CHAPTER III

PROBLEMS OF REHABILITATION AND RECONSTRUCTION

The setting of rehabilitation and reconstruction

141. Those who have known the devastated areas of Guatemala before the earthquake will no doubt view with concern the radical change in the appearance of the towns. For aside from the seriously damaged or destroyed baroque colonial churches and the archaeological sites (see Chapter I), the towns themselves were a cultural treasure —the white— washed adobe homes represent traditions that have endured for centuries. The balance of this habitat has been seriously upset only in recent times (mainly in the post-war period), and it is part of a cultural heritage that is probably dying. The concern is that the destruction may have accelerated the process in such a way that some positive qualities which could have been preserved will be irretrievably lost.

142. From the social and cultural standpoint, the object of reconstruction should be to improve the habitat, but in conformity with the customs and traditions of the population. The objective of rehabilitation is not to conflict with reconstruction objectives of this type, and also always attempt to place rehabilitation efforts in a broader economic perspective. This in fact applies to many relief activities as well, although the urgency of an emergency situation may require everyone to be much less strict on such matters. To clarify this point further, let us discuss the activities involved in rehabilitation and eventually in reconstruction. We will also cite the United Nations family contribution in the implementation of these tasks, having noted its participation in general evaluation and design of programmes.

The tasks of rehabilitation

143. The tasks of rehabilitation can also be analysed in terms of basic needs (food, shelter, medical attention and health, etc.) as we did in Chapter II, although it also includes attention to social services and infrastructure not directly related to immediate survival (clearing rubble in towns and roads, restoring school facilities and community centres, etc.). In some cases relief and rehabilitation activities overlap, in others, the tasks involved to attend the basic needs should be somewhat different.

144. Rehabilitation is a process designed to prevent, in a more or less permanent or stable way, the recurrence of an emergency situation following a disaster. It is the instrument for a «return to normalcy». For example, to the extent that vast numbers of people are without shelter, an emergency situation persists. Tents may serve as emergency shelter, but are unlikely to withstand heavy tropical rains, and therefore, do not solve the emergency situation except over a very limited time period. Shelter in the context of rehabilitation should provide a more lasting solution. At times, more permanent shelter can be procured during the emergency phase, and we consider that this should be done as much as possible to save resources. For example, the Resident Representative proposed during the emergency that support could be given by UNDRO to a non-profit group, producing low cost housing at a speedy rate. At the time, the alternative emergency shelter were tents or roof materials put together in a makeshift way. This solution would have provided better and more permanent shelter within an acceptable time period. *It is recommended that UNDRO could study those areas where emergency and rehabilitation needs can be covered simultaneously and that assistance of this sort should be promoted.*

145. Rehabititation also sets the stage for reconstruction. It provides the stability in the situation of the affected population to engage in reconstruction activities. To the extent possible, rehabilitation should also facilitate reconstruction through the technical and economic orientation followed by those assisting rehabilitation of the population.

Transport

146. In Guatemala, rehabilitation first involved clearing the roads and blasting away the dams created by landslides blocking streams, which would have burst during the rainy season and thus constituted a serious flood hazard.

147. The rehabilitation of roads serves the major function of restoring communications, transport and trade. It is therefore a primary element in the rehabilitation of economic activity and consequently of a return to normalcy.

148. In the case of the roads, clearing was required and undertaken from the start, at least in the main arteries connecting the capital to the affected areas, as relief operations were severely hampered by the landslides. This is a clear case of overlap between the tasks of emergency relief, rehabilitation and reconstruction. As indicated in Chapter I, about two million cubic metres of soil were cleared.

149. With the help of US Army engineers, a Bailey bridge was built at Agua Caliente, at the point where the main bridge along the highway connecting the capital to its main ports on the Caribbean collapsed. Unfortunately, the provisional bridge had to be closed temporarily in October 1976, as the strong current following heavy rains weakened its foundations.

150. The rehabilitation of Puerto Barrios, where the pier collapsed is to be made in the context of the need for a policy decision on whether port facilities should completely be transferred to Puerto Tomas de Castilla, which is the main port of Guatemala and only a few kilometres south of Puerto Barrios. Two UNDP-funded regional projects have advised the government of this matter. (See [12] and [13]). The World Bank has approved a loan partially to rehabilitate Puerto Barrio's operations (see [10]).

