense reflects the meaning of the word FOCO. The letter "O" as the source of light is the most ambitious ^{to reproduce} from a graphical standpoint.

The orientation of the printed page and the type selected, on the other hand, reflect a greater interest in composition and order. These elements are used to facilitate the location of the different sections. The reader ~~often~~ often has difficulty, however, in following the different articles due to a similarity in the graphic appearance of the sections.

Since the bulletin is internally produced by CETAVIP, its appearance lacks a certain graphical refinement. This problem is compounded by the ~~time~~ staff time required to produce the bulletin and the unequal levels of quality ~~attained~~ attained. Variations in the bulletin's quality were initially aggravated by a lack of proper supplies and equipment. For example, the lack of photographs is explained by the fact that CETAVIP does not possess a camera.

In several instances,

[^] Continuity between editions of the bulletin is lost due to changes in the formatting of the section titles. In the four editions of FOCO reviewed by the evaluation team, the titles vary considerably in size as well as in the type ~~of~~ of letter used.

Furthermore, the ~~principle~~ principle sections in each of these four ^{and} editions are based on general topics on appropriate technology, ^{and} CETAVIP's policies and ~~activities~~ activities, rather than on the development of specific technical articles. This point highlights, once again, CETAVIP's lack of tested ~~and~~ and well documented information to ~~discriminate~~ discriminate during the first year.

The present paragraph illustrates this point by presenting a brief description of the principle article of each of the four editions published to date.

- September 1983 - "CII-VIVIENDAS", a description of its philosophy, major functions and activities.

- Undated - "Integrated Development", ~~XXXXXXXXXXXX~~ suggested the hypothesis that the solution to man's basic problems (food, shelter, health, etc.) must be viewed from the perspective of the inter-relatedness between them.

- January 1984 - "Informal Sector", presents an overview of that segment of the population (with a ~~EM~~ particular emphasis on economic and shelter-related activities) which conducts its basic day-to-day activities outside of ~~XXXXXXXXXX~~ established public and private sector channels.

- February 1984 - "Declaration of San Jose de Ocoa", is a document ratified by eight Caribbean islands, the United States and 35 private and non-profit agencies ~~XXX~~ which calls for government action on ~~ENVIRONMENTAL PROBLEMS~~ environmental problems~~E~~ affecting integrated human development.

c. Composition of Articles

The composition of the bulletin's articles presents a good use of language. It is written ~~E~~ in ~~XXXXXXXXXXXX~~ an ^{easy} understandable style that does not overuse specialized terminology. This style assists the reader, and thus appeals to a wider non-professional audience.

d. Printing and Graphics

The printing of the bulletin is of a very high quality. Variation is noted only ~~XXXX~~ where different sources are used to prepare the ~~XXXXXXXXXX~~ graphics.

CNEAVIP has placed great emphasis on the use of graphics and drawings in the bulletin, the majority of which are used only once. However, at times this is overdone, as for example, in the case of the "Fichas bibliograficas" or in the excessive use of drawings on the back page.

~~(c. Indefinition)~~

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e. Distribution

The number of printed copies of FOCO is 500. Four hundred and fifty are sent to CETAVIP's library where 2 350 are distributed by means of a mailing list of permanent subscribers. ~~XX~~ The other 100 are distributed to the library's users, most of whom are students. The 50 remaining copies are distributed directly by the members of CII-VIVIENDAS.

The distribution of the bulletin reaches a wide reading audience. This has permitted CETAVIP to establish an extensive, worldwide network for the exchange of ~~IX~~ ideas on appropriate technology.

4. LIBRARY

The library of CII-VIVIENDAS/CETAVIP began operations in 1981. It is located in a shopping mall ~~XXXXXXXX~~ relatively near ~~XXXXXXXX~~ the downtown area and the national university. It is, however, approximately 15 minutes by car from the offices of CII-VIVIENDAS/CETAVIP. The library has an area of nine square meters ~~which provides~~ ^{which provides} a ~~BI~~ maximum space for four persons in addition to its permanent staff composed of the Director and a secretary.

a. Organization

The library uses a classification system adopted by the United Nations Habitat Center in Nairobi, Kenya^{8/}. This system was selected "because its format coincides with the objectives of traditional housing and because it has been adapted to the requirements of the shelter field"^{9/XX}. ~~XXI~~
The library's documents are also ~~XXXXXXXXXX~~ numerically

^{8/} "Draft Thesaurus in the Field of Human Settlements", U.N. Habitat Center, Nairobi, Kenya, 1982.

^{9/} "Bibliographical Catalog 81-83", CII-VIVIENDAS, Santo Domingo, Dominican Republic, 1984.

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classified according to year of ~~XXX~~ acquisition. This system facilitates periodic inventories and ease of access. The system is presently monitored manually, but can be computerized in the future. The ~~XXXXX~~ classification system is complemented with a ~~XXXXXX~~ descriptive listing of each document.

The library has recently published its "Bibliographical Catalog" (see Footnote No.9) which lists all ~~XXX~~ available documents acquired since its inception in 1981.

The classification system was also chosen because it was based more on the general topic of appropriate technology, rather than solely in the area of low income shelter.

The evaluation team believes that the library has successfully achieved the goals of the OPG with respect to this initial organizational stage. It is now capable of accessing a wide range of information on appropriate technology both from local and international ~~XXX~~ sources.

Acquisition of Documents and Equipment b. ~~XXXXXXXXXXXXXXXXXXXXXXXXXXXX~~

The library acquires documents in three ways:

- Donation. The library has ^{received} donations of documents on appropriate technology from various sources. The most important have been from UNESCO and from Volunteers in Asia. The latter group has donated a microfiche library and viewer.
- Exchange. The library has ~~EXCHANGEXXXXXXX~~ agreements for the exchange of books and periodicals with various other institutions.
- Purchase. Books are purchased locally and overseas. ~~XXX~~ CARE has the responsibility for ~~XXX~~ foreign purchases.

The library presently has a collection of over 1,200 documents and 832 microfiche.

c. Identification of Information Sources

The library is presently using as a reference "Appro-

Place this sentence immediately following the sentence on the footnote No. 9.

private Technology Project Course Book" by Volunteers in Asia. This is the same organization which donated the microfiche ~~XXXXXXXXXXXX~~ collection which the library uses. Informational searches are also done through SATC SATIS (Socially Appropriate Technology Information Service).

d. Preparation of Mailing Lists

The library has prepared a mailing list of compatible institutions with whom it maintained contact. This list includes the names of 140 local organizations and 186 international agencies. This ~~XXXXXXXXXX~~ ^{listing} is continuously being updated and modified.

e. Promotional and Public Service Activities

The printing of the library's catalog in April 1984 presented a good opportunity to promote the work of CETAVIP within the local professional community. Upon request, the library also ~~XXXXXXXXXX~~ ^{conducts} selective ~~XXXXXXXXXX~~ ^{research} on specific topics for CFI-VIVIP/DAS member organizations.

~~As a service to the many students who use the library, the purchase of architectural reference texts~~

~~XXXXXXXXXX~~ The library offers a photocopy service to its users. It also sells the materials and documents from the seminars and IVI's magazine, and distributes CETAVIP's bulletin, POCO.

As a service to the many students who use the library, the purchase of ~~XXXXXXXXXX~~ architectural reference texts is planned.

Over the past year, the use of the library has increased significantly due to the special emphasis placed ~~XXXXXXXXXX~~ ^{on} projects by local university professors on class projects in appropriate technology.

VII. Achievement of Specific First Year Goals Contained in OFG Proposal

This section evaluates the specific first year goals mentioned in the OFG. The achievement of these goals will be reviewed from both a quantitative as well as a qualitative perspective. To be fair to CEAVIP, it must be mentioned that CEAVIP's department which is in charge of the implementation of the OFG has been operating for only one year. In this short time, it will be difficult to detect a concrete ~~XXXXXX~~ improvement in the quality of rural ~~XXX~~ housing.

With the exception of the ~~XXXX~~ library~~Y~~ which ~~XXXXXX~~ occupies separate office space, ~~XXXXXXXXXXXXXXXXXXXX~~ ~~XXXXXXXXXXXX~~ the physical plant ~~XX~~ of the other three ~~E~~ components has been established in the offices of CII-VIVIENDAS. ~~XXXXXXXXXXXXXXXXXXXX~~ ~~XXXXXXXXXXXXXXXXXXXX~~ ^{in addition to office space,} this complex contains a laboratory for material testing, an area for the construction of demonstration units and classroom space in which to hold short courses and workshops.

In general terms~~Y~~ and with varying degrees of success, ~~with ~~no~~ regard to ~~impl~~ achievement,~~ one can conclude that the program's four elements are now operational.

A. COURSES

From purely a quantitative perspective, CEAVIP has surpassed its first year goal of holding nine courses~~Y~~ in appropriate technology. However, the qualitative impact of these courses was substantially lessened by the lack of ~~XXXX~~ adequate support materials. This is particularly true when one considers that one of CEAVIP's primary target groups is the training sections of CII-VIVIENDAS member institutions. Without proper documentation, it will be impossible for CEAVIP to reap the spread effects of its labor through ~~XXX~~ training the trainers of other agencies.

Therefore, the primary focus of the courses during the first year has been directed toward the end user, the community ~~groups~~ ~~mentioned~~ previously, this has been a short-term

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expedient decision on CETAVIP's part. Until it has developed and tested a body of well documented knowledge, it is in no position to work directly with technicians and/or trainers of other Dominican organizations.

On balance, however, the evaluation team views these first year activities as a qualified success. The courses held ~~presented~~ to date for community groups and other agencies have provided CETAVIP with a good introduction to the environment ~~in~~ in which it must operate. While ~~their~~ ^{course} output is questionable, they have served well as a learning experience for CETAVIP. However, it ~~xxx~~ ^{should} not be forgotten that the first year's failures associated with using the community as a proving ground for new ~~xxxxxx~~ ^{of their} construction methods, and techniques imposed ~~xxx~~ ^{their} own costs on the future, ~~xxxxxxx~~ ^{justified} ~~xxxxxxx~~ ^{xxxxxxx} ~~xxxxxxx~~ ^{second} ~~xxxxxxx~~ ^{year}. This operating procedure will be difficult to justify during the second year.

B. SEMINARS

CETAVIP has realized the numerical objective of organizing three seminars during the first year. However, the point of counting the workshop on construction methods as a seminar is not clear. This workshop was oriented toward ~~the~~ the training of a specific group of skilled construction ~~xxxxxxx~~ supervisors, rather than toward the wider professional community in general.

During the year, CETAVIP's seminars attracted the participation of 119 professionals, six contractors and 17 ~~xxxx~~ students. ~~xxxx~~ According to their evaluations, these seminars generated much discussion on technical matters and on the specific work of CETAVIP.

The documentation which has resulted from these seminars has served to increase the size of the library's materials and has assisted in the preparation of courses.

C. BULLETIN

According to CETAVIP's internal work program, the bulletin should be published monthly. The first edition of FOCO appeared in September 1983 and the last, up to the time of the evaluation, was printed in February 1984. Over ~~X~~ this six-month period and prior to the onset of the managerial and financial difficulties of early 1984, CETAVIP nearly achieved its publication rate for the bulletin. All things considered, however, the evaluation team questions the long-term feasibility of attempting to publish the bulletin on a monthly basis.

The institutional crisis referred to greatly affected the bulletin's continuity. Since the preparation of the ~~X~~ bulletin was a shared responsibility, the input of several key people who left the institution (both from a conceptual~~X~~ ~~XXXXXX~~ as well as an operational standpoint) was sorely missed.

~~XXXXXX~~ The four editions that have been published to date provided a nice view of the institution's goals and objectives and served as a link ~~XXXX~~ to CII-VIVIENDAS member agencies.

D. LIBRARY

After three years of operation, the library has established its own credibility, independent of its function as a department of ~~XXXXXXXX~~ CII-VIVIENDAS/CETAVIP. It is well organized internally and has begun to open ^{international} channels of communication through the publication of its bibliographical catalog. It has identified adequate sources for the acquisition of books, periodicals and other materials. It presently possesses an ever-expanding collection of documents which assists in the implementation of the OPG's other program elements.

E. TRAINING OF TRAINERS

The OI~~a~~ calls for the training of 45 trainers from CII* VIVIENDAS member institutions during the first year. However,

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it does not indicate what levels of training should be attained. ~~XXXXXX~~

Through an agreement with INVI, CETAVIP is providing technical assistance on the design and implementation of nine rural projects. The implementation of the first one, the Duquesa project (see next section), was to provide training for 42 technicians in appropriate construction techniques. These technicians were then ~~xi~~ to apply this training to the implementation of the other eight projects.

