PD-15AN 676

BUREAU FOR AFRICA

TOGO

PROJECT PAPER

TOGO ANIMAL TRACTION DEVELOPMENT

693-0218

Togo Animal Traction Development

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AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER FACESHEET

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE)

PP

2. DOCUMENT CODE: 3

3. COUNTRY/ENTITY

4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 digits): 693-0218

6. BUREAU/OFFICE: A. SYMBOL: AFR; B. CODE: 06

7. PROJECT TITLE (Maximum 40 characters): TOGO ANIMAL TRACTION DEVELOPMENT

8. ESTIMATED FY OF PROJECT COMPLETION: FY 85

9. ESTIMATED DATE OF OBLIGATION: A. INITIAL FY 83; B. QUARTER 2 (Enter 1, 2, 3, or 4); C. FINAL FY 85

10. ESTIMATED COSTS ($000 OR EQUIVALENT $1 –)

A. FUNDING SOURCE	FIRST FY B. FX	FIRST FY C. L/C	FIRST FY D. TOTAL	LIFE OF PROJECT E. FX	LIFE OF PROJECT F. L/C	LIFE OF PROJECT G. TOTAL
AID APPROPRIATED TOTAL						
(GRANT)	(1,100)	(900)	( )	(1,600)	(1,400)	(3,000)
(LOAN)	( )	( )	( )	( )	( )	( )
OTHER U.S. 1.						
OTHER U.S. 2.						
HOST COUNTRY		300			765	765
OTHER DONOR(S)						
TOTALS	1,100	1,200		1,600	2,165	3,765

11. PROPOSED BUDGET APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. 1ST FY 83 F. GRANT	E. 1ST FY 83 G. LOAN	H. 2ND FY 84 I. GRANT	H. 2ND FY 84 J. LOAN	K. 3RD FY 85 L. GRANT	K. 3RD FY 85 M. LOAN
(1) ADFN	213	220		2,000		1,000			
(2)									
(3)									
(4)									
TOTALS				2,000		1,000			

A. APPROPRIATION	N. 4TH FY ___ O. GRANT	N. 4TH FY ___ P. LOAN	Q. 5TH FY ___ R. GRANT	Q. 5TH FY ___ S. LOAN	LIFE OF PROJECT T. GRANT	LIFE OF PROJECT U. LOAN
(1)					3,000	
(2)						
(3)						
(4)						
TOTALS					3,000	

12. IN-DEPTH EVALUATION SCHEDULED: MM 03 YY 85

13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PID FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA, BLOCK 12? IF YES, ATTACH CHANGED PID FACESHEET.

1 (1 = NO, 2 = YES)

14. ORIGINATING OFFICE CLEARANCE

SIGNATURE

TITLE: AID REPRESENTATIVE, LOME, TOGO

DATE SIGNED: MM 01 DD 28 YY 83

15. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM 02 DD 1 YY 83

AID 1330-4 (3-76)

4

PROJECT AUTHORIZATION

COUNTRY: Togo

PROJECT: Togo Animal Traction Development

PROJECT NO. 693-0218

Pursuant to Part I, Chapter I, Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize a Grant to the Government of Togo, the "Cooperating Country," of not to exceed Three Million United States Dollars ($3,000,000), the "authorized amount," to help in financing certain foreign exchange and local currency costs of goods and services required for the Project as described in the following paragraph.

The Project will assist the Cooperating Country in improving, coordinating and expanding its activities to promote animal traction among the smallholder farmers of Togo, in particular the improvement of farm management equipment so as to increase crop production. The Project is designed to increase farmer productivity and income and to increase Togo's food production while reducing its food imports. The Project's intended beneficiaries are smallholder farm families living in two areas of Togo.

I hereby authorize the A.I.D. Representative in Togo with the concurrence of Director of REDSO/WCA to amend the Project Authorization to include up to an additional Two Million United States Dollars ($2,000,000), subject to the availability of funds in accordance with A.I.D. allotment procedures and subject further to a recommendation from studies to be conducted during the Project that A.I.D. continue financing the Project.

A. Local Currency Costs

I hereby approve the financing of local currency costs in the approximate amount of One Million Six Hundred Thousand United States Dollars ($1,600,000).

B. Source and Origin of Goods and Services

Except as provided in paragraph "A," and except as A.I.D. may otherwise agree in writing, goods and services financed by A.I.D. under the Project shall have their source and origin in the United States. Ocean shipping financed under the Grant shall be procured in the United States.

C. Covenants

The Project Grant Agreement shall contain covenants provided in substance as follows:

1. Water Quality

The Cooperating Country agrees (a) that pumps will be installed only on wells that discharge water that is safe according to standards of the World Health Organization, and (b) that adequate measures will be taken to conserve the quality of the water.

2. Maintenance and Repair Systems

The Cooperating Country agrees to pursue actively negotiations with those donors who are currently engaged in metal-working training related to animal traction projects, so as to provide firm assurances from those donors at the earliest possible date of adequate funding for a satisfactory program of training and establishing village-level metal-workers.