Clearing rubble from the towns

151. Another major task involved demolishing damaged structures and clearing the rubble from the towns. This task was

substantially completed by June 1976, just at the start of the rainy season. Aside from the army, voluntary agencies and bilateral assistance groups which had chosen to assist specific communities for rehabilitation and reconstruction were heavily engaged in demolition and clearing operations in the town. Food-for-work programmes were also used in this process, and the contribution of the World Food Programme is to be cited in this respect. (See Chapter II). Aside from designing clearing programmes, INTECAP with the assistance of a UNDP/ILO project has also coordinated clearing operations.

Rehabilitation of social services

152. The Ministry of Public Health undertook one of the most impressive disaster relief operations following the earthquake. At a briefing session for the Disaster Relief Coordinator in February, it was noted that the Ministry already had a very complete inventory of health facilities damaged and destroyed, and with the collaboration of PAHO/WHO experts the Ministry designed a plan for rehabilitation of health and also for the supply of sanitation facilities.

153. Much of WHO and UNICEF assistance in the emergency period and immediately after has contributed to rehabilitation as well as emergency relief. Later in this chapter, we describe their programmes for reconstruction in more detail.

154. In the interim period to reconstruction, rehabilitation of social services has followed identifiable patterns. Visits to various communities shows that corrugated roofing was used for provisional churches (which, it should be stressed, are the major centres of community activity), schools and health posts. In many cases, the metal roofing material was also used for the walls of the provisional structures.

155. UNESCO provided orientation on the implementation of the educational rehabilitation and reconstruction programme which involved the participation of school teachers and students in work in these two stages and utilizing their activities as an educational experience outside the classroom. This interesting

experimental approach, according to the Minister of Education in a tripartite meeting with UNESCO and UNDP, had mixed results, and is being re-assessed to see what elements of the methodology that can be fruitfully applied in the local context can be retained. UNESCO also advised the Government on the participation of the out-of-school education board in rehabilitation and reconstruction activities.

156. It is worthwhile to elaborate a bit further on this. Although hampered by the lack of funds (this problem is solved for 1977), the Out-of-School Board established experimental Programmes in some of the affected communities. The Secretariat of the Board has monitors who serve as channels between technical groups who provide orientation on rehabilitation and reconstruction and the populations who may be less receptive to outsiders (monitors are selected from the indigenous population). At the same time as technical ideas are prseented in a way suited to the cultural frame of the population, the elements of rehabilitation and reconstruction activities as an educational experience are stressed.

157. It should be noted that UNICEF also participates with $1.1 million in the out-of-chool education programme, which is a further input to the reconstruction process to the extent that the out-of-school Board will work in the affected areas.

Rehabilitation of housing facilities

158. In the devastated towns, adobe has to a large extent been replaced by other materials for shelter, at least for the time being. Soon after the earthquake, there was a massive influx of corrugated roofing material (up to one million panels were supplied), and prefabricated wooden houses or panels, as well as wood. The idea has been to provide at least, «minimum» shelter, although some agencies evidently have the intention of providing permanent housing. In many cases, public or private agencies provide a roof and a structure while beneficiaries work to fill in the walls, with or without technical quidance. In other cases, total shelter is provided, whether in the form of prefabricated wooden housing or concrete housing built by contract workers or through food-for-work programmes

159. This diversity in approach has resulted in a great variety in types of shelter. One finds, for example, that corrugated roofing is used in combination with wooden or concrete structures, and at times the corrugated roof is also used for making up walls. In many cases, notably in the rural areas, the people have rebuilt in adobe anyway, or alternatively using the cane from the stalks of crops such as *maicillo*. Corrugated roofing will also generally be used in the latter two cases, but only for reasons of supposed safety. It is much hotter than tile roofing, and when used with adobe, the efect is much like an oven by noon-time, as confirmed by direct observation. Corrugated roofing is also used for sheds and fences around the houses.

160. We have thus identified at least five types of construction in the affected areas which use corrugated roofing (wood, cement, or hollowblock, corrugated roof walls, adobe and cane or straw), in the place of traditional adobe and tile construction. This situation creates many potential problems, because as is well known, in the developing world including Latin America, temporary housing will more likely acquire a permanent character, and may endure for generations. In such a case, the characteristics of the rehabilitation will probably have very definite long-term implications, many of them undesirable, to the extent that the natural habitat is destroyed without preserving its monst positive characteristics.