The course lasted one week and provided training in the fabrication of sisal-cement roofing sheets, soil-cement blocks and low cost concrete floors. Simple techniques for materials testing were also provided.)

~ The reasoning behind the selection and training of the technicians was quite appropriate, since the skills learned in the classroom were to be immediately applied to the implementation of the project.)

~ Unfortunately, however, the quality of the classroom training itself was not adequate. The conclusion that must be drawn after the first year is that ~~EM~~ 45 trainees were not sufficiently prepared to carry on the program.

VIII. IMPACT OF OIG ON IMPROVING RURAL HOUSING

Measure

This section attempts to ~~REVEAL~~ the OIG's impact on the improvement of rural housing. Once again, it is only fair to ~~STRESS~~ to note that ~~this will not~~ only the most preliminary results would be evident at this early stage in the program's implementation.

In order to measure the OIG's impact on the improvement of rural housing, two shelter projects in which CEEVIF has participated will be assessed. Each project represents a different focus with respect to the type of ~~technical~~ training and dissemination program offered.

A. DUQUESSA PROJECT ^{10/}

Duquesa is a housing project for agricultural workers. It is located in an area near the capital city, Santo Domingo.

CEEVIF's role in this project was the provision of technical assistance and training to ~~local~~ construction supervisors. As ~~part~~ part of this training, CEEVIF organized a course on ~~improving~~ the quality of rural housing through the use of appropriate technology ^{11/}. Technicians from ~~the~~ ~~program~~ for the Integrated Development of Small Communities (IDEC) (see Section XI.B) participated in the course which was to train them in the fabrication of ~~light-weight~~ roofing sheets, walls of "calicanto" and ~~light-weight~~ concrete floors. Since CEEVIF's ^{primary} participation in this ~~course~~ project was the ~~organization~~ of the training course, it does not have a complete set of project documents. A site visit was made by one member of the evaluation team in order to observe the preliminary results achieved by the application of the techniques and materials ~~recommended~~ recommended ~~in~~ in the course.

101 Photographs # 1 and 2.

142 Workshop on Construction of Low Cost Housing Using

At the time of the site visit, the project was in the process of being restarted ^{after having been shut down for several months}. Of the total number of units under construction, four units ~~have~~ ^{had} already ~~been~~ ^{had} roofs of sisal-cement. These four units ~~XXXXXX~~ ^{were apparently} occupied prior to completion. Construction had been ~~not~~ ^{was} suspended due to problems encountered with the original contractor. This contractor, according to the staff of CETAVIP, was poorly supervised and, therefore, the quality of his work ~~is~~ ^{is} sufferdd. In practical terms, this poor workmanship was reflected in the poor quality of the walls of "calicanto" and the roofing materials of sisal-cement.

There is general disagreement between the contractor and INVI with respect to the type of recommendations discussed in the training sessions and in the quality control of the contractor.

The project's beneficiaries have rejected the quality of the ~~XXXX~~ construction of the completed units. ^{Dust cracking and poor installation,} they do not wish to use sisal-cement roofing sheets on their houses. Even though the ~~XXXXXX~~ ^{involved} institutions still support the use of these roofing sheets, it was decided that the sisal-cement sheets would be replaced with conventional zinc ones. The sisal-cement sheets would be used to cover the free-standing kitchens and latrines.

One can conclude that the impact of this project has been negative. CETAVIP, on the one hand, was at fault in recommending new building techniques that were not sufficiently tested. On the other hand, INVI showed poor judgement in failing to provide the necessary supervision to the project in order to resolve problems as they arose in the field.

While CETAVIP has learned several valuable lessons from the ~~XXXXXX~~ Duquesa project, final costs will be higher than if conventional techniques and materials had been used. Worse yet, the problems associated with this project have caused the community to reject the appropriate techniques and building materials recommended by CETAVIP.

B. FONDO NEGRO PROJECT ^{12/}

This project consists of the construction of 87 dwelling units in two rural communities in the province of ~~EXXX~~ ~~EXXX~~ Bahoruco. The Dominican Development Foundation (FDD) is the prime implementing ~~XXXXX~~ agent of this project. The German development agency, Deutsche Welthilfsg-Hilfe (DWHH), is ~~XXXXX~~ providing the funding. INVI, INDESUR and the two municipalities are collaborating in the implementation. *CETAVIP is providing technical assistance to FDD.*

The housing units are being constructed from a hybrid system of appropriate building techniques. These techniques include the "calicanto" method for external bearing walls (unreinforced poured concrete interspersed with large stones), CIMA-LU blocks for the construction of internal non-bearing walls and kitchen, sisal-cement sheets for the roofs and a low cost finished concrete floor. Presently, 20 units are under construction, with several only lacking a roof for completion.

In contrast to the Dagueca project, the community group, with technical assistance from CETAVIP, is ~~not~~ undertaking the construction at ~~XXX~~ Fondo Negro. The beneficiary group from the local communities received ~~XXXXX~~ training from CETAVIP in the construction techniques to be employed on the project. A site visit confirmed that the community is actively participating in the construction of the project.

In an effort to lower the project's total cost, each beneficiary contributes two days work per week. This weekly contribution of RD\$10 is augmented by an additional contribution by each beneficiary of ~~XXX~~ RD\$2 per work day. (See Section IX for a financial analysis of this project.)

The materials and construction techniques employed on this project have generally ~~XXXX~~ achieved very good results. The external walls which are constructed by the "calicanto" method use local materials which are less expensive than those ~~conventionally~~ ^{normally} used (i.e., concrete block). These

^{12/} Photographs #3 and #4.

local materials, in conjunction with adequate soil conditions, provide the conditions for a structurally sound unit.

The site visit ~~XXXX~~ confirmed the fact that the walls of "calicanto" have been designed and constructed to a sufficiently high standard to ~~XXXX~~ withstand the periodic ~~XXXX~~ seismic and wind loadings placed on them. The internal walls of SILVA-RAM blocks, on the other hand, do not appear to be of ^{Very} good quality. This is primarily due to the region's prevalent ~~XXXX~~ soil type (high lime content) which is used to fabricate the blocks. The ~~XXXX~~ block's ^{acoustic} poor quality presently requires that the internal walls be rendered. While the ~~XXXX~~ strength of the soil-cement blocks is adequate to support these non-bearing internal walls, ~~the fabrication process must be improved in order to avoid this cost for rendering. The ~~XXXX~~ appropriate building techniques within ~~XXXX~~ a rural Dominican context can not afford the additional cost of rendering.~~

The fabrication and installation of the sisal-cement ~~x~~ roof sheets has improved greatly. They are presently being produced according to specifications based on the latest test results of CETAVID's Research Department. Much of this improved quality is due to the experience gained and the lessons learned from the Diquesa project.

A preliminary evaluation of the construction techniques disseminated by CETAVID on the Fondo Negro project yields various positive results:

- Successful training and incorporation of community group into construction process;
- Extensive use of local materials;
- Improved hurricane resistant design;
- Significant cost savings in comparison to shelter constructed by conventional methods.

The shelter solutions under construction at Fondo Negro represent a significant improvement in relation to the quality of the beneficiaries' present housing. Existing dwelling units are constructed ~~XXXXXXXXXX~~ using local techniques and materials which offer minimal sanitary convenience and resistance against hurricanes.

Table VIII-1 presents a cost breakdown for the Fondo Negro unit, while Table VIII-2 provides a comparison ~~between~~ ^{cost} for the unit's key structural components using conventional techniques and those employed at Fondo Negro. Figure VIII-1 shows a plan of the unit.

^{VII-2}
Table 2 shows the percentage reduction in the cost of three ~~XXXXXXXXXX~~ principal ~~XXXXXXXXXX~~ components of the unit constructed at Fondo Negro. The analysis examines cost differences for the walls, roof and floor between conventional and ^{the recommended} appropriate technology. The table indicates that the ~~XXXX~~ ~~XXI~~ building systems used ~~XX~~ at Fondo Negro represent a savings of over RD\$1,300 in comparison to conventional techniques. This amount equals a percentage reduction of 40 percent in the cost of the three building components.

However, There are as yet no signs that the techniques employed on the ~~XXXX~~ Fondo Negro project are being replicated by the surrounding rural communities. The evaluation team believes there are at least three ^{possible} reasons why this has not occurred.

- Time too short since inception of project;
- Surrounding communities do not have knowledge of materials and techniques employed;
- Even reduced cost of unit constructed at Fondo Negro too expensive for majority of rural households.

It is the third point which concerns the evaluation team. While the unit cost of the shelter solution X constructed at Fondo Negro has certainly been reduced in comparison to conventional methods, ~~XXXXXXXX~~ ^{Constructed of whatever material or technique} a three bedroom unit ^{is} still too expensive to be replicated ~~XX~~ by the Dominican Republic's rural poor. (See the following section on the ~~projects~~ ^{analysis})

of the project's affordability.) Even though the existing figures on household income are not very reliable, it is estimated that the incomes of rural households would not permit them to amortize the total cost ~~XXXXXXXXXXXX~~ corresponding to the proposed unit for Fondo Negro. In fact, any monthly amortization payment would be an additional expenditure, since very few households are presently spending anything on housing.

Therefore, the experience of Fondo Negro has permitted CII-VIVIENDAS/CETAVIP to demonstrate X new cost effective construction techniques. However, the shelter solution adopted for Fondo Negro can not serve as a general response to the Dominican Republic's rural housing problem. On the contrary, it could create an imbalance in the community since not all members will have an opportunity X to participate in the program.

h

IX. COST/AFFORDABILITY OF RECOMMENDED CETAVIP APPROPRIATE TECHNOLOGY

The present chapter analyzes the affordability implications of the unit cost components for one of the projects reviewed in the proceeding chapter. While the previous chapter noted substantial cost reductions achieved in the design of the Fondo Negro project through the use of appropriate technology components, this chapter estimates the individual rural households financial capacity to purchase the proposed shelter solution.

The following table lists the unit cost components of the shelter solution presently under construction at Fondo Negro.

<u>UNIT COSTS - FONDO NEGRO</u>	
<u>Cost Component</u>	<u>Cost (RD\$)</u>
Land (owned by community)	0
Plot development (incl. water supply)	460
Unit construction	3,565 3,835
Technical assistance (CETAVIP)	590
Administrative costs (FDD)	430
Contingencies	260
	<u>RD\$ 5,305</u>
Subtotal Project Costs	\$5,575
Labor and materials provided by community	810
	<u>RD\$ 6,115</u>
Total Project Costs	<u><u>RD\$ 6,385</u></u>

In order to carry out an accurate affordability

analysis, one should have current information on the household income of the proposed target group. In the case of Fondo Negro, these data do not exist. As a proxy for this income information, a 1976-77 Survey of Household Income and Expenditures¹ of urban and rural households was updated using the assumption that incomes have increased by 5 percent annually. Annex 3 presents this updated version of the 1976-77 study for the country's rural areas.

The project paper for Fondo Negro states that project costs will be recovered through loans to individual beneficiaries at one percent interest for 15 years. This interest rate is highly subsidized in comparison to actual commercial rates of 14-16 percent. ^{The project paper mentions that} Community supplied labor and materials will be taken as a downpayment. The project's administrative and technical assistance costs ^{were not} ~~had~~ initially ~~not been~~ included for recovery.

The following analysis considers affordability from the standpoint of three levels of recoverable costs:

- Infrastructure and superstructure costs
(including contingencies);
- No. 1 plus technical assistance and administrative costs;
- No. 2 plus community's contribution of labor and materials.

¹"First National Survey of Household Income and Expenditures"
Central Bank of the Dominican Republic, Department of Economic Studies, Santo Domingo, D. R., May 1976-April 1977.

It will be assumed that a household spends a maximum of 25 percent of its income to amortize the purchase of the proposed shelter solution. Furthermore, two additional less subsidized financing plans (7 percent for 20 years and 12 percent for 25 years) will be included for comparative purposes. On the basis of the assumed financing terms and unit costs, Table X-1 estimates the monthly payments required to amortize the debt, the corresponding monthly household income, and the percentage of rural households which can not afford the proposed shelter solution.

With respect to the conclusions to be drawn from the affordability analysis contained in Table X-1, it should be emphasized that USAID housing programs are designed to serve low income households^{1/1}. Therefore, the affordability analysis for the Fondo Negro project was undertaken with a view to serving as large a percentage as possible of the rural low income target group.

The first conclusion to be drawn from the analysis is that without the community's contribution of labor and materials, this project would be barely affordable even with the most highly subsidized financing terms. In the case of the 1%/15 yrs. financing plan, ^{(assuming the community's contribution must be purchased) 33} it is estimated that ~~35~~ percent of the rural target group ²⁴¹ can still not afford this project. ²⁴¹ would not be able to afford this project.