3. Draft Animal Supply

The Cooperating Country agrees that PROPTA will work with A.I.D. to define, develop and encourage private marketing channels capable of delivering suitable draft aminals to farmers, and it will take steps to ensure that many of PROPTA's animal supply functions are taken over by the private sector as soon as possible so that PROPTA does not become the exclusive supplier of draft animals to Togolese farmers.

4. Animal Health

The Cooperating Country agrees that (a) PROPTA will collaborate with the Animal Health Service in promoting the health of draft animals, and (b) PROPTA will not have its own field-level veterinary staff.

5. Credit

The Cooperating Country agrees to make credit in the amount of $342,000 available to farmers in the Project zone for the procurement of equipment and draft animals over the life of the Project.

6. Project Evaluation

The Parties agree to establish an evaluation program as part of the Project. Except as the Parties otherwise agree in writing, the program will include, during the implementation of the Project and at one or more points thereafter:

(a) evaluation of progress toward attainment of the objectives of the Project;

(b) identification and evaluation of problem areas of constraints which may inhibit such attainment;

(c) assessment of how such information may be used to help overcome such problems; and

(d) evaluation, to the degree feasible, of the overall development impact of the Project.

D. Waivers

1. The following waivers to A.I.D. regulations are hereby approved:

(a) A procurement source and origin waiver from A.I.D. Geographic Code 000 (United States) to A.I.D. Geographic Cod 935 (Special Free World) for vehicles and motorcycles in an amount of approximately $165,000; and

(b) A waiver to permit the procurement of shelf-items from A.I.D. Geographic Code 935 (Special Free World) in an amount up to $400,000.

2. I hereby certify that the exclusion of procurement of the above described commodities from Free World Countries other than the Cooperating Country and countries included in A.I.D. Geographic Code 941 would seriously impede the attainment of U.S. foreign policy objectives and objectives of the foreign assistance program.

3. With respect to the procurement of the above described vehicles, I hereby find that special circumstances exist to waive and do hereby waive, the requirements of section 636 (i) of the Foreign Assistance Act of 1961, as amended.

Date: _____

F. S. Ruddy
Assistant Administrator for Africa

Clearances:

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR AFRICA

FROM: AFR/DR, Norman Cohen

SUBJECT: Togo Animal Traction Development Project (693-0218) Request for Motor Vehicle Waiver

Problem: Your approval is required to authorize a Source/Origin Waiver for the procurement of motor vehicles from Geographic Code 000 (U.S. only) to Geographic Code 935 (Special Free World).

(a) Cooperating Country: Togo

(b) Authorizing Document: Project Paper

(c) Project: Togo Animal Traction Development (693-0218)

(d) Description of Goods: Two station wagons ($10,000 ea);
Two 2-3 - ton trucks ($14,000 ea);
Three Light-weight pick-up trucks ($7,500 ea);
Five regular pick-up trucks ($9,000 ea);
One eight-ton truck ($21,000);
Thirteen motorcycles (100 cc - $1,000 ea);
Fifteen motorbikes (50 cc - $500 ea).

(e) Nature of Funding: Grant

(f) Approximate Value: $165,000

(g) Probable Source: Togo

(h) Probable Origin: Geographic Code 899 Countries

Discussion: Section 636(i) of the Foreign Assistance Act of 1961, as amended, provides that none of the funds made available to carry out the Act shall be used to procure motor vehicles unless such motor vehicles are manufactured in the United States. However, when special circumstances exist, A.I.D. Handbook 1, Supplement B, Chapter 4, paragraph 4C2d, provides that the provisions of Section 636(i) may be waived in order to carry out the provisions of the Act. Such circumstances include inter alia, the inability of a U.S. manufacturer to provide a particular type of vehicle, and/or a present or projected lack of spare parts or adequate service facilities for U.S. manufactured vehicles.

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The procurement of motor vehicles is critical to the success of this project. While the transport of draft animals from purchase point to farm delivery is assured by heavy trucks which are furnished under the contribution of the Government of Togo, light-weight pick-up trucks and station wagons are essential to accommodate the logistics of personnel, material and program supervision over a large project zone.

While the field extension program will be concentrated in the two northern regions, with a rudimentary infrastructure of roads and bridges, A.I.D. project assistance is also programmed into national animal traction activities which will range the length of the country, from Dapaon to the capital, Lome.

Station wagons and pick-up trucks will be used by members of the A.I.D. project Technical Assistance Team and the project support staff. They will be employed to provide the following services:

a) Assure a regular liaison between TA assignment posts and the A.I.D. offices in Lome.

b) Assure regular and frequent visits of project technicians to supervise project field sites, and to observe parallel activities under the sponsorship of other donors.

c) Assure the transportation of light materials and equipment related to the animal traction program, as part of a regular system of project backstopping.

Motorcycles and motorbikes will be used by Peace Corps volunteers assigned to the project and will be used to:

a) Assure a liaison between remote field posts and central supply and direction points for both project-related and personal needs.

b) Assure a means to make regular and frequent visits to area field sites.

c) Assure regular reporting of the needs of farmer-adopters in order to provide requisite backstopping.

