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PROJECT EVALUATION SUMMARY (PES) - PART I

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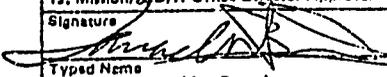
Report Symbol U-4c7

1. PROJECT TITLE <b>Sao Tome and Principe Crop Production and Diversification Project - Phase II</b>	2. PROJECT NUMBER <b>658-0001</b>	3. MISSION/AID/W OFFICE <b>REDSO/WCA</b>
4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) <input checked="" type="checkbox"/> REGULAR EVALUATION <input type="checkbox"/> SPECIAL EVALUATION		

5. KEY PROJECT IMPLEMENTATION DATES	6. ESTIMATED PROJECT FUNDING	7. PERIOD COVERED BY EVALUATION
A. First PRO-AG or Equivalent FY <u>81</u>	A. Total \$ <u>1,880,000</u>	From (month/yr.) <u>2/81</u>
B. Final Obligation Expected FY <u>81</u>	B. U.S. \$ <u>1,580,000</u>	To (month/yr.) <u>5/83</u>
C. Final Input Delivery FY <u>81</u>		Date of Evaluation Review <u>5/5/83</u>

8. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR		
A. List decisions on 1/ or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., airgram, SPAR, PIO, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
AID should conduct an orderly phase-out of activities between now and PACD.	D - REDSO/WCA	2/15/84
AID should not consider securing additional funding for another phase of this project.		
GOSTP should identify personnel who will be responsible for project management after direct USAID involvement ends.	GOSTP	8/1/83
NTF and AID should provide any training the GOSTP will accept to enhance the management capability of project managers.	D - REDSO/WCA	2/15/84
NTF and AID should focus upon training farm supervisor and operators in soil and crop management.		
NTF should enhance its home office backstopping support of field operations.		

9. INVENTORY OF DOCUMENTS TO BE REVIEWED PER ABOVE DECISIONS	10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT
<input type="checkbox"/> Project Paper <input type="checkbox"/> Implementation Plan e.g., CPI Network <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> Financial Plan <input type="checkbox"/> PIO/T <input type="checkbox"/> Logical Framework <input type="checkbox"/> PIO/C <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> Project Agreement <input type="checkbox"/> PIO/P	A. <input checked="" type="checkbox"/> Continue Project Without Change B. <input type="checkbox"/> Change Project Design and/or <input type="checkbox"/> Change Implementation Plan C. <input type="checkbox"/> Discontinue Project

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)	12. Mission/AID/W Office Director Approval
John J. Cloutier, Project Officer Laurance W. Bond, Director, REDSO/WCA	Signature:  Typed Name: Laurance W. Bond Date: 14 June 1983

**PROJECT EVALUATION SUMMARY (PES) – PART II**

The following topics are to be covered in a brief narrative statement (averaging about 200 words or half a page per item) and attached to the printed PES facesheet. Each topic should have an underlined heading. If a topic is not pertinent to a particular evaluation, list the topic and state: "Not pertinent at this time". The Summary (Item 13) should always be included, and should not exceed 200 words.

**13. SUMMARY** - Summarize the current project situation, mentioning progress in relation to design, prospects of achieving the purpose and goal, major problems encountered, etc.

**14. EVALUATION METHODOLOGY** - What was the reason for the evaluation, e.g., clarify project design, measure progress, verify program/project hypotheses, improve implementation, assess a pilot phase, prepare budget, etc? Where appropriate, refer to the Evaluation Plan in the Project Paper. Describe the methods used for this evaluation, including the study design, scope, cost, techniques of data collection, analysis and data sources. Identify agencies and key individuals (host, other donor, public, AID) participating and contributing.

**15. EXTERNAL FACTORS** - Identify and discuss major changes in project setting, including socio-economic conditions and host government priorities, which have an impact on the project. Examine continuing validity of assumptions.

**16. INPUTS** - Are there any problems with commodities, technical services, training or other inputs as to quality, quantity, timeliness, etc? Any changes needed in the type or amount of inputs to produce outputs?

**17. OUTPUTS** - Measure actual progress against projected output targets in current project design or implementation plan. Use tabular format if desired. Comment on significant management experiences. If outputs are not on target, discuss causes (e.g., problems with inputs, implementation assumptions). Are any changes needed in the outputs to achieve purpose?

**18. PURPOSE** - Quote approved project purpose. Cite progress toward each End of Project Status (EOPS) condition. When can achievement be expected? Is the set of EOPS conditions still considered a good description of what will exist when the purpose is achieved? Discuss the causes of any shortfalls in terms of the causal linkage between outputs and purpose or external factors.

**19. GOAL/SUBGOAL** - Quote approved goal, and subgoal, where relevant, to which the project contributes. Describe status by citing evidence available to date from specified indicators, and by mentioning the progress of other contributory projects. To what extent can progress toward goal/subgoal be attributed to purpose achievement, to other projects, to other causal factors? If progress is less than satisfactory, explore the reasons, e.g., purpose inadequate for hypothesized impact, new external factors affect purpose-subgoal/goal linkage.

**20. BENEFICIARIES** - Identify the direct and indirect beneficiaries of this project in terms of criteria in Sec. 102(d) of the FAA (e.g., a. increase small-farm, labor-intensive agricultural productivity; b. reduce infant mortality; c. control population growth; d. promote greater equality in income; e. reduce rates of unemployment and underemployment). Summarize data on the nature of benefits and the identity and number of those benefitting, even if some aspects were reported in preceding questions on output, purpose, or subgoal/goal. For AID/W projects, assess likelihood that results of projects will be used in LDC's.

**21. UNPLANNED EFFECTS** - Has the project had any unexpected results or impact, such as changes in social structure, environment, health, technical or economic situation? Are these effects advantageous or not? Do they require any change in project design or execution?

**22. LESSONS LEARNED** - What advice can you give a colleague about development strategy, e.g., how to tackle a similar development problem or to manage a similar project in another country? What can be suggested for follow-on in this country? Similarly, do you have any suggestions about evaluation methodology?

**23. SPECIAL COMMENTS OR REMARKS** - Include any significant policy or program management implications. Also list titles of attachments and number of pages.

PROJECT EVALUATION SUMMARY (PES) - PART II

13. Summary

On February 16, 1981, REDSO/WCA signed a cooperative agreement with NTF to provide:

- a finalized implementation proposal;
- a resident manager and short-term consultants;
- clearing of 260 hectares of overgrown cocoa plantation;
- cultivation of maize and beans on both Sao Tome and Principe;
- training in Sao Tome and abroad; and
- procurement of farm machinery and supplies.

These were to contribute toward the defined goal of Sao Tome and Principe's food self-sufficiency. Planning and approval were completed in November 1981; the resident manager arrived December 5, 1981, to begin project implementation. Achievement of project outputs is behind schedule: the evaluation concludes that the original project outputs were seriously overestimated and unrealistic given the logistic and administrative difficulties of working in STP. Moreover, the project is inappropriate vis-a-vis AID development criteria, particularly those supporting private enterprise, appropriate technology and assistance to the poorest.

The evaluation also concludes that there is lack of interest in the project on the part of Ministry of Agriculture (MOA) officials in the Government of Sao Tome and Principe (GOSTP).

The evaluation recommends that AID conduct an orderly phase-out of activities by the Project Assistance Completion Date (PACD), February 15, 1984, and that all parties (AID, GOSTP and NTF--New Transcentury Foundation, the contractor) work together in the remaining months to prepare the GOSTP for post-AID project management.

14. Evaluation Methodology

The evaluation was conducted to assess project progress to date, to recommend improvements in implementation, and to determine whether an additional phase to this project was justifiable.

The evaluation team consisted of:

- John Cloutier, Project Development Officer, REDSO/WCA
- Diana McLean, Agronomist, REDSO/WCA
- Martin Billings, Agricultural Economist, REDSO/WCA
- Paul Chakroff, NTF.

George Gunkelman, NTF resident manager, worked closely with the evaluation team.

The team reviewed all relevant NTF, AID, GOSTP and International Institute for Tropical Agriculture (IITA) documents. Site visits were made and technical discussions were held with the resident manager. Sites under field crop cultivation on STP were visited. Ministry of Agriculture officials were consulted, but as their involvement in the

project was minimal, their inputs were as well. At the conclusion of the week-long evaluation, a meeting was convened with the Minister of Agriculture to discuss the preliminary recommendations and to solicit his suggestions. Upon returning to Libreville, Ambassador McNamara and DCM Rossi were briefed.

#### 15. External Factors

The GOSTP states a commitment toward the goal of food self-sufficiency, upon which this project was based. However, the evident lack of interest in and knowledge of the project on the part of MOA officials, and the bureaucratic obstacles which the NTF resident manager has encountered, imply a lack of commitment. Input delivery and personnel support by GOSTP have been weak, and management training of upper and mid-level officials would be necessary for sustainment of project activities. MOA officials are not receptive to this management training which further indicates a lack of commitment to the project.

#### 16. Inputs

Not all inputs have been supplied in a timely and/or adequate manner, which has caused serious delays in project implementation. Some equipment was bought which did not meet the specifications supplied by the resident manager; other machinery arrived with pieces missing as no pre-assembly took place; and some farm equipment was off-loaded in Cameroon instead of being delivered to STP. NTF was the procurement and shipping agent.

Training and technical assistance through IITA was hampered through poor communications and through IITA's lack of services in Portuguese.

Operations and executive support by GOSTP were weak. Project outputs have been achieved largely through the dogged determination of the resident manager.

#### 17. Outputs

The evaluation concludes that the original design grossly overestimated the amount of land which could be cleared and cultivated in this phase of the project; less land has been cleared on Sao Tome than was originally planned and none has been cleared on Principe. Beyond the design overestimation, delays in land-clearing and cultivation were caused by problems in procurement and shipping.

Training of machinery operators and some training of technical staff have been conducted.

Environmental monitoring has not occurred to the extent outlined in the project design. This is in part due to the delays in land-clearing and cultivation as environmental parameters were to be measured subsequent to land use.

The achievement of outputs and suggested changes are in the Evaluation Report, Project Output Status, pp. 17-22.

#### 18. Purpose

The project purpose was to (a) identify, clear and put into maize and bean production 260 hectares of land, and (b) test the feasibility of mechanized production of maize and beans on STP. This was to help achieve the goal of GOSTP self-sufficiency in food crops.

By the end of this project 160 hectares of land should be under cultivation. Due to delays in clearing and cultivation, there will be insufficient time to gauge the technical impact of mechanized field crop cultivation on STP. Much of the environmental impact of the project (e.g., soil deterioration, yield projections) will occur post-project. As time does not permit adequate on-the-job training in actual farm management, it is unlikely that the GOSTP will be able to sustain significant post-project yields.

#### 19. Goal/Sub-goal

The project goal was to achieve STP self-sufficiency of maize and bean production, food grains which are currently imported. This was to be accomplished through the introduction of modern production technology based upon tractors and a full array of drawn implements. There was insufficient time in this project, particularly after delays in clearing and crop cultivation, to provide the technical and managerial training necessary to transfer these sophisticated skills to the GOSTP. To sustain project activities requires management of inputs and personnel, machinery maintenance, and technical expertise in soil management. It is unrealistic to expect this to occur by the PACD.

#### 20. Beneficiaries

The GOSTP is the primary beneficiary of this project. Approximately \$600,000 has been spent for equipment and shipping. Approximately 110 hectares will have been cleared by the PACD on state-owned farms for GOSTP use. Operator and some technical training has been received by MOA staff and officials.