Comments on the various types of shelters

161. What types of problems may result from the turn rehabilitation has taken in Guatemala? Wood construction, for one, is not most suited to the Guatemalan highlands. It is not as warm as adobe during the cold season, and it is somewhat risky taking into account that the indigenous populations usually build fires on the floors of their houses for cooking and for warmth. If they do this in the wooden houses there is certain danger of fires.

162. Another problem is that to repair or expand their wooden dwellings, communities will probably accelerate the disappearance of the few forests, or trees on the highest slopes, that remain in the highlands. As things stand, a UNDP/FAO mission

fielded in October 1976 concluded that erosion is the number one problem of the highlands, and that if present trends continue, specially in the depletion of forest resources, the stability of agricultural production cannot be maintained for more than five to ten years in the area. The promotion of wooden housing in the highlands may thus aggravate an already serious problem.

163. The corrugated roof material, or *laminas,* present their own characteristics. We have mentioned how hot metal roofing can be, and much more so if the metal panels are used for walls. There is certainly very little to be said about the appearance of this structure. Unfortunately, there is no guarantee that people who have adapted to this way of living will soon change it, and in the metal panel structures, or eventually deteriorated wooden housing, we may witness the tranformation of traditional rural or provincial urban communities into something in the nature of metropolitan slums.

164. Concrete is probably the most durable and the most adequate substitute for adobe, assuming good construction. On the other hand, it is completely outside the economic reality of the highlands. Poor households won't have the means of expanding their concrete homes with the same materials. Perhaps it is also presently outside technical capacity for supply. There are many reports of sub-standard hollow-block manufacturing, where the product comes to pieces even under small pressure, and would not resist an earthquake any better than adobe. This problem has generated a consciousness of the need for industrial quality control in the construction sector, but is unlikely to be solved over the short-term.

165. Furthermore, hollow-block construction is psychologically promoted as «invulnerable» to the violence of an earthquake, when in fact the best materials will not stand with faulty design or inadequate regard for zoning and safe location. As these houses have a permanent character, even if they are built in what we broadly consider to be the rehabilitation period, it is a matter of concern that their sponsors do not show sufficient consciousness of matters of urban planning and regulation.

166. As to cane and straw housing (usually with a low adobe wall as a base), it is made by those who have generally received little or no assistance and is more frequently used in the warmer areas along the Motagua river. It is certainly a temporary solution. It is too cold to be used much in the highlands, and tropical rains are bound to find their way through the loosely put together walls (the families place plastic along the walls to solve this problem). On the coast and on occasion along the affected areas, tighftly-woven grass or straw is used for the roof, but it is not used for the walls (as is done in Asia) or to supplement the cane, even if it is a much better insulator.

167. It is not surprising, in view of all of the above, that people should still rebuild in adobe. The new adobe structures generally have lower walls which are also wider. They are not neccesarily much safer, because they have not been constructed with suitable technical orientation. There are earthquake resistant designs which it is our intention that our housing project, for one, should promote.

168. It is difficult also to be restrictive in rehabilitation, especially in the case of Guatemala, where it was a matter of providing 1.2 million people with adequate shelter in the span of three to four months. In that period public and private entities devised myriad approaches, while thousands of families who were not reached simply reconstructed in the traditional way.

A potential role for UNDRO

169. This situation points to a potentially very valuable role for UNDRO. It may be noted, to start with, that the United Nations has collected a vast amount of material and has substantial experience in housing, and notably earthquake-resistant adobe housing. In fact, there are several models, including wood reinforcement (this solution inspired a design proposed by a UNDP/FAO forestry project expert, where a narrow coating of adobe would be plastered on a wood or cane frame between wooden columns), a barbed wire frame bethween posts and others. A most important point is of course the structural design.

170. Shortly after the earthquake, there were a cluster of proposals on forms of shelter for rehabilitation and reconstruction. In these circumstances, the UNOTC experts UNDP Guatemala brought in were, aside from their advisory function in general housing evaluation, just one voice among many, in what may be described as a «tower of babel» with regard to materials and designs. The approaches included such economically extraordinary measures as shipment by one voluntary agency of all construction materials, including cement, from the United States for rural reconstruction. The question is whether the substantial amount of money spent on that transport could not have been more effectively used in the mobilization of technical expertise for earthquake-resistant construction utilizing practically «free» local materials.

