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## PROJECT ASSISTANCE COMPLETION REPORT

### HIGHLANDS AGRICULTURAL DEVELOPMENT (HAD) II PROJECT 520-0274

#### 1. PROJECT SUMMARY

HAD II was the third component of a long term USAID effort which started in 1983, and is continuing via the Community Natural Resources Management Project and through a component of the Trade and Labor Relations Development Project. HAD II predecessors were the HAD I project, and the Small Farmers Diversification Project.

The majority of project activities under the Highlands Agricultural Development (HAD) Project were completed by September 30, 1993, with a PACD extension of three months through December 31, 1993 granted to complete the procurement of land by the Guild of Non-Traditional Product Exporters (GEXPRONT). All Project elements are now completed, including procurement, construction, technical assistance, training etc.

**The goal of the HAD II Project** was to enable the rural sector to make a greater contribution to national economic growth, and to improve rural living standards, employment and incomes via sustained increase in production, marketing and export of non-traditional agricultural commodities and preservation of Guatemala's natural resource base within a framework of joint public and private sector participation.

**The Project purpose** was to increase sustainable agricultural productivity and profitability. This was to be accomplished through the development of diversified commercial agriculture, expanded emphasis on irrigated farm systems, soil conservation, flexible credit for production technology and marketing to small farmers. Research and support for export-oriented marketing services was developed to enhance the sustainability of agricultural production via improvement of pest management, and watershed conservation.

There were many sector/program constraints in the Guatemalan Highlands that the HAD project attempted to address. These included structural deficiencies, institutional inadequacies, and shortfalls in the policy framework.

**Structural deficiencies** included political turmoil and a 30 year civil war, land tenure inequities, an exploding population, inadequate credit and investment incentives, and low rural employment. In addition, marketing opportunities for poor people were few, storage and processing plants for agricultural products were inadequate, there was a substandard rural road system, a lack of adequate natural resource management, inadequate water accessibility and energy distribution and almost universal poor public health which presented extremely large constraints.

**Institutional inadequacies** facing the agricultural sector were

the result of factors caused by an over-extended public sector, insufficient budgets, declining private sector investment, low numbers of trained agriculturalists and struggling farmer associations.

**Policy inadequacies** were among the most serious obstacles to improved growth, efficiency and investment in the agricultural sector. These inadequacies included general macroeconomic policies (monetary, fiscal, exchange trade), specific sectoral policies on land distribution, water use, pricing, research, budgets and bureaucracies. The Highlands Agricultural Development approach since 1983 attempted to deal with these constraints, and as experience was gained, USAID/Guatemala continued to refine its approach to solving these development problems.

## 2. A BRIEF REVIEW OF PROJECT ACCOMPLISHMENTS

The HAD II Project (1989-1993) was the third part of a long-term USAID activity in Guatemala to help small and medium sized farms in the highlands to become more fully integrated into the economy at large. Project components included assistance for small scale irrigation systems, watershed management activities, marketing programs for non-traditional agricultural products, credit, the creation of an applied agricultural research fund, pest management training and technical assistance related to forestry management.

**Small scale irrigation systems** and the diversification of cropping systems towards non-traditional export agriculture resulted in the construction of 275 small-scale irrigation systems involving 6,718 families who are irrigating 2,863 hectares in 7 regions.

In order to assure sustained production in the irrigation systems, a **watershed management component** worked on over 6,000 hectares which were protected by soil conservation practices with over 150 ha of community forests established, and integrated watershed management programs in 10 watersheds.

**Marketing efforts** with INDECA, the Ministry of Agriculture (MAGA) marketing agency and the Guild of Non-Traditional Product Exporters (GEXPRONT) resulted in the establishment of 26 farmers' markets, the opening of new channels for the international export of produce and the creation of a market information service.

An **applied agricultural research fund** (ARF) was created in GEXPRONT, managed jointly by the public and private sector, to address the needs of non-traditional agricultural producers as they tried new crops and sought answers to problems with diseases and insects on existing crops. 14 research activities were completed, resulting in savings to farmers as they changed to more effective pest management practices and in greater exports of non-traditional

products.

**Credit** through the national agricultural bank (BANDESA) was made available for irrigation, agricultural production and marketing. It was reported that 42.3% of the farmers in the project had received credit over the past three years. Nineteen percent had used credit only one of the three years, 8.6% for two years, and 13.8% for all three years. Sixty percent of the farmers had credit experience prior to their entrance in the HAD II project.

**Pest management training and extension** were promoted through the MAGA extension services (DIGESA and DIGESEPE), the formation of a privatized technical assistance group, FEAT and the creation of a joint public/private sector integrated pesticide management program (PIPAA) operating out of GEXPRONT.

**Technical assistance in forestry** was provided by CARE and DIGEBOS. Several other organizations were funded in the project to provide organizational support.

### 3. PROJECT EVALUATION FINDINGS

Six separate surveys and evaluations of HAD II were carried out between 1990 and 1993, which attempted to assess the state of agriculture in the immediate sphere of influence of the project and its impacts on farmers, institutions, and the national external debt.