As the maize and beans which will be grown on the land will be fed to poultry and swine, and, as the marketing of poultry and swine is minimal, it is unclear what segments of the population will benefit from the grains produced.

#### 21. Unplanned Effects

The GOSTP intention to feed the maize and beans produced in this project to poultry and swine was a diversion from the original intention of the project. While meat protein is in short supply in STP, the accessibility of the general public to this produce is uncertain.

#### 22. Lessons Learned

Projects intending to transfer high-technology and management must allow adequate time to do this, in this case (even under more optimal conditions of logistic support) at least five to ten years. The project will likely have some negative environmental effects, as soil management training will have been insufficient by the PACD.

This project is not appropriate by AID's standards of private enterprise, appropriate technology, or project beneficiaries. The first is a political fact of life, the second a design error, the last a GOSTP-inspired change. It may be pointless, from a development point of view, to pursue AID projects in STP.

**PROJECT EVALUATION**

Sao Tome and Principe Crop Production and Diversification

Project -- Phase II (658-0001)

REDSO/WCA  
Abidjan  
May, 1983

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Figure 1 - Map of Sao Tome

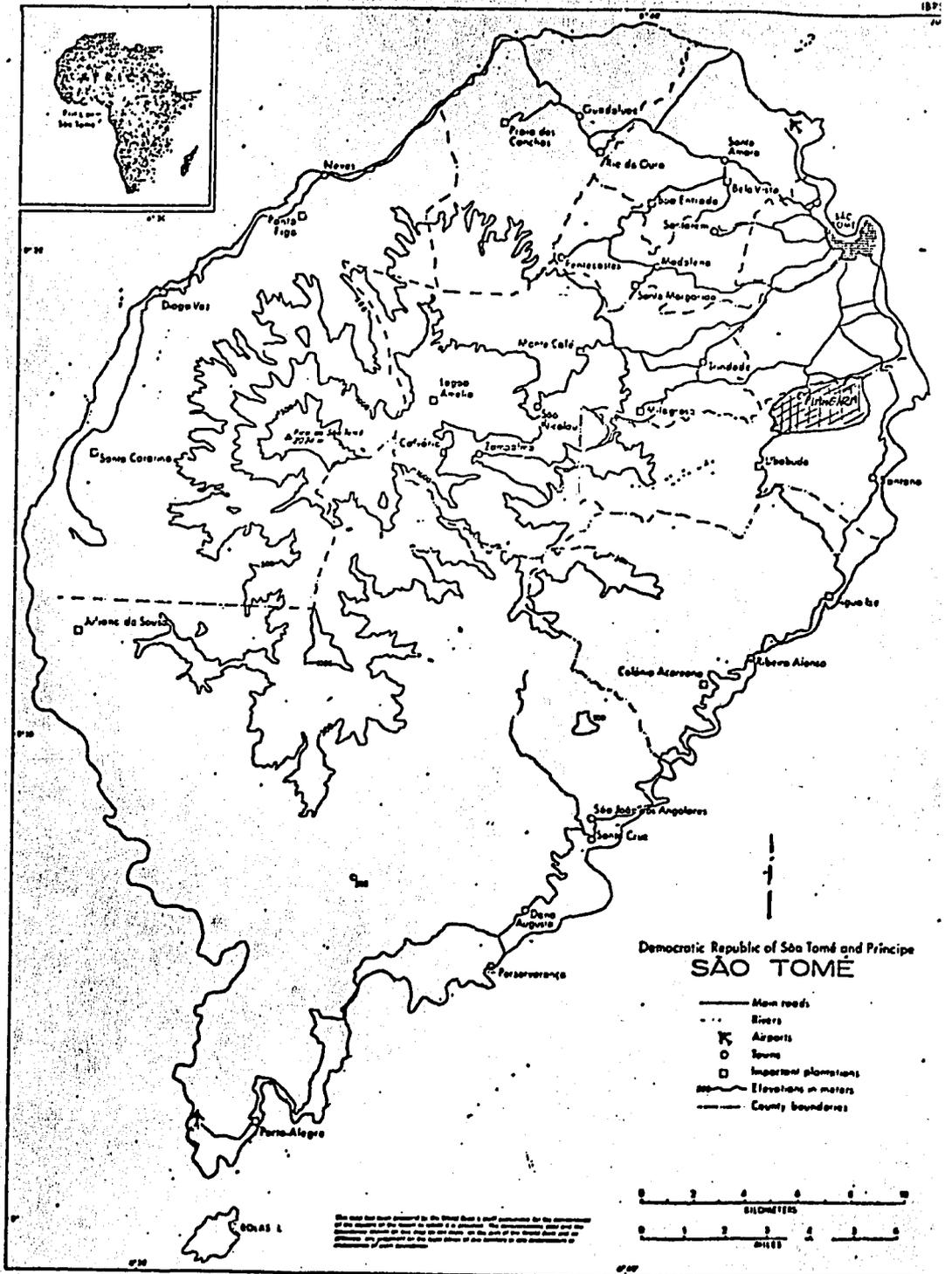
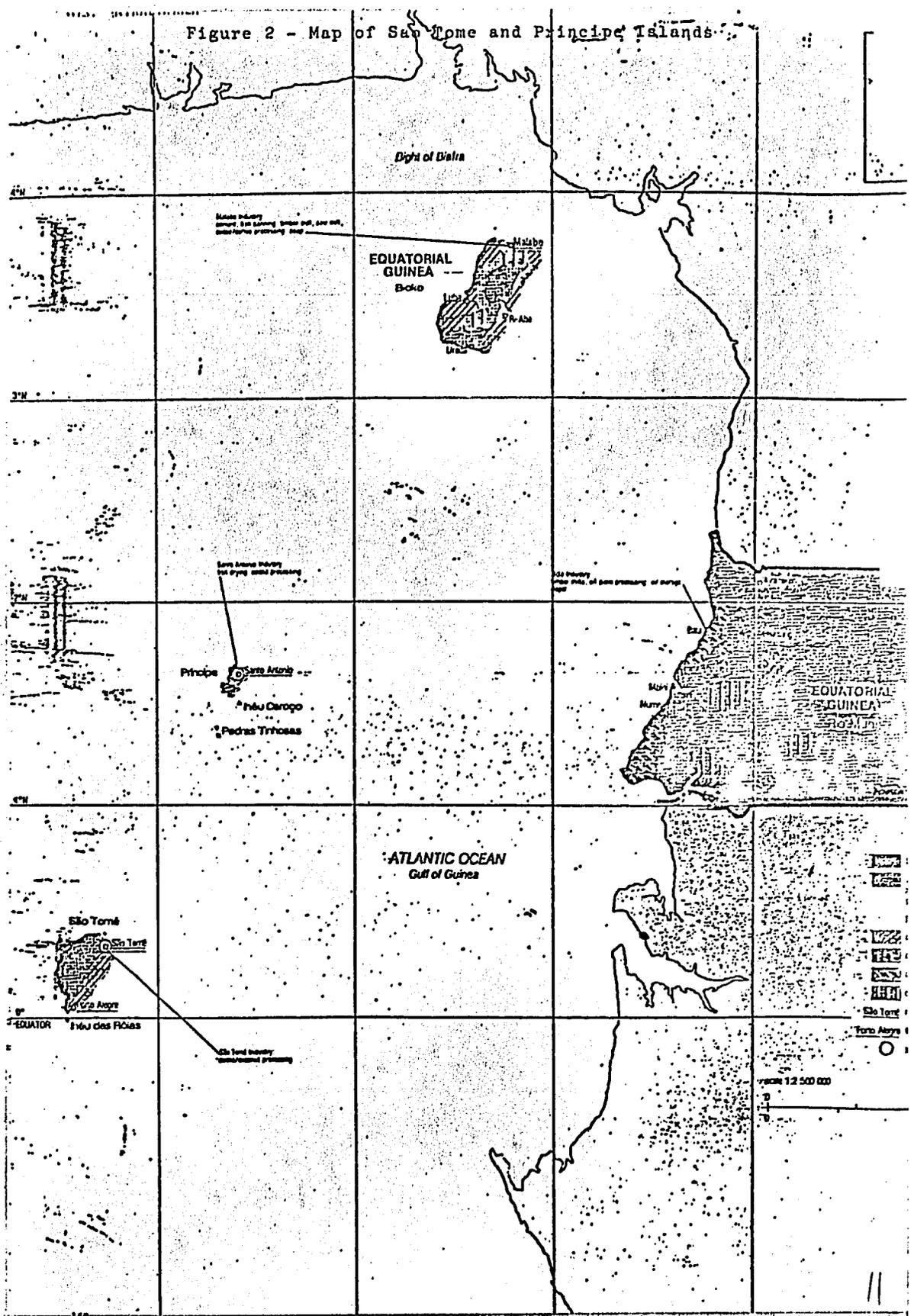


Figure 2 - Map of San Tome and Principe Islands



AG	Agriculture
AAPC	Afro American Purchasing Company
Ca	Calcium
GOSTP	Government of Sao Tome and Principe
ha	Hectare
IITA	International Institute for Tropical Agriculture
IRR	Internal rate of return
K	Potassium
kg	Kilogram
Mg	Magnesium
MT	Metric Ton
NTF	New TransCentury Foundation
P	Phosphorus
PACD	Project Activity Completion Date
PVO	Private Voluntary Organization
REDSO/WCA	Regional Economic Development Services Office for West and Central Africa
ST	Science and Technology
STP	Democratic Republic of Sao Tome and Principe
TDY	Temporary Duty
USAID	United States Agency for International Development

### Executive Summary

In line with the declared goal of the Government of Sao Tome and Principe (GOSTP) to move toward food self-sufficiency, the United States' Agency for International Development (USAID) authorized a grant of \$1,580,000 for a second phase of the Crop Production and Diversification Project. Begun in 1979 with a budget of \$300,000, Phase I resulted in 40 hectares of cleared land and the delivery of agricultural machinery and other commodities. Phase II includes additional land clearing, and preparation activities, training, commodity procurement, technical assistance and production of corn and cowpeas.

Phase II has two subsections:

•Phase II.A was a planning and pre-implementation period lasting from February, 1981 to November, 1981. During this period, New Transcendy Foundation (NTF) finalized an implementation proposal which AID approved.

•Phase II.B began in November, 1981 and is the implementation phase originally estimated to last 30 months. During Phase II.B an additional 260 hectares were to be cleared and crops planted under the supervision of an NTF resident manager stationed in Sao Tome. Lack of both a USAID office and an American embassy in Sao Tome/Principe led to NTF being contracted to implement Phase II.

The evaluation team concludes that original project outputs were seriously overestimated and the difficulties of working in Sao Tome were somewhat underestimated. Moreover, the project is inappropriate vis-a-vis USAID project development criteria particularly, those supporting private enterprise, appropriate technology and assistance to the poorest beneficiaries.

Also disturbing is the apparent lack of interest in the project by Ministry of Agriculture officials in the (GOSTP). Failure of any involved personnel to ever visit the project and their perceived reluctance to be associated with an American activity is disappointing.

Based on observations and analyses presented in this report, the evaluation team suggests that all parties (GOSTP, NTF and USAID) work closely together during the remaining year of project life to prepare GOSTP for post-USAID project management.

### Major Recommendations

Based on the findings of the evaluation team described in this report, the following are the most important recommendations offered by the team:

1. USAID should conduct an orderly phase out of activities between now and PACD.
2. USAID should not consider securing additional funding for another phase of this project.
3. GOSTP should identify personnel who will be responsible for project management after direct USAID involvement ends.
4. NTF and USAID should provide any training the GOSTP will accept to enhance the management capability of project managers.
5. NTF and USAID should focus upon training farm supervisors and operators in soil and crop management.
6. NTF should enhance its home office backstopping support of field operations.