171. UNDRO could, utilizing the technical resources of the United Nations, undertake international consultations with voluntary agencies and perhaps selected bilateral donors on matters pertaining to habitat in the context of disaster relief and rehabilitation. This could result in agreement on what the best general action strategies could be for voluntary agencies in different disaster situations, on the basis of the sociocultural and economic characteristics of the effected area. The consultations could also provide criteria for defining indicators of socio cultural and economic characteristics. Such technical consciousness across-the-board would be the best way of promoting «natural» coordination among assistance groups to supplement the government coordination task. It would also contribute to ensuring that voluntary agencies consider socio cultural and economic problems from the start, not only on the basis of government orientation, but also because of policy directives voluntary agencies authorities could devise in the proposed consultations with UNDRO.

The tasks of reconstruction

172. From our previous discussion, we can see that much of the work in the rehabilitation period directly influences the reconstruction process or actually has the character of reconstruction.

Institutional framework

173. The Government Reconstruction Committee, established in March 1976, is responsible for coordinating the reconstruction activities of the government, as well as domestic and international assistance groups. This is an extremely complicated task. A unit is in charge of coordinating all external assistance groups, principally the activities of voluntary agencies and bilateral donors in communities selected jointly with the Government which the donors have agreed to reconstruct.

174. There is another unit in charge of coordinating the action of the various government agencies in housing and infrastructure reconstruction. The National Housing Bank (BANVI) has been placed in charge of urban housing reconstruction, while the National Bank for Agricultural Development (BANDESA) was made responsible for rural housing reconstruction, in addition to its normal responsibilities as an agricultural bank. The Ministry of Public Health and the Institute for Municipal Development (INFOM) —undertake reconstruction of health and sanitation infrastructure. The Ministry of Public Works handles centrally-managed transport infrastructure at the national level. In general, the corresponding government agencies handle the reconstruction of their respective sectors (e.g. The Guatemalan Institute for Social Security — IGSS, its own hospitals, the Ministry of Education, the school, etc.).

175. It should also be noted that the Secretariat of the National Planning Council should provide technical inputs to the Reconstruction Committee in the design of global and sectoral strategies for reconstruction in line with the broad objectives of the national development plan 1975-1979.

176. We have cited the replacement cost of damages, and the implications of the disaster.

The immediate problems of reconstruction

177. The major objetive of the reconstruction process over the short-term is to create conditions that will ensure that bot-

tlenecks will not hamper or slow down reconstruction. That is, a basic orientation is to get things done as quickly as possible. On the other hand, this requirement must be balanced by the need to ensure minimum technical standards for construction and for materials, so that future catastrophes of this magnitude can be prevented.

178. The prevention of bottlenecks involves ensuring adequate supply of materials, which is also in line with the effort to prevent an excessive inflation rate.

179. To meet the problem of short-term supply, the Government has freed the import of construction materials, while at the same time setting price ceilings for these products. There is still a substantial deficit, however, considering as well that major government housing programmes (of BANDESA and BANVI) have not initiated full-scale operations and made their demand effect felt. Current trends do not seem to indicate that the private sector is speedily mobilizing to meet the deficit through imports, and this may have to do with the price ceilings. If the government decides to maintain the ceilings, it may have to develop a public infrastructure for imports as well as adopt a subsidy policy. This is a problem that needs immediate attention, as shortfalls in supply may slowdown reconstruction programmes in the near future.

180. We consider that the second short-term task is to promote short-gestation construction materials industry projects. At a UN Family interagency co-ordination meeting, it was agreed that this was a very important step to alleviate short-term suply problems, and that special emphasis should be given to providing producers with technical inputs, so that their products would be of a minimum acceptable quality. The fact is, small plants have mushroomed throughout the country with very little knowledge or attention paid to technical processes or specifications, with the result that the materials produced will be no better than adobe in resisting future earthquakes, and in some cases perhaps worse.

181. Furthermore, there is the problem of construction techniques. There is no tradition of earthquake-resistant construction

in Guatemala. Wasteful use is often made of expensive construction materials (such as cement blocks and iron rods) with no increase in safety as earthquake resistant construction techniques are not followed.

182. It is clear that if it were feasible at the rehabilitation phase to bring in adequate technological components for production of construction materials, as well as suitable information on construction techniques, the problems being encountered now in these aspects in the reconstruction process could be minimized. As it is, the diversity of criteria applied by international co-operation agencies has made more complex and difficult the implementation of minimum standards for materials and techniques (or even the identification of a list of «preferred materials» — i.e. those that give good results for minimum cost, and can be obtained locally). The present situation points to the importance of our recommendation in paragraph 171 regarding the possible technical role of UNDRO in harmonizing criteria for rehabilitation with voluntary and international co-operation agencies.