The other two cost recovery alternatives do not greatly

^{1/1} USAID housing programs financed with Housing Guaranty funds must, by U.S. Congressional mandate, serve poor households with incomes below the medium income for a specific area or country.

improve affordability. It is only when one assumes that technical assistance and administrative costs are not included and that the highly subsidized financing terms are applied that the project's affordability approaches 80 percent of the rural target group (i.e., 20 percent are still not able to afford the project).

Therefore, it can be concluded that the Fondo Negro project, as planned and designed, is only affordable to low income rural households when the most highly subsidized cost recovery and financing terms are assumed. While this approach certainly improves the purchasing capacity of the individual beneficiaries of this shelter project, it is not a model which could be replicated to improve the overall quality of rural housing in the Dominican Republic.

An alternative for ~~improving~~ improving the affordability of the shelter design ~~proposed~~ ¹⁹⁸⁵ proposed for Fondo Negro could be to reduce ~~the~~ initial area. The proposed shelter solution (reduced in size by, say, 50 percent) ~~could~~ ^{would} be expanded over time by the project's beneficiaries.

The ~~proposed~~ area of the shelter solution proposed for Fondo Negro is approximately twice the size of the housing presently occupied by the ~~beneficiaries~~ project's beneficiaries. In addition to size differences, the existing housing at Fondo Negro is constructed of traditional local materials (rough sawn lumber, thatch roofs, etc.) readily available in the area at ~~minimum~~ minimum cost.

Whether a shelter program involves new construction or improvement/expansion of existing structures, the design ~~should~~ ^{must} be based on the eventual beneficiaries ability ~~to~~ to

pay. Furthermore, the program should be seen as a means to incrementally improve the shelter conditions of a proposed target group, rather than to resolve its "perceived housing problem" through one relatively short-term intervention.

While the scope of this evaluation does not contemplate specific design recommendations to improve the quality of CEMAVI's shelter programs, Figure IX-1 presents an alternative design based on the Fondo Negro model. The alternative design better incorporates the affordability capacity of the project's beneficiaries while continuing to use readily available local materials. The alternative shelter solution combines the recommended appropriate technology components, but at half the original area, with the same tradition construction used in existing structures.

X. CONTRIBUTION OF LOCAL COUNTERPART TO OPG (CARE, INVI, CII-VIVIENDAS)

The present section reviews the counterpart contribution (in-kind services, personnel, and equipment) provided by CARE, INVI and CII-VIVIENDAS to the CETAVIP OPG in accordance with the terms of the agreement signed by the three parties.

A. INVI

The tripartite agreement states that INVI will provide RD\$60,000 to cover certain salary and overhead expenditures during the three-year OPG. Its first year contribution was to be RD\$20,000. To date it has contributed RD\$5,000. An additional RD\$5,000 contribution has been agreed to verbally. While INVI is in arrears on its direct contribution to the OPG, it has faithfully fulfilled its obligations with respect to in-kind payments to cover the salary of the library's secretary as well as the office space occupied by the library.

The OPG proposal did not foresee the need for CETAVIP to undertake its own original research. However, as already mentioned, by the time the OPG financing came on-line, CETAVIP had already established a research department with its first research grant (sisal-cement roofing materials).

The authors of the OPG believed that most of the required information on appropriate technology was already available.

The minimal research/study capacity required by the OPG program was to be provided by INVI's Projects Department, which was to second personnel to CETAVIP. Unfortunately, the professionals in this department who had the training to undertake the required analytical studies were transferred to other offices when a new administration took power ^{in August 1983.} Therefore, while other departments within CETAVIP were acquiring an analytical/research capacity through specific program grants, the Dissemination Department had limited access to specific funding for this purpose.

With respect to the incorporation of appropriate technology elements in its housing program, INVI and CETAVIP (through CII-VIVIENDAS) are presently cooperating on several shelter projects. The purpose of this cooperation is to integrate CETAVIP's work in appropriate technology within INVI's ongoing project planning and design cycle. Two areas of cooperation are on the Integrated Development Projects for Small Communities (PDIPC) and SURVIVIENDA. *(See Section XI for a brief description of PDIPC and other ongoing CII-VIVIENDAS/CETAVIP programs)* The following paragraphs give a brief description of CETAVIP's contribution to each.

~~PDIPC This program involves the design and implementation of integrated development projects in nine rural communities. Besides INVI and CETAVIP, other Dominican government institutions (IDA and ODC) are participating in this integrated effort. The two latter organizations~~

are members of CII-VIVIENDAS. In this program, CETAVIP will assist INVI in the planning and design of the nine projects. The purpose is to ensure that the appropriate technologies which are selected meet the specific construction and user needs of the individual communities in the area of low income housing. CETAVIP's other principal role in this program ^{is} to use the implementation of the first project (Duquesa) to train the skilled labor in the recommended techniques so that they ^{will be able} ~~could then~~ to carry out ^{of} the implementation ~~of~~ the remaining eight projects. (~~See an analysis of the Duquesa project in Section~~ ~~tion~~).

SURVIVIENDA This program establishes an agreement between INVI and CETAVIP whereby CETAVIP will provide technical assistance to INVI in the upgrading of rural housing in the country's southwestern region (provinces of Azua, San Juan de la Maguana, and Elías Piña). Since the program's principal objective is to rationalize the upgrading of rural housing on the basis of appropriate local resources (whether financial, human or material), CETAVIP has been asked to provide the following services to promote the SURVIVIENDA program:

- Train SURVIVIENDA's skilled work force;
- Identify local materials for appropriate technology components;

- Investigate alternative materials, construction techniques and training needs for the production of the many components which comprise integrated rural shelter;
- Develop training courses on appropriate technology for local carpenters and masons;
- Organize discussion groups with the rural population on appropriate technology.

B. CARE

Pursuant to the implementation agreement signed by the three parties, CARE's contribution was to be of an in-kind nature. CARE was to donate a used jeep and the use of office space. Prior to receiving the jeep in May~~x~~ 1984, a Ford Fairlane was loaned to CETAVIP in August~~x~~ 1983. While the Ford Fairlane provided adequate transportation within Santo Domingo, it has not proven suitable to reach several of the more inaccessible project sites in the country's southwestern region. In addition, it is very uneconomical to maintain. The jeep, when it was received from CARE, required ^{substantial} over-RD\$2,500 in repairs. These repairs were paid out of CETAVIP's budget support from CII-VIVIENDAS. The jeep has now been repaired and should^{be} exceedingly useful in CETAVIP's field work. However, even with the addition of the jeep, the evaluation team believes that CETAVIP still does not have sufficient 4-wheel drive trans-

portation capacity to successfully carry out its program for the second year of the OPG.

CETAVIP's office space (located at the Fair Grounds off George Washington Avenue) is being loaned by CARE for the three-year life of the OPG. CARE has valued this in-kind donation at RD\$36,000 for the first year of the OPG's implementation (with 10 percent annual increments

for the last two years. Since, in fact, the building is being loaned rent free to CARE DOMINICANA (by the Dominican government, the negotiators of the cooperative agreement should discuss the potential re- costs to CARE vis-a-vis the rental value placed on this in-kind contribution. Any difference could be applied to the purchase of an additional vehicle(s) or office equipment.

under the OPG, its main function is the financial administration of the program. Its accounting department maintains the program accounts. When OPG funding became available in June 1983, salaries for the months of April and May were paid retroactively for the original staff. An advance of approximately RD\$25,000 was also established to cover projected monthly expenditures. A straight-forward mechanism was agreed to between CARE and CETAVIP to work off this advance. Each month CETAVIP would submit a detailed financial report (backed up by the proper documentation) to CARE for its review. ~~In addition,~~ CETAVIP would be reimbursed for monthly expenditures certified as correct by CARE. As originally conceived, (see Amendment N^o 1 to USAID-CARE OPG), CARE was to be reimbursed by AID

on a quarterly basis. It would submit to USAID a financial report detailing all OPG expenditures and in-kind contributions for the period. ² In the process of working off the advance, CETAVIP would always have sufficient funding to cover the fortnightly payment of salaries and other incidental expenditures. This system worked reasonably well for the initial several months of the OPG.

Beginning in November 1983, however, CARE Dominicana began to encounter severe cash flow problems. Part of this financial problem was due to the time required to fill out the detailed forms required by AID for reimbursement of OPG expenditures, as well as the time frame ~~(four months)~~ ^{correct working} during which CARE had to carry CETAVIP expenditures incurred during the period. Even prior to this cash flow problem, in September 1983, CARE requested that CETAVIP reimburse it the outstanding balance on the original RD\$25,000 advance. CETAVIP complied with CARE's request. At the time, this amounted to approximately RD\$4,500. The removal of this financial "cushion" from CETAVIP's bank account, as well as the recurrent delays being experienced in monthly reimbursement ^{from} from CARE, prompted a financial crisis in CETAVIP which lasted into March/April 1984. CETAVIP found it very difficult to meet its salarial obligations with the cash it had on hand. The delays in receiving reimbursement from CARE for its expenditures only complicated the situation.

To the credit of the involved institutions, this financial crisis was resolved amicably in May 1984. AID's financial reporting requirements vis-a-vis CARE were streamlined dramatically. Two pages of forms, in place of the original four, are now required. Furthermore, CARE will now be allowed to submit monthly financial reports to AID for reimbursement of CETAVIP expenditures. As a result of the new agreement, CETAVIP was reimbursed for expenditures which had accumulated since February 1984. It also received a new advance of RD\$20,000 to cover projected expenditures for the coming month plus expenditures incurred between the end of the billing period and reimbursement by CARE. All the involved institutions believe that the recent changes will resolve CETAVIP's lingering financial problems. *Resort*

CARE also has the responsibility for the purchase of equipment and books required by CETAVIP's Dissemination program. The existing process for this type of purchase is that CETAVIP places an order with CARE-Dominicana which, in turn, sends the order to CARE's New York Purchasing Department for processing. Due to other orders being received from CARE's other field offices, some delays have been experienced in the processing and delivery of these materials.

The OPG's detailed budget for the first year ^{costs} indicates that various ^{certain project-related} administrative posts at CARE will be partially paid from the originally obligated US\$150,000.

These administrative ^{Costs} posts include reimbursement for the partial payment of salaries and benefits for the director, an executive secretary, and accountant, and three technical support staff. At the time this evaluation was undertaken, CARE was preparing to submit to USAID a request for reimbursement of actual expenditures incurred during the first year. A draft of this submission shows that, with the exception of a 6-month period when the present executive director of CII-VIVIENDAS was employed as CARE's implementation officer for the CETAVIP program, no additional CARE technical staff has been provided to the OPG. The other posts will be billed as envisaged in the first year budget.

C. CII-VIVIENDAS

The implementation plan for the first year of the OPG did not envisage a direct financial role for CII-VIVIENDAS. However, during the second and third years, ^{calls for CII-VIVIENDAS TO} of the OPG ~~it will~~ contribute over RD\$57,000 to pay the salaries of an architect, a civil engineer and a draftsman. These professionals will be employed directly by CETAVIP.

While the first year's budget does not explicitly call for a financial contribution from CII-VIVIENDAS, it has, nevertheless, provided CETAVIP with an enormous amount of tangible and intangible assistance, over the past year. Many of the programs and projects

executed to date by CETAVIP have been on contracts negotiated and signed by CII-VIVIENDAS with the principal donors. This has allowed the staff from ^{CETAVIP's} ~~the~~ other departments (for example, the research departments' experiments in sisal-cement) to actively participate in the courses prepared by ^{the Information Department.} ~~the dissemination~~ department. Furthermore, the lessons learned from the projects being undertaken as part of the technical assistance program (PDIPC, SURVIVIENDA, Fondo Negro) provide another opportunity to upgrade the quality of the materials of ^{this} ~~the~~ dissemination department. Finally, the support staff provided by other CII-VIVIENDAS contracts has been used by the ~~Dissemination~~ Department on a time available basis.

XI. OTHER CETAVIP ~~MAIN~~ PROGRAM ACTIVITIES AND FUNDING SOURCES

As mentioned previously, CETAVIP's three other principle departments -technical assistance, research, and regional models- are presently undertaking a wide-range of program activities. Many of these programs are partially funded from foreign donations. Table ~~XI-1~~ presents the ongoing programs and their various funding sources. The following sections highlight the salient points of each program with its corresponding funding source(s).