### Evaluation Team Composition and Methodology

The evaluation team consisted of the following:

- John Cloutier, Project Development Officer, REDSO/WCA, (team leader);
- Diana Mclean, Agronomist, REDSO/WCA; and
- Dr. Martin Billings, Ph.D., Senior Agricultural Officer; REDSO/WCA

Paul Chakroff of New TransCentury Foundation accompanied the REDSO/WCA team during its field work and helped prepare sections of this document.

In Sao Tome the evaluation team worked closely and continuously with George Gunkelman, NTF resident manager. Gunkelman was exceedingly helpful in arranging site visits and scheduling interviews.

After discussing project issues with officials of the U.S. Embassy in Libreville, the evaluation team began a nine day visit to Sao Tome. Much time was spent at the Pindeira land clearing sites discussing field clearing procedures and assessing soil conditions and crop management. Production of maize and beans under GOSTP management was observed in two sites (one, a former Dutch project). The team also visited the French agricultural research station at Mesquito. Team members interviewed officials of the Ministry of Agriculture and the Office of Planning. Some lower level project employees were interviewed but the GOSTP did not allow Ministry of Agriculture middle and upper level officials to be interviewed individually. All relevant NTF, USAID, GOSTP and IITA documents were reviewed.

At the conclusion of the Sao Tome visit a meeting with the Minister of Agriculture was arranged to solicit his suggestions and offer the evaluation team's observations and preliminary recommendations. Upon returning to Libreville, Ambassador McNamara and Deputy Chief of Mission, Rossi were briefed on the progress of the evaluation.

## Project History and description

### Project Background

On July 12, 1975, the Democratic Republic of Sao Tome and Principe (STP) became an independent country after nearly 500 years of Portuguese rule. The country, one of Africa's smallest, is comprised of two islands, Sao Tome and Principe, located about 275 and 175 miles, respectively, off the northern coast of Gabon near the equator. Oval-shaped Sao Tome is approximately 30 miles long and 20 miles wide while Principe is roughly rectangular, 4 miles wide and 10 miles long. Both islands are part of an extinct volcanic mountain range, but Sao Tome is the most mountainous with one peak of 6,640 feet above sea level. See the map of Sao Tome in Figure 1.

The climate is hot and humid at sea level with an average yearly temperature of about 80°F with little daily variation except in the rainy season. At higher altitudes the average yearly temperature is 68°F and the nights are generally cool. There is a pronounced rainy season from March through May when most rainfall occurs, and a secondary rainy season from October through November. Geographic variation in annual rainfall is extreme with more than 250 inches in the south-western slopes to less than 40 inches on the northern lowlands. The population of Sao Tome and Principe in 1975 was estimated to be about 75,000 with approximately 70,000 on Sao Tome. See

The economy of STP has been and remains heavily dependent on cocoa, copra, coffee and palm kernel exports produced on relatively large plantations. Plantation agriculture comprises over 80 percent of the best cultivated land. Fifteen state farms account for over 90 percent of production for export.

GOSTP has developed a three phase approach for meeting the challenges facing STP's agricultural sector:

1. Increasing cocoa, copra, coffee and palm kernels yields to ensure rural employment, improve the rural standard of living and foreign exchange earnings needed for food and other high priority imports essential for economic development;
2. Diversifying nationalized plantation crop export production to lessen dependence on cocoa with its fluctuating price to assure a more dependable and stable level of foreign exchange; and
3. Diversifying nationalized plantation crop production from export crops to food for domestic consumption to save scarce foreign exchange currently expended on imported foodstuffs (especially rice, beans, corn, onions, potatoes and sweet potatoes) and; to improve the population's nutritional intake.

## Project History

### Phase I

On September 30, 1977, USAID initiated its first agricultural development project in Sao Tome and Principe through a GOSTP Ministry of Agriculture grant to support food crop diversification. USAID provided \$300,000 to finance:

- .. Acquisition of equipment and spare parts;
- .. Limited technical assistance under the IITA Training contract. The GOSTP input was anticipated to be \$593,000. Principal outputs were to be:
  - . approximately 40 hectares of land directed to the production of import substitution and non-traditional export crops (beans, corn, onions, rice and sweet potatoes) during each of the planting seasons; and
- .. Intensive training of two technicians in the production of the target crops.

The Crop Production and Diversification Project (Phase I) was evaluated during September 17-October 4, 1979 by USAID. The evaluation team found that:

- .. Technical assistance provided by IITA was satisfactory but expertise was not available for all target crops;
- .. Limited IITA technical training provided was satisfactory although certain GOSTP officials desired future training in Portuguese-speaking countries; and
- .. Phase I equipment acquisition was unsatisfactory since only one of the \$250,000 allocated for procurement had been spent as of that time.

Phase I contracts with IITA and AAPC for training and procurement were extended twice to a final December 31, 1982 end date to allow for expenditure of obligated funds. Through the assistance of the resident manager provided under Phase II, all but about \$30,000 of Phase I funds were expended by this date as originally intended for training and equipment .

The Phase I evaluation team recommended that a Phase II Crop Production and Diversification project be undertaken and coordinated by a qualified Private Voluntary Organization (PVO). The PVO would post a Portuguese-speaking project director in Sao Tome responsible for completing the following Phase II project activities:

- .. An economically sound Phase II project design;
- .. Procurement of Phase II equipment and commodities;

- .. Scheduling the clearing of approximately 500 hectares of land earmarked for food crop production;
- .. Developing with GOSTP (and probable IITA collaboration) a capability for continual testing and distribution of improved food crop varieties ;
- .. Inclination of program to assist in experimentation with a limited number of farming techniques, including a variety of labor/machinery mixes, irrigation patterns for multiple cropping, improved crop storage and pest management; and
- .. Coordinating of a three-year training program both in STP and overseas on food crop production.

#### Phase II

On February 16, 1981 REDSO/WCA signed a cooperative agreement with NTF to carry out Phase II under two subphases over a three-year period. NTF completed under Phase II.A the project design, formally approved by GOSTP April 7, 1981 and by REDSO/WCA November 4, 1981.

The Phase II Crop Production and Diversification Project was designed to help GOSTP realize their food crop production goal through mechanized cultivation of maize and beans. Phase II provides:

- . Technical assistance through a resident manager and short-term consultants;
- . Clearing of 260 hectares of overgrown cacao plantation, land
- . Cultivation of maize and beans on both Sao Tome and Principe;
- . Training in Sao Tome and abroad; and
- . Procurement of farm machinery and supplies.

The NTF resident manager arrived on December 5, 1981 in Sao Tome to begin implementation of the project (under Phase II.B). His achievements towards the project objectives are discussed below in Outputs Status and Redefinition.

### Organizational Units

The entities involved in project implementation are NTF, REDSO/WCA, GOSTP, IITA and the U.S. Embassy in Libreville. The following discusses the effectiveness of each entity's performance.

#### Government of Sao Tome and Principe (GOSTP)

The GOSTP has provided the land cleared under Phase II, an average of 17 workers supervised by the resident manager and materials for a workshop/storage building. However, the evaluation team is concerned about the level of involvement and interest of Ministry of Agriculture middle and upper level officials. It is disturbing that not a single Ministry official has yet visited the project site. The Chief of the Bureau of Agriculture and Forestry and the Director of the Food Crops Office within that Bureau, have failed to visit the project even though they were sent for cowpea production training in Brazil at project expense. The resident manager reported to the evaluation team that he suspected that some Ministry officials were visiting the project area on weekends when their presence would not be noted. There is a clear reluctance by GOSTP officials to be closely associated with the American activity.

Another indicator of GOSTP receptiveness to American assistance is the present status of the 30 STP students trained in the U.S. between 1975 and 1981. All information given to the evaluation team indicates that these American trained Sao Tomeans are out of favor with the government. There is a bias against these trained persons in the Ministry of Education which is dominated by Cuban and Eastern Block advisors. This is surprising given the relatively small number of formally educated Sao Tomeans.

Of the approximately 50 hectares cleared at the Pinheira site during Phase II, two hectares were recently "retaken" by the GOSTP for non-project uses. The Minister of Agriculture has confirmed that this land will not be returned to the project. Although the GOSTP is obviously committed to having land of former cocoa plantations cleared, it is difficult to argue that its commitment to utilizing cleared land for project activity as defined in the USAID/GOSTP project agreement is firm.

Land provided to the project is from state owned and operated farms. Project land is independent from the state farms since the resident manager is on site directly supervising project activity. According to persons interviewed, it is likely that after PACD, project land will return to a state owned and managed structure. Between two fields at the Pinheira site, there is a privately owned narrow strip of land which, if incorporated into the project area, would enhance the technical efficiency of project land use. The resident manager has discussed this

issue with the Minister of Agriculture, hoping to get the latter's approval to have the land "contributed" to the project. Although the private owners of the narrow strip of land have been promised other land of equal value, it is disturbing that USAID is directly involved in the reallocation of privately owned land which is likely to become part of a state farm system.

In a meeting with the evaluation team, Ministry of Agriculture officials formally offered the following six recommendations for project improvement:

- . STP and American project management must function with unity of direction.
- . Training should be expanded, particularly of machine operators.
- . Portuguese translations of machine manuals should be provided.
- . An irrigation component should be incorporated into the project.
- . A management corps should be created.
- . Quarterly financial summaries of AID expenditures should be provided to GOSTP.

These recommendations are entirely acceptable to the evaluation team except for the irrigation component; this possibility will be studied during a consultancy visit later this year. The officials did not provide explanations on items one and five above. The management of this highly mechanized project after direct USAID involvement would be challenging even with a cadre of managers at PACD. Given the GOSTP's reluctance for management training and the likelihood that project lands will be run similar to a state farm (with or without a facade of autonomy), recommendations one and five become goals which are probably not realizable.

#### New Transcentury Foundation (NTF)

As described in the Project Outputs and History sections, NTF has functioned as USAID's agent in Sao Tome. Much of the output progress thus far is directly attributable to the extraordinarily diligent efforts of the NTF resident manager stationed in Sao Tome. Other aspects of NTF project management, particularly providing support for field operations and some procurements, show mixed results.

The isolation of Sao Tome and the lack of a U.S. presence on the island make the role of an USAID contractor difficult. Since there are neither regularly scheduled flights from Gabon nor good communications with mainland Africa, the backstopping function is very difficult. These difficulties are also strong reasons why the resident manager needs effective home office backstopping.

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According to the Leonard G. Birnbaum & Co. CIA TRM report, "Consideration should be given to increasing the level of home office effort within available funding...". Interviews and document review showed that there is often inadequate follow-up of field initiated actions, including procurement as described below. The present primary backstop person (Administrative Officer) located at NTF headquarters in Washington, D.C. has no training in agricultural systems and apparently has had no prior experience in backstopping an overseas agricultural project. In order to technically support field operations, it is essential that the backstop officer have some familiarity with the technical issues involved. Given the unique logistical difficulties in this project where the resident manager must rely wholly on the home office for support, an officer with previous experience would be more qualified for the position. The evaluation team has learned that NTF has tentatively budgeted 157 days (about 3 work weeks per month) for backstop officer time to be billed against the project during this last year of project life. From the description of the responsibilities of the home office backstop officer, this amount appears to be excessive and unjustifiable. The previous backstop officer billed an average of 5 days per month against the project.

