CHAPTER 7. DEVELOPMENT INDUCING EFFECTS OF RELIEF - Some Project Studies in Guatemala

1. Introduction

In this chapter we attempt to identify individual relief projects that illustrate in more detail the development effects that we have indicated so far. To provide some starting points we shall first present a discussion of the concept of development and a summary of the empirical results obtained previously. Secondly, we discuss the criteria used in selecting projects as well as the reliability of the information used. Finally, as a frame of reference for the more detailed analysis in this chapter, we describe in a few points the general characteristic of the Guatemalan economy and, in particular, of the disaster stricken areas. Then we examine som individual disaster relief projects of CARITAS, Norwegian Church Aid, OXFAM and AID, and the work of the National Reconstruction Committee (CRN).

2. Earlier Results and Method

In chapter 5 we found that the growth rate of the Guatemalan GNP increased after the earthquake. Improvements such as this have not been rare in LDCs. During the 1950s and the 1960s several LDCs did achieve a sustained annual increase in their GNP "but the levels of living of the masses of people remained for the most part unchanged" (Todaro, 1981, p. 68). This led economists and policy makers to redefine the concept of economic development. "Economic development during the 1970s was redefined in terms of the reduction or elimination of poverty, inequality and unemployment within the context of a growing

economy" (Todaro, loc.cit.). On this basis it is generally agreed that the measure of economic development is not merely the growth of the GNP, but must include additional factors such as changes in income distribution and in relative prices over time, advances in technology, new products, changes in the natural environment, the size of the public sector and the availability of goods and services, such as education, housing, health and food (see Usher, 1980, Streeten, op.cit; Hicks and Streeten, op.cit.). In this chapter we will take factors such as these into consideration. However, we should point out that we do not attempt to obtain any aggregate measure of changes in such factors. As suggested in chapter 5, section 2, it is too early to identify all of the changes in economic development resulting from the disaster relief projects in Guatemala. In addition, the lack of information limits the possibilities of measuring such changes. Therefore, by development inducing effects of the projects we mean qualitative improvements in market organization, administrative capacities, production techniques, lending possibilities, transport facilities and other such infrastructures, the level of know-how, literacy, education, etc., and disaster preparedness.

In chapter 6 we saw that disaster relief expenditures are not aimed exclusively at compensating (by reconstruction or replacement) for physical damage. They are also aimed at facilitating the implementation of the compensating activities, and at improving or enlarging existing facilities or creating new ones connected in one way or another with the immediate disaster relief tasks. This latter type of expenditures may also have improved the conditions for other economic activities in the areas assisted. Now, our task is to see where any such development inducing changes have arisen.

In the process we will get an additional perspective on the development inducing effects indicated by our estimates in the previous chapters. In chapter 6 the "complementary to compensation" component of the disaster relief was taken as the lowest estimate of activities with development inducing properties. But, the "unrelated to compensation" activities and the "purely compensatory" activities themselves may have development inducing properties as well. As we shall see below, "compensatory" relief to isolated areas has often provided the poorest in society with better housing in terms of disaster resistance and as a working place, more advanced equipment, improved infrastructures, etc. Improvements like these seem markedly to have increased the possibilities for the individuals to improve their future welfare level.

The development inducing effects will be analyzed in some detail for the following cases. The information from OXFAM has been used to describe development inducing effects of "purely compensatory" activities. The information on the activities of CARITAS has been mainly used to reflect the economic development potential of physical units of the "complementary to compensation"type. The information from the Norwegian Church Aid (NCA) has been used to reflect the development effects of the transmission of know-how, and some "unrelated to compensation" activities, and the AID projects to reflect other general development inducing aspects. The reports of the CRN are used to illustrate improvements in public administration that appear to have arisen owing to the inflow of disaster relief.

This review of projects is not to be taken as a project appraisal or social cost-benefit analysis in the traditional sense, since the development inducing effects will not be weighed against net costs. As the primary purpose of this chapter is merely to illustrate the existence

of development inducing properties in the disaster relief to LDCs, the consideration of costs and other adverse effects will not be so important. Some adverse economic effects from relief were presented in connection with our general survey of disaster relief effects in chapter 4, section 7.1.

Finally, it should be pointed out that it has not been possible for us to get detailed primary data on the effects of individual relief projects. Thus, most of the information used in this chapter has had to be taken from reports on relief operations made by the organizations themselves. In most cases, the reports have been checked by the National Reconstruction Committee or international organizations such as the United Nations Development Program (UNDP) in Guatemala City. However, it is possible that in some cases the figures on the beneficial effects are upwardbiased.

3. Some Characteristics of the Guatemalan Economy

The importance of the improvements in economic conditions to be described in some detail here may be better understood if we have some indicators of the general economic conditions of the Guatemalan economy as a reference point. For example, according to World Bank Statistics (W.B. 1980, February) the Guatemalan GNP per capita in 1978 (at average 1976-78 market prices) was US $ 910. This is lower than the average for middle income LDCs (see World Development Report, 1981, p. 134). In addition, the economy shows grave disparities in income and wealth distribution. In 1978, the highest quartile of the population received 66.5 per cent of the GNP while groups in the lowest quartile,

to which the people assisted by the disaster relief belong, received only 6.7 per cent of the GNP. Sixty per cent of the total population lives in rural areas. The top 10 per cent of land owners held 81.4 per cent of productive land while the bottom 10 per cent held only 0.5 per cent.