A. Government Budget Support

The Government of the Dominican Republic essentially launched CETAVIP financially with a budget assignment of RD\$22,100 in November 1982. This budget support was continued in 1983 at RD\$10,000 per month. A similar level of budget support continues to apply in 1984.

B. Integrated Development Programs for Small Communities (PDIPC)

~~This program~~ ^{It} is being implemented through a grant agreement between INVI and the Organization of American States (OEA). This agreement was signed in November 1982. The program's objective is to train technicians from INVI, the Dominican Agrarian Institute (IAD) and the Government's Community Development Office (ODC) to plan and design shelter projects for low income rural households. The training courses include the application of

This program involves the design and implementation of integrated development projects in nine rural communities.

appropriate technology components within the context of economic and cultural factors prevailing in the rural regions where the projects will be undertaken. INVI will provide ~~pay~~ CETAVIP RD\$36,000 to develop this program. The OEA grant is for RD\$20,000 of which over RD\$9,000 has been disbursed through December^x 1983.

C. Study of Sisal-Cement Roofing Materials

The objective of this study is to investigate the feasibility of using a sisal-cement mix as the base ~~of~~^{for} a roofing material for low income shelter solutions. The study will define an appropriate set of specifications (mix, fabrication process, curing, erection, etc.) for the use of this material as a building product. In addition, the study will define a series of guidelines for establishing labor-intensive centers for the production of sisal-cement roofing sheets. Appropriate Technology International (ATI) is funding this study with a grant of US\$21,000. This study is presently nearing completion. CETAVIP plans to sponsor a seminar in the fall during which the results of this sisal-cement experiment will be discussed with other organizations which have undertaken similar research.

D. Typology of Rural Housing

This project is being financed by a grant of the Canadian government. The project's objective is to group the country's many provinces into a series of regions on the basis of common cultural, topographical and climatic characteristics. On the basis of this regionalization,

alternative housing typologies which respond to the individual characteristics of each region will be developed to assist in the design of low income rural shelter. This project is also in its final stages. A final report is anticipated by July~~x~~ 1984.

E. Regional Shelter Models and Experience to Date in the Use of Appropriate Technology in the D.R.

This program is divided into two parts. The first part builds on the experience gained from the analysis of the regional housing typologies. This project will construct twelve demonstration shelter projects using the techniques, designs and local materials recommended in the above-mentioned typology study. The study's second part will investigate the country's experience to date with the use of appropriate technology in the provision of rural shelter. The program is being funded by a grant agreement between the Interamerican Foundation and CII-VIVIENDAS. The OEA is also providing funding support to the program.

← XII. RELATIONSHIP OF OPG TO AID/DR PROGRAM STRATEGY

AID's OPG with CARE to improve rural shelter through the strengthening of CETAVIP compliments and reinforces Mission strategy in three major areas.

A. Private Sector

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CARE, a private U.S. organization, is the recipient of the USAID OPG. CARE has been very active in the Dominican housing sector, particularly during the reconstruction effort following Hurricane David. Its experience in Palenque (a USAID-financed reconstruction project in the country's poor southern region) and other rural communities provide it with a particular grassroots dimension not always available under normal loan/grant programs. Furthermore, the OPG which CARE administers is going to support the strengthening of CETAVIP, an appropriate technology center which is the executing arm of the Dominican private, non-profit housing commission, CII-VIVIENDAS. CII-VIVIENDAS groups a number of Dominican private development institutions (Dominican Development Foundation, CARITAS, FEDOCOOP, FUDECO, etc.) which are integrally involved in the implementation of the OPG. The experiences gained from this OPG will considerably strengthen this group of highly qualified Dominican private sector institutions to undertake its ongoing development activities.

B. Institution Building

One of the primary goals of the OPG is to strengthen CETAVIP institutionalality, so that it can better carry out its role as the country's main disseminator of information regarding the improvement of rural housing. The OPG provides budget support to CETAVIP to hire trained

administrators and technical professionals (architects and engineers) to ensure that this goal is realized. OPG funds are also being used to structure an efficient delivery system of courses, seminars and graphic materials to carry out the training of rural carpenters, masons and local builders. Extension services and courses are being offered to INVI, as well as the members of CII-VIVIENDAS, in order that the most recent advances in appropriate technology can be incorporated into its normal design process for rural shelter.

C. Technology Transfer

The OPG's main objective is to introduce appropriate technology components in the improvement of rural housing. In addition to an ongoing research program in the use of sisal-cement in the production of low cost roofing materials, CETAVIP has conducted seminars and courses on improved designs for rural housing to resist hurricanes, on the Lorena stove, and on the making of CINVA-RAM soil-cement construction blocks. CETAVIP's ongoing experiments in appropriate building materials to meet the economic and social needs of the poor rural population are based on a more efficient use of the country's natural resources and limited foreign exchange. The transfer of this accumulated information is being accomplished through an extensive program of participant training courses and seminars.

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XIII. RECOMMENDATIONS

According to the information contained in the 1981 Sixth Census of Population and Housing, more than 2.7 million persons ~~live~~^{reside} in the Dominican Republic's rural areas. This population figure ~~XXXXXXXXXX~~ equates to more than 500 thousand dwelling units. Of this total number of housing ~~Y~~ units, it is estimated that approximately 85 percent do not meet minimum standards for quality. Given the magnitude of the problem, any proposed ~~solution~~ requires an optimum use of the nation's resources, as well as an equitable distribution of the benefits derived from the use of these resources.

In order to ~~XXXXXXXX~~ ~~is~~ increase the possibility of producing a positive impact on the quality of rural housing, shelter programs, in addition to simply recommending ~~XXXXXXXX~~ alternatives for improving the physical structure, should investigate and incorporate non-technical ~~XXXXXXXX~~ components. These other components should take into consideration ~~XXXXXXXXXXXXXXXXXXXXXXXX~~ current cultural and health aspects of the rural population, as well as the development of appropriate financing systems.

In order to achieve a range of broader based shelter solutions, it is necessary to define a general approach to resolving the rural shelter problem which incorporates elements of a political, social, economic and technical nature. None of these elements applied in isolation to the problem will be able to improve the situation greatly.

Recommendations should be made within an appropriate socio-cultural ~~XXXXXXXX~~ and technical context. It is meant by this that from a range of possible policy and program alternatives, a set of proposals is adopted which is most compatible with existing human, financial and material resources.

The rural shelter problem must be viewed in broader terms where habitable space is only one of the components which comprise an overall shelter solution. The planning

and design process for rural shelter solutions must take into consideration the social and cultural acceptability by the low income household, must be affordable to this target group, and must incorporate appropriate construction techniques and building materials.

A. GENERAL RECOMMENDATIONS

CETAVIP's program for the second year of the OPG should try to reinforce the initial goals and objectives on which CII-VIVIENDAS was founded. In general terms, these include the coordination of institutions from the public and private sectors involved in low ~~income~~ income shelter programs in the Dominican Republic. CETAVIP must also strengthen its role as the permanent center for the collection, dissemination and exchange of information on appropriate technology.

Furthermore, CII-VIVIENDAS/CETAVIP must strive during the second year to incorporate appropriate construction techniques into the shelter programs of member institutions. CETAVIP must focus its limited resources to provide the necessary technical assistance to meet this goal.

Staff training, support for CETAVIP's research efforts and the exchange of ideas and experiences are ~~an~~ essential elements in the implementation of an information program oriented toward the transformation of conventional wisdom on how the nation's rural shelter problem should be resolved. The three areas which comprise the underpinning of CETAVIP's organizational structure must coordinate their activities in this area.

1. Research

CETAVIP's ongoing ~~research~~ research should provide much of the basic material for the institution's other program components. On the basis of an early identification of priority areas and available resources, CETAVIP should focus its investigative ~~activities~~ activities in the following technical areas:

- Identification, production and use of new building materials;

- Development of new processes or procedures for the fabrication of XK building materials which in the past have been little or incorrectly used;

- Development of appropriate regional construction techniques which will provide greater efficiency and performance;

- Development of new approaches to the design of shelter components which are appropriate to the nation's climatic conditions, are resistant to hurricanes and earthquakes and which utilise alternative sources of energy.

2. Technical Assistance

One of the main functions of CENAVIP's technical assistance program should be the application ~~XXX~~ of the results and findings of the institution's ongoing research. Technical assistance should serve as the link between the laboratory and the field projects. New results and findings should constantly flow in both directions as a means of improving the quality of each. ^{on} ~~The technical assistance program should focus primarily XX two XXXXX~~ ^{levels!}

- Train the trainers of CII-VIVI/DAS member organizations who, in turn, would work directly with the local community groups;

- Assist directly in ~~the~~ project implementation as a follow up to the training sessions with CII-VIVI/DAS member trainers.

Furthermore, the evaluation team believes that CENAVIP should implement a limited number of demonstration projects, such as FONDO Negro. ~~THIS TYPE OF PROJECT~~ CENAVIP would gain experience from this type of project in the direct application of new construction techniques and building materials. However, the implementation of demonstration pro-

jects should not overburden the institution's capacity to execute its other programs nor should they place excessive demands on the available resources of the involved rural communities.

3. Dissemination of Information

The availability and ease of access to pertinent and current information constitutes the basis for ~~CETAVIP's~~ CETAVIP's dissemination program on appropriate technology. It is recommended that ~~the~~ this program simultaneously focus on two areas:

- Collection and dissemination of information on appropriate technology. The staffs from the bulletin and the library ~~should~~ should coordinate activities in this area.

- Assist all CETAVIP programs (research, technical assistance, etc.) in the preparation of supporting documentation including graphics.

4. Role/Function of USAID's OPG within CETAVIP's Overall Work Plan for the Second Year

The OPG's second year should be oriented toward strengthening CETAVIP's information program in general, and not focused exclusively on one department (i.e., the dissemination program ~~per se~~ per se). This approach is ^{necessary} ~~required~~ due to the interrelated nature of the information needs of the various departments. It is worth emphasizing that the components of the Dissemination Program: courses, seminars, bulletin and library should not be viewed as the sole content of CETAVIP's program nor its ~~primary~~ objectives as coinciding totally with CII-VIVIENDAS/CETAVIP's overall objectives.

The task of disseminating information must be a joint effort on CETAVIP's part. In ^{order} to achieve its goals in this ~~area~~ area, it is of critical importance to strengthen the preparation of supporting documentation. This was the ^{one} ~~area~~ area of CETA-

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VIP's overall dissemination program which the evaluation team identified as having the greatest deficiencies.

→ B. SPECIFIC OPG RECOMMENDATIONS

The terms of the OPG emphasize the ~~the~~ strengthening of four components: courses, seminars, bulletin and library. It should be understood that these components are the vehicle for implementing a program of information dissemination. The success of this program will depend on a joint effort on the part of all CETAVIP's departments.

To a greater or lesser extent, all CETAVIP's departments will be involved in the dissemination of information on appropriate technology. Each department will view this task from a slightly different perspective. For example, the process begins with the library in the identification and collection of relevant information on appropriate technology. This information is analyzed and tested by the Research Department and then verified in actual field situations through the ~~course~~ course work prepared by the Technical Assistance department. Finally, positive results and findings are written up and published in the bulletin.

The following sections describe the specific recommendations for each OPG component.

1. COURSES

The general recommendations state that CETAVIP should focus its activities more on the training of the trainers of CII-VIVIENDAS member institutions. These trainers will, in turn, work directly with the local community groups. The following sections ~~re~~ recommend the means for achieving this general objective.

a. Course Organization

The courses should be defined and organized around a set of techniques and ~~and~~ materials which have been sufficiently proven and tested by CETAVIP. This level of increased

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proficiency on CETAVIP's part will provide it with a greater opportunity than ~~XXXXXX~~ in the past to incorporate this new set of information ~~X~~ into existing processes and procedures for the improvement of existing housing and/or the production of new shelter solutions. The courses will be dictated by CETAVIP staff.

The courses should be presented on a fixed schedule so that CETAVIP, as well as the participating institutions, can program their yearly activities accordingly.