Reconstruction - the longer view

183. Over the longer-term, one basic problem of reconstruction will be its direction, and its major constraint should be finance and corollary effects on economic development.

184. In terms of direction, the slogan of the Government «reconstruir, sin dejar de producir», is probably most adequate. It provides the basis for the policy that the reconstruction process is to be undertaken within the framework of the National Development Plan. At the sectoral level, government capability must be considerably strengthened, notably in the housing sector.

The areas that need particular attention include:

(a) *Housing planning and programming* — A housing plan needs to be formulated to harmonize the various programmes in this sector (notably by BANVI and BANDESA). Furthermore, this plan would provide the data for deriving the demand for

construction materials in the housing sector, as an input to the industrial plan;

(b) *Housing executive mechanisms and policy* — An institutional framework needs to be established (e.g. a Vice-Ministry for Human Settlements and Housing) that would set policy guidelines and be responsible for the excecution of Government programmes. This role cannot be played by the Reconstruction Committee (which is a co-ordinating and not an executing agent, and also is not technically specialized), nor by BANVI and BANDESA, which are fundamentally banks and should remain so.

185. At the present time, there is very limited government capability in these two areas, which creates problems in terms of the strategy for reconstruction and its direction (taking into account that socially, reconstruction is basically a problem of human settlements and there is no specialized agency for this).

186. Another area to be strengthened is that of anual planning, as an instrument for the implementation of the National Development Plan as adjusted for reconstruction. Guatemala, with UN assistance, has progressed in this area, notably in harmonizing public sector budgets with the national development plan. However the institutional demands of the Plan, and constraints on its implementation have to be clearly defined, so steps may be taken to clear up bottlenecks. It is important, too, that sectoral activities (in industry, housing, etc.) be coordinated multisectorally at the global planning level, and the government needs to develop the appropriate instruments for this purpose. Otherwise, it is possible that the economic side-effects of reconstruction go somewhat out of control (e.g. problems of finance and inflation), or programmes may have to slow down.

187. In the short-term, there is no financing problem, as Guatemala's international credit standing is solid, international banks have been very willing to extend credit on favourable terms, and the balance of payments position is better than ever *(inter alia* because of the good coffee prices). However, as the analysis in Chapter I shows, Guatemala's debt-service burden will be rising significantly, and assuming no fortuitous traditional export

product windfall, balance of payments will not improve. The appropriate long-term solution would be increases in production and productivity, and in export promotion. It is also possible that developments in the petroleum sector, if adequately managed, may provide the source of revenues to solve some of the financing problems involved in reconstruction.

188. An emphasis on the productive sectors is also required because reconstruction, will (at least temporarily) increase incomes to an important portion of the population, and generate inflationary demand pressures.

The UN contribution to evaluation and the design of rehabilitation and reconstruction programmes

189. A first requirement for undertaking rehabilitation and reconstruction is a clear idea of the magnitude and characteristics of the destruction, on the basis of which appropriate global and sectoral action strategies are designed. The United Nations family has contributed substantially in this field, as a look at the selected bibliography (Anne I) will show.

190. Furthermore, the official government evaluation /25/, which also contains an outline of the broad reconstruction strategy to be followed, cites the following priority action areas: housing reconstruction, rural development in the framework of reconstruction, and reconstruction of infrastructure (ports, roads and telecommunications), education, health, social welfare and community development.

Official evaluation

191. A principal contribution was in the preparation of the general evaluation of the disaster [25], which served as the basis for action by international assistance groups and government agencies and was used in the analysis of the second part of Chapter I.

192. UNDP/UNOTC projects in Global Planning, National Accounts and Budget Programming were mainstays for the technical

Commission for Evaluation and Planning. UNDP also funded an ECLA (Mexico) mission that advised the Directorate of the Technical Commission.

193. This official evaluation, which is the most authoritative report on the general effects of the disaster, globally and sectorally estimated the reconstruction costs and outlined the perspective for a reconstruction strategy.

194. UN experts covering various sectors also participated in the Planning Secretariat's seminar on the methodology for the reformulation of 1976-1980 Global and Sectoral Plans in the light of the disaster.

Statistics

195. The UN had a general statistician and a demographer in Guatemala when the earthquake occured. Both provided general support on data-gathering activities. The demographer assisted in preparing the report of the Directorate of Statistics [24], of the effects of the disaster, notably on the population. The report includes a demographic analysis of the impact of the earthquake.