By 1976, Guatemala was characterized by high rates of migration from rural to urban areas, and these rates increased after the occurrence of the earthquake (see, Bank of Guatemala, op.cit.; Bunch, Ruddell, op.cit.; Hintermeister, et al., 1980; Hawkings, Skjörshammer, 1979; Reports of CARITAS, 1977-80). As will be indicated below, people in most areas assisted by the disaster relief abandoned agricultural activities and migrated to the cities or coastal region in hope of obtaining work. However, there they only added to the lasting problems of unemployment and degrading social conditions of slums in urban areas. The construction sector was characterized by monopoly conditions for the supply of intermediate goods (e.g. construction materials). At the time of the earthquake, the only producer of cement in the whole country extended its activities to production or import of wooden materials, metallic structures, construction equipment etc., achieving a complete monopoly throughout the housing sector (BANVI, 1978, p. 67). According to different reports, markets in different disaster-stricken areas were poorly integrated (Hintermeister, 1980, pp. 75-85), communication among different communities was nonexistent, and suspicion towards foreigners widespread. There was a high degree of cultural alienation and discrimination from the central governmental administration and political disregard was common (Hawkings, Skjörshammer, ibid; Norwegian Church Aid, 1978-1980). Finally, the disaster-stricken areas were characterized by high levels of poverty, illiteracy and

malnutrition and by the lack of elementary infrastructures etc. (Norwegian Church Aid, ibid; Hintermeister, ibid). In most of these areas, insurance protection and governmental measures to alleviate the impact of the damage caused by the earthquake were nonexistent (Bank of Guatemala op.cit.).

4. OXFAM Disaster Relief

By February 10th, 1977, the disaster relief expenditures of OXFAM*) amounted to nearly £ 1.1 million. Eleven per cent of this amount had been spent on emergency relief programs for purchases of blankets and for other immediate relief. Seven per cent, had been spent on storage activities (purchase and installations of silos) and on the purchase of grain from farmers. The remaining 82 per cent, or about £ 882,000 of this amount had been invested in rebuilding the rural areas of "San Martin/ Tecpan", £ 130,000 in rebuilding poor areas of Guatemala City" and £ 23,000 in a "rebuilding education program". In addition, £ 757,000 of funds from other sources had been channelled through OXFAM (Information Department, 1977, OXFAM, Oxford). The total amount of the disaster relief now mentioned had been given to OXFAM in the form of cash from abroad.

It is claimed by T. Jackson (OXFAM, Oxford, op. cit.) that cash relief made it easier for OXFAM to design and implement projects that took into account the specific conditions of the areas assisted. In turn, an identification of local conditions was made possible by an active participation of the beneficiaries at

*) OXFAM is a British based International agency.

all stages in the reconstruction process and by the utilization of an existing structure for assistance. (By the time of the earthquake, OXFAM had had 12 years of experience with development work in Guatemala (Mckay, 1978, p. 1). An analysis of local conditions "pointed out a need for technical construction skills to enable local people to know how to build effectively and safely in a country which is extremely prone to earthquakes" (ibid, p. 2).*) Based on this analysis, the reconstruction plan included a "housing education program". Within this program a basic pamphlet "how to Make Safe Houses in an Earthquake Zone" was produced and translated into Spanish. An edition was produced in Kakchiquel, the local Indian language (McKay, op. cit. p. 5). By February 1977, the housing education offices established for this purpose continued producing pamphlets and handouts to accompany the classes given for the general public and for the students in training programs for builders (loc. cit.). By that time,this educational program had benefited 30,000 people (OXFAM, Information Department, loc. cit.). In May of 1977 a survey showed that 76 "well-trained builders ..... were working in their new profession, independently employed in the area" (ibid, p. 8). In some cases, "well-trained builders began earning three times more than they had ever been paid before" (loc. cit.). This "housing education program", originally applied only by OXFAM/World Neighbors,**) was later on

*) In this analysis the following factors were indicated: One-sixth of the population of the entire country was temporarily without shelter (this increased the need for labor skilled in construction techniques); the majority of the deaths and injuries were due to the collapse of massive adobe walls held together only by mud and topped with heavy tile roofs.

**) World Neighbors is a private voluntary agency from Oklahoma.

followed by most organizations involved in the reconstruction of Guatemala (Mc Kay, ibid, p. 1).

A study of changes in housing characteristics in seventeen Guatemalan communities following the earthquake of 1976 (made in 1979 by people from the University of Georgia, "Instituto de Nutrición de Centro America y Panamá" and the University of Colorado) indicates that there has been a substantial improvement ability of houses in the communities studied to withstand earthquakes (Bates, Farrell, Glittenberg, 1979, p. 44). These results are summarized in table 1.

Table 1: Predicted and Actual Damage Estimates to Pre- and Post-Earthquake Houses

Housing category and damage estimate type	Weighted means*	Standard deviation
Average actual damage to pre-earthquake houses	2.080	0.517
Average predicted damage to post-earthquake houses	1.076	0.516
Predicted damage for non-agency houses	1.320	0.528
Predicted damage for agency houses	0.798	0.301

*Numbers are on a scale 0=No damage, 1=Light damage, 2=Heavy damage and 3=Destroyed.