Surprisingly communications between Sao Tome and Washington, D.C. are relatively good. Telexes are sent frequently and direct telephone connections between the resident manager and the home office is possible. Thus, inadequate backstopping cannot be attributed to poor communications facilities.

During the early stages of Phase II, procurement by NTF was timely and generally successful. The Birnbaum report describes shipping errors which would have been avoided with more diligent pre-shipment inspection. In one case, a tractor was shipped which did not meet specifications as defined on the bill of sale. The Birnbaum report concludes "it may be more cost efficient to pay for an inspection than to risk the potential loss of an entire crop or harvest through the delivery of faulty or incorrect equipment".

At the time of the writing of this report a major shipment of materials is in Douala, Cameroon. Goods aboard the S.S. Del Oro, which sailed from Houston on October 25, 1982, for Sao Tome were off-loaded in Douala on Dec 25, 1982. The evaluation team was disappointed to learn that AID (REDSO/WCA) was not informed of the situation until March, 1983 when the NTF backstop officer en route to STP casually mentioned it to REDSO/WCA personnel. According to the NTF/AID cooperative agreement such difficulties should be brought to AID's attention as soon as possible. AID has an obligation and an obvious interest to assist. In this case the USAID procurement officer in Cameroon was notified of the problem by telephone from REDSO/WCA. A description of this difficulty and other problems is found in the trip report by the NTF backstop officer (Annex A). According to the resident manager, there is little evidence that the NTF home office realized the importance of the Douala shipment to this

season's harvesting. It was also pointed out that the home office did not follow through with suggestions of attempts to expedite delivery to STP. The evaluation team has learned that over \$15,000 has been billed against the project for NTF efforts to expedite the shipment. The backstop officer was informed by AID that these goods could be delivered to STP by charter vessel for under \$20,000. Thus the cost effectiveness of home office efforts to resolve this problem is questionable.

Regional Economic Development Services Office,  
West & Central Africa (REDSO/WCA)

In July, 1982 management and financial accounting responsibility for the project was transferred from as AID/W to REDSO/WCA. The transfer made REDSO/WCA project monitoring difficult for a few months until full information was available. The primary officer for STP within REDSO/WCA has revolved from the Project Development Office to Engineering and back again to the Project Development Office. This change in personnel has been confusing for NTF and the resident manager. In order to provide consistency in project monitoring efforts, the evaluation team recommends that the Project Office remain the primary REDSO/WCA office for this project. Given the terms of the cooperative agreement AID's direct involvement in project activities is limited. However REDSO/WCA should remain receptive to assist NTF in resolving implementation problems that arise.

AFP has not yet begun to issue detailed project financial statements. A summary of project expenses as reported by the Birnbaum report is Annex B.

International Institute for Tropical Agriculture (IITA)

Training activities with IITA are discussed in the Technical Analysis section of this report. Under Phase I REDSO/WCA entered into a contract with IITA which has funded much of the travel and training of Phase II efforts to date. However, Phase I ended Dec. 31, 1982. Future IITA training in the project should be funded by the project on a need basis. Poor communications with IITA and a lack of Portuguese language capability has resulted in a less smooth working relationship with IITA than originally planned.

U.S. Embassy Libreville

Ambassador McNamara follows project progress closely and has been helpful in discussing difficult project issues with appropriate GOSTP officials during his visits to STP. The Embassy has been extremely helpful in providing logistical support (transportation, visa, arranging plane charters) for personnel on temporary duty TDY and for the resident manager. It also helps by passing communication received through the State Department cable system. Ambassador McNamara and Deputy Chief of Mission Rossi expressed to the evaluation team their willingness to continue supporting USAID activities in STP.

### Project Objectives and Progress

The Sao Tome maize production project ambitiously attempts to implant modern mechanized maize production technology into a labor intensive plantation economy particularly marked by a lack of managerial skills. STP imports a very large proportion of its food stuffs, and virtually all of its maize. The estimated 1983 maize import level is 1300 Metric Tons (MT). Maize does not represent a significant share of the national diet. But the domestic swine and poultry industry, are heavily dependent upon maize. Swine and poultry, in turn, provide a very large (but unknown) share of the national protein intake. GOSTP has ambitious plans to expand husbandry. Maize imports reflect this and are projected to be 3,000 MT in 1984 and 5,000 MT in 1985.

Traditionally, Sao Tome's economy has been and remains based upon monocrop plantations. Cocoa earns almost all of its foreign exchange (coffee also earns some exchange). Since independence, STP has become almost completely dependent upon import food. To curtail this dependence, the GOSTP has determined to increase the share of foodstuffs grown domestically. Accordingly, acreage cocoa from farmer fields and newly cleared secondary forest provide the needed land. A Dutch-sponsored food crop production project began in 1977 and continued for five years. The project included a capital-intensive system on 100 hectares and included Dutch ex-patriot assistance and omitted training. A French mixed crop project is beginning which involves some maize. Three years ago AID responded to a STP request and began a maize production project as well, which has become the largest production scheme on the island.

USAID's project objective is to assist STP in achieving maize self-sufficiency at some future (unspecified) date. Maize self-sufficiency would be accomplished through the introduction of modern production technology based on tractors and a full array of drawn equipment (for seed bed preparation, planting, fertilization, application of herbicides, harvesting and threshing). By the end of the third year (1984) 250 hectares would be cleared and under a maize-cowpea rotation (200 on Sao Tome and 50 on Principe). The degree of this project contribution to national self-sufficiency was not elaborated. But maize yields vary greatly from 3000 to 500 kg/ha, depending upon the quantity and quality of inputs, particularly crop production management. Total average production per cropping cycle in excess of 1 MT/ha is unlikely.

Progress towards this objective will be delineated in more detail below. Much of the proposed project area on Sao Tome will be cleared. However, more will be cleared on Principe. In retrospect, too much was promised under this project's three year time frame. Common slippages impeding implementation include:

- . Slow recruitment,
- . Tardy arrivals of supplies,
- . Slow acquisition of land and
- . Slow development of land for numerous reasons etc.,  
poor production performance

Together these experiences have decreased the project active life to two years and have lower expectations for project success:

- . Land development in Principe has not proven practicable so far because of formidable logistical problems of reaching it and its low-GOSTP priority relative to Sao Tome.
- . GOSTP has stressed the Sao Tome element first.
- . No more than two additional crop cycles are now possible before the end of the project which seriously limits the on-the-job training needed if GOSTP management is to successfully assume control post-project.
- . Lack of technique mastery lowers substantially the likelihood that Sao Tome will be able to sustain significant post project yields.

In addition, the project conforms but only in a very limited USAID's three overall project objectives.

#### INCREASED FOOD PRODUCTION

- . It contributes directly to food production, but only indirectly toward human consumption. Ministry of Agriculture officials decided that much (if not all) of the product will be sold to government operated swine and poultry farms. This is contrary to project design documents which call for production for human consumption. Lack of a local consumption profile, precludes informed judgments as to the ultimate impact of this project on diets. They will provide an important part of the islander's total available protein. Local sources claim pricing will encourage mass consumption. The impact of maize for poultry and swine will have limited impact on nutrient requirements, because poultry or swine will not be available routinely on other than festive occasions or that egg consumption will be much affected. This may be an exaggerated objective in the long run if costs of maize cannot be brought down.

#### ENHANCED INSTITUTIONAL CAPACITY

- . The project does have limited institutional building capacity. Limitation follows from the GOSTP's reluctance to allow training of managers under the project. This point will be developed below under Project Assumptions and Prospects. The evaluation team feels that the GOSTP has not taken advantage of a major opportunity. This reluctance probably reflects its general political bias.

#### TECHNICAL TRANSFER AND TRAINING

- . Once again diverse opportunities have been offered to train Sao Tomeans, but the GOSTP has concentrated training in the transfer of lower level skills (e.g., tractor operations).

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## ASSUMPTIONS AND PROSPECTS

### Project Assumptions

Three project assumptions, upon which ultimate success is dependent were not fully developed in the original paper. They include;

- . Continued good weather,
- . Continued GOSTP support for the food self-sufficiency goal and,
- . GOSTP ability to commit inputs to the project.

There seems to be no ground for concern regarding the first two assumptions above. The third is dependent upon the STP's continued ability to earn foreign exchange or obtain inputs as regular gifts from various donors. The evaluation team found however that even when ample input supplies are available within STP, needed supplies may not find their way to the project site. Much depends upon the quality of GOSTP Sao Tome project managers, and this raises serious concerns. The most critical long-term assumption is that GOSTP can manage the maize farm (developed under the project) and that maize can be produced competitively with imported maize. To break even would require a per hectare production of about 2 MT/ha which is equivalent to the maximum yields obtained by the Dutch and recent French experiments with expatriate management. A maximum of 1000 MT/ha/year the best yield obtainable from the project in the near future.

If, for any reason, management cannot produce maize competitively, two choices exist. First, maize production (using project technology) can be completely or largely stopped. Or, second, GOSTP can subsidize production. In the long run a poor government will find this an uncomfortable burden. GOSTP has elected to subsidize other uneconomic farm enterprises such as rabbit raising.

Satisfaction of the management assumption is critical and in turn requires adequate motivation, effectiveness of overall bureaucratic support and level of technical training. Moreover, these must be considered in the context of the management model adopted by Sao Tome to operate the whole agricultural sector (which operates under a single ministry) including the USAUID supported maize farm.

Before independence, Sao Tome's cocoa and coffee production was shared among 41 privately owned Portuguese plantations. Management was largely expatriate, although some of the indigenous workers had risen to middle management (positions e.g. accountants, etc.). At independence, the entire infrastructure was radically altered. Portuguese owners and operators left the country. The new government assumed control and re-organized the plantations into 15 state farms. Management, reflecting both the extreme shortage of GOSTP managers and a predilection for Eastern Bloc styles, was centralized. The quality and efficiency of operations declined sharply.

Decision-making is now slow and in a technical sense marginally competent. In this context, the ministry's ability to deal with a very new technology, much different from the familiar tree crop, is exceedingly limited. It is questionable whether a local farm manager can, due to lack of knowledge, motivation, and managerial skills, get spare parts for complicated machinery, obtain and use inputs in a timely manner, keep his staff motivated (salaries are notoriously late) and look after the multi-faceted aspects of technical and business management. Further, the evaluation team doubts the ability of local management to sustain yields of even as high as one MT/ha/year. Indeed, there is reason as described below in the Technical Analysis for concern that yields, after several years, could fall drastically.

Higher costs of production are expected for some time after GOSTP managers assume control simply as a consequence of inexperience. For the viability of the project, it is important that these decline as experience accumulates. The only precedent to which one can look is the former Dutch project on somewhat poorer and less watered soils. Under Dutch management, maize yields of up to 2 MT/ha were realized at a higher cost per M/T of \$282. Since the Dutch withdrawal, yields have fallen to 1 M/T/ha, and estimated costs of production risen to above \$300/MT. Current agronomic followed suggest a continuing decline in yield to even lower levels.

The evaluation team examined the organization of management with particular regard to perception and feedback. Both were found critically lacking. Although the Ministry of Agriculture recognizes the need to manage food crops differently from tree crops (and will set up two sub-ministries to deal with this), they propose to cope using the identical management system. This system seems to have little or no inherent means to adjust to practical problems as they arise. The system does not induce managers to become responsive to economic and technical constraints.

To illustrate, consider payment of wages to workers. Although money is in fact available, there appear to be bureaucratic reasons to pay slowly - and often late - creating an obvious disincentive for workers. In the long run, full wages are paid, but for relatively low levels of work. The state farm loses both ways, but the manager having satisfied internal bureaucratic objectives (which are unclear to us, but seem to hinge on how much cash a manager has in hand at critical moments) is judged administratively competent. A similar case was found in management of spare parts inventory. The current management system encourages maintaining excessive inventory and not keeping machines operative.