Justification: No American automobile manufacturers are represented in Togo. Consequently, no service facilities are available to provide warranty servicing, maintenance and spare parts to support American manufactured vehicles. It would seriously impede the accomplishment of project objectives if American vehicles are purchased in the absence of such service and supply facilities. Japanese and European vehicles, on the other hand, are being used in great numbers and maintenance is not a major problem throughout the country.

The OAR/Lome is currently using several vehicles of European manufacture in the implementation of country project activities, and has found service and maintenance to give complete satisfaction.

No motorcycles or motorbikes of the type desired are manufactured in the United States. The most likely origin of motorcycles for this project is Japan. Honda and Yamaha units are readily available in-country and can be easily maintained by licensed company representatives. As for motorbikes, France is the most likely origin and again units are locally available as is local maintenance.

The Peace Corps in Togo has used motorcycles of the sort described above, over the past four years and can attest to their practicality in every respect.

Recommendation: For the above reasons, it is recommended that you determine that:

1) special circumstances exist which merit a waiver of the provisions of Section 636(i) of the Foreign Assistance Act;

2) approval be given of a source/origin waiver from A.I.D. Geographic Code 000 to Geographic Code 935 for the purchase of four station wagons and six light-weight pick-up trucks, twenty-six motorcycles, three motorbikes and requisite replacement parts;

3) certification be given that exclusion of procurement from Free World countries other than the cooperating country, and countries included in A.I.D. Geographic Code 941, would seriously impede the attainment of U.S. foreign policy objectives of the foreign assistance program.

Approved _____

Disapproved _____

Date _____

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR AFRICA

FROM: AFR/DR, Norman Cohen

SUBJECT: Togo Animal Traction Development Project (693-0218) Request for Source/Origin Waiver for Shelf-Item Procurement

Problem: Your approval is required to authorize a Source/Origin Waiver from Geographic Code 000 to Code 935, for the purchase of various shelf-item commodities for project related activities.

(a)	Cooperating Country:	Togo
(b)	Authorizing Document:	Project Paper
(c)	Project:	Togo Animal Traction Development (693-0218)
(d)	Description of Goods:	Gasoline and other petroleum products, selected office furniture and equipment, locally manufactured residential furniture, household appliances, bicycles (and their spare parts), kerosene and electric refrigerators, gasoline and manual water pumps, minor farm and livestock supplies and equipment, veterinary medicines and equipment, and various miscellaneous items.
(e)	Nature of Funding	Grant
(f)	Approximate Value	$400,000
(g)	Probable Source:	Togo, Ivory Coast, Benin and Nigeria and other Code 899 Countries
(h)	Probable Origin:	Geographic Code 935 Countries

Discussion: Approximately $1,396,000 of A.I.D. funds is programmed for local currency expenditures under this project. This sum is equal to about 47% of the total life-of-project costs of $3,000,000. Of these local currency expenditures,

approximately $400,000 has been budgeted for commodities available in Togo (shelf-items) having their source/origin in countries included in Code 899 but not in Code 941. The rest of the local procurement is scheduled for goods and services of local (Togo) source/origin (such as draft cattle, farm implements, and some local salaries) for which no waiver is required.

The shelf-item procurement rules (A.I.D. Handbook 1, Supplement B, Section 18A4b) limit the purchase of shelf-items which have their origin in Code 899 Countries but not in Code 941 to 10% or $25,000, whichever is greater, of the total local costs financed by A.I.D. for the project.

Moreover, A.I.D. Handbook 1, Supplement B, Section 18A4b states, "in no case may the total amount of such purchases exceed $250,000 without first obtaining a Geographic Code source waiver.

With $1,399,000 designated as local currency costs in this project, the limit for the purchase of shelf-items having their origin in Code 899 but not in Code 941 Countries would therefore be $139,000. Consequently, a source/origin waiver of the $250,000 limit is requested in order that $400,000 worth of commodities imported into Togo and neighboring countries for resale that originated in Code 899 but not in Code 941 countries may be purchased.

The requested waiver will allow for the purchase of gasoline and other petroleum products, selected office and residential furniture and equipment, bicycles, kerosene and electric refrigerators, gasoline and manual water pumps, minor farm and veterinary supplies, and various miscellaneous items, all of which are available off shelf within Togo and neighboring states, but do not have their origin in Geographic Code 941 Countries.

The eligibility of these items will enable the Project Management Unit, comprised of the A.I.D. project officer and the technical assistance team to obtain the aforementioned items when needed and in the case of equipment purchases, obtain local maintenance and spare parts. It will permit the procurement to be undertaken in a timely fashion which will greatly assist in project implementation, particularly in the initial phase of the project. Since these items contribute towards the attainment of project goals and purpose, the prompt scheduling of the procurement of these items becomes critical for the successful implementation of the project.

Recommendation: Based on the justification set forth above, it is recommended that you 1) approve this request for a Source/Origin waiver to allow the procurement of up to $400,000 worth of shelf-item commodities having their origin in Geographic Code 899 countries, and 2) certify that exclusion of the procurement from free world countries other than the cooperating country and countries included in Code 941 would seriously impede attainment of U.S. foreign policy objectives of the Foreign Assistance Program.