At the farm level, there have been changes in the use of agricultural practices as a result of HAD II. The major shift was in the application of these practices to commercial crops and in a more exact manner. There are indications that 2/3 of the farmers in the project had positive increases in production and crop value. There were some instances of increased capacity to deliver coordinated services by government institutions to the farming community. The constant instability of the government agencies seems to have had a demoralizing effect throughout the system.

The FEAT program for privatized technical assistance in agriculture appeared to be more successful than project intervention by the Ministry of Agriculture, probably because of better cash flow at the grass roots level and the fact that the farmers had to buy the technical assistance, and the technicians depended on farm profits for their own incomes. Similarly, ARF was more successful than public agencies in meeting the needs of non-traditional agricultural producers for applied research. Since the producers were expected to contribute at least 50% of the costs of the research, research was only undertaken that directly responded to their needs and that would have an impact on the growth of non-traditional exports. The evaluation indicated that there appears to have been a slight but positive change in levels of living in

certain household indicators.

As of 1992, the final field evaluation created a large number of status indicators about the following conditions in the sphere of influence of the Project. The farms of the beneficiaries are small, with an average cultivated area of 1.3 hectares. Slightly less than 0.32 hectares were under irrigation, which was about 39% of the total land planted. There was no significant change in the reported area planted in 1990 and 1992. There was slightly more land irrigated in 1992 than in 1990. The average area irrigated in 1990 was 0.28 hectares and 0.32 ha in 1992.

In terms of agricultural production, it was found in the 1992 survey that 97.4% of the farmers used chemical fertilizer, 84.1% used insecticides, 84.1% fungicides, 69.6% compost, 65.8% used improved seed, 51.3% used herbicides, 24.5% had constructed terraces, 26.6% had diversion ditches, 24.5% had planted erosion barriers, and 19.1% had constructed erosion barriers. There was a slight positive relationship between project participation and the use of recommended agricultural practices.

The correlation between the number of years and the number of practices in soil conservation was slightly statistically significant. Farmers that were in the project between 4 and 6 years used 5.6 practices while those with less than 4 years used 4.9 practices and those with more than 6 years used 5.5 practices.

The majority of the farmers in the HAD program reported an increase in crop value in 1992 as compared to 1990. 65.3% had at least some increase in crop value and 53.4% had an increased value of more than \$185.00 per farm. This increase can be traced to increased production as well as the adoption of higher value crops. The prevailing farming system remained a subsistence agriculture of corn and beans, with non-traditional crops used in areas with irrigation systems.

**Technical assistance** at the farm level was one of the main components of the HAD Project. This was directed at making the maximum use of irrigation to increase crop production and diversify in the direction of commercial crops. More than half of the farmers (57.5% interviewed in 1992) reported that they had received technical assistance during the last crop year. This was an increase of 3.6% from those reported in the baseline survey of 1990. This increase was not statistically significant. The farmers in the HAD priority areas reported a statistically higher number of technician visits than those in the non-priority areas.

**Conservation, watershed and pesticide management** were important components in the HAD Project. There is evidence of increased use of soil conservation practices. There is also evidence of increased use of pesticides as a result of project activities. Importantly, there is evidence of increased use of

precautions by those applying pesticides. In the case studies, it was found that 70% reported using gloves while applying pesticides. Most farmers still do not use enough precautions. Several of the more toxic non-EPA approved pesticides are being used by the farmers.

It was found that some 50% of the irrigation systems were short of water at the end of the irrigation cycle. During the case study investigation, farmers at the upper elevations in the watersheds reported that they did not get enough water. The farmers often felt that they did not have enough control of the water source for a secure future. Reasons for not enough water in the Project were poor original design of the systems, constantly escalating costs of electricity for pumping, and lack of knowledge and finances for maintenance.

In 1993, 73.8% or 1,698 of the projected 2,300 farmers participated in the planning and implementation of Project activities. The personnel of CARE, DIGEBOS, and the Peace Corps completed the preparation of management plans for 20 watersheds. Eighty-four of 88 existing watershed committees received training including talks and field trips, with a few additional demonstrations and short courses. Farmers have indicated increased knowledge and interest as a result of the training activities.

Fire control training has been useful, but there was no indication of the existence of organized fire-prevention brigades in any of the areas studied. There have been fewer plantings for firewood and construction lumber than anticipated. 281,300 trees were planted, with an estimated survival rate of 72%. Approximately 40% of the farmers interviewed buy firewood and only 29.8% use firewood exclusively from their farms.

88 forestry management groups have been formed. The average size of the groups is 25 persons. Most of the groups have a work plan, and about 2/3 of the groups indicated that they follow the plan. Women participated in some of the activities sponsored by almost half of the groups. Women were full members in 37% of the groups. The technicians and promoters of DIGEBOS have demonstrated capability in the design and supervision of project activities. Twenty two technicians and 24 promoters were trained in planning and design.