There are at least four reasons why GOSTP management has faltered in Sao Tome:

- Managers are given neither significant incentives nor penalties for good or poor performance. Salaries are low and equal.

- Job security is firm, political aims apart. Efficient farm management involves risk-taking, judgment and competent execution.
- None of these traits are encouraged under the current approach.
- Political considerations appear to offset staff selection particularly for more senior slots.
- A strong political element intrudes in price and marketing policy which is centrally determined.
- Managers attempt to satisfy bureaucratic norms and criteria rather than an objective of firm profitability.

#### Project Prospects

Long term success of the project including continued production of food crops on commercial grounds using project-introduced technology depends almost entirely upon GOSTP management. There are in this regard few grounds for optimism. Significant progress has been achieved in introduction of equipment, training operators, land clearing and beginning the crop program. Almost no progress has been made, however, in sensitizing ministry officials to the managerial implications of the technology. The evaluation team concludes that limited progress can be made in this area given the political climate: concessions on managerial style could open unwelcome areas of bureaucratic and political controversy within GOSTP.

Selection of this capital intensive technology, and perhaps maize production itself, may have been unfortunate in the context of USAID objectives and political persuasion. No matter how successful the implementation, project objectives are not realistic unless the technology can be mastered. This is only possible if an appropriate management mechanism can be developed. The evaluation team discussed this point directly with GOSTP officials. An extension of the project would unlikely have much impact. Only continuing failure over time, and perhaps political and ideological disillusionment can set the stage for more open-mindedness by GOSTP.

No attempt has been made to compute an internal rate of return (IRR) for this project - it is likely to be negative. Given the very low levels of technical transfer and training, returns must depend entirely upon crop production and institution building for which only modest claims can be made. Some sensitization has occurred, certainly at the field level, but not much else: returns to investment depend upon maize production. Precedence suggests 1 MT/ha. is a reasonable expectation for the first year or two post-project. Where producing cocoa trees were removed, opportunity costs would not likely be covered by the maize. Costs of production would be at least 25% above import price and would likely rise season after season as soils decline. If GOSTP manages project fields as they are currently managing other maize and cowpea sites on Sao Tome, yields can be expected to decline rapidly from soil loss and degradation.

Most probably, the projects commercial objective of raising the share of local production in STP food requirements can not be accomplished in a cost effective manner.

### PROJECT OUTPUT STATUS

The Phase II project design developed by New TransCentury Foundation and approved by GOSTP and REDSO/WCA includes project outputs as indicated in Annex 3. These were to be achieved by the resident project manager with support from the NTF Washington, D.C. office during a 30-month Phase II B implementation period. Due to delays in Phase II A however, this period was reduced to the 27 months remaining in the NTF Cooperative Agreement from the November 5, 1981 Phase II B approval date to the February 5, 1984 close of project date.

#### Land Clearing

Sites were identified and set aside for clearing secondary forest and overgrown cocoa plantation on the Pinheira plantation. Approximately 40 hectares of land were cleared by the time of this evaluation. Initial clearing was accomplished with a D6D caterpillar provided by the Ministry of Agriculture and chain saws procured under the Phase I project. Later in the year land clearing was accomplished with the D6D caterpillar, K-G blade, three pusher and chain saws procured under the Phase II project. No land was identified or cleared at the Sundy, Principe site.

#### Cultivation of Maize and Beans

Concurrent with the land clearing efforts, 50 hectares of land that had been cleared previously were planted in maize in the first and second semesters of 1982. The second semester (harvested February 1983) was estimated at 1200 kg/ha. By the first semester, 1983 (planted in March 1983) approximately 50 hectares of newly cleared land were planted in addition to the 40 hectares inherited from Phase I. Most of this land was prepared and planted using disc and chisel plows. About 10 hectares was planted using no-till methods.

The 90 hectares (including 40 hectares previously cleared and utilized under Phase I) planted in March 1983 represents the amount that should have been under cultivation approximately six months earlier in the project according to the original output projection.

No planting was accomplished at the Sundy plantation on Principe due to logistical difficulties in initiating work there. The resident manager judged that it was better to get a strong start on the more visible, higher priority Sao Tome site.

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### Procurement

The resident manager and NTF home office staff concentrated their greatest effort during the first half of the initial year on commodity procurement. Subsequent to this activity specifications were prepared, bid requirements published, bids analyzed, commodities received, warehoused and consolidated, and the first equipment was shipped to Sao Tome by August 23, 1982, six weeks ahead of schedule. Problems in the initial shipment included packing lists of very poor quality, equipment received totally disassembled or never assembled, equipment missing parts, misfilled orders, inadequate inspections before shipment and the absence of some orders that were not delivered in time for the July 28, 1982 sailing from the U.S. Unfortunately the shipment arrived in Sao Tome at the very beginning of the second semester planting period, and the delays resulting from the assembly of tractors caused late planting in that season's maize crop.

The second major consolidation of commodities was shipped from the U.S., October 25, 1983. The equipment and supplies were shipped with World Food Programme Commodities bound directly for Sao Tome with an estimated time of arrival of December 15, 1983. However the equipment and commodities were off-loaded in Douala, Cameroon on December 25, 1983 and at present efforts by NTF have been unsuccessful in arranging for a transshipment of the equipment from Douala to Sao Tome. As of December 31, 1982, 90% of the commodity procurement budget of the project had been expended.

### Training

Training during the first year of the project was significant:

- . Thirty four machinery operators and mechanics received 60 hours of instruction in Sao Tome from a Caterpillar trainer;
- . Six operators received 30 hours of hands-on training and 3 mechanics received 60 to 80 hours of instruction from a Massey Ferguson trainer/consultant;
- . Three participants were trained in Ibadan, Nigeria in IITA course in root and tuber, legume production and land clearing;
- . Three mechanics and one trainer participated in Massey Ferguson factory school courses in Brazil; and
- . Two Ministry of Agriculture supervisors attended an IITA cowpea course in Brazil.

All the training was funded by Phase 1 funds and the existing USAID contract with IITA. None of the US \$100,000 Phase II project line item funds has been expended to date and could be available for training during the second year of the project.

### Storage Facilities

The need for crop and seed storage facilities was identified by the resident manager, and a consultant was sent to Sao Tome in February, 1983. The resident manager received the preliminary report of the consultant, but is awaiting the final grain storage plan at this time. Grain storage bins have been procured for the Pinheira site, but are in the shipment in Douala.

Storage facilities were designed into the workshop/warehouse/office under construction at Pinheira. This building is being built under the supervision of the resident manager by the Ministry of Agriculture. All labor and material, except for the roofing sheets, are being provided by the GOSTP as part of their contribution to the project.

### Machinery Repair and Maintenance

The resident manager devoted much time in the first half year of the project to bringing farm machinery into use at Pinheira through a combination of buying, repairing, scavenging and bartering. Most of the equipment procured under Phase I was missing, irreparable or inappropriate for use at the site, and it took substantial effort to get the necessary equipment into the fields for the first planting. Shortly before the second planting, the initial shipment of Phase II equipment arrived in Sao Tome and was assembled.

TABLE 1

## Status of Project Outputs: Sao Tome

Monitoring

The following monitoring activities are proposed in the project design plan and initial, environmental examination:

Monitoring economic parametersStatus

- 1) Monitor fixed production costs for land clearing, equipment, and structures.
- 2) Monitor variable costs of seed, fertilizer, labor, fuel, oil, lubricants, and pesticides
- 3) Monitor state-controlled and free-market prices for maize and beans in STP.
- 4) Collect data on the costs of export crop production to try to identify the comparative advantage of food crops v.s. cash crops.
- 5) Try to organize maize and bean production data in a system compatible with existing GOSTP records to facilitate comparison studies.
- 6) Conduct sensitivity tests on financial and economic analyses to determine the viability of the farming system without subsidies.

No progress

Environmental Monitoring Parameters

Status

7) Limit land clearing to slopes of 6% or less

7) This is and will continue to be followed under the USAID project although there is no way or guaranteeing that the guideline will be observed by STP operators after completion of the USAID project.

8) Take care in (and where possible avoid use of heavy equipment on) land clearing to minimize soil compaction.

8) The Caterpillar D6D is being used in land clearing. To the extent possible, they avoid using it on field when the soils are wet.

9) Maintain continuous vegetative cover on sites to the extent practicable.

9) Continuous maize cover has been maintained fairly well to date because, crop harvests have nearly abutted subsequent plantings. Crop cover between rows has not been maintained. No experimentation has been done to date with cover crops or fallow periods.

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|---|--|
| 10) Time clearing and cultivation activities to avoid exposure of bare soils during the rainy season to the extent practicable.   | 10) Same as 9  |
| 11) Run field trials of no-till and low-till systems to evaluate their potentials for maize and bean production in STP.   | 11) Systematic trials have not been undertaken. Short term technical assistance should be provided to develop yield plans.   |
| 12) Rotate maize with beans or cowpeas to provide some symbiotic fixation of nitrogen on the plots.   | 12) No maize - bean rotations have been planted on about 10 hectares.  |
| 13) Explore possibility of using ash from the cacao dryers and oil palm processing on the fields.   | 13) Insufficient ash available for project crops.  |
| 14) Investigate possibility of applying nitrogen in the form of sodium nitrate to avoid residual acidity that results from applying ammonium sulfate and urea.                            | 14) Not feasible.  |
| 15) Encourage Ministry of Agriculture soils laboratory to monitor soils trimonthly for pH, N, P, K, Organic C, Ca, Mg, Mn, cation exchange capacity, soil moisture, and soil temperature. | 15) An attempt has been made to have the soils lab begin regular monitoring. It was not possible due to a lack of standard chemicals. This should be pursued.  |
| 16) Monitor stream water quality for turbidity, color, and pH as indicators of soil erosion.  | 16) This has not been done except for preliminary monitoring during the project design Phase IIA. Visual observation however do not indicate that streams have higher sediment loads now than before land clearing was undertaken. |
| 17) Collect, preserve and send specimens of pest species to IITA or the U.S. for identification to ensure that proposed pest management programs are pest effective.                      | 17) This has not been necessary to date.   |

- 18) Procure and use appropriate pesticide safety equipment.
  - 19) Translate into Portuguese pertinent information from the labels of pesticides being used and post translated labels at pesticide storage facilities.
  - 20) Provide information on pesticide poisoning diagnosis and treatment to medical facilities at the project sites.
  - 21) Procure antidotes for each pesticide and place in medical kits at pesticide storage and formulation areas.
  - 22) Provide training in pesticide use and pesticide poisoning treatment.
  - 23) Monitor use and effectiveness of pesticides.
  - 24) Observe fields and bodies of water bodies for bird and fish kills and cease pesticide use if any are observed or if any symptoms of pesticide poisoning appear in farm workers of other people in the vicinity of the project site.
- 18) This has been done and additional equipment will be ordered.
  - 19) The English digest of the labels are nearly written. Comments have been received from AID/S&T/AG and translations will be undertaken in the next couple months.
  - 20) This is also in preparation and has been reviewed by AID/S&T/AG.
  - 21) This has not yet been done but should be done within the next couple months.
  - 22) Instruction has been provided in pesticide use by resident manager and will be provided in diagnosis and treatment when the translated materials are available for distribution.
  - 23) This is being done through general observation by the resident manager.
  - 24) This is being done. Resident manager experienced a kill of 2 cattle egrets after surface application of carbofuran pellets. He immediately discontinued its use.
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### REDEFINITION OF PROJECT OUTPUTS

At midway into the implementation phase of the crop production and diversification project it is apparent that the project outputs related to numbers of hectares of land to be cleared and cultivated will have to be scaled down and all outputs related to activities at Sundy, Principe, eliminated if the project is to be completed within the original time frame and budget. Given the logistical difficulties of working in Sao Tome, it is obvious original objectives of the project are not attainable within the \$1.58 million budget and 27 month implementation period.