Approved _____

Disapproved _____

Date _____

I. Executive Summary:

1.1 Face Sheet

1.2 Authorization

1.3 Recommendation:

This project paper recommends your authorization of a grant in the amount of $3,000,000 from the Food and Nutrition account in favor of the Government of Togo (GOT), Ministry of Rural Development. Total project costs will aggregate $3,765,000 of which the GOT contribution will be approximately $765,000 (CFA 229,500,000 at an average exchange rate of $1.00 = CFA 300). The term of this project shall be 30 months.

1.4 Project Summary:

This project is intended to assist the GOT in improving, coordinating and expanding on its activities in support of the promotion of animal traction among the smallholder farmers in Togo. A.I.D. funding will finance the services of a U.S. technical assistance team to assist the principal GOT implementing agencies (PROPTA and two regional development organizations) in their mandate to coordinate and expand animal traction activities in Togo. A.I.D. funding will also assist in the construction of the requisite physical facilities, and in the procurement of commodities and vehicles. GOT financing will finance local personnel costs as well as those associated with the establishment of a credit revolving fund to assist farmer-adopters to acquire the animals and implements necessary for converting from traditional farming methods to animal traction. The Project's intended beneficiaries are smallholder farm families living in the two impact zones.

1.5 Waivers:

The recommended authorization of this project includes approval of two source-origin waivers:

(a) a waiver for procurement of non U.S. source vehicles with an estimated aggregate value of up to $165,000;

(b) a waiver to permit code 935 shelf item procurement with an estimated value of up to $400,000.

1.6 Special Conditions:

The draft authorization contains a provision to delegate to the A.I.D. Representative of Lome with the concurrence of the

REDSO/WCA Director, authority to amend this authorization to provide up to $2,000,000 in additional A.I.D. funding and to extend the term of the Project by up to 36 months, based on the findings of a projected evaluation/design study to be carried out 24 months after commencement of this project.

1.7

Summary Project Budget
($000)

	Year 1	Year 2	Year 2 1/2	Total	%
A.I.D.					
T/A	371	594	360	1,325	45
Construction	513	-	-	513	18
Vehicles					
Commodities	402	10	7	419	15
Operating Costs	156	90	45	291	9
Inflation	-	69	86	155	5
Contingency	170	80	47	297	8
Total	1,612	843	545	3,000	100
GOT					
Personnel Costs	96	96	48	240	31
Misc. Expenses	41	41	20	102	14
Inflation	-0-	20	21	41	5
Contingency	16	16	8	38	5
Credit Funds*	167	175	-0-	342	45
Total	320	348	97	76	100
Grand Total	1,923	1,195	666	3,765	

*(contains allowance for inflation)

1.7. Feasibility:

Sections 3 and 4 of this paper and their supporting annexes provide analytical support to the conclusion that this project is technically, economically, socially, and financially feasible, and that there exists sufficient A.I.D. management capability to implemen this project.

1.8 Issues:

The original project paper was considered by the ECPR on October 18, 1982. Approval was deferred pending resolution of certain issues and pending a redesign of the Project. This has now been accomplished. The revised Project described herein is designed to meet all of the issues raised at the ECPR. These were:

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1.81 An Absence of a Detailed Recurrent Cost Analysis:

Such an analysis is set forth in Section 3 of this paper.

1.82 A.I.D. Field Management:

A management analysis is found in Section 4 of this paper. This analysis concludes that existing A.I.D. field staff levels are adequate to monitor and implement this project.

1.83 The Relatively High Risk Associated with an Intervention of this Type; Especially in Regards to the Proposed Revolving Credit Funds:

Sections 2 and 3 of this paper detail the revised scope of this Project. The principal revisions are: i) reduction of the term of the Project from 66 to 30 months with an evaluation to take place at the end of 24 months. Based on the results of this study, A.I.D. could choose to allow the project to terminate after 30 months; agree to a limited extension of the project along the lines of the scope proposed herein; or A.I.D. could choose to extend the Project with such design modifications which the study may indicate would be warranted. ii) deletion of A.I.D. funding for the revolving credit funds. The GOT has agreed to provide funding to establish these credit funds in return for A.I.D. agreement to absorb an equivalent value of vehicle procurement and miscellaneous construction. The credit aspects of this Project are discussed in Section 3 of this paper.

1.9 This paper was informally reviewed by the REDSO Director in REDSO/WCA at a meeting at which the A.I.D. Representative, the Togo Peace Corps Director and the design team were present. Their comments and guidance are reflected in this paper.

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2.0

Description of Project

2.1. This project is the U.S. response to a GOT request to support its major rural development initiative in concert with other donors. The project will help to establish an adapted, sustainable animal traction extension and support system by drawing on lessons learned by AID, Peace Corps, and other donors in previous animal traction projects in Togo and elsewhere in West Africa.

2.2. Background

Peace Corps volunteers in Togo have worked with small numbers of animal traction adopters since 1971. The Peace Corps effort began to receive AID support in 1978, through an Accelerated Impact Program, which enlarged the Peace Corps extension effort, began a training program for extension agents, farmers, and animal trainers, and set up a system for animal supply which now serves several other projects in northern Togo.