Source: Bates, Farrell, Glittenburg, 1979, p. 93.

In table 1 all post-earthquake houses are divided into those produced by agencies and those produced by individual households. Agency houses have a predicted weighted mean of 0.798 which places them on the damage estimate scale between "no-damage" and "slight damage". In other words, agency houses seem to be considerably more earthquake resistant than those that existed before the earthquake. The figure for houses built by individuals after the earthquake according to their own plans rather than according to agency plans also shows a considerable improvement in aseismic qualities. That is, individuals, when left on their own but dealing with recommendations given through "the housing education" programs, seem to have avoided the use of the types of house that suffered heavy damage in the earthquake of 1976 (ibid, p. 45).

As indicated initially, a share of the OXFAM disaster relief was used for expanding storage capacities and for grain purchases from farmers. This relief was directed to help farmers affected by the destruction of storage facilities and adverse effects of the depressed market conditions for the grains they sold (OXFAM´s Archives, Oxford; Lesley´s report to OXFAM, 20th August, 1977). This program, which provided assistance to 4000 earthquake afflicted farmers, seems to have been to the benefit of the whole community in the area of Chimaltenango in different ways. Firstly, restoring the storage capacities with high capacity silos required the introduction to the area of electrical systems that are now providing services for other activities as well (OXFAM, loc. cit.). Secondly, since this program was implemented using a local cooperative (Cooperativa Central de Mercadeo el Quetzal) the introduction of new managerial and administrative facilities was required. These new facilities now seem to be supporting the realization of other economic activities as well

e.g., obtaining financial means to support the agricultural production of individual farmers (OXFAM, ibid; Jackson, Froman, Gersony, 1977, pp. 25-28). For example, by August 1977, in addition to the funds from cash relief given by OXFAM, the cooperative had increased its financial capital by borrowing $50,000 from local banks. Thus, the disaster relief operations induced the introduction of banking services not previously found in such areas (Lesley's report, ibid). In Lesley's report, the following indicators of improvements in the economic activities of the cooperative for 1976-77 as compared with the year before relief operations began are pointed out:

	per cent increase
Shares deposit	247
Savings deposited	280
Average monthly balance of members' savings	167
Loans authorized (from the cooperative to individual farmers)	61
Loans recuperated	18
Fertilizer distributed	91
Wheat marketed	175
Agricultural store sales	15
Combined operating capital	124
Gross revenues	154

It is likely that other relief operations by OXFAM, such as the reconstruction of roads, bridges, infrastructures in general and the provision of factories, etc., also induced improvements of conditions of the nature described in this section. However, the information about the disaster relief given by other organizations to activities of this type has been more comprehensive and we shall refer to effects from such activities in the sections that follow.

To sum up, the OXFAM reports indicate the following improvements from relief operations:

- improved "professional abilities" for people working in construction
- improved marketing conditions for local products (from better storage and transportation facilities)
- integration of the areas assisted into financial markets
- access to infrastructural services such as electricity and
- increased levels of disaster preparedness by improving the earthquake resistance of housing.

5. CARITAS Disaster Relief

By CARITAS disaster relief we mean the activities implemented by CARITAS Arquidiocesana, which is the local subsidiary of CARITAS Internationalis (a world-wide organization).

The disaster relief from this organization began immediately after the occurrence of the earthquake. Apart from the reconstruction of houses in some urban areas of Guatemala City the main part of the relief of this organization was concentrated to rural communities in the departments of Zacapa, Alta y Baja Verapaz, Chimaltenango, Jalapa, Sololá, Quiché, Quezaltenango and Izabal. To the extent the disaster relief was provided to the urban areas in such departments it was mainly for reconstruction of schools or other activities not directly attended to by local governmental agencies or other foreign organizations (CARITAS, 1980, p. 27).

At the occurrence of the earthquake a disaster assistance program amounting to US $6 million was projected for the period 1976-1979. By the end of 1978, 33 per

cent of this amount or US $2 million had already been expended on assistance to rural areas. According to the National Committee of Reconstruction (CRN, 1978, Información Sobre el Programa de CARITAS) US $1.4 million had been spent on the reconstruction of housing, US $342,020 on the reestablishment of community infrastructures, US $178,972 on the construction of "storage buildings" and the remainder on different socio-economic programs connected with the "reestablishment" of normal activities in general.

Reviewing an evaluation of the program of CARITAS (made by Stricker, 1977, for Swiss CARITAS) and some of the reports of CARITAS Arquidiocesana (CARITAS: August, 1976; March, June, August, 1977; Programmes 1976-79) one finds that there were a significant amount of investments in "multiple-use" storehouses, factories to produce metallic structures in concrete buildings, brick factories, etc. These investments were aimed at restoring production capacities in the construction sector of the disaster stricken areas and should therefore be classified as a "purely compensatory" type of activities. However, some of these investments necessitated the provision of units that were more effective than the ones replaced or of new units, and are to that extent of the type we call "complementary to compensation".