#### Operations on Principe

From the beginning of the project design effort it has been understood that Sundy, Principe, was of secondary importance to the GOSTP Ministry of Agriculture. The Dutch and other donors have considered sponsoring projects on Principe, only to retreat due to logistical difficulties in implementing projects on the island. It was hoped that under this project the resident manager could find the time to clear 40 hectares of land and place it under cultivation. In fact, the resident manager has been so busy organizing workers to clear and cultivate land on Sao Tome, obtaining farm machinery, receiving procurement shipments, etc., that he has not had time even to visit Principe, much less initiate a project there.<sup>1/</sup>

The evaluation concludes that it will not be feasible to initiate work in Principe during the upcoming year without seriously disrupting the ongoing work at Pinheira, Sao Tome. The only feasible way to implement a project on Principe would be to station a resident advisor on the island and support him/her with an administrative officer on Sao Tome. The remoteness of the island and the infrequency of flights make it impractical to try to implement a project from an office in Sao Tome.

Project outputs related to Sundy, Principe, should be dropped.

#### Land Clearing Outputs

Clearing land of old cocoa and especially large shade trees is a more time-consuming exercise than the project design team anticipated. The project D6D Caterpillar equipped with a K-G blade and tree pusher has proven to be an effective and efficient tool for felling trees. But the hand labor involved in cutting up trees with chain saws and removing logs, branches and twigs by hand is enormously time consuming. Newly cleared fields were raked in order to pick up twigs left from the removed trees. The job could be done more rapidly by pushing branches off the field with a straight blade on the Caterpillar, but at a very high environmental cost. Experience at Pinheira to date indicates that the land clearing team can clear up to an additional 60 hectares of land by a February 1984 project closing. According to the resident manager, this

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<sup>1/</sup> Round Trip Air trip to Principe requires 3 days.

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is an optimistic, but possible objective. The total land to be cleared under the Phase II project would be 110 hectares (110 hectares short of the scaled down projected output in the design document.) This is far short of the nearly 500 hectares estimated in the USAID/NTF cooperative agreement. The evaluation team recommends that project output for land clearing at Pinheira be reduced to 110 hectares.

#### Cultivation of Maize and Beans

The amount of land under cultivation at the end of the project will directly reflect the amount cleared at the time of the last project planting plus the 50 hectares of land previously cleared under Phase I. By February, 1984, approximately 160 hectares of land will be available for cultivation at Pinheira. This is 40 hectares short of the original projection for the site. Project cultivation output for Pinheira should be reduced to 160 hectares.

#### Procurement

In negotiations with GOSTP over project outputs, the Ministry of Agriculture expressed a strong desire for additional procurement beyond the \$400,000 in commodities provided in the project design. The project design team proposed providing additional equipment as possible with any savings in commodity or shipping budgets, and included a list of \$96,000 in equipment that could be so procured. Current budget estimates indicate that it will be possible to procure approximately \$45,000 (FAS value) in commodities in addition to the original \$400,000 primarily due to savings in the travel, transport, differential and allowances line items. These undepended procurement funds will permit the procurement of many of the following items in the remaining time under the project:

<u>Item</u>	<u>Approximate Value</u>
Irrigation equipment	\$ 20,000
Planter	12,000
Tillage equipment	10,000
Two grain wagons	6,000
One trailer type sprayer	5,000
Protective gage for a catapillar D6D	5,000
Two-row corn picker	10,000
Tractor or tractors	45,000
Bean combine	20,000
Miscellaneous small items	5,000
	<hr/>
Subtotal	\$ 93,000
Plus	46,000 (for shipping)
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Total	\$139,000

NTF must prioritize purchase needs and purchase what is most necessary and feasible.

### Training

Much training originally designed in the project has been completed through the use of unexpended Phase I funds through a separated USAID contract with IITA. Training to be conducted in the remaining year of Phase II with the funds available under the project budget is discussed in the technical analysis section.

### Crop and Seed Storage, Machinery Repair and Maintenance

All outputs are approaching completion in these areas, and no revision or addition to project outputs is deemed necessary.

### Monitoring Environmental Parameters

The guidelines and environmental requirements identified in the Initial Environmental Examination are still relevant and should not be modified in the final year of the project. Renewed effort should be made by the resident manager or consultants to encourage the Ministry of Agriculture to undertake soil monitoring at the Pinheira site. If necessary, soil laboratory chemicals should be procured and instruction in soil monitoring offered under project procurement and training funds. The soils laboratory or other appropriate unit should also be given the water quality test kit procured under the project, instructed in its use and asked to monitor water turbidity, color and PH in addition to the soil parameters.

The NTF technical advisor should complete the summaries of pesticide labels, poisoning diagnosis and treatment methods and have them translated into Portuguese as soon as possible. Activated carbon and syrup of Ipecac should be procured and placed in medical kits at the Pinheira site. Atropine and PAM-2 should be procured and placed with an appropriate unit at the hospital in Sao Tome if they do not already have these in stock.

### TECHNICAL ANALYSIS

Of concern in this section are the technical issues which affect the attainment of project goals, including landclearing, maize and bean production methods, and training and their effects upon food crop cultivation in Sao Tome.

Mechanized production of food crops is a recent innovation in Sao Tome. The agrarian sector has far more experience with cacao and coffee production which require different methods and skills. The challenge of this project is even greater due to the fragile nature of Sao Tome's humid, acidic, kaolinitic soils, and its sloping topography which hastens the processes of soil degradation. Throughout the tropics under similar ecological circumstances (i.e. structure of soil, high rainfall, high temperatures, slopes, low soil organic matter and high acidity) mis-managed mechanized landclearing and crop cultivation have led to nearly universal loss in soil productivity within 5-10 years. Yields on these fields have frequently dropped to less than one-half of those attained in the first years. This loss occurs in spite of large applications of fertilizers.

The rate of soil loss and degradation under mechanized systems is a function of several variables:

- . Soil chemical, physical and biological properties: primarily, the type of clay fraction, the amount of exchangeable acidity and basic cations (Ca, Mg), the quantity of organic matter, porosity, and the presence of soil fauna (earthworms, termites, centipedes, millipedes);
- . Field topography: slopes
- . Climate: rainfall amount, intensity, temperatures
- . Landclearing methods: equipment and operator skills (soil compaction through use of bulldozers especially on wet soils, soil removal through methods of tree and stump extraction, increases in soil acidity through removal of top soil and exposure of subsoil); minimization of land-forming; flash burning (to release Ca, Mg, K and P from biomass which increases fertility status of soil);
- . Field management: primarily, use of mulches, and minimum tillage, crop rotations, fallows, and proper cultivation on slopes, and avoidance of certain acidifying fertilizers (ammonium sulfate, potassium chloride),

It is a fallacy to underestimate the management skills necessary for sustained field crop production in this environment. Soil loss and degradation occur widely and rapidly on these soils and their destruction is often difficult to detect but is reflected through decreases in yield as time passes. The physical and chemical restoration of these soils requires often unacceptable measures: years under fallow, high inputs of

fertilizers and organic matter, and/or cultivation of certain cover crops which may or may not be of value to the owner. Even under these measures, only partial reclamation will occur.

In the following section, the techniques of land-clearing and crop production which have to date been used in the project are discussed. Recommendations for future consideration are presented.

In accordance with the project paper, suitable sites were identified by a Dutch pedologist at Pinheira according to soil type, slope and stoniness. Approximately 40 hectares of the project land presently in cultivation were reclaimed from previous maize cultivation (Phase I) and 50 hectares were cleared from secondary forest. Sao Tome is hilly and has few level fields. The old maize fields under cultivation have some steep slopes which require careful management to minimize erosion. The resident manager has wisely resisted requests from GOSTP to clear and/or cultivate steep land. He has also taken several hectares out of production due to problems of erosion and infertility.

#### Recommendations

Since steep slopes require more advanced management skills under cultivation, GOSTP managers/decision-makers should receive training in land-use capability to minimize selection of inappropriate fields in the future.

Land-clearing<sup>1/</sup>. Land-clearing with heavy machinery is an unfortunate reality in much of the developing world as labor availability, time constraints, and costs frequently limit manual clearing. Manual clearing is clearly less disruptive to the physical and chemical soil environment than mechanized land-clearing. Removal of topsoil, compaction, reduced infiltration, increased acidity, and increased erosion all result from use of heavy equipment. Optimally, bulldozers use should be limited, clearing should not occur on wet soils, trees should be felled manually and removed in pieces, roots should not be extracted, and all brush and minor plant species should be flash burned. But rarely do optimal conditions exist and operators must make temporal and economic judgments to the contrary.

As prescribed in the project paper, the resident manager attempted, within reasonable limits, to reduce caterpillar traffic in the field. When possible, tree-clearing was accomplished with chain saws. In fact, he sold approximately \$3,000 worth of cord firewood from his cleared land which supplemented the project and GOSTP.

The resident manager admits that stump and root removal caused pockets of soil disruption (as acid subsoils were brought to the surface). He decided to remove stumps and roots to minimize wear on his tillage equipment and "down time". Given the infrastructural difficulties in obtaining spare parts for machinery, this was probably the most practical solution.

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1/ See Figure 3.

According to the resident manager there was not sufficient plant cover to flash burn the fields after tree removal. Flash burning is desirable on acid soils to decrease exchangeable acidity by the addition of basic cations (Ca, Mg, P and K) from the biomass to the soil.

Specific recommendations are as follows:

- Given the constraints of time, labor, and cost to land clearing in Sao Tome, use of heavy equipment is inevitable. When possible, sites should be selected for clearing with minimum usage of heavy equipment as a consideration. Sao Tome does not have much flat land therefore assessment of density of large trees requiring caterpillar use is likely to be a moot recommendation.
- When possible, brush and minor plant species should be left in the field and flash burned.
- No land-clearing with machinery should occur under moist field conditions.
- The temptation to adjoin fields by clearing sloping land in between adjacent fields should be resisted.

Maize and Bean Production. The management of cleared land in the tropics is even more crucial to continued soil productivity than land-clearing. One should note that project emphasis to date has concentrated more on land-clearing, particularly in its in-country training programs. This has been a logical progression up until now. However, it is clear that for this project to attain its goal in the remaining months, the resident manager must focus on soil and crop management.

There are known techniques for preserving soil productivity in this environment. In general, they include:

- Reduced exposure of bare soil to the elements by keeping the surface covered continuously with mulches, leaf litter, cover crops;
- Adding organic matter through mulches and additions of manure, etc., as feasible;
- Minimum disturbance of soil surface by minimum tillage and combined operations; no tractor passes on wet soil;
- Conservation practices such as contour plowing, strip plowing, alley cropping;
- Rotations with leguminous species and fallows to improve soil structure and fertility;

- Absolute avoidance of deep plowing unless an impermeable hardpan has formed. Where compaction and hardpans are a problem, the preferable remedial technique (though not always acceptable) is long fallowing with deep rooted, prolific species, such as Stylosanthes quianensis or Festuca elation; also, earthworm activity, encouraged through mulching and cover crops, is crucial in restoring favorable soil physical characteristics;
- Use of lime and fertilizer to compensate for crop removal and soil leaching. Avoid use of acidifying fertilizers such as ammonium sulfate and potassium chloride.