Active Togolese government support for animal traction dates only from the late 1970s. Prior to that, for most of the 1970s, GOT resources and efforts to improve the productivity of smallholder agriculture were spent on a very costly, heavily subsidized tractor mechanization scheme which was not adapted to the vast majority of Togolese farming systems. The high cost, nonsustainability, and ultimate failure of tractor mechanization led the GOT towards a more modest agricultural strategy of encouraging smallholder adoption of animal traction.

Unfortunately, early donor-sponsored animal traction projects, as well as GOT support for animal traction, demonstrated a number of parallels with the tractor mechanization scheme. Animal traction technology was chosen without adequate prior testing, the technology was not adapted to smallholder farming systems, and supporting services were inadequate to sustain farmer adoption. In addition, the "first generation" of animal traction projects in Togo were geographically dispersed and uncoordinated, competed with each other for farmer participants and for animals, and were sufficiently isolated from each other to prevent the dissemination of successful approaches from one project to another. Almost all of the projects bypassed existing government institutions, setting up separate project management units and hiring Togolese to do extension work apart from the GOT extension service. The two exceptions were the AID-Peace Corps AIP, working successfully through the Ministry of Rural Development's regional organizations (called DRDR's) and the

Veterinary Service in the northern regions of Savanes and Kara; and the FED project in three more southerly regions, which helped to set up a government organzation, PRODEBO, to provide animals, training, and other services.

2.3 Several developments in the past two years have made the Togolese environment much more favorable for the spread of animal traction technology. First, the government's commitment to animal traction has become much more focused and thoughtful than it originally was. A Coordinating Committee for Animal Traction (COCA) was set up in 1981 with the participation of GOT agencies, agricultural credit institutions, and donor projects involved in animal traction. COCA's purpose is to overcome the fragmentation and isolation of the twenty-odd animal traction activities currently ongoing and to provide a forum in which to discuss policies and methods to improve the adaptability of animal traction technology to the Togolese smallholder farmer. COCA serves as an advisory committee to the Minister of Rural Development on all matters pertaining to animal traction.

The national animal traction organization, PROPTA, was established on the recommendation of COCA in late 1982. PROPTA's mandate is to provide support services necessary for the success of individual animal traction activities throughout Togo. These support services include collection and dissemination of information on animal traction technology, assurance of regular animal and equipment supply, training extension personnel in animal traction, adapting the technical package to the on-farm situation, evaluation and follow-up of animal traction projects and activities, and veterinary services for traction animals. Most of these services are crucial to the success and sustainability of animal traction, but without PROPTA have been performed inefficiently or not at all.

2.4 A second development favoring the spread of animal traction in Togo is the establishment of the UPROMA equipment factory in Kara with UNIDO assistance. UPROMA is well-managed and well-equipped and has for two years provided a dependable, reasonably priced supply of quality animal traction equipment.

2.5 The third development favoring the spread of animal traction is the policy environment. Increasing smallholder productivity through animal traction has the active support of the highest levels of government and continues to receive significant GOT financing. Incentives for production are not impeded by GOT policies. While government declares and attempts to support official agricultural prices, in fact only about 3% of marketed production passes through government channels. The rest is sold on the parallel market at

market prices which are largely unaffected by government pricing policy. Finally, under the impetus of the World Bank and a severe fiscal crisis, the GOT will allow a much greater role for private sector initiatives in Togolese development. It has disbanded a number of inefficient parastatals which were both draining the GOT budget and preempting private enterprise, and it has committed itself to much more limited state involvement in Togolese economic life.

2.6 The GOT and the World Bank have conducted discussions about the implementation of a structural adjustment program for Togo since early 1982. After lengthy consultations, both sides have come to a common understandlng of the elements of a program to overcome some chronic financial problems of the GOT and to reorient the economy toward agriculture--a more productive path for the long-term. The GOT has already undertaken some significant measures which will contribute to the improvement of its economic situation and the U.S. Government strongly supports the approval of the well-designed program proposed by the IDA.

The relevant elements of that agreement are as follows:

- The agricultural share of the investment budget will be increased.

- Investments in the rural sector will minimize capital intensive operations, such as equipment and new physical structures which require strong doses of recurrent costs.

- Government subsidies of parastatals, including those in the agricultural sector, which are showing regular operational deficits due to structural inefficiencies, will be phased out.

- One of the first state-owned monopolies to close down operations is the motorized tractor-plowing service, SOTEXMA.

- TOGOGRAIN, the small-scale national cereal grain marketing board, will be limited in its interventions in the domestic market. Subsidies for grain sales will be eliminated.

- Cereal sales beyond Togo's frontiers, will no longer be restricted year-round. The net effect on farm-gate prices for these food commodities should provide some farmer incentives.

This project will work in a favorable policy environment, with a goverment committed to the development and spread of animal traction technology and with a developing system of animal traction support services.

2.7 The Project:

The project supports and expands development and adoption of animal traction technology on a two-track approach, working both at the farm-level and the level of national support services. Following the recommendation of the two AIP evaluations, a number of improvements in farm level extension and applied research will be made in the Kara and Savanes regions. At the same time, the GOT's national animal traction organization, PROPTA, will be strengthened in its role of ensuring adequate support services for the successful adoption of animal traction technology.