5.1 "Multiple-Use" Storehouses

An analysis of the situation in the stricken areas made by CARITAS (Guatemalan Program 1976-79, p. 24) at the beginning of the disaster relief programs pointed to a great need for facilities for storing food, medicine, equipment and reconstruction materials provided from outside areas or countries to the afflicted areas. It was then understood that without such storage facilities the relief work - especially reconstruction - would hardly be possible. Therefore, the disaster relief

programs came also to include the construction of low-cost storage buildings. Understanding that similar catastrophes may in the future give rise to the same kind of needs the store houses were strategically placed in the disaster-prone areas (loc. cit.). By the end of 1979, 80 per cent of a total program for storehouses amounting to US $220,500 had been completed.

Later on, when the reconstruction was concluded, minor changes were made in the internal design of the store-houses to enable them to be used for other purposes. In order to counteract problems of seasonal food scarcity or of fluctuating grain prices, the store houses were in some cases used as silos (CARITAS, Supango Project reports, archives Guatemala C.). This has especially been the case in one of the areas (Supango) traditionally most affected by seasonal variations. In other cases, the storehouses are used as factories for producing wood materials needed in reconstruction activities still going on in adjacent areas. In many cases, the production from those factories also covers the demand for products from other regions (loc. cit.).

Still other storehouses are used as schools for training adults in different techniques such as tailoring, as mechanic facilities or, for social activities of different kinds (loc. cit.).

Thus, the continued utilization of "storehouses" outlined here indicates that these "complementary activities" have not only helped to implement the disaster relief operations and will play a role in case a new disaster occurs in the future, but that they have also provided facilities for the realization of other welfare improving activities in between.

5.2 Various "Complementary to Compensation" Facilities

The shortage of different kinds of construction materials in the areas afflicted was partly alleviated by disaster relief programs creating facilities that would produce items needed for reconstruction using local resources (CARITAS, Guatemalan 1976-79 Program). So for instance, a factory to produce metallic structures such as accessories for doors, windows and entrances for cement-based buildings was founded in Cubulco with the technical and financial assistance of CARITAS of Austria. In Salamá, CARITAS of Switzerland constructed ovens for firing bricks. In the projects of San Marcos and in the Martinico, one of the squatter areas of Guatemala City, CARITAS of Spain provided facilities for producing cement bricks and woodwork, tailoring, etc. The educational facilities needed and the labor training required for all of these activities were also provided. The total expenditures on this kind of "complementary to compensation" activities amount to 10 per cent or approximately US $520,000 of the total assistance given by CARITAS (ibid).

After the conclusion of the reconstruction programs, the facilities just indicated have continued to satisfy local, regional or, as in the case of the factory for metallic structures in Cubulco, even national demands.

5.3 The Health Center at San Juan Sacatepequez*)

This project was started two days after the earthquake and was aimed at providing medical assistance, food, shelter, and meeting other immediate needs during the emergency situation. A few days after the emergency the organization was involved in the reconstruction of the hospital in San Juan which had been totally destroyed.

*)The description of this program is fully based on the information presented by CARITAS Arquidiocesana in its 1980 report.

The experiences acquired in the initial period of operations made it clear for the organization that without the participation of bilingual local personnel very few, if any, of the objectives of the project could be achieved. Therefore, the training of persons who could speak both the language of the region and Spanish became an indispensable part of the health program. Also indigeneous youths were included in this training and the objectives of the program could be fulfilled as projected, avoiding the initial hinders arising from cultural barriers.

The fact that local people were involved made it easier to handle health and related problems. By the end of 1977 even other communities in the vicinity such as Cruz Blanca, Sajcavilla, Camino de San Pedro and "Comunidad de Set", were benefiting from the medical assistance.

In addition, with the collaboration of INCAP (Instituto de Nutrición de Centro America, Panamá) and the Universities of San Carlos, Francisco Marroquí and El Valle, the human and physical resources obtained by the health center were also used to develop such programs as prenatal and postnatal care, dental care and nutritional programs. Beyond prenatal and postnatal assistance, mothers were induced to participate in the nutritional programs which assisted 950 families during the first year of operations. The relevance and possibilities for continuation of the programs, it is stated, is assured by their connection with local realities and resources.*) For instance, the nutritional improvements may continue in the future since they are based on locally produced foods and customs. Similarly, the dental service which is now regularly provided in most communities in the area

*) In the project evaluation underlying this description it is argued that the success obtained by the programs is mainly a result of the solutions given to communication (via bilingual promotors) and cultural barriers.

of San Juan may continue functioning in the future due to its integration into the educational program of the universities of Guatemala. The participation of INCAP and of the Universities of San Carlos, Francisco Marroqui and El Valle have made it possible to "institutionalize" the education of local people in the new techniques.

As a result of the CARITAS relief an average of 250 to 300 persons are currently obtaining medical assistance in the health center each month. In addition, weekly medical visits are provided to very isolated villages, such as the Comunidad Ruiz to which transportation is very scarce. So, disaster relief has made possible the introduction of a new type of health and medical care to areas which would perhaps not otherwise have had access to such care the near future.

6. The Disaster Relief of the Norwegian Church Aid

The Norwegian Church Aid (NCA) initiated operations in Guatemala at the occurrence of the earthquake. Up to May 1980, disaster relief expenditures from this organization had grown to some US $2.6 million of which 25 per cent had gone to rural areas. However, if the initial year of operations (1976) is not considered, the percentage of assistance to rural areas rises to 55 per cent of the amount expended during the remaining of the period (NCA, 1980, "Historial Cuantitativo", pp. 10-11). Here, we shall refer to the projects implemented in the area of San Martín. These projects give an example of further utilization of the know-how transmitted by relief operations.