Where feasible, CETAVIP should enter into agreements with other governmental agencies or university ~~XXXXXXXXXX~~ institutes to provide technical assistance in areas ~~X~~ important to its overall training goals, (such as community development and leadership training), (but where it has limited expertise). This would allow CETAVIP to ~~XXXXXXXXXXXXXXXXXXXX~~ focus its resources in the area of appropriate technology.

b. DEFINITION OF COURSE CONTENT

Course content should be defined in such a way as to meet the needs of CII-VIVIENDAS member institutions. It should also respond to other topics identified from the findings and results ~~X~~ of the Research Department. Course content should ultimately be defined on the basis of its potential impact on the improvement of the quality of rural ~~XXXXXXXXXX~~ shelter. ~~Ky~~

Up to now, CETAVIP's courses have emphasized one of CII-VIVIENDAS initial objectives, the improvement of the structural quality of shelter ~~X~~ to better resist the effects of hurricanes. Courses and technical assistance have been oriented toward the construction of complete dwelling units. This evaluation team believes strongly that this orientation must be modified. ~~XXXXXXXXXX~~ New directions must be chartered to include the improvement and/or expansion of existing shelter and the provision of systems designed for water supply, human waste disposal, etc.

its

Given ~~the existing~~ ~~existing~~ limitations vis-a-vis the magnitude of the nation's rural housing problem, it is also recommended that CENAVIF should narrow the focus of its courses, technical assistance and research to a specific set of appropriate techniques and materials. This more ~~more~~ focused approach would allow CENAVIF to increase the depth of understanding of the material it wishes to disseminate. For example, if the apparent advantages of silico-cement as a building material are adequately verified, this area could very well serve as one of the central themes of the courses.

It should be remembered that ~~after~~ after many years of operation, the ~~Inter-American~~ Inter-American Housing Institute (IAVA) in Bogota, Colombia, is known principally for its work with the CENVA-RAI ~~block~~ block making machine.

c. PREPARATION OF SUPPORT MATERIAL

In order to achieve the goals and objectives established for the dissemination program, it is indispensable that CENAVIF take much greater care to prepare the necessary course support materials. Included within these materials should be ~~the~~ ~~the~~ the technical manuals and posters which would assist in course instruction.

The support materials should cover the following areas: theory of recorded technique, necessary formulas for design purposes, technical drawings, implementation and operation, and evaluation. This documentation, once prepared, would form part of the publications offered for sale by ~~the~~ CENAVIF.

d. PARTICIPANT GROUP ~~SELECTION~~ AND VENUE SELECTION

The selection of course participants and venues should be coordinated with CIB-VIVE DAS' Division of Inter-Institutional Operations. As mentioned previously, a certain number of courses should be programmed on a fixed schedule for

CETAVIP's offices in Santo Domingo. CETAVIP's own workshops and laboratories would be used for these courses. This availability of workshops and specialized ~~equipment~~ equipment would justify the expenditures of the participants who would ~~have~~ ^{have} to ~~go~~ ^{come to} Santo Domingo for periods ranging from one to several days. On other occasions, ~~selected~~ CETAVIP staff members would travel ~~to~~ to a selected ~~venue~~ venue where they would organize a short course ~~at~~ or provide technical assistance to a ~~selected~~ ongoing project.

e. PROGRAMMING AND PARTICIPATION

The orientation of the courses should be on the training of trainers. The courses should be organized on a cycle of approximately two months. During that time, short courses would be offered on community development and ~~technical~~ training, technical and in the various fields of ~~appropriate~~ appropriate technology. Staff from CETAVIP's Technical Assistance and Research Departments would have an integral role to play in course implementation. During each course, the names of the participants should be noted and follow up interviews carried out to determine the long-term impact produced by the courses.

2. SEMINARS

The seminars should be viewed as advanced training for a selected target group. This target group would be offered the Center's and other ~~institution's~~ institution's latest developments in the area of appropriate technology. A particular seminar's theme, for example, could present CETAVIP's recent experiences from its field ~~work~~ and research work. ~~It is hoped that~~ ~~it is hoped that~~ this type of field ~~work~~ seminar would generate sufficient discussion to provide new areas for future research.

3. CONTENT

As mentioned previously, the seminars should have a

specific theme which in many cases would be related to recent test results from CETAVIP's Research Department. One ~~EMPHASIS~~ suggestion would to organize a seminar on sisal-cement as a building material. This seminar would present the results of CETAVIP's investigations in the use of this material to fabricate ~~XXXXXXXXXXXX~~ corrugated roofing sheets.

b. PREPARATION OF DOCUMENTATION

A seminar's participants would be responsible for the preparation of their own papers and ~~EM~~ support materials. It is recommended that a complete set of a seminar's documentation be ~~produced~~^{reproduced} in one volume. This document would ~~XXXXXX~~ serve as a permanent record of a seminar's proceedings as well as assist CETAVIP in the definition of future courses and laboratory investigations.

c. PROGRAMING AND IMPLEMENTATION

It is recommended that CETAVIP hold two seminars annually. Local and foreign experts would be invited to participate and ~~XXXXXX~~ present papers.

3. BULLETIN

CETAVIP's ~~EM~~ bulletin should serve as an informational ~~XXXX~~ medium for a specialized audience of government ~~XXXXXX~~ officials, professionals and practitioners. It should present current information in the area of appropriate technology within a journalistic framework.

It is recommended that the ~~XXXXXX~~ CETAVIP staff person in charge of the bulletin should be ~~EM~~^{given} greater autonomy over matters concerning its production. This person, in ~~EM~~ addition, should be assisted by a committee composed of the directors of CII-VIVIENDAS, CETAVIP, Inter-Institutional Relations and the library.

The production of the bulletin should be ^{more} closely linked with the functioning of the library. If possible, the person

in charge of the bulletin should occupy an office within the library.

a. CONTENT DEFINITION

The bulletin should report the current activities of CETAVIP, CII-VIVIENDAS and its member institutions. It should:

- Reproduce relevant articles from other similar publications;
- ^{Present} ~~offer~~ summaries of the Center's monographs (these will replace the current concept of a lead article);
- Continue to publish the sections on new ideas and coming events to increase readability;
- Publish the material contained in the lead articles as independent monographs.

b. DESIGN

- Continue to use the present format and number of pages, taking maximum advantage of all available space;
- Select a permanent format for the bulletin's design which would provide continuity and facilitate production;
- Discontinue ~~the~~ use of illustrations prepared especially ~~for~~ a specific bulletin (Use these resources to prepare support materials for the organization's other components. Some of these materials could later be adapted for use in the bulletin.);
- Include high quality photographs;
- Redesign the back page, moving the credits to the editorial page, and using the ~~XXXX~~ ^{CETAVIP'S} back page to promote the bulletin's major themes and other publications ~~of~~ ~~the~~

c. ARTICLE COMPOSITION

The present style should be maintained.

d. PRINTING AND GRAPHICS

The quality of the ~~MAXIMIZE~~ bulletin's graphics should be improved. This is especially true of the graphics contained within the text. If, ^{however,} the Center ~~is~~ ^{does not have the technical} ~~resources~~ ^{is} to improve this quality, the possibility of using an outside professional printer should be considered. This assistance could range from mock-up and printing of the final text to actual graphical ^{production} and editing.

Presently, CETAVIP uses in-house staff resources for these functions. Perhaps it would be more efficient to use these resources in the preparation of ~~MAXIMIZE~~ support documentation and graphics for the courses.

The present use of graphics for decorative purposes should be changed to one where drawings and/or photographs are used to illustrate the bulletin's articles.

e. DISTRIBUTION

Publication dates should be respected in order to be able to meet subscription agreements. The bulletin should be published quarterly in order to guarantee ~~the~~ current information, while not placing an excessive burden on CETAVIP's staff.

The library should continue to distribute the majority of the 500 copies printed for each bulletin.

4. LIBRARY

CETAVIP should begin to investigate alternatives for providing the library with more space and better facilities in order to increase use by its own staff.

With respect to ~~MAXIMIZE~~ upgrading the way it ~~processes~~ processes and processes information requests, it is recommended that CETAVIP evaluate recent advances made by VITA in the creation of computerized data banks for appropriate technology.

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CERAVIP should also increase ^{its capacity to store} ~~the amount of information~~ ^{information} stored on microfiche. The series produced by VIXX VIXX VI VICA and VADICAT should be evaluated for applicability to CERAVIP's needs. ^{Expansion of microfiche capacity} ~~Acquisition of additional information stored on microfiche~~ will require another copier and viewer.

Finally, the library's staff should have greater participation in the new directions recommended for the bulletin. It should also adopt new procedures which will facilitate the purchase of books and other documents.

VERIFIABLE

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C. OBJECTIVES FOR THE SECOND YEAR OF THE USAID-OTG ~~XXXX~~

This section summarizes the primary verifiable objectives (some of which are mentioned in previous sections) which are proposed for the OTG's second year. While these objectives are easy to verify quantitatively, their qualitative impact is much more difficult to measure. In order to ensure a ~~XXXXXX~~ greater opportunity for a positive impact ~~XXXXXX~~ during the second year, every effort should be made to raise the qualitative level of ~~THE~~ CETAVIP's program.

1. TECHNICAL OBJECTIVES

The following general objectives are proposed for the second year's program:

a. Courses. ~~XXXXXXXXXXXX~~ This component of the OTG should focus on the preparation and organization of six different courses. In principle, these courses would be oriented toward the training of trainers from CII-VIVIENDAS member organizations. Complete documentation (manuals, audio-visual materials, etc.) should be prepared as part of course organization. Content should be derived to a great extent from CETAVIP's successfully completed studies and investigations.

b. Seminars. Two seminars should be organized during the second year.

c. Bulletin. The bulletin FOCO should be published quarterly.

→ 2. SPECIFIC INDICATORS

It is recommended that CII-VIVIENDAS/CETAVIP, in addition to the above general objectives, be responsible ~~for~~ for the following specific activities.

a. On the basis of the present evaluation and subsequent discussions between CII-VIVIENDAS/CETAVIP, CARE, USAID and INVI, ~~they~~ make whatever adjustments are required in the basic philosophy and specific technical objectives for

the second year. (Completed by November 1984)

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b. On the basis of ~~X~~ clearly defined philosophy and technical objectives, prepare an 18-month work program (with specific events and dates) which incorporates the recommendations of this evaluation and will allow CII-VIVIENDAS/CEFAVIP to ~~XXX~~ successfully fulfill the terms of the OPG. The verifiable ~~XXXXXXXXXX~~ indicator will be the finalization of the work program by December 1984.

c. The preparation of a monthly report to be completed within 5 working days of the end of the month ^(2-3 pages maximum). It should be sent to CARE and should serve as the basis for a monthly review meeting of progress on the OPG. The verifiable indicator will be the recorded date on which the report is delivered each month. An exemplary format is the following:

- Summary of activities relating ~~XXX~~ to the components of the OPG (courses, seminars, bulletin and library) which were undertaken during the month;

- Major events/achievements during reporting period (should include items not directly related to the OPG, but which are important to the overall functioning of ~~XXXXXXXXXXXX~~ CII-VIVIENDAS/CEFAVIP and would be of interest to USAID and CARE);

- Outstanding issues;

- Resolution of issues identified in previous reports;

- Projected major events/achievements for next reporting period;

- Brief analysis of ~~XXX~~ why major events/achievements projected for ~~XXXXXXXXXXXX~~ the previous reporting period (if any) have not taken place or been completed.

d. Courses. It is recommended that the six courses should focus on the following topics ~~XXXXXXXXXXXX~~ with which CEFAVIP already has considerable experience. Complete course materials should be prepared and an evaluation undertaken

following the completion of each course. Courses should be given on a ~~XX~~ rotating basis both within ~~THE~~ CII-VIVIENDAS' workshops, as well as in selected field locations.

- Fabrication of roofing sheets of sisal-cement (Described in Annex 1);
- Fabrication of soil-cement blocks (Described in Annex 1);
- Construction of walls in calicanto (Described in Annex 1);
- Construction of efficient/low cost pit letrines (Described in Annex 1);

- It is recommended that one of the six courses be organized with CETAVIP's Technical Assistance Department and a member of CII-VIVIENDAS. The objective of this ~~XX~~ course would be to design and implement a demonstration project with a more integrated approach to shelter than has been CETAVIP's practice to date. This project could possibly be based on the findings of the Regional Shelter Models study. The recommended shelter should be designed to be socially acceptable and affordable to the proposed beneficiaries and to include water supply and waste disposal systems.

- CETAVIP should also examine the possibility of organizing a course which would propagate the positive benefits of demonstration projects which it has successfully executed. This course could take the form of working with a community group which adjoins a demonstration project, but which has not benefitted directly. The course could assist surrounding communities to select those specific elements of a demonstration project which would be most appropriate for the improvement and/or expansion of their existing shelter. In this way, the ripple effects of the project's impact could be enhanced.

e. Seminars. The verifiable indicator will be the successful undertaking of ~~XXXXXX~~ two seminars during the period November 1984 - October 1985.

- Seminar on the appropriateness of sisal-cement as a ~~XXXX~~ construction material for low cost roofing sheets;

- A theme (to be decided) ~~XXXX~~ which would be of interest to local public and private sector professionals, as well as attract the participation of international agencies;

f. Bulletin. The verifiable objective will be that the bulletin (published quarterly) is circulated within five working days following the end of each quarter. In addition, it is recommended that CII-VIVIENDAS publish during the next 12 months two monographs on a specific subject:

- Roofing sheets of sisal-cement;

- A second topic to be decided.