It is foreseen that this thirty month project may be followed by a second-phase activity which would continue AID support for Togolese animal traction. An evaluation/design exercise in month 24 will determine whether there should be a follow-on project, and if so, the most appropriate areas for continued AID support. This project was originally conceived as a 66-month project. Due to the very recent establishment of PROPTA and the risk of working in a complex and changing institutional environment, the project was scaled down to a shortened first-phase in order to allow a sound assessment of likely and anticipated changes in the institutional environment before designing or funding any longer term animal traction activities.

2.71 Farm Level Extension:

The project's farm level extension and applied research activities will be undertaken through the Ministry of Rural Development's regional organizations (DRDR's) in the Kara and Savanes regions. These are the two most promising regions for the development of animal traction in Togo, and a number of donor-sponsored animal traction projects are underway there. Almost all such projects bypass MRD personnel and the DRDR's. AID, under the AIP, has established a good working relationship with the DRDR's and will continue to work through them. The extension/applied research component of this project will provide support to the two DRDR's to encourage animal traction in zones not currently served by other projects.

Technical assistance, commodities, and construction or rehabilitation of ten extension support centers (CATs) will be provided to the two DRDRs. Ten Peace Corps Volunteers will each work with a front-line extension supervisor to coordinate and facilitate the animal traction extension efforts of three to five extension agents. The PCVs and front-line supervisors will receive technical advisory support and supervision from the project TA team,

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and will participate in or arrange adaptive field trials, oxen breaking, and farmer training sessions at the CATs. PCVs and front-line supervisors will also work with the GOT's vet service in providing health services for traction animals. A small stock of veterinary supplies to be sold at full cost, constituting the beginning of a veterinary revolving fund, will be provided. In all of these extension and applied research efforts, Peace Corps Volunteers are critical, linking AID project inputs to on-farm results through their work with front-line supervisors. Forty farmers in Year-1, 216 in Year-2, and 240 in Year-3 will begin to use animal traction technology and purchase equipment and (for half of them) draft animals with the advice of DRDR extension agents working with this project. Also, the 32 farmer-adopters from the AIP will continue to receive extension support.

2.72 National Support Services:

The project will provide the GOT's national animal traction support organization, PROPTA, with TA, commodities, and construction to coordinate and provide support services to animal traction activities (of donors, PVOs, and the GOT) throughout Togo. PROPTA will also receive significant support from the FED, in the form of animal and equipment procurement funds and veterinary supplies not provided by AID.

PROPTA's coordination function will have specific tangible benefits in Togo, where many of the 20-odd current projects (see Annex 17) have been working without sharing information, resulting in mistakes that are repeated and successful approaches that are not diffused. For example, the first meeting of the Kara region PROPTA working group occurred during the preparation of this paper. The ostensible purpose of the meeting was to review the AIP and to discuss the new AID project, in preparation. Yet, having representatives of a number of isolated projects review a common interest (the AIP), led to a much wider discussion of ideas and approaches which were being tested, extended, or considered by representatives of some projects, but which the others did not know about. Approaches developed by the discussion were: Using UPROMA staff to train local blacksmiths; planting an end-of-season crop so that weeding demonstrations can be held when farmers have more free time; dissemination of results of FED field trials of row intercropping; developing audio-visual materials for training; and working with farmers who own but do not keep their own animals. If PROPTA continues to encourage such exchanges of ideas, then successful approaches, training materials, and technical modifications developed by one project will be much more quickly spread to farmers in all project zones. With such coordination, all

of the projects' field-level extension staff will be more effective in working with farmers who want to adopt animal traction. An important tool to increase the effectiveness of PROPTA's coordination function will be the development, with the help of the TA agricultural economist, of a simple monitoring and evaluation system to be used by all animal traction projects. This system will facilitate the rapid flow among projects of information concerning animal traction approaches, implements, and recommendations that are successful and merit replication.

PROPTA will also provide a number of support services for the 20-odd animal traction projects in Togo. The AIP evaluations made the following recommendations concerning animal traction support services: train existing extension agents; assure an adequate supply of suitable draft animals to projects and farmers; and rationalize subsidy and credit policies for equipment and draft animals. AID will support PROPTA in providing those services recommended in the AIP evaluations. These services have in the past been provided by PRODEBO, the AIP, and individual projects in a piecemeal, costly, and often inefficient way. By grouping those services which are needed by all projects under one organization, PROPTA, more effective and less costly services will be provided than if a number of different organizations and projects worked at them.

PROPTA assistance in the training of extension agents in animal traction techniques will continue the training started under the AIP. PROPTA will participate directly in the training of some project extension agents; for other projects, PROPTA will simply provide training materials or linkages with appropriate expertise in other projects or organizations.

PROPTA will supply draft animals in good health to a number of projects throughout Togo which are currently purchasing draft animals on their own. This activity expands on AIP and FED involvement as purchasing agent for several projects in northern Togo. There is costly duplication of effort with the present system of numerous project buyers, and there is some evidence that projects in competition with each other for animal supply may be driving up prices. A number of projects are eagerly anticipating turning their animal purchase functions over to PROPTA. AID will also support trial activities intended to encourage the development of private herder-to-farmer marketing channels for draft animals. Such channels practically do not exist in Togo now, although it is likely that they will develop quickly following animal traction expansion, as they developed in the 1970s in similar areas of Ivory Coast and Benin. The GOT will covenant to encourage such activities.