The "San Martin" projects have come about in response to

the committees whose work was sponsored by the NCA within the AID's lámina program to which we shall return later in this chapter.*) Up to 1979, the following projects had been implemented: construction of twelve primary schools, a health post, five bridges, a 9.4 km road, a market place, three wells and a gravitational water system. In addition, five different studies and surveys of the area and other administrative and organizational activities had been carried out. A closer look at the school, road and water projects is illuminating.

6.1 School Projects

The 1976 earthquake had destroyed almost all of the school buildings in the area of Estancia San Martin and Patzaj. Some time after the earthquake, however, school activities had been restarted, but only in provisional shelters. By this time school attendance in San Martin was very low: only 53 per cent of children of school age (90 per cent in the first through third grades) attended with some regularity.

Thanks to the close cooperation of the local committees, it was soon understood that there were factors other than the inappropriate physical condition of the school buildings to explain the low school attendance: (a) a high percentage of adult illiteracy (65 per cent) which led parents to deny the importance of reading and writing for their children, (b) lack of school materials and (c) the general poor economic conditions of the families requiring the participation of children in income bringing activities. These factors, moreover, also im-

*) Most data in connection with this description have been taken from Hawkings & Skjörshammer, 1977. (Otherwise the source used is explicitly indicated.)

peded the start of reconstruction in general.*) Thus, it was realized that physical reconstruction of school buildings should not be the sole objective of the disaster relief program. Therefore the NCA also planned to make an attempt to increase the levels of adult literacy and to provide the economic facilities needed for school attendance by creating a fund aimed at financing the purchase of books and teaching materials and other operating costs.

During 1978 and 1979 all projects had been carried out via the local committees. An evaluation of the San Martin projects (Hawkings, Skjörshammar, ibid) shows that during the past two years the number of children attending school regularly has increased by 25 per cent and that adult illiteracy has decreased markedly. In addition, a fund to defray the costs of school books, teaching materials and to provide support for 15 students attending secondary school had been created.

The results of these projects point to the importance of the cooperation of the beneficiaries themselves. In this case local participation permitted organizational abilities to improve and this, in turn, seems to have served to reduce serious hinders to economic progress.

6.2 Road and Bridges

One of the bridges rebuilt by the communities with means from the AID's program was the "Puente Noruega Guatemala" in San Martin. The communities along the road, however, did not seem to benefit "very much" from the bridge since the road in between was a low-standard dirt road, impassible during the rainy season. According to NCA re-

*) Among other things, illiteracy hindered the dissemination of information about relief operations, making cultural barriers unavoidable and generating suspicion of foreigners' purposes.

ports (1978, 1979, 1980) the extremely difficult transport conditions were preventing agencies from providing disaster assistance to the communities. In addition, the irregular transportation and marketing of products were impeding normalization of economic activities. Thus, it was realized that as a complement to reconstruction activities the construction of an all-weather road along with five bridges was necessary.

Labor-intensive methods and local materials and equipment were used to implement the road and bridges project under the supervision of a road engineer from the International Labor Organization (ILO). Moreover, two local supervisors were working with legal matters, buying materials, negotiating with INAFOR (the state agency for reforestation) and handling the accounting. Four representatives of the communities (one from each community) were in charge of organizing the participation of men recruited from each community.

With a minimum of technical supervision (8 per cent of the total costs) and after some initial training, the local participants were able to execute the work on their own. A feasibility study made by the ILO indicates that the investment has been "profitable at a 12.5 per cent interest level". Because of these results the project has been used as a "model" for similar operations of assistance to LDCs. The methodology used has been published by the International Labor Organization in a report "Estudio de Caso: Reconstrucción del Camino Rural Finca la Merced Oratorio" (Rijk, 1979).

Nowadays people reach markets regularly with more and diversified products, so that agricultural products as well as handicrafts from disaster-stricken rural areas can be sold more easily in markets in urban centers (Hawkings, Skjörshammer, 1977, pp. 14-16). In addition,

small shops in the area found it possible to carry a wider variety of goods than previously.

The NCA approved the expansion of an inadequate indoor market in San Martin Jilotepeque as a supplement to the project just mentioned in response to a petition of a newly elected indigeneous mayor. The increased capacity (1.500 m^2) constructed was financed by NCA and successfully carried out by the mayor with the municipal workers. The know-how utilized by the labor force was a result of the training provided by the disaster relief operations in earlier phases.

Again, these results show the advantages of local cooperation. In this case, it seems to have helped to increase levels of know-how, adapt new techniques to local conditions and to a general upgrading of the communities assisted. Involving the community members in the practical setting up and implementation of projects made it possible not only to train leaders and to organize committees but also to transmit the techniques, know-how, etc. required for the reconstruction (NCA, reports, ibid). In addition, two important factors are revealed: (1) the role that disaster relief plays in restarting economic activities and opening new market channels that previously did not exist in the areas and (2) the importance of more than one independent organization of assistance, so that one takes over where the work of the other concludes (such as the AID and Norwegian Church Aid). One may even say that these results point to the need for monitoring the projects continuously.