D. TRAINING/ADDITIONAL PERSONNEL REQUIRED FOR THE SECOND YEAR

~~XXXXXXXXXXXXXXXXXXXXXXXXXXXX~~

The following is recommended with respect to the present staff.

1. Upgrade the quality of the present staff by encouraging ~~it~~ it to participate in appropriate seminars and to attend short specialized courses given locally or overseas;

2. Hire several well qualified professionals for key positions;

3. Assign work tasks according to the ~~present~~ professional's level of training; recent college graduates should be given assignments where they will learn necessary skills and techniques. ~~XXXXXXXX~~ CETAVIF's Research Department should be strengthened with highly trained professionals.

Given the limited funding available for the contracting of additional staff to work directly on the OPG, it is ~~XXXX~~ recommended that only the area of publications be strengthened ~~XXXXXXXX~~ by contracting/hiring a graphic artist and a draftsman.

~~XXXXXXXXXXXXXXXXXXXX~~

~~XXXXXXXXXXXX~~

and ~~technical assistance~~ ~~XXXXXXXXXXXXXXXXXXXX~~ CETAVIF's other main departments (research

The staff of CETAVII's other main departments (research and training) must be of a sufficiently high quality as to support the functions of the K Information Department. In many cases, deficiencies can be corrected by contracting the appropriate professional for a specific project or time period.

Finally, a two-week evaluation does not allow ^{enough} ~~XXXXXXXXXX~~ time to provide sufficient detail nor the necessary ~~XXXXX~~ follow up to its recommendations. The evaluation team believes, therefore, that a limited amount of either foreign or domestic technical assistance would be very beneficial to CII-VIVIENDAS/CETAVIP during the second year of the OPG. The areas where technical assistance would be most useful for CII-VIVIENDAS/CETAVIP include:

- Overall annual planning/programming;
- Development of course and bulletin content;
- Specialized assistance in producing the bulletin, organizing the courses, etc.

27

27

E. PROPOSED MODIFICATIONS TO THE OIG'S SECOND YEAR BUDGET

This section proposes a revised budget for the OIG's second year operations. The proposed budgetary changes are based on discussions with CARE, CIE-VIVIENDAS and the USAID/DR Controller's office. The recommended changes are not presented as a definitive ~~YE~~ response, ~~to the second year's budget, as stated~~ but rather as points for discussion between all concerned parties.

The ~~above~~ above-mentioned discussions on ~~XX~~ matters relating to financing of the OIG highlighted the ~~time~~ time required by CARE to properly manage the OIG account. *This time includes not only internal bookkeeping, but also liaison with CESTAVIE and USAID/DR concerning the* submission of payment vouchers. It is recommended, therefore, ^{have} that CARE appoint an assistant accountant to ~~XXXXXX~~ day-to-day ~~responsibility~~ responsibility for monitoring the ~~XXXXXX~~ financial aspects of the OIG.

The following sections briefly describe the reasoning behind the recommended budgetary changes.

64
- 58 -
The proposed budget changes are based on discussions with CIBE, CII-VIVIENDA/CITAP and the USAID/DE Controller's office. The recommended changes are not presented as a definitive response to the second year's budget, but rather as points for discussion between all concerned parties.

E. PROPOSED MODIFICATIONS TO THE OPG'S SECOND YEAR BUDGET

This section proposes a revised budget for the OPG's second year operations. The following sections briefly describe the reasoning behind these proposed changes.

See previous page.

10. Economic Situation Vis-a-Vis Availability of OPG Counterpart Funding

The Dominican Republic is presently facing a grave economic crisis. This economic crisis is reflected in large public sector deficits. Central government expenditures (i.e., the budget) have been cut drastically in order to reduce these deficits. Central budgetary funding for shelter projects has not escaped these cut backs. Reduced budgets for shelter, as well as Government's present preoccupation with paying off debts associated with INVI's INVIVIENDA program, have left limited funding for the continuation of INVI's "alternative" shelter program.

The country's present economic condition has obviously created problems with Government's ability to make counterpart contributions. During the first year of the OPG, INVI has contributed RD\$5,000 of its projected RD\$18,700 contribution. There is little hope that INVI's financial position will improve during the second year of the program. In the case of the OPG, one must, however, be realistic. Continued requests for the cash component

of INVI's OPG counterpart contribution will most likely not prove fruitful, and will only make future negotiations on other topics more difficult.

The proposed revisions to the OPG's second year budget recommend continued INVI cash contributions at year one levels (RD\$5,000). The short-fall from the first year's budget (RD\$18,700 - RD\$5,000 = RD\$13,700) plus the envisaged short-fall from the second year's budget (RD\$15,560 - RD\$5,000 = RD\$10,560), a total of RD\$24,260, would be covered by an additional in-kind contribution by INVI. This additional in-kind contribution will have to be negotiated with INVI, but it could take the form of the secondment of 2-3 INVI professionals to the program financed by the OPG. In this case, INVI would continue to pay the salaries of the seconded professionals.

2.
B. Carry-over From First Year's Budget

Table ~~XII~~^{XI}-1 estimates that RD\$22,370 was not disbursed from the projected USAID local currency budget of RD\$152,685 for the first year. It is proposed that this amount ^{be verified, and if correct,} be carried over to the second year. It is also proposed that this amount go toward continued USAID financing of two technical posts (including social benefits) within the project component "courses and seminars".

3.
C. Social Benefits

Severance pay and other benefits required by Dominican law were not included in the original OPG budget. The many personnel changes experienced by CETAVIP during early 1984 only served to highlight the need for the inclusion of this type of cost within the proposed budget for the second year. It will not only be necessary to include this expenditure for the second year budget, but also to recuperate the first year's social benefits for those employees still with the institution. Social benefits which appear in the proposed revisions to the second year budget amount to over RD\$13,000 in unforeseen expenditures for the OPG. Other line items will be adjusted to cover this additional expenditure.

A.

B. Purchase of Books and Equipment

Due to certain delays which have been experienced with respect to the processing of books and equipment orders from CARE New York, it is suggested that CARE Dominicana and CETAVIP exercise more control over this type of expenditure. It is not proposed, however, that the allocation of the U.S. dollar amounts for the purchase of equipment be changed during the second year. Rather, it is recommended that CETAVIP and/or CARE Dominicana would present to USAID an invoice in U.S. dollars for the purchase of specific equipment or books. USAID would pay the invoice directly, and then simply discount the amount from the appropriate U.S. dollar line item.

5.

5. CII-VIVIENDAS' Contribution to OPG

The original second year budget contemplated that CII-VIVIENDAS would begin to pay the salaries and benefits of four CETAVIP professionals paid by USAID funds during the first year. Due to the previously mentioned Government budget deficits and the proposed carry-over from the first year of RD\$22,370, it is proposed that CII-VIVIENDAS take on the financial responsibility of paying the salaries and benefits of only two of the four professional posts.

6.

6. Reallocation of Administrative Costs for CARE-Dominicana

Based on the estimated utilization of funds from the first year's budget, it is proposed that CARE Dominicana's second year budget for administrative costs be modified. Salaries and benefits are estimated on the basis of three posts - director, accountant and executive secretary. Additional administrative costs for the second year (vehicle maintenance, equipment, etc.) are adjusted on the basis of estimated first year expenditures.

7.

7. CARE Dominicana In-Kind Contribution

It is proposed that the RD\$39,600 in-kind contribution for the rent of CETAVIP's office building during

- 12 -

the second year include an addition vehicle(s) and/or office equipment. The exact definition of this in-kind contribution will have to be negotiated between CETAVIP and CARE-Dominicana.

8. Other Recommended Modifications

a. Printing The costs of printing the bulletin have been modified to reflect the evaluation team's recommendations (i.e., reducing the number of bulletins per year to four and increasing the unit cost to provide for outside professional services). Also, a line item for printing occasional monographs has been included. (Budget Item II.B)

b. Per Diems The per diem for trainers has been increased to RD\$15 to reflect the actual average daily rate presently paid by CII-VIVIENDAS. (Budget Item XVII IV.B.1)

c. Seminar Expenditures A sum of RD\$4,000 has been included to cover expenditures associated with organizing the two recommended seminars. (Budget Item IV.D)

d. Vehicle Maintenance This item has been increased to allow for the maintenance and operation of additional CETAVIP vehicles. (Budget Item IV.E)

e. Contingencies Contingencies have been increased by RD\$25,000 to allow for possible legislated salary increases. (Budget Item VI)

Table ~~XII~~² presents a draft of a proposed budget for the second year of the OPG. It incorporates the recommended changes discussed in preceding sections. It also provides the cash and in-kind contributions of the sign^aors of the OPG implementation agreement.

A N N E X 1

CONTENT OF APPROPRIATE TECHNOLOGY TRAINING COURSES

1. Fabrication of Soil-Cement Blocks

This course provides training in the ~~XXXXXXXXXXXXXXXXXXXX~~ ~~XXXXXXXXXXXX~~ in the ~~IX~~ fabrication of soil-cement and caliche building blocks using the CIVVA-RAM machine and steel molds (6" x 8" x 16"). The course entails ~~XXXX~~ soils analysis, proper use and maintenance of the machine and molds, and techniques for constructing shelter from the finished product.

2. Fabrication of Sisal-Cement Roofing Sheets

This course focuses on the training and dissemination of a new building material manufactured from ~~XXXX~~ sisal (a fiber that replaces asbestos), cement and sand. The course includes training in the manufacturing process and transportation and installation of the finished product. The course is based on ~~XXE~~ experimentation by CETAVIP's Research Department.

It is the intent of the present course to correct the mistakes of former courses dealing with the same subject. The original course was organized around initial findings which later required modifications.

3. Hurricane Resistant Design

This course is based on the materials and papers presented at a seminar organized by CII-VIVIENDAS/CETAVIP.

4. Construction in Calicanto

The course provides the necessary training in the construction of bearing walls for housing units using the calicanto system. ~~XXXXXXXXXXXX~~ Calicanto is a cast in place technique using a concrete mix without reinforcement. Large rocks are placed in the concrete mix as the formwork is filled.

are substituted for the reinforcing bars and

1. Layout of Dwelling Unit and Construction of Foundation

5. Layout of Dwelling Unit and Construction of Foundation

this

~~XX~~ The purpose of ~~the~~ course is to provide basic construction techniques which would complement the above-mentioned courses in appropriate technology.

6. Construction of Pit Letrines

This course is based on the construction, use and maintenance of two types of letrines, as well as the consequences which result from not properly ~~disposing~~ disposing of human wastes.

A N N E X 2

CONTENT OF SEMINARS ON APPROPRIATE TECHNOLOGY

1. Resistance of Traditional Housing to Hurricanes

This seminar was sponsored by USAID which provided the services of a consultant from INTERTEC. This consultant prepared the support materials for the seminar. CII-VIVIENDAS/CETAVIP, SEOPC and XXX AUI also collaborated in the staging of the seminar. This one-day seminar was ~~XXXXXX~~ attended by 70 persons from eight member institutions of CII-VIVIENDAS and from two universities. The papers presented at the seminar reviewed the present situation with respect to low income housing in the Dominican Republic, provided a diagnostic of the vulnerability of this type of shelter to hurricanes, and ~~XXXXXX~~ made recommendations for wind-resistant designs for low income housing. The seminar ended with a series of proposals for upgrading the quality of traditional housing, particularly in hurricane prone areas.

2. Workshop on Appropriate Technology Construction Techniques

At the request of IAVI, a member of ~~XXX~~ CII-VIVIENDAS, CETAVIP organized a workshop to train the professionals and ~~X~~ technicians of IAVI in the appropriate technology construction techniques to be used on the Duguesa project (see Section VII.A). The workshop lasted one week and was attended by 42 persons from seven Dominican institutions. Support materials from this workshop provided information on the following construction methods:

- calicanto
- soil-cement (CETVA-RAI)
- reinforced concrete construction
- roofing sheets of soil-cement
- concrete floors
- Simplified methods for ~~XXX~~ soil classification.