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PROPTA will work with animal traction projects and activities to rationalize and make more uniform the terms under which farmers purchase equipment and animals. There are three important reasons for such a rationalization of terms. First, to avoid the decapitalization of credit funds entailed by subsidizing interest rates or subsidizing 40% to 60% of equipment and animal cost, as is done by some projects. Second, to ensure that credit terms do not continue to provide incentives for farmers who already own suitable animals to purchase draft animals. Third, to prevent the distortions that occur when adjacent projects offer very different terms for the same equipment package. As a national organization serving all animal traction projects, PROPTA, with the assistance of the AID agricultural economist, will be able to start a rationalization of subsidy and credit terms among donor projects.

Initially, the GOT's Ministry of Rural Development, the FED, and the World Bank's SOTOCO project, had planned on PROPTA providing veterinary services to draft animals by setting up a veterinary structure within PROPTA which would duplicate and bypass the existing GOT Animal Health service. The rationale for this duplication was that the Animal Health service does not have either the medicines nor the logistical support to assure the health of draft animals. However, AID believes that setting up a parallel system of veterinary personnel with PROPTA would be a costly waste of scarce personnel and financial resc ces. AID has, in dialogue leading to the preparation of this project, prevailed upon MRD and the FED to provide medicines and logistical support, but not field-level veterinary personnel, to PROPTA. PROPTA and most individual donor projects will contract with the Animal Health service which will use PROPTA's medicine and logistical support to insure good health care for draft animals.

2.73 Technical Assistance:

The TA team will consist of a project coordinator, agronomist, agricultural economist, and livestock specialist. A short-term interim project coordinator will manage project activities until the TA team arrives 3 to 6 months after project authorization. The long-term project coordinator will work with the management of both PROPTA and the DRDRs and serve as team leader. The agronomist's primary responsibility will be for the DRDR and Peace Corps extension and applied research efforts, although he or she will also assist PROPTA in planning training activities. The agricultural economist and livestock specialist will have primary responsibility as advisors to PROPTA, although they will provide some assistance to the agronomist in the DRDR's extension and applied research

activities. Short-term technical assistance in farm-level data collection, sociology, livestock marketing, and financial management will also be provided under this project.

2.74 Credit:

AID provides no funding for credit or revolving funds in this project, with the exception of a small veterinary medicine fund ($25,000). The GOT will fund all animals and equipment to be provided to farmers through the DRDRs. Farmer purchase on credit will be arranged through the GOT's agricultural credit bank, CNCA, although Peace Corps Volunteers and the project TA team will informally help the DRDRs and CNCA follow-up repayment. Funds for PROPTA purchase of animals will be provided by FED, and reimbursed by PROPTA sales at full cost to project clients. Although AID does not provide credit for either PROPTA or the DRDRs, AID's TA team will be in a strong position to encourage credit terms and management which are financially sound.

2.75 Other Projects Involved in Animal Traction in Togo:

This project paper often refers to 20-odd activities, GOT and/or donor sponsored, currently underway (or about to begin) in Togo and which include animal traction as a major input to increasing agricultural productivity. These activities are summarized in greater detail in Annex 17 (Specific antrac training components are scrutinized in Annex 6).

These activities, the primary sponsors and the specific area of concentration, are as follows (the AID Culture Attelee - AIP is not included):

A. Second Rural Development Project in Cotton Areas (IDA)

Continuation of funding for the expansion of cotton production with an increased emphasis on improving food crops grown by participating farmers.

B. Mandouri Agricultural Development (African Development Fund)

Diversification and increase of agricultural production in an isolated northern area through intensification of traditional food crop cultivation, introduction of cash crops and development of upland rice cultivation.

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C. Savanes Agricultural Intensification (FED)

Farmer training in improved methods of cultivation and adapted inputs, extended through an outreach program that aims at ameliorating soil fertility to sustain future agricultural production.

D. Namiele Plain Production (UNIFECO)

A private, agro-industrial project to develop the hydrological and rangeland resources of a broad plain for cattle production--primarily for meat.

E. Kara Valley Productivity (FED)

Settlement of immigrant (and indigenous) farmers in a previously largely unoccupied zone along the Kara river through infrastructure inputs and a program to sustain the productivity of relatively fertile soils in the area.

F. Kara Food Production (Entente Fund, AID, FAC)

Development and expansion of rural development infrastructure (farmer groups, extension services, facilities), based largely on self-help initiatives leading to a gradual, sustainable increase in agricultural production of basic foodstuffs.

G. Notse Rural Development (IFAD)

Development of an agricultural potentially rich area with poor transport infrastructure, by coordinating foodcrop production with the promotion of cotton cultivation, so as to raise local living standards and provide surplus gran by nearby urban centers.