6.3 Water Projects

An example of further applicability of the know-how transmitted is the water project in the area of San Martin where the people for a long time has been denied access to existing water sources. "Although there were

natural water sources in the area, these were located on 'finca ground' and the owners refused to share the water with the general population" (Hawkins, J. & Skjörshammer, M., ibid, p. 18). Because of these circumstances the committees with representatives from four communities requested the assistance of NCA in developing water sources. NCA agreed to finance and assist in the digging of four wells and in providing the technical training required to make water potable.

Different methods for providing water supplies were tested. In that way, the use of drilling machines (preconceived by NCA to be appropriate) was found to be inappropriate owing to installation, operation and transportation costs. The communities instead found it appropriate to dig the wells by hand and to exploit nearby springs to provide integrated storage and gravity fed systems.

In the communities of Los Tuyanes, Los Jometes and Las Venturas different distribution systems, including supplies of water to schools, were constructed. In addition a cisterns was built at the health center of Los Jometes to even out seasonal variations in water accessibility. This process was unknown earlier in the area (loc. cit.). The spead of applied know-how in the areas is reflected by the fact that most families or groups remaining without water using "the skills learned by working in the water project began the construction of their own wells and distribution systems". This is specially important considering that further implementation of comprehensive gravity fed distribution systems had to be abandoned owing to high installation costs resulting from serious difficulties "in dealing with the issue of obtaining rights for the pipelines to cross the land of neighbors not having an interest in the project" (ibid).

These experiences again show the importance of the participation of the beneficiaries themselves. In the case at hand it seems to have developed the ingenuity of the local people and enabled them to find solutions that would have otherwise been infeasible. This helped to solve not only "purely technological" problems, but even those arising from differences in "ownership rights" which, given the social structure of many LDCs, often hinder a rational utilization of resources. Thus, this is an example of disaster motivated measures with possible far-reaching development effects, which is the central theme of our study.

7. The AID's Sheet-Iron Distribution Program

The sheet-iron distribution program itself is not of the type classified by us as "development inducing". Furthermore the use of sheet iron for housing and temporary shelter in tropical, very rainy, high salinity areas has been criticized as highly inappropriate (see chapter 4, section 5.2). Despite these criticisms the sheet iron program is of interest for our purposes as it used special decision-making an financial methods ("recycling") which seem to have had important consequences for economic development.

A traditional approach to disaster relief is one which "operates on the basis of centralized decision-making without substantial consultation with potential beneficiaries, grass-root groups or local leaders... develops new, short-run distribution networks,... distributes free assistance... on the basis of the donor agency's perception... and obligates recipients to use the assistance for purposes and at times determined by the agency" (see Froman, J., Gersony, R. & Jackson, T. in AID, Disaster Relief Program, 1977, pp. viii-ix; see also, Taylor, A. 1978). On the other hand, the "new approach" applied by in the sheet-iron program is one that has "based itself on the advice of the beneficiaries themselves,... respected and sought to reinforce

the ability of the beneficiaries,... tried to adapt to normal pre-disaster cultural, social and economic preferences and patterns,... encouraged local grass-root organizations as well as local leaders,... shared decision-making with leaders of the grass-root organizations,... given all residents of the same area equal access to the iron-sheets and allowed the beneficiaries complete freedom concerning the use of the materials" (AID, ibid, p. vi-vii). The new approach was inspired by the model initiated by OXFAM and World Neighbors (see section 4 above). It was based on the general idea that "a consumer demand for development services and projects must be created, that the target population must themselves be involved in program planning and implementation, and that development efforts are often largely unsuccessful unless initiated at the grass-roots level". (Long C., in AID, ibid, p. ix.)

In short, the AID's sheet-iron distribution program consisted of providing 700,000 sheets of iron to be sold at US $2.50 each, which was half their market price, to the people being assisted with house reconstruction. Sales and distribution were made through local governmental institutions such as CRN and BANDESA (Banco Nacional de Desarrollo Agricola) in cooperation with some NGOs and the committees in the communities. The money from the sales, approximately US $1.6 million, was used to improve infrastructure, creating work opportunities and improving the local levels of cooperative participation by the creation of local committees. The reutilization of means from the sales (the "recycling principle"), based completely on local requests and initiatives, was administrated by the committees in the localities to finance 622 infrastructural projects implemented in 27 municipalities (see Table 2, below). Indirectly, the work opportunities created in implementing the projects helped individuals to cover minor (but for the individuals significant) expenditures caused by the earthquake but not covered by any other source of

disaster relief, thus, helping the areas to an earlier recovery of conditions in general than would otherwise have been possible. In other words, even though it discriminates against people without a sufficient purchasing capacity, this method seems to have helped to allocate aid efficiently and to have been to the benefit of the community as a whole (with some reservation for redistributional effects). The "recycling principle" was also used by the NGOs in 40 of the 66 disaster relief programs implemented during the 1976 to 1979 period. (Each program includes one or several projects in one or several communities.) (CRN, 1976-1979.)

In table 2 we present a summary description of the programs implemented under the supervision of BANDESA (a Guatemalan governmental institution) with means from AID's sheet-iron program, all of which have been carried out.

Thus, we have seen that in this case the disaster relief helped to:

(1) activate the region's own resources and

(2) create resources for additional measures with the help of a market principle previously unknown in the areas, which was shown to generate considerable cooperative efforts in different fields.