196. The statistician advised the government on the methodology for suveys, notably for the construction industry.

Housing

197. UNDP Guatemala had a staff member with substantial experience in housing, who was a specialist in regional planning. She advised the Planning Secretariat on housing policy, and on the problems and strategies that should be followed in Guatemala in this sector. This resulted in the main report of the Planning Secretariat on this subject [35].

198. UNDP Guatemala also requested a two-man mission of UN Housing experts from Honduras. The mission advised on sites and services, in coordination with the World Bank evaluation mission /10/; and on earthquake-resistant design for the work of the Technical Institute for Training and Productivity (INTECAP) and

the Planning Secretariat (see [18]). The World Bank, it should be noted, has approved a third-window $20 million loan for urban housing reconstruction.

199. In August, UNDP Guatemala fielded another mission to evaluate the problems of rural housing and coordination with IDB-funded technical assistance (see [19]) and loan programme for rural housing.

Regional Planning

200. UNDP fielded a mission in March 1976 to evaluate the strategy the Government could follow in this area, and concomitant technical assistance requirements. Subsequently, UNDP Guatemala's regional planner formulated a final version of the approach to follow with the Planning Office, which resulted in approval of a UNDP-funded preparatory assistance project (discussed below).

Health

201. In Chapter II, we mentioned that PAHO/WHO placed thirty-seven experts at the disposal of the Government to assist in emergency relief, rehabilitation and reconstruction programmes for this sector. They have advised on the evaluation of the damages, and assisted the Ministry of Public Health in the design of rehabilitation and reconstruction plans in the fields of health infrastructure, sanitation and preventive health (see [21], [22], and [23]).

202. PAHO/WHO has undertaken work in three principal areas that will enter into the reconstruction stage.

203. The first area is service to persons, involving (a) control of contagious diseases; (b) eradication of malaria; (c) mother-child care; (d) attention to general morbidity, notably rehabilitation.

204. The second area is sanitation, which includes (a) environmental sanitation; (b) control of air pollution; (c) protection

from radiation; (d) animal health and (e) the Unified Food Control Laboratory, a project with UNDP.

205. The third area is infrastructural development, including (a) development of nursing services; (b) epidemiological surveillance laboratory; (c) planning and programming of health services; (d) health statistics; (e) development of health services, and (f) medical, veterinary, odontological and engineering education.

206. The total value of this aid in 1976 is almost $500,000. There have been some initial implementation problems but it is expected that many of them will have been solved in 1977.

207. We may cite two specific programmes in connexion with PAHO/WHO assistance. The first is a programme for the re-establishment of medical care services and rehabilitation of sick people based on a loan of $28 million by the Interamerican Development Bank. The Guatemala Congress approved the loan in November 1976 (the IDB had approved it previously). The loan includes technical assistance for about $850,000 for training of personnel and purchase of vehicles as well as programme design and implementation.

208. The second is the programme for the restoration of water supply and waste disposal systems in the rural areas. The first phase, currently under way is a joint PAHO/WHO-UNDRO emergency sanitation programme with the Government for $334,000. The second will be a rural aqueducts programme for $235,000 for which IDB finance is foreseen. The programme has been doing well in spite of certain implementation difficulties and should show results in 1977.

Education

209. In this field, UNESCO assisted the Government in designing a methodology for evaluating the damages, and the Ministry of Education is in the final stages of electronically processing the data.

210. UNESCO also provided criteria for the design of an educational programme involving the participation of students and

teachers in reconstruction work, as well as in planning the action of the aut-of-schoold education Board (see [15], [16], [17]). Implementations is briefly discussed in the section on rehabilitation programmes.

211. The UNESCO mission also undertook consultations with the World Bank, which is providing funding, *inter alia,* for the reconstructions of educational facilities (see [10]).

212. In April, UNESCO sent a specialist on anti-seismic low-cost rural construction, who drew up a set of simple guidelines for the rural population. These guidelines were utilized and circulated by the Planning Secretariat.

213. It may be noted that the Director-General of UNESCO was on official visit to Panama a few days after the earthquake, and he offered the Minister of Education of Guatemala UNESCO's support in priority fields. The Regional Educational Advisor was designated UNESCO Emergency Coordinator.