3. Workshop on Construction of Hurricane Resistant Housing

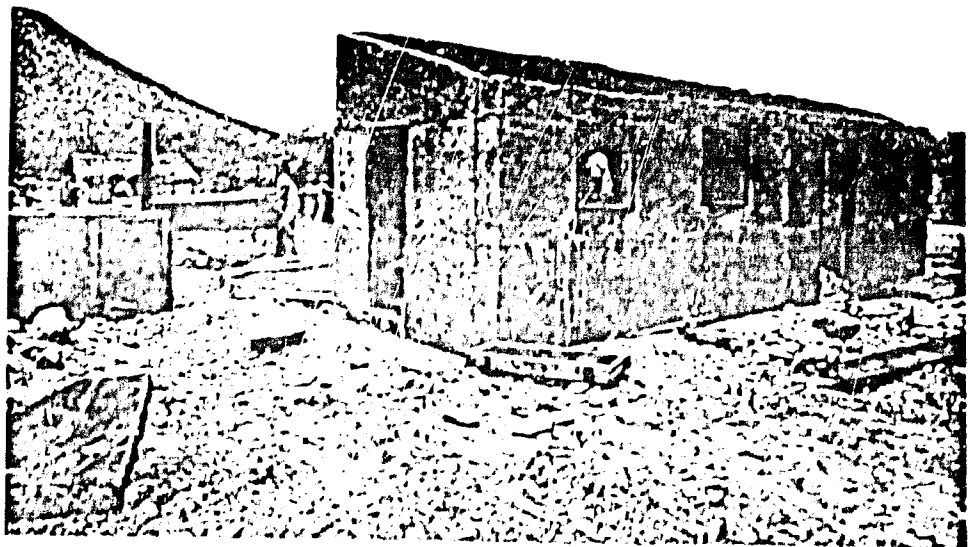
3. Workshop on Construction of Hurricane Resistant Housing

As part of This seminar was held in the workshops of CII-VIVIENDAS. ~~During~~ the workshop, two model rural houses were constructed (see photos 1 and 2) which incorporated simple techniques to improve their hurricane resistance.

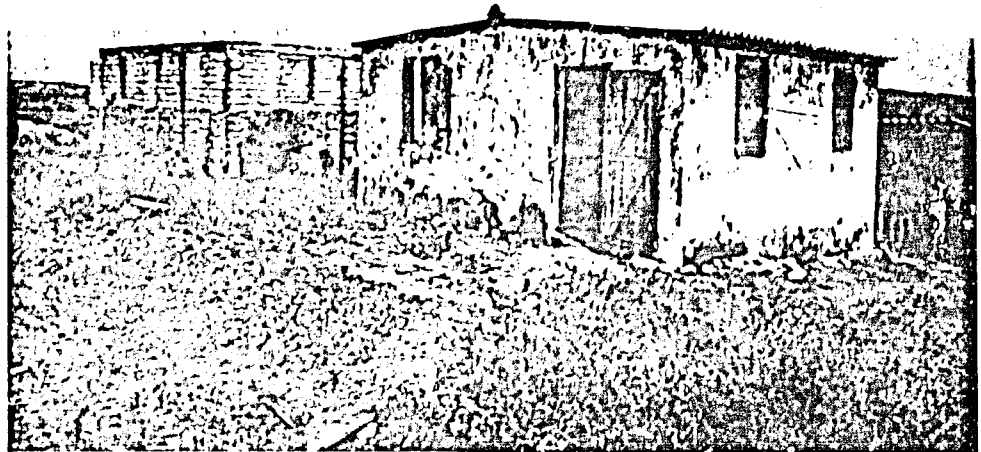
The workshop was organized by INVI through its ~~SURVIVIKNA~~ SURVIVIENDA program. Technical support materials ~~WERE~~ were prepared by CII-VIVIENDAS/CETAVIP and INTERTEC. Participant agencies included the Dominican Community Development Office (ODC), the Dominican Agrarian Institute (IAD) and other members of CII-VIVIENDAS. The workshop had a duration of 23 days and was attended by 59 professionals and technicians.



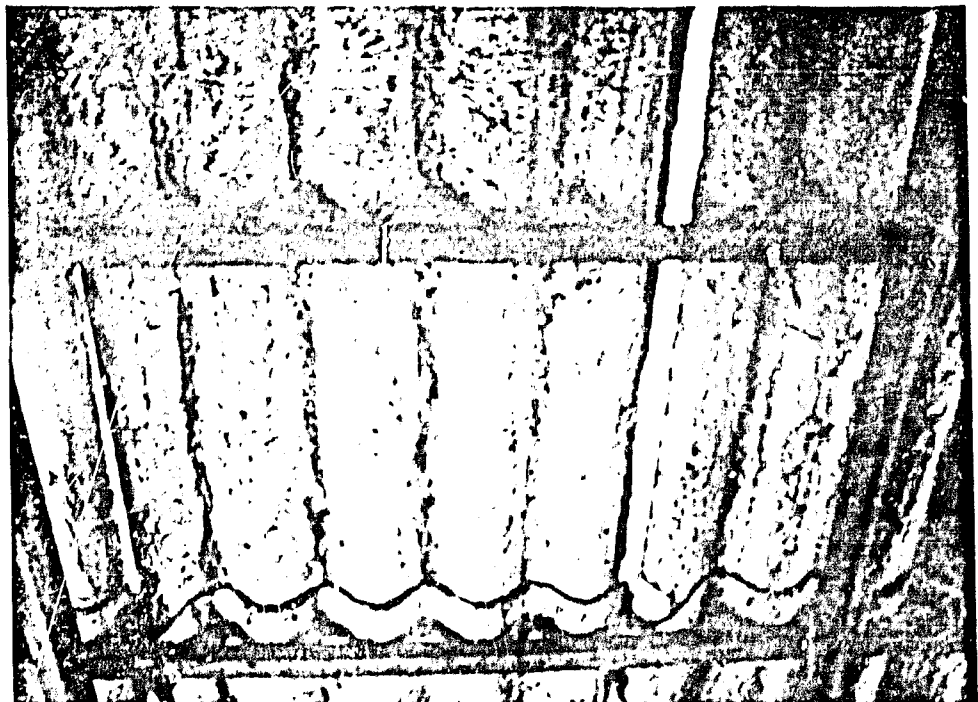
3. EXISTING HOUSING - FONDO NEGRO



4. PROPOSED HOUSING SOLUTION UNDER CONSTRUCTION



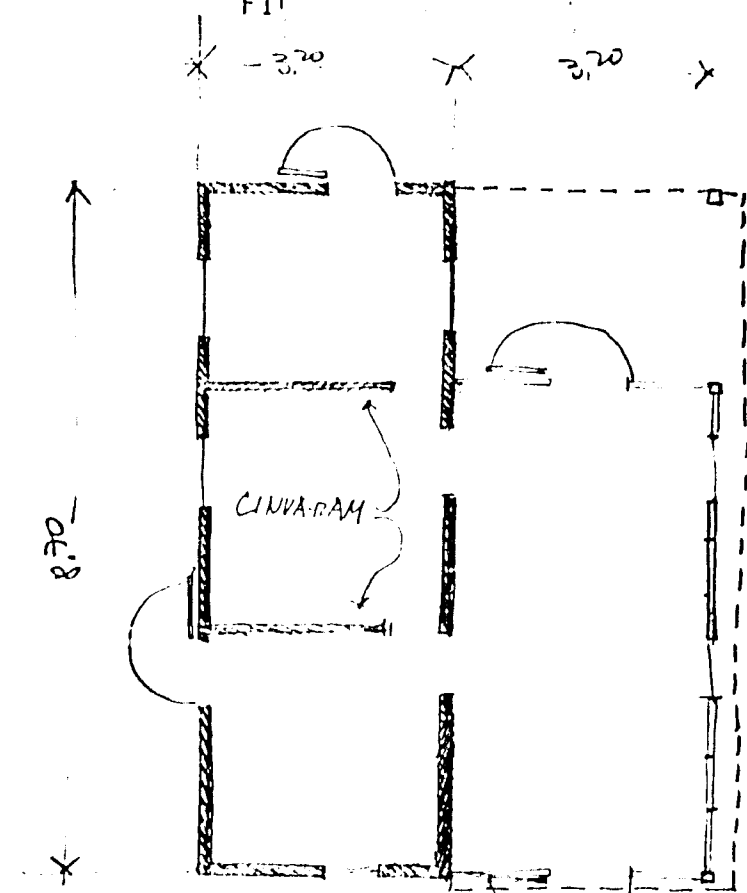
1. HOUSING SOLUTIONS - DUQUESA PROJECT



2. ROOFING SHEETS OF SISAL-CEMENT USED AT DUQUESA PROJECT SHOWING CRACKS WHICH PERMIT THE ENTRANCE OF RAIN WATER.

PROJEKTA 1

FII



CALICANTO

AREA CALICANTO . 26.84

AREA MATERIALI TRADICIONAL 26.8

TRADICIONAL

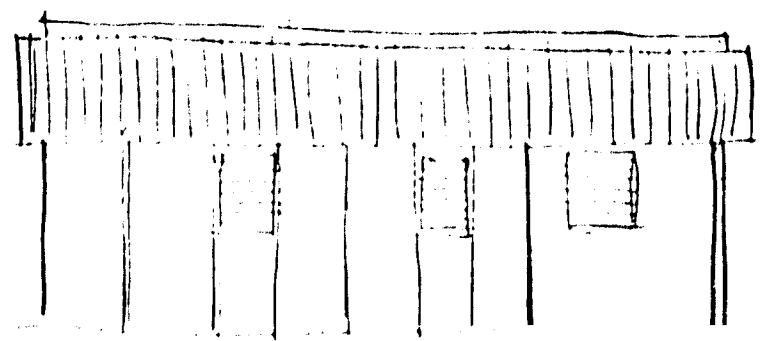
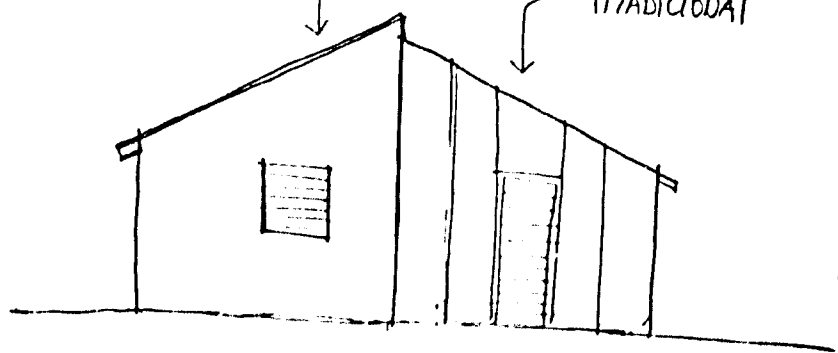