Table 2: Summary and Classification of the AID -BANDESA Program (in 27 municipalities in Guatemala)

	Project description	Number of projects
1	Construction and improvement of rural roads	202
2	Introduction and improvement of potable water	83
3	Construction of schools and literacy courses	73
4	Construction of tanks and public facilities	50
5	Reparation and improvement of schools	38
6	Construction of communal houses	34
7	Construction of bridges	33
8	Construction of mother-care and health centers	22
9	Improvement of streets	20
10	Construction and improvement of recreational facilities	12
11	Land surface levelling	12
12	Facilities for school, cementeries and health centers	14
13	Construction of "basic institutes"	9
14	Construction of draining systems	3
15	Construction of water distribution systems (agricultural)	5
16	Construction of chapels and cementeries	2
17	Diverse: reforestation, electricity etc.	10
	TOTAL OF PROJECTS	622

Source: CRN: CRN, Archives of the "Unidad de Cooperación Nacional e Internacional". Guatemala City.

8. The Creation of the CRN

The magnitude of the damage caused by the earthquake, the lack of an existing local capacity to confront the problems arising and the extent of the foreign disaster relief forthcoming to Guatemala created a need for establishing an institution to coordinate the reconstruction of the nation (CRN, 1980, pp. 2-24). By March 18, 1976, under the auspices of international agencies such as UNDP and other foreign organizations of assistance, the Guatemalan Government decided to create the National Reconstruction Committee (CRN).

The role for development played by the CRN and the NGOs working with small projects directed towards low-income people in isolated areas become apparent against the background of the planning problems for Guatemala in particular and for LDC economies in general. It is widely recognized that general planning approaches such as sectoral determination of economic goals or input-output analysis are insufficient as means of effectively designing economic development targets in LDCs (see Todaro, 1981, chapter 15 or, Griffin, 1976). More specifically, it is stated that in economies characterized by deficient means of communication and poorly integrated markets, "firstly, there is no guarantee that the availability of greater resources to the public sector will be translated automatically into higher incomes for the poor... Secondly, if the automaticity of the market mechanism cannot be relied on to generate income and employment opportunities for those most in need, then one must assume that instruments of public policy exist, or can quickly be created, which will enable the government to achieve its objectives... Of course, many government policies are not designed to influence relative prices but instead consist of direct expenditures, frequently pointed at particular target groups of the population. Even so, it is not obvious that public spending programmes can always reach their target population, especially when the intended beneficiaries are the poor... The failure in most countries of public housing schemes to benefit the homeless and the slum dwellers illustrates the problem that expenditure programmes have encountered..." (Griffin, ibid). Thus, the creation of the CRN and the concomitant possibilities of channeling information from grass-roots levels to administrative centers in order to allocate resources efficiently to disintegrated areas must have a special value for improving development.

The creation of the National Committee of Reconstruction (CRN) seems to have played an important role in its resource allocative function in the process of reconstruction and economic development. On the basis of the knowledge of local conditions of the areas, the CRN helped in attaining rational allocation of the disaster relief grants (Hintermeister, A. - "Grupo Suizo"; Skauen, P. - NCA -; Lent, T. - Save the Children Alliance; Cohen, S. - CIDA -; Marquéz, J. - CARITAS; personal interviews in Guatemala City). It effectively channeled the means of relief, avoiding duplication of assistance, supervised with the help of UNDP's expertise in project design and it served as a communication channel between isolated areas and governmental and foreign agencies (ibid).

Evidence that grants from foreign governmental organizations were efficiently allocated by the CRN to areas not receiving assistance from other sources may be obtained by reviewing the reports on the operations of NGOs, AID and CIDA with which there was coordination of activities under the supervision of the CRN. The experience with "overlapping" relief efforts during the emergency led governmental authorities to conduct an investigation aimed at examining whether such a problem was at hand during the reconstruction. In the reports to the "Presidencia de la Republica" and the Guatemalan Congress from the investigation carried out (Works of the Foreign Organizations, Informes of the CRN, CRN's archives, Guatemala City) only three cases (among hundreds of projects) of overlapping efforts are pointed out. The fact that they are pointed out may be taken as an indication that it was possible to eliminate this kind of inefficiency to a large extent.*)

*)The three cases referred to are the following. One is a Swiss project aimed at reconstructing a school in Chiquex. At the time the work started, Swiss Aid found that CONACE (National Committee of Schools Construction) was already carrying out a similar project. However, in this case, Swiss Aid could reorient its proposals and

Cont. on next page.

The importance of these findings should be seen partly in the light of an otherwise complete lack of coordination of activities between the Guatemalan Central Planning Secretary and the relief operations (S. Cohen, CIDA, Guatemala City). According to S. Cohen (ibid), only two meetings, "without any practical results", had been arranged between the Central Planning Secretary and the organizations involved in relief operations during the post-disaster period up to the end of 1980.

These findings are also important because they seem to contradict the belief that disaster relief is an inefficient form of foreign assistance in the sense that it leads to a duplication of efforts. At least where reconstruction programs in Guatemala are concerned, the proposition that disaster relief is inefficient does not appear to be supported.