To date in the project, timely planting and experimentation with different tillage and management schemes have been blighted by unavailable equipment, lack of seeds, and lack of undivided attention on the part of the resident manager. It should also be noted, the resident manager is not experienced in all of the aforementioned techniques of tropical soils management; he is, however, open to trying techniques which fall within the practical constraints of this project.

Of the approximately 90 hectares under presently cultivation 40 hectares are newly cleared prepared with chisel plows and disk harrows. This season, one field of 30 hectares was divided into three plots comparing disking with minimum tillage, disk plowing and harrowing without mulch, and disking followed by a chisel plow. An additional field of 10 hectares was planted under conventional methods in cowpeas and the 10 remaining hectares are in fallow. To date, only limited amounts of improved soil conservation practices of maintaining have been applied to the sites; reasons for this include lack of seeds, lack of equipment and lack of information. Minimum tillage and rotation with legumes on limited hectarage have been tried.

The projected yields of maize (Zea mays) and cowpea (Vigna unquiculata) in this project were 2000 kg and 800 kg/ha, respectively. Due to late maize plantings and insufficient supplies, the yields to date have fallen short of the goal. more cropping seasons under more favorable conditions are necessary to determine whether these projected yields are obtainable and realistic.

- Increased emphasis should be placed upon the management of cleared land. Experiences in similar environments indicate rapid degradation of soils under the more conventional management systems practiced in temperate zones. Emphasis should be placed upon:
  - Continuous or near continuous soil cover;
  - Maintenance of organic matter;
  - Minimum soil disturbance;
  - Contour plowing, strip cropping, or other conservation practices on slopes;
  - Rotations with legumes;
  - Avoidance of deep plowing; and
  - Use of non-acidifying fertilizers according to soil test results.

- Short-term technical assistance should be provided to the resident manager before and during planting as he is not experienced in all of the techniques for wise management of humid tropical soils. This TA could develop some in-country training in soil management using project fields for on-the-job training.
- Conservation-oriented farm implements and supplies which are not currently on site should be procured.

#### Training

Training received to date has been described in the section on project outputs. While there are areas of technical training which will be discussed here, the ultimate success of this project will rest with the GOSTP and its capacity to perform interdependent functions.

#### Land-clearing, tractor operation, and mechanics

To date, approximately 45 people have been trained in general tractor and caterpillar operations, and/or mechanics. The resident manager believes that there are people sufficiently trained to clear land. While much on-the-job experience is needed to sharpen their skills and understanding, training to this point has been impressive. NTF contracted Portuguese instructors who received high praise from the resident manager. The resident manager also participated in IITA's International Land-clearing Conference in November 1982.

#### Crop production

Three officials within the Ministry of Agriculture attended IITA courses in cowpea (2) and legume (1) production. The resident manager is doubtful about the impact of these courses upon participants and their subsequent interest in the project.

- For the remainder of the project, the resident manager and a tropical soil management expert should conduct training in proper management of these soils under continuous cultivation. Training should include actual instruction and field experience in setting up equipment, minimum tillage, management of mulches, monitoring and adjusting soil fertility, contouring, and possible use of living mulches, fallows, rotations and alley cropping.
- Assistance should be given, either through short-term TA or through modest procurement of reagents and supplies, to the national soils analysis laboratory. It is important to monitor project soils to fully understand their impact from use and to, at least partially, rectify through addition of fertilizer the progressive lowering of fertility which is expected.

Summary

The evaluation team concludes that it was unrealistic to expect to transfer the technology of land-clearing and mechanized food crop cultivation to the extent necessary for preservation and continued use of humid tropical soils to the GOSTP in the project years . The fragile nature of these soils, which deteriorate rapidly upon clearing and use, cannot be over-emphasized. From observations of maize and bean production on other parts of the island, one could expect a rapid yield reduction and soil degradation upon the resident manager's departure. The GOSTP crop fields observed were eroded, full of weeds, and unfertilized. It takes time, experience and guidance to train good farm managers, and while progress has been made in this project toward that goal, much more on-the-job training is needed to truly transfer the necessary skills. This is not likely to occur in the remaining months of the project.



## ANNEX I

New TransCentury Foundation  
 1789 Columbia Road, N.W.  
 Washington, D.C. 20009-2894

TELEPHONE: 202 328-4400  
 CABLE: TRANCEN  
 TELEX: 197663:892790

WARREN W. WIGGINS, PRESIDENT

SUMMARY OF STP ADMINISTRATIVE FAMILIARIZATION REVIEW

BY

Lisa A. Wiggins  
 Administrative Officer

March 1983

New TransCentury Foundation (NTF) has been providing the in-country technical assistance and management of an Agricultural Clearing and Crop Diversification Project on the West African island nation of Sao Tome e Principe since January of 1982. We have resident manager, George Gunkelman, undertaking the project responsibilities of land clearing, planting, harvesting, receipt, assembly and maintenance of project equipment, training of local staff, recommendations and supervision of short-term consultants, STP government liaison work, and other project tasks as necessary. George Gunkelman is supported in his efforts stateside by the TransCentury Corporation's Procurement Division in New Jersey and by home office backstopping by an Administrative Officer and other staff members within NTF's International Division. Although currently stationed in Singapore, NTF's technical advisor to the project, Paul Chakroff, has been offering assistance to the project and continues to be involved as necessary.

Because of this is the first time that AID has initiated a program in Sao Tome e Principe, with no AID mission in country, or even American Embassy and because of the political nature of the project having been originated from the State Department, NTF works closely with the regional AID office, REDSO/WCA, in Abidjan and with the American Embassy in Libreville.

As part of an administrative familiarization review in order that I, as the Administrative Officer, have a better understanding of project and its components I undertook a trip in March 1983 to visit Sao Tome which included visits in Abidjan, Libreville, and in Bamako (where NTF has regional West African representation.)

EQUAL OPPORTUNITY EMPLOYER

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I met with John Cloutier (PDO for STP), Glenn Anders, Martin Billings, James Bileky, and Alex Newton. In the afternoon we were joined by others on the REDSO staff for a REDSO project review meeting. At the American Embassy in Libreville, I met with Ambassador McNamara, Herman Rossi (DCM), Ron Mortensen (Administrative Officer), Chris English of the Consulate Office, Jeaninne Legg, and Dieudonne Etoga. In Bamako I met with Marian Fuchs-Carsch NTF's West African representative.

#### Project Progress at Pinheira

Forty hectares of land have been cleared; quite an impressive sight considering the large size of the felled trees and considering that the clearing was done with only seven laborers. Recently an additional five laborers were added to the crew. It must be noted "not all are workers."

After the rippers have gone through the field that the fields have to be cleared by hand in order to minimize further drawing the acid soil to the surface. The amount of good planting soil varies for a depth of 12 to 15 inches. The soil is acid underneath. The places where the large tree stumps have been removed, the soil remain poor and consequently crops don't grow there. This is a common problem where there are gaps in the existing field crops from land which has been previously cleared. If George had more time he would treat the gaps due to acid soil.

In the early stages of clearing George had managed to convince the government that the cleared wood could be used by local people for firewood. Wood was gathered and cut into cords for such use. There are still unsold cords of firewood near the workers' quarters on the farm. There is no longer any effort to cut the big tree trunks which now litter the sides of the fields. However, the local people have been encouraged to come into the fields during the clearing process to gather whatever wood they wish. This has provided additional, unpaid labor to George in the clearing process.

Part of the cleared area has been left for the purposes of the Pote Experimental Lab of STP for their research purposes. George is not impressed with their work since they appear not to have good training and their results often are inconclusive.

On cleared land adequate discing has been a problem. The discs from Phase I procurement are much too light to be effective ("toys" as George referred to them.) And discs from Phase II only arrived late in my visit.

On the already cleared 40 hectares of land, George planted a crop which should yield 50 to 60 tons of corn. The yield however was far from standard because without the herbicide which was off-loaded in Douala, the grasses were unchecked and greatly reduced the corn production. A second shipment of the herbicide arrived the day I left so that the next planting will benefit.

A lot of the harvested corn was in the process of drying. George is using a cacao dryer to dry the shelled corn. The rapid drying process is adequate for feed corn but it cannot be used for seed corn because the heat cracks the husks. The corn has to also be cooled off on one end of the dryer after the fire has been extinguished because of a lack of space where large quantities of corn can be cooled. This process is evidence to the "hand to mouth" operation with which George works.

There is also no storage capacity on the farm for the corn. The storage bins which were promised by the government last year are only half completed.

#### Government Cooperation

An issue which is of concern from REDSO's point of view is government cooperation, or lack thereof to the project. Approximately two hectares of land which had been cleared by George, was requested to be turned over to the GOSTP. (George has discontinued clearing that piece until "the matter is resolved.")

The government has also promised a storage shed for the equipment. Because this shed is still not completed, the equipment either is kept exposed in the field or is covered by sheets of tin. The equipment which is not in immediate use is being stored at the dock, out of the rain. The customs officials have been very good about the continued storage of the equipment at the dock.

Even though this type of non-cooperation is common with the GOSTP, George does not think that the government's actions are a great hinderance to overall project accomplishments. Their actions are instead inconveniences which have to be dealt with and expected on a daily basis.

In order to obtain better government cooperation vis a vis the REDSO/NTF review of the program is to inform GOSTP of the evaluation and ask for their assistance through the proper official channels. This was not adequately done for the first in-country evaluation.

#### Communications

Communications have improved between REDSO/American Embassy in Libreville and NTF/W. However, George believes that he can receive much better backstopping by NTF/W. He feels that he is the last to know about project decisions. Despite assurances that NTF/W is not ignoring his requests or delaying action, he remains feeling isolated. It was agreed that NTF/W would provide more detailed and frequent progress reporting on George's requests.

Communications and telex sending from STP remains difficult, if not more so now. As of the first of January, the Ministry of Agriculture must read all incoming and outgoing telexes. Telexes also involve connections made by a central operator in another part of town. While Nancy Gunkelman waits at the Ministry of Agriculture to send the telex, George may have to drive to the central phone office to find the operator to receive the call. This has meant that it takes up to four or five hours to send one telex. Nancy must send all telexes because the telex operators do not understand or can not type English well.

#### Procurement

The timely receipt of materials and equipment remain a problem to project progress and a constant aggravation for George. All parties connected with the STP project are concerned about the shipment of commodities which is currently off-loaded in Douala. REDSO suggested that we contact Mr. Baronyi in the commodities supply person Cameroon AID Mission. Although we may not be able to get the shipment moving any quicker inspite of Mr. Baronyi's efforts, we are reminded that REDSO can be of assistance in problems of project implementation and related issues as they arise.

In terms of procurement waivers which REDSO authorizes, NTF is asked initially to use a very cut and dry request without making any judgement about one brand over another. They ask that we support our requests by obtaining a reasonable number of quotes. In terms of our requested Suzuki, the commodities procurement officer of REDSO suggested that AMC could probably offer a competitive price. (He also suggested that we contact the Director of Commodity Management, Schmeisser, to put the pressure on Delta Lines to move the shipment out of Douala.);

It must be noted that part of the issue of the Suzuki waiver involves a programmatic/administrative issue of REDSO's concern with the lack of adequate governmental cooperation to the project and the timing of the project's termination date. REDSO did not want to secure a vehicle for the use of George's Sao Tomean counterpart when the government has not been as cooperative as it can be. Nor did they want to secure a vehicle if it were to arrive so close to the end of the project (unless an extension is agreed to later.) The American Embassy was particularly concerned that REDSO not make a final decision on the waiver without the American Embassy's counsel as they saw this issue to be one of political significance as well.