214. UNESCO thus funded out of its regular programme the missions of some fifteen specialists who started coming within two weeks following the earthquake and whose stay varied from 10 day to 5 months. They covered —at the various phases of relief, rehabilitation and initial reconstruction— the fields of seismological studies, antiseismic construction, restoration of monuments, school constructions, school programmes and non-formal education. Some of these contributions have been described elsewhere in this document.

Social Development

215. The UNDP/UNOTC project assisted in the preparation of reports evaluating damages to the social sectors and the adjustment of on-going policies, as well as in the formulation of projects for social sector rehabilitation and reconstruction.

Training for Reconstruction

216. The UNDP/ILO project with INTECAP has advised on the methodology to be followed in training sectors of the population

for rehabilitation (clearing operations) and minimum shelter programmes (see [26], [27], [28], and [29]). The technical inputs of the UN housing mission and special consultants were utilized in the design of these programmes. The continuation of these efforts in the reconstruction phase is discussed further below.

Infrastructure

217. Two UNDP-funded regional projects (one on ports, another on transport) evaluated the destruction of Puerto Barrios on the Caribbean Coast. One project proposed that Puerto Barrios should not be reconstructed, but rather that Puerto Santo Tomás de Castilla should be expanded (see [12] and [13]). These reports will guide an eventual Government decision.

218. UNDP Guatemala made sure that this work came to the attention of the World Bank Evaluation Mission (for the preparation of [10]). The World Bank approved assistance for the partial rehabilitation of Puerto Barrios.

219. A regional UPU expert provided a report on the rehabilitation and reconstruction of Postal Services.

Industry

220. The UNDP/UNIDO project contributed with an evaluation of the industrial sector and the requirements for its reconstruction [30] which was considered in the formulation of the industrial plan [32]. It also made an evaluation of the capacity of the construction industry.

The contributions of the World Food Programme in rehabilitation and reconstruction

221. The World Food Programme has contributed in the rehabilitation stage with a Quasi-Emergency project worth close to $1 million which covers several sectors. It will supply under this project 1,728 metric tons of rice and 864 metric tons of beans. The executing agency is the Ministry of Public Health.

222. As of 30 September, 1976, there were 237 community projects in execution involving housing reconstruction, water supply, health and education centre reconstruction, road, repair, etc.

223. A community development project with the Ministry of Public Health approved before the earthquake for close to $1.2 million has been re-oriented to serve the needs for rehabilitation and reconstruction. This project provides 1,440 metric tons of wheat flour, 195 metric tons of vegetable oil, 216 metric tons of canned fish/dried fish, 216 metric tons of beans, and is used for projects similar to those of the approved quasi-emergency assistance.

Additional Assistance in Social Sectors

224. UNICEF is also carrying out a number of rehabilitation and reconstruction projects. This included the supply of tools and equipment for village self-help projects. A technician from a UNICEF-assisted project in Chiapas, México, provided instruction on the use of block-making machines and mould which were brought in from the project in that city.

225. The regional office of UNICEF also presented a Special Assistance Programme for Guatemala, which covers the following fields:

a) Rehabilitation of the rural health infrastructure: equipment for health centres and health posts; training of rural health promoters and midwives;

b) Basic equipment for primary schools in the rural areas and training of teachers;

c) Equipment for community centres, day care centres and vocational training centres for youth and training of personnel;

d) Equipment and supplies for the rehabilitation of rural water systems; and

e) Training of youth leaders for participation in reconstruction programmes.

226. To accomplish the above tasks an appeal for $3 million was made by the UNICEF Executive Director. The Executive Board of UNICEF in its May 1976 session approved a commitment in the amount of $1 million from general resources thus ensuring an immediate follow-up of the above-cited emergency relief measures by rehabilitation assistance. The balance of $2 million (of which $1 million have been obtained) is being financed from special contributions for which the Executive Director has appealed to the Governments. UNICEF National Committees, non-governmental organizations and the public to contribute to special assistance measures now under implementation.

The $3 million UNDP Programme for the Rehabilitation and Reconstruction of Guatemala

227. At its session on June 1976, the UNDP Governing Council approved a $3 million Programme funded out of the Operational Reserve, for the rehabilitation and reconstruction of Guatemala. This programme is now being implemented according to the diagnosi of the situation of reconstruction cited above.

228. As a first point, it may be noted that the combined strategy of the Country Programme and the Reconstruction Programme is to provide technical planning and policy instruments that will permit rapid implementation of the reconstruction programmes and the plan within a rational framework. Thus, the approach has been to strengthen annual operational planning and recently, it was agreed with the government that assistance should be provided for the improvement of the Government's capability for implementing programmes.