Actually, it appears that the capacity of the CRN continues to be used as a promotor of assistance in an otherwise chaotic post-disaster situation. The widely known political problems of Guatemala have been forcing foreign disaster relief organizations to stop operations and leave the country earlier than they would otherwise have done (CRN, 1980, Internal Reports). However, by 1981 according to the 1981 reports of the CRN a great deal of the disaster relief program is still being carried out. Table 3, below, summarizes the programs concluded during 1981. The creation of the CRN and its successful record so far seems to have been

---

Cont. of note from page 235.

transpose the construction of the school to the village of "Chuantonio". Thus, actual overlapping was avoided in the implementation phase. The other two cases are the construction of a health center in "San Lucas Sacatepéquez" and a school in "San Andrés Itzapa". In the first case the Rotary Club and the Ministry of Public Health and Social Assistance were involved and in the other, "PLENTY" and "CONACE". In these two cases, the reports do not mention whether resources were redirect or utilized in other projects. However, it is indicated that no overlapping of efforts took place.

instrumental for keeping the relief at a relatively higher level and for a longer period than otherwise would have been possible (cf. chapter 1, section 2, p. 8). Moreover, the organizational and administrative know-how accumulated in the CRN is likely to contribute to making the conditions for future development as favorable as the difficult political situation of the country permits.

To sum up, we have seen that the flow of disaster relief from abroad led to the creation of an efficient organization (CRN) for project design and project coordination, the development implications of which are hard to specify but likely to be important, if the fragmentary evidence provided is true.

Table 3: Non-Governmental Organizations' Investments. Projects Concluded 1981 (in Q = US $ 1981).

Housing	2,250,000.00
Schools	237,486.00
Education programs	2,450,687.00
Water systems	194,271.00*)
Agricultural projects	317,469.00**)
Reinvestments	1,112,705.00***)
	6,562,618.00****)

*) Apart from disaster relief grants, this figure includes some "foreign loans"

**) This figure does not include the total amount of disaster relief invested in this sector (due to lack of available information)

***) Reinvestments by "recycling" relief means (cf. our description in connection with the AID program)

****) This amount does not include all investments (as specific information has not always been given by donors)

Source: "Informes of the National Reconstruction Committee", 1981, p. 7.

9. Concluding Remarks

In sections 4 to 8, we have come in close contact with individual projects where the development inducing effects of relief operations in the areas assisted appear to have been considerable. Once the state of emergency had declined, the assistance seems to have been well coordinated and properly distributed according to local conditions and priorities, at least in the projects reviewed here.

A first example of development inducing effects from disaster relief is an automatically improved disaster preparedness potential of the nation. This potential appears to have arisen both from the disaster resistant properties of the physical units reconstructed or replaced (houses, schools, infrastructure in general) and from the organizational capacities created at the community, regional and national levels, especially from the creation of the National Reconstruction Committee.

Next, we have seen that physical units have been equipped with new or improved capacities that continue to serve the communities and facilitate a further increase in employment and real income. In addition, the know-how transmitted in this connection seems to increase the level of self-reliance, market participation, etc. of the areas. Given that these activities are of both the "compensatory" and "complementary to compensation" type, our observations are compatible with the view that relief activities with development inducing properties can be significantly greater than expressed by our minimum estimates in chapters 5 and 6.

"Unrelated to compensation" activities, such as the provision of factories, equipment, etc., that did not exist in the areas previous to the earthquake, or the educational, health, nutritional, and other programs,

seem to have served as a motor for a recuperation of more "normal" living conditions. As compared to pre-disaster conditions, the additional improvements obtained through these programs point to the possibility that the development inducing effects achieved have been significant and could continue in the future. Moreover, the programs reviewed indicate that disaster relief is not necessarily inefficient. In fact, in the programs reviewed the efficiency level is such that similar results are far from easy to find in reports from ordinary development projects. As we have seen, the inflow of foreign disaster relief contributed to the creation of a high-level administrative organization (CRN) with a successful record in project design and project coordination according to several independent sources. In particular, the attempts of this organization to avoid "overlapping" efforts after the emergency phase of the disaster relief operations seem to have been of major significance.

The purpose of this chapter, however, has not been to identify "typical" or "representative" projects of the disaster relief given to Guatemala. The lack of reliable information and the burden of such a task have made an attempt along those lines impossible. This is not to say that many other organizations have not been able to accomplish what we have highlighted in this chapter.*) But the purpose has been to provide some concrete examples of disaster relief projects with seemingly ob-

*) For a review of other organizations assisting Guatemala, such as Save the Children Alliance, FUNDACED (Fundación de Desarrollo) and CIDA, see Palomo, A.M., 1979, archives of the CRN and Lent, T., 1980 and, Cohen, S., archives of CIDA in Guatemala City. These reports indicate that in 204 other communities in twelve earthquake stricken municipalities 8,000 families were assisted with housing reconstruction, 70 other schools and educational facilities were reconstructed and improved, 305 projects of reconstruction and improvements of infrastructure had been implemented, 593 educational and training programs carried out and not less than 200,000 families incorporated in cooperatives.

vious development inducing properties, thus providing a third empirical perspective on the topic of this study and a complementary perspective on the estimates attempted in the preceding two chapters. Thus, we have provided some examples illustrating the possibly large development inducing effects indicated by the macro approach taken in chapter 5 and the minimum nature of the estimates according to the classification approach taken in chapter 6.