George has felt that TransCentury's Procurement Division does not have adequate trained personnel to effectively handle the procurement of agricultural commodities. He would like a full-time agriculturalist who has spent years in an agribusiness who could foresee some of the equipment problems which have arisen. NTF has arranged with Rick Roberts, (the consultant who spent a month assisting George in STP) to advise our Procurement Division on future case to case situations. George however sees this arrangement as essentially a band-aid cure because Rick is not full-time.

#### Shipment

Another method of shipment that can be used for small items can be sent through Libreville to put on the flight to STP. In order to do this, we must put on the package Gunkelman's address in Sao Tome, Attn: American Embassy, and Transit for Sao Tome. Inform the Am. Embassy that it is coming and telex Claude Israel 5514 (in French) that the materials are coming, with airbill number, and other particulars including declared value. Attach the airbill in an envelope to the package.

Claude Israel  
Detache Hesnault -  
Chef D'agence  
B.P. 3865  
Phone 73-26-67  
Libreville Gabon

The arrangements for this type of transit shipment was arranged through the airport by D. Etoga whose knowledge and relationships at the airport were invaluable.

George, however does not want us to use this method because if it does work, is no insurance for the STP flight. He would rather have things go through Angola on their regularly scheduled flights.

#### Logistical Details/American Embassy

It is requested that NTF give as much lead time for Embassy assistance in making visa and accommodation arrangements when we send someone through on their way to STP. Changes in the plans should be kept to a bare minimum. The Administrative Office emphasized that the American Embassy only has a small staff with very busy agendas. If we need a visa, the person should be at the Embassy by 8:00 a.m. and should anticipate a full day to process the visa under normal circumstances.

The American Embassy has difficulty with obtaining any knowledge of the STP subscription flights. There only news is through the STP Embassy which often does not know if the flight will be flying the next day. Best source of information is from George on the island. The Embassy can only help arrange the charter flight if necessary.

The Embassy also requests that we not use the Embassy vehicles.

#### Travel

The STP subscription flight now has scheduled flights on the first Tuesday and Friday of each month and on the third Thursday of each month. George needs to obtain the ticket for the flights on STP. It costs \$2,500.00 Dobras.

### Living Working Conditions

Living and working on STP is becoming more severe. Although food, water, and electricity shortages are increasing and making living and working difficult, the Gunkelmans have learned how to cope with a great deal of resourcefulness and inventiveness. If the radio broadcasts which encourage the people to get ready for suffering and that suffering has meaning are indicative of even worse conditions in the future we may have a difficult time keeping our presence on the island. Ambassador McNamara indicated that Portugal may soon offer STP financial assistance which would alleviate the growing economic pressures of the island.

\*\* PARAGRAPH DELETED - SEE COMMENT BELOW

### Recommendations

Given the unavailability of complete equipment at the time of clearing, planting, and harvesting the project is behind the original design schedule. We have only had one cropping experience to date and that cropping has been without the benefit of some equipment and of greatly needed herbicides. This project is thus working currently against very unrealistic goals in spite of the excellent progress which George has made to date under severe working constraints. Our resident manager in consultation with our technical advisor, Paul Chakroff, ought to redesign the project goals in light of previous constraints and of more-up-to-date expectations about equipment delivery. REDSO can also be helpful and give concurrence to any changes made in the final presentation.

In addition to a change in the implementation goals of the project, the arrival of the second shipment and more frequent progress communications from NTF/W to George will alleviate some of the work and isolation pressures on our resident manager.

\*\* THE EVALUATION TEAM CONSIDERS THE CONTENT OF THE SECOND PARAGRAPH TO BE TOTALLY INAPPROPRIATE, INACCURATE AND UNFAIR TO THE INDIVIDUALS INVOLVED. THUS, IT HAS BEEN DELETED FOR PURPOSES OF THIS EVALUATION REPORT.

### Extension Possibility

REDSO/WCA, the American Embassy, and George were planning for the upcoming evaluation to take place in STP at the end of April 1983. In addition to progress evaluation of the ongoing project, the question to be addressed at that time was whether the three parties ought to consider an extension of the program. Due to the late start-up of Phase II - B of the project, delays in the procurement, the current off-loading of our shipment in Douala, and local delays to the project (i.e., many months effort to secure additional Sao Tomean staff to assist George) the project will not have an adequate basis for drawing any sound technical conclusions as to how a productive cropping practice is to take place on Sao Tome. It would be difficult to recommend proper crop management if AID continues to be involved in the promotion of mechanized maize and bean production. More time is needed to carry the project to a useful conclusion of its activities.

NTF also recommends an additional staff person to assist George. The continuing lack of supporting climatic environment and infrastructure and the current lack of management capacity of the Sao Tomean staff has meant that George has had to single-handedly provide constant supervision to almost all aspects of the project. He has not had the time to take more aspects of training possibilities elsewhere, to follow-up on some administrative matters with NTF/W, or to have some personal, relaxed time. The position of resident manager as outlined and as it has evolved is more than a one person job.

## ANNEX II

SAO TOME & PRINCIPE  
CROP PRODUCTION & DIVERSIFICATION  
FINANCIAL STATUS REPORT

	<u>Budget</u>	<u>Cumulative Expenditures</u>	<u>Expenditures 6-1-82 to 3-31-83</u>
I. Field Staff Salaries	\$ 148,950	\$ 93,192	\$ 45,797
II. Home Office Salaries	80,910	57,944	28,978
III. Field Staff Fringe	34,259	23,417	12,350
IV. Home Office Fringe	18,610	14,614	7,912
Subtotal	282,729	189,167	95,037
V. Overhead @ 30% of I & III	54,963	34,983	
Overhead @ 32.66% FY81		550	19,464
Overhead @ 33.6% FY82		2,200	
VI. Overhead @ 60% of II & IV	59,712	43,535	23,306
Overhead @ 65.32% FY81		1,406	
Overhead @ 67.1% FY82		1,631	
Subtotal	397,404	273,472	137,807
VII. Consultant Fees	33,600	3,459	3,428
VIII. Travel & Transportation	155,350	38,272	10,196
IX. Differential & Allowance	103,088	35,461	16,423
X. Equipment & Supplies	37,000	28,310	12,797
XI. Other Direct Costs	142,087	21,683	11,556
XII. Subtotal	868,529	400,657	192,207
XIII. G&A @ 10.6% of XII	92,064	41,856	
G&A @ 11.74% FY81		1,282	22,713
G&A @ 11.8% FY82		2,781	
XIV. Commodities & Shipment of Commodities	600,000	528,209	503,062
XV. G&A Pass Thru @2.41% of XIV	14,460	12,730	12,124
XVI. Contingencies	4,947	-0-	-0-
TOTAL	<u>\$1,580,000</u>	<u>\$ 987,515</u>	<u>\$ 730,106</u>
Reported Expenditures		<u>\$ 987,515</u>	<u>\$ 730,106</u>
Amounts Questioned		<u>\$ -0-</u>	<u>\$ -0-</u>
Amounts Unresolved		<u>\$ -0-</u>	<u>\$ -0-</u>
Amounts Suggested		<u>\$ 987,515</u>	<u>\$ 730,106</u>

ANNEX III

CROP PRODUCTION AND DIVERSIFICATION PROJECT

PHASE II OUTPUTS

1) Clearing of 220 hectares of land at the Pinheira plantation project site on the island of Sao Tome.	20% complete
2) Clearing of 40 hectares of land at the Sundy plantation project site on the island of Principe.	0% complete
3) Production of maize, beans and cowpeas on 260 hectares at Pinheira and on 50 hectares at Sundy with projected yields of 2000kg/ha for corn and 800 kg/ha for beans;	35% complete Pinheira
4) Develop a crop management system for Sundy, including possibly no-till, alley-cropping, and/or live-much cropping systems;	0% complete
5) Pursue methods of disseminating information, technologies and seed to small holder farmers;	0% complete
6) To the extent possible, monitor small holder farmers for comparison with state farm production;	% complete
7) Procure farm equipment and supplies in three tranches	90% complete
8) Train STP participants at IITA courses in rice, cowpea, maize and root & tuber production;	100% complete
9) Develop a list of possible trainers in farm equipment operation and maintenance, agricultural economics, farming techniques, pest management, and extension;	100% complete
10) Identify appropriate training sites for COSTP participants;	100% complete
11) Coordinate training of machinery operators and maintenance personnel;	100% complete
12) Provide training tools, equipment and roofing materials and assist in the construction of field maintenance and storage facilities at Pinheira and Sundy;	80-90% complete at Pinheira 0% complete at Sundy
13) Provide on-site training of farm machinery operators;	50% complete
14) Procure non-local materials for the construction of a seed storage facility at Pinheira;	materials stuck in Douala

- 15) Discuss the market for corn and beans with the GOSTP in order to ascertain the storage requirements; and
- 16) Informally present information on small-holder farming systems operating successfully in Cameroon and Ivory Coast.

100% complete

0% complete

GOSTP contributions to the Phase II project included the following:

Land at Pinheira;

Labor;

Fertilizer and Seed; and

Petroleum, Oil and Lubrication.

## ANNEX IV

QUARTERLY IMPLEMENTATION REPORTA. ADMINISTRATIVE DATA

- |   |   |
|---|---|
| 1. Date of this Sheet: <u>April 15, 1983</u>              | 5. Country/Region: <u>Sao Tome and Principe</u>                             |
| 2. Field Project Officer: <u>J. Cloutier</u>              | 6. Project Title: <u>STP Crop Production and Diversification - Phase II</u> |
| 3. AID/W Backstop Officer: <u>M. Speers</u>               | 7. Project No.: <u>658-0001</u>   |
| 4. Implementing Agent: <u>New transcentury Foundation</u> |   |

B. FINANCIAL DATA (\$000)

- |  |  |
|--|--|
| 8. Type of Funding: <u>Grant</u>                 | 11. Date of Initial Oblig: <u>2/6/81</u>         |
| 9. Life of Project Auth: <u>\$1,580,000</u>      | 12. PACD: <u>2/15/84</u>                         |
| 10. Oblig-Cum. Proj. to Date: <u>\$1,580,000</u> | 13. Expend-Cum. Proj. to Date: <u>\$ 987,515</u> |

C. PROJECT PROGRESS AND STATUS

14. Project Purposes: To assist the GOSTP toward its goal of food self-sufficiency through increasing crop production.
15. Conformance of Project Activities with the Implementation Schedule in the Project Paper and Progress Towards Achieving Project Purposes Since Last Report for Major Project Inputs: NTF semi annual report received; CPA firm review done on NTF project funds; preparations completed for extensive mid-term evaluation; land clearing continuing at Pinhiera site; cropping cycle just completed.
16. Essential Actions Planned next 90 days: (1) Evaluation April 17-29 with write-up and review at REDSO/WCA week of May 2. and Primary Action Agents: (1) REDSO/WCA; NTF; GOSTP
17. Major Issues Requiring Resolution: (1) Weak GOSTP involvement in project and Primary Action Agents: (1) REDSO/WCA; GOSTP  
(2) Some commodities in Cameroons since December, 1982 need to be transported to STP as soon as possible. (2) NTF  
(3) Communication/Coordination with IITA is unacceptably poor (3) NTF; REDSO/WCA; GOSTP

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