FIGURE IV.1

ORGANIZATION CHART

CENTER FOR APPROPRIATE TECHNOLOGY FOR POPULAR HOUSING

JUNE 1983

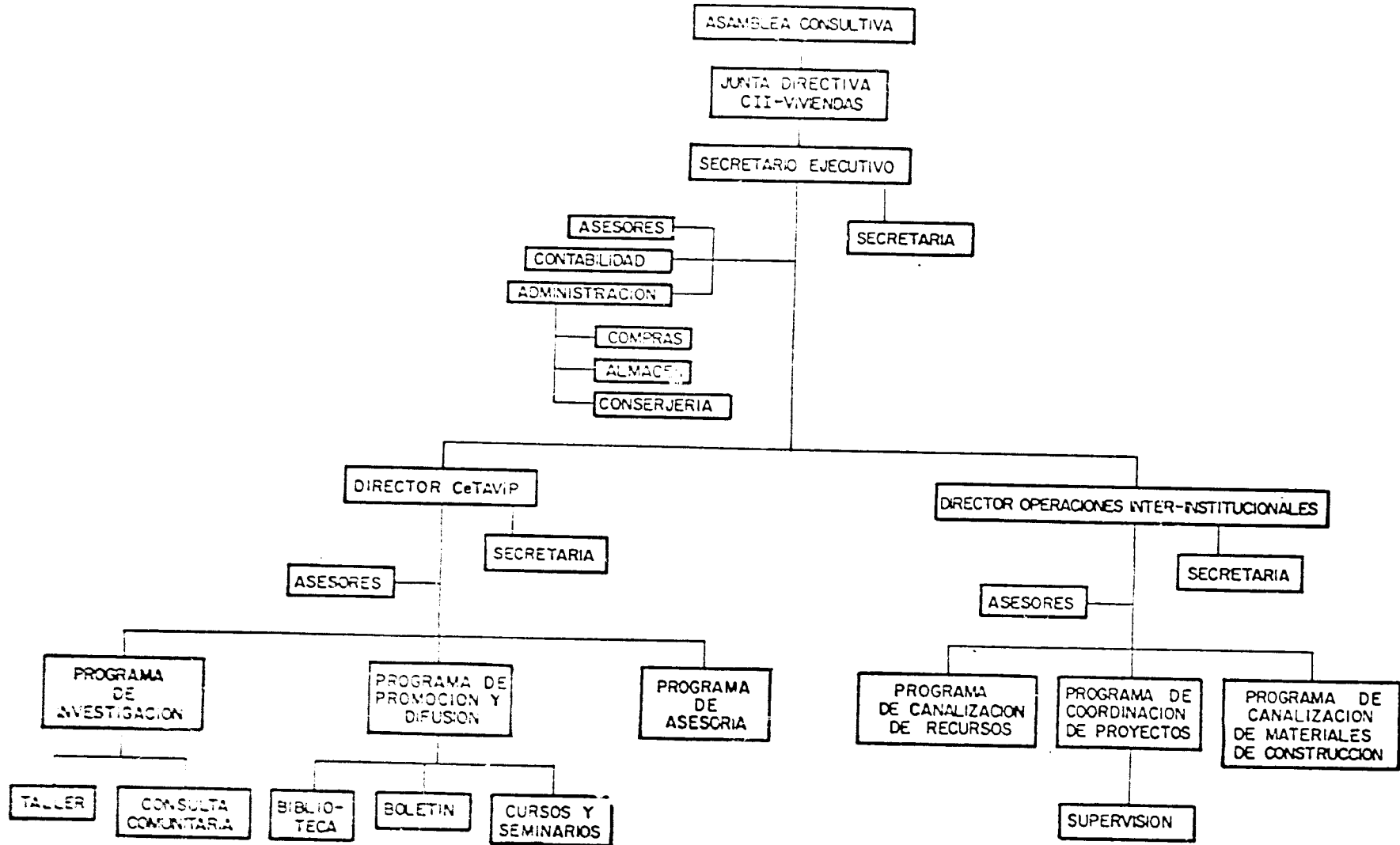
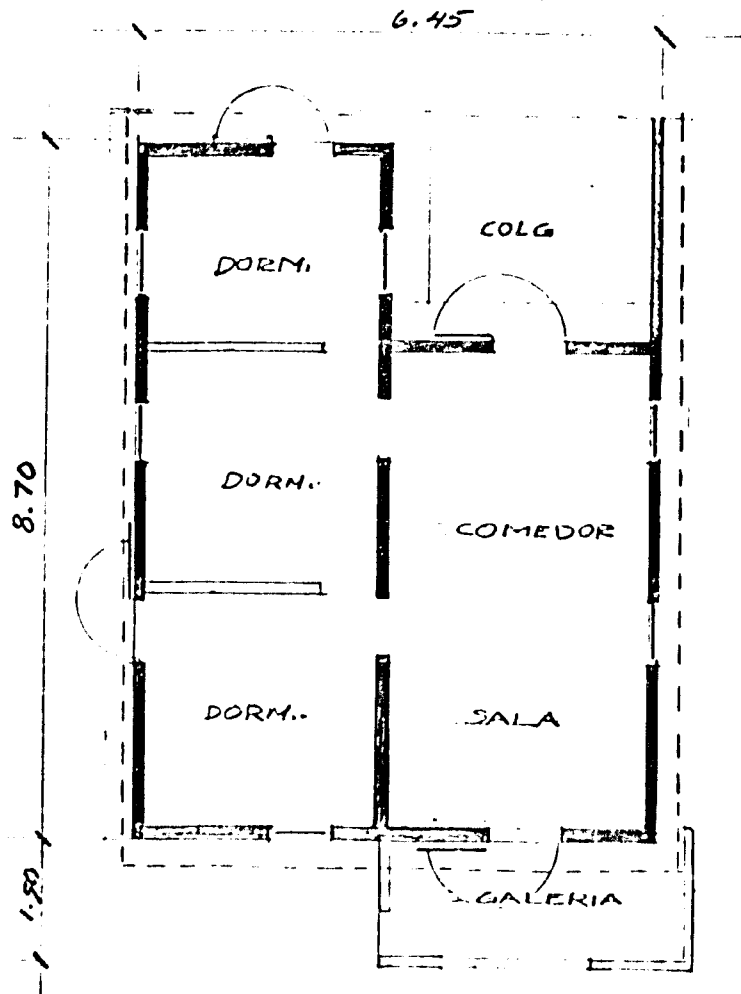
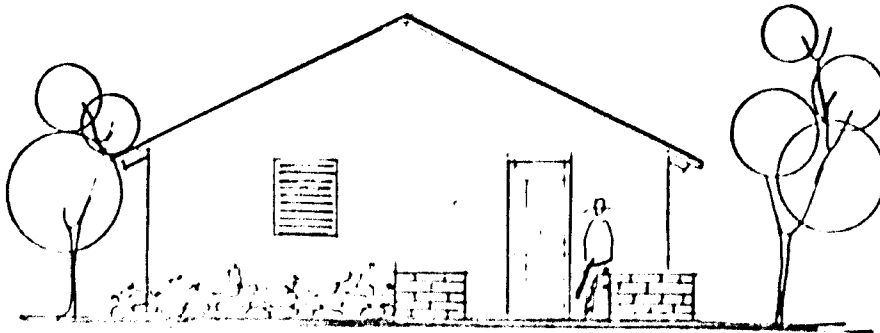


FIGURE III 1

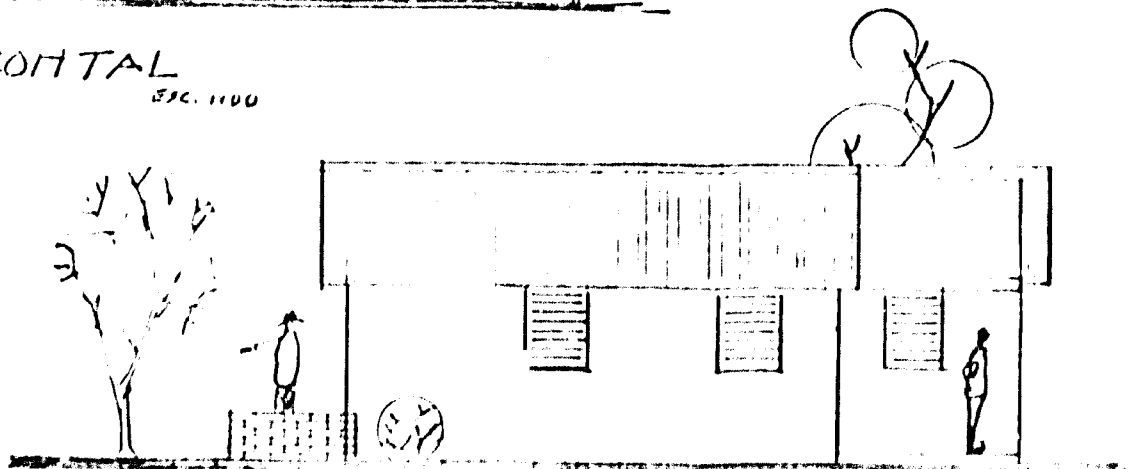
VIVIENDA FONDO NEGRO



PLANTA ESC. 1:100



ELEV. FRONTAL ESC. 1:100



ELEV. LATERAL DE DERECHA ESC. 1:100

CLAVIER

ACTIVIDADES DE CAPACITACION

C U R S O	L U G A R	INSTITUCION PARTICIP.	Nº PART.	COSTO	PATROcinado/COORDINACION	FECHA	DURACION	ASESORIA
1. Cómo construir una técnica abonera seca familiar (LASF)	Azua	MUDE/INDESUR/FUDECO/CETAVIP/ENDA-CARIBE/Moradores de "Los Negros y "Tobara Arriba"	22	RD\$1,500	MUDE/CETAVIP/ENDA-CARIBE ATI	7-16 abril	9 días	Andrés Chávez de CENAT, Guatemala
2. Cómo fabricar planchas de suelo-cemento	Los Consos, El Seybo	ASOC.DESARROLLO DEL SEYBO/ASOC.DES.LA ROMANA	10	200	CETAVIP/SEYBO/LA ROMANA	Junio 1983	4 días	Carlos Aquino
3. Cómo fabricar bloques de suelo-cemento	Los Consos, El Seybo	ASOC.DESARROLLO DEL SEYBO/ASOC.DES.LA ROMANA	15	250	CETAVIP/SEYBO/LA ROMANA	Junio 1983	1 semana	Carlos Aquino
4. Capacitación de personal: 4.1 Concepto de integración para asentamientos humanos 4.2 Comunidad-Integración-Participación 4.3 La problemática de la vivienda en la Rep. Dominicana 4.4 Relaciones humanas. 4.5 Aspectos generales de comunicación y metodología.	Santo Domingo	CII-VIVIENDAS/CETAVIP	25	300	CARE/INVI/CETAVIP CARE/INVI/CETAVIP INVI CARE/INVI/CONAPOFA CETAVIP	Junio 1983	2 semanas	Umar Bros Lic. O. Hungria Arq. H. Quiroga Lic. G. Sánchez
5. Resistencia de las viviendas populares a los huracanes (seminario)		CII-INVI/BANCO CENTRAL/FDD CARITAS/FEDOCOOP/ACCS CODIA/UNIVERSIDADES SEOPC	70	1,500	CII-VIVIENDAS/AID/ INTERTEC/SEOPC/AVI CODIA	Julio 1983	1 día	Fred Cuny
6. Mitigación de desastres (charla)		CODIA/SEOPC/AVI/CETAVIP CII-VIVIENDAS/INVI/FDD BCC. CENTRAL/CARITAS/FEDOCOOP/ACCS/INTERTEC UNIVERSIDADES EN GENERAL	45	100	AID	Agosto 1983	2 horas	Fred Cuny

Best Available Document

ANEXO

ACTIVIDADES DE CAPACITACION

C U R S O	L U G A R	INSTITUC. PARTICIP.	Nº PART.	COSTO	PATROCINIO/COORDINACION	FECHA	DURACION	ASESORIA
7. Convivencia comu- nidad El Fundo	Banf	ASOCIACION COMUNITARIA PARA LA CONST. DE BANJ/ CII-VIVIENDAS/CETAVIP	35	RD\$ 50.00	AID/ACCB/CETAVIP	Agosto 1983	1 dia	Amarilis Mercedes R. Félix/M. Meléndez Omar Bros
8. Estudio socio- económico a los beneficiarios del proyecto como ap- yo a su programa de autoconstruc- ción de viviendas	Banf	ASOCIACION COMUNITARIA PARA LA CONST. DE BANJ CII-VIVIENDAS/CETAVIP	150	1,200.00	AID/ACCB/CETAVIP	Agosto Sept. 1983	4 días	Amarilis Mercedes César Faña
9. Capacitación de personal técnico: 9.1 Proceso de la pla- nificación y for- mulación de pro- puestas. 9.2 Programación presu- puestaria: Otras necesidades	Santo Domingo	CII-VIVIENDAS	25	40.00	AID/CII-VIVIENDAS CETAVIP	Agosto 1983	2 horas durante 2 días	Mirtha Olivares
10. Resistencia de las viviendas a los hu- rtaones (charla a los beneficiarios del proyecto de los 24)	El Fundo, Banf	ASOCIACION COMUNITARIA PARA LA CONSTRUCCION DE BANJ/CII-VIVIENDAS/ CETAVIP	30	28.75	ACCB/CII-VIVIENDAS CETAVIP	Sept.83	4 horas	Rosa Félix Martín Meléndez
11. Organización comu- nitaria (charla a los beneficiarios del proyecto de los 25)	El Fund Banf				ACCB/CII-VIVIENDAS CETAVIP	Sept.83	4 horas	Amarilis Mercedes César Faña

Not Available Document

ACTIVIDADES DE CAPACITACION

C U R S O	L U G A R	INSTITUC. PARTICIP.	Nº PART.	COSTO	PATROCINIO/COORDINACION	FECHA	DUACION	ASESORIA
14. Letrinas sanitarias a) Como construir usar y mantener una letrina b) Enfermedades debido al no uso de letrinas	Constanza (El Rio)	SESPAS/CETAVIP	30		AID/SESPAS	Oct.83	1-1/2 días	A. Mercedes R. Félix O. Bros M. Meléndez L. Robineau
15. Taller Zapala letrina abonera seca familiar y fogón mejorado.	Cotufarín (Zambrano Chacuey)	25 Asociaciones campesinas de dos federaciones/ASOC. AGRICOLA DE CONSTANZA/ INDESUR/MUDE/FUDECO/ ASOC. DESARROLLO SAN JOSE DE OCOA	42	RD\$900.00 CETAVIP 100.00	CETAVIP/ENDA-CARIBE FEDERACION CAMPESTINA ZAMBRANA-CHACUEY	Nov.'83	3 días	O. Bros