Housing

229. UNDP is funding approximately $600,000 for this project, which began in November and is executed by UN/OTC. The project advises the executing and financial agencies of the Government on their respective housing programmes (rural and urban, in which coordination is fostered, respectively, with the IDB and IBRD loan and technical assistance projects in BANDESA and BANVI).

230. At the present time, the project is oriented towards producing technical manuals that will provide guidelines on design, construction techniques and materials specifications of use to all agencies involved in reconstruction. Among the project's expected products are a housing plan as well as an operational plan for the sector. Furthermore, an effort will be made to develop the sector institutionally.

231. Coordination is undertaken with a UNDP funded project on Industrial Development Promotion with regard to the construction materials industry. Furthermore, an input is expected eventually from the Regional Planning and Development project (described below) on human settlements and urban development approaches. There is also active co-ordination with the UNDP project in training for reconstruction

Training for Reconstruction

232. A main component of this activity is the UNDP/ILO project with INTECAP, the Technical Institute for Training and Productivity. The Housing project has provided inputs to improve INTECAP's training manuals in the housing construction sector, while INTECAP has undertaken the training of BANDESA's rural housing supervisors, and a similar programme is foreseen for BANVI. As a productivity institute, it is foreseen that INTECAP will also cooperate with the Industry and the Housing projects in the construction materials sector.

233. On the other hand, UNDP-funded UNESCO assistance in education in this year is also oriented towards reconstruction, and a co-ordination effort is being initiated in the out-of-school education sector, with the housing reconstruction programme.

Administrative Development in Reconstruction

234. After a year of experience with reconstruction and other programmes, the Government has become greately concerned by the difficulty the public sector has in implementing programmes. As indicated elsewhere, part of the approach, supported by UNDP projects, is to strengthen operational planning — which provides

the action guidelines for the public sector to implement the Plan (now as adjusted by the Reconstruction process).

235. On the other hand, the purpose of this assistance is to develop the capability within the government to assess its implementation capacity, identify administrative bottlenecks, and design programmes that would help ease them. Close co-ordination is expected with all the planning projects UNDP has in Guatemala. Some $400,000 in technical assistance is provided for a one-and-a-half year project.

Rural Development

236. The official approach has been to attempt to utilize the Reconstruction process as a means for improving the productive situation of the affected communities. The analysis above shows the importance of this *inter-alia* in lessening deficit financing and the need for alleviating inflationary pressures by increasing agricultural production. The desire of the government to obtain the full commitment of all counterpart agencies in the agricultural public sector has delayed project approval. To ensure that whatever assistance provided will be in the reconstruction framework, the amount assigned in now about $500,000-$600,000 for a first phase of project operations.

Assistance in Planning

237. Guatemala has no tradition in Regional/urban development and planning. Recent developments, however, have opened possibilities for useful action in this field. The earthquake has shown the need for adequate physical planning to prevent disasters (see Chapter IV). Furthermore, if the objetive of reconstruction is significantly to improve the situation of the population, regional planning may provide approaches that may improve development possibilities (e.g. with regard to undeveloped rural marketing networks. See [11]). Furthermore, there is an interaction between such areas as the petroleum development zones, the Western Highlands (poorest subsistence areas), the Southern Coast (riches export crop producers), the capital (excessively concentrated industrial zone and administrative cen-

tre) and the Reconstruction area (includes the Highlands and a large part of the corridos to the major Caribbean port), and a well thought out regional development strategy may help find solutions for harmonious development. Close coordination is fostered with and IDB regional development project to the Western Highlands and a similar OAS project in Baja Verapaz.

238. In coperation with PREALC (Regional Employment Programme for Latin America and the Caribean), a Human Resources and Employment Planning Project has been included. It should over the short-term provide an analysis of the demand and supply of human resources in the country that would serve, to start with, to orient the training programmes of INTECAP and possibly the Out-of-School Education Board (see reference to «Training for Reconstruction», above).

239. These two proyects and the housing project fall within the integrated Programme approach of UNDP Guatemala to provide assistance to the Planning System, and specially to strengthen operational planning. Among the objectives of this technical assistance strategy are (a) to show concrete results from planning that will enhance its use and acceptability; (b) substantially to improve the implementation of public sector programmes in line with planned objectives; (c) to develop approaches and formulae that will integrate the reconstruction process with the planning system.