**Institutional Impacts:** There were some indications of increased institutional capacity to deliver services to farmers as a result of the Project. The Institutional Study recognized that the Ministry of Agriculture agencies were responsible for improvements in farmer-government relations. The Institutional Study determined that the personnel of DIGESA and BANDESA worked out ways of coordinating their efforts so that the new irrigation projects could be established. They also worked out coordinated efforts to make production loans available.

The Project's **organizational and administrative structure** (PDA-UAP) was perceived as an obstacle rather than a factor contributing to success in the HAD Project. There was little evidence that there had been any improvement in management and decision making in the Ministry of Agriculture as a result of the Project. There also was little evidence that the increased capability of providing information through an established information system contributed to the use of this information for administration and decision making purposes.

In terms of **national impact**, the increases in agricultural production that have come from Project efforts made a positive impact on the majority of those that have participated, yet about one-third of the farmers interviewed felt that their situation became worse because of their participation. They cited the debts from irrigation system installation and electricity charges as well as failure to find proper markets for their crops as reasons. The Project had no effect on downsizing the Guatemalan external public debt, but may have had some unknown and unquantified effect on the international balance of payment due to increased production of non-traditional agricultural export crops.

In the **environmental area**, the evidence of impact is modest although the creation of an integrated pesticide management program (PIPAA) in GEXPRONT provides a legal basis for control of agricultural production and the use of agro-chemicals. Also, the scientific research sponsored through ARF and ICTA/CATIE-MIP has the potential to provide improved methods in integrated pest management and training materials for farmers.

#### **4. PRINCIPAL RECOMMENDATIONS AND LESSONS LEARNED**

**a.** The 10 year combined length of the HAD I, Small Farmers Diversification, and HAD II Projects addresses the reality that improvements in agriculture are long term phenomenon, and a decade of USAID participation in the three projects has resulted in real improvements. **Planning and design** of projects however, must coincide with a master calendar of events for other parallel and predecessor projects, so that gaps in funding and implementation are avoided. The delays in starting HAD II created a significant loss in momentum which was not recovered until the end of the Project in certain areas, such as loans to farmers. The lengthy delays between the closure of the Small Farmers Diversification Project, and pragmatic action in the field of HAD II exemplifies the need for coherent continuity between projects.

**b.** Since the first two projects had successfully created an administrative template that worked, there was little need to create a new bureaucracy in the HAD project. When USAID and the host governments build a body of actions that work, they should not be abandoned with each new program. For example, the formation of the administrative unit (PDA-UAP) created a politicized bureaucracy

apart from the Ministry of Agriculture (MAGA) that generated hard feelings concerning cashflow and delegation of responsibility.

c. The size and geographical reach of the project became too extended in HAD II. The first two phases of the USAID effort were considered to be successful partially because they were geographically limited. The decision to amplify HAD II to cover the entire country except the Peten contrary to repeated and concerted recommendations from personnel within the previous projects diluted the effectiveness of the 10 year effort and created a non-government bureaucracy that created significant problems in organization and resource allocation, plus resentment from the Ministry of Agriculture. Therefore, it is recommended to limit the size of projects, and concentrate on smaller geographical areas with more money and technical assistance per unit area.

d. Frequent errors were committed in the planning of water needs, irrigation system design, and estimating water pumping costs that inhibited the program significantly. Correct planning and engineering at appropriate levels of technology are mandatory.

e. Interagency coordination was relatively easy to accomplish at the level of technicians working together in the field, but cooperation seemed to break down at the intermediate administrative levels, generally in this case due to political influences and a lack of clear definitions of functions and resource allocation.

f. Better pesticide management needs to be implemented immediately, and this can be improved by requiring research oriented institutions to provide extension materials to agricultural extension agents and farmers based on sound evidence. USAID should work on how to enforce pesticide laws and statutes in order to control misuse of pesticides from manufacturer to user.

g. Planning by objectives is a valid means to assure cooperation between agencies, and to understand what other agencies are doing.

h. Micro-farm enterprises involved in the production of non-traditional export commodities are at an inherent disadvantage to enter the macro-economic driven international export markets, and strong viable and long-term associations and cooperatives within the small-farm communities are necessary to become competitive.

i. Local agricultural technicians need to be trained in marketing, credit procedures, and how to organize farmers groups.

j. Privatized agricultural services appear to be successful because there is an economic dependency of the technicians on farm income compared to a competitive vacuum in the public sector. Care must be taken to balance assistance to both private and public sector agricultural extension agents to avoid a brain drain from the public sector and keep jealousies to a minimum.

k. USAID officials in charge of a project have the obligation to closely overview the initial phases, especially survey designs, and to make sure that projects do not become politicized. In the beginning of each project, careful attention from the AID direct hire official in charge is mandatory to see that project managers are aware of USAID and host country regulations.

l. Fewer, but better scientifically based surveys, are mandatory. The HAD II project was overevaluated and overmonitored. Monitoring and evaluation funds would have been better used if diverted to helping farmers solve their practical problems in irrigation and resource management. The evaluations made no reference to surveys completed in the same area by previous projects.

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