H. Project North-Togo (UNDP-FAO)

A large integrated rural development project in the Kara region: includes upgrading access and service infrastructure, soil restoration and conservation, multiple-purpose training of farmers, artisans, etc., introduction of an improved agricultural package--with long-term objective of defining regional development master plan.

I. DRDR-Central Region (GTZ)

Farm families on an agricultural center receive intensive trainin_ in a broad package of agricultural inputs and farming

methods which are subsequently followed up with a bolstered extension support system.

J. Notse-Dayes Food Production (Entente, AID, FAC)

The re-establishment of maize production (improved varieties) in areas of old and marginal coffee and cocoa plantations through the provision of land-clearing (tractors) and cultivation (tractors or animal traction) inputs.

K. SONAPM (GOT, FED)

Raising beef cattle on the grasslands provided underneath extensive oil palm plantations; occasional use of animal traction to cultivate in these same areas.

L. Frerea Missionaires de Campagne (Catholic religious order)

Development of village farmer development councils which determine choice and rhythm of foodcrop and infrastructure inputs to be implemented on self-help basis.

M. Maison Familiale. (GOT and French PVO)

Village-by-village family-level improvement of living standards, with accent on increasing foodcrops in order to enable village to sustain its own broader development.

N. PRODEBO (FED)

Supply source and distributor of animal traction units to farmers in three southern regions; training of area field agents and provision of requisite animal health services; agricultural extension services only available through DRDR or a donor sponsored project.

O. PRODERMA (IDA)

Maize production as the central theme of agricultural extension efforts of all DRDR agents in the Maritime region.

P. Est-Mono (ADB)

Provision of considerable infrastructure and setting up an independent extension service to support the opening of a heretofor unoccupied area of the Plateau/Central region considered to be of potential value for agricultural production, particularly foodcrops.

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Q. Adele Ranch (FED)

Raising cattle in logo's central highlands to provide animals for slaughter and an indigenous supply of suitable, adapted xen for animal traction.

R. Avetenou Experimental Station (GTZ)

German cattle breeding center, primarily for selection of breeds suitable for dairying and meat production in southern climes.

S. Regional Cooperative Training Centers (FAC, ILO, GOT)

Promotion of cooperatives in Savanes and Plateau regions; animal traction is an outgrowth of a communities savings and credit program.

T. National Agricultural Training Institute (GOT)

National government institution for training agricultural extension agents, with two levels of specializations in agricultural, animal husbandry or forestry--including field management, extension methods and farm economics.

U. Young Farmer Training Centers (GOT)

Five regional centers to give trainees a one-year hands-on course in animal husbandry, agriculture and animal traction/mechanized farming, with the intention that trainees will serve as demonstrator-farmers in their home locales.

2.76 Narrative Logical Framework Matrix:

Project Goal:

Increase the productivity and income of farmers in Togo.

Project Purpose:

To restructure, coordinate, and harmonize antrac extension in Togo through:

1. Support to PROPTA to ensure antrac support services (supply, training, monitoring/evaluation, and harmonization o credit/subsidy terms).

2. Support to antrac extension and applied research by DRDRs inthose areas of the Savanes and Kara regions not served by other donors.

Project Outputs:

1. PROPTA monitoring and evaluation procedures and unit established.

2. PROPTA extension training programs drawn-up and used.

3. PROPTA-North antenna established in Kara.

4. Tantiegou buying center established, functioning with standard animal health and maintenance procedures, providing animals to antrac projects.

5. Delivery of antrac animals to farmers through private marketing channels developed and encouraged by PROPTA.

6. Regional revolving fund procedures developed to maintain veterinary supplies for Kara and Savanes DRDRs.

7. CATs established and functioning as extension, training, and adaptive research centers.

8. DRDRs establish animal insurance program in Kara and Savanes regions.

9. Antrac adopters plow and weed with adapted technology.

Project Inputs: ($000)

Technical Assistance	1,325
Construction	513
Commodities	419
Operating Costs	291
Subtotal	2,548
Inflation	155
Contingencies	297
Total (AID)	3,000

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GOT: ($000)	
Personnel	240
Miscellaneous Expenses	102
Subtotal	342
Contingency	40
Inflation	41
Purchasing Fund	342
Total GOT	765

3.1 Technical Analysis

3.1.1 Introduction:

Achievement of the project goal by promoting animal traction technology is feasible if a complex set of improvements are made in the delivery of the technical package to farmers. The spread of animal traction technology in the 1970's in ecologically similar areas of Ivory Coast and Benin suggests that these improvements can be made. A REDSO/WA study of animal traction throughout West Africa (Sargent et al.) concludes that animal traction is a viable technology when it is adapted to local conditions and supported by a number of services such as equipment supply and maintenance and competent extension advice. The AIP evaluations made a number of technical recommendations for improving the delivery of animal traction technology to Togolese farmers. This project is designed to improve delivery of the technology according to the recommendations of the REDSO report and the two evaluations.

The improvements fall into the following areas: Selection of sites and farmers, technology adaptation, extension strategy and animal supply. As these improvements are made, it is projected that farmer-adopters will, at the end of a five year learning process, have increased farm size by an average of 30% and yields by an average of 20%. These increases are consistent with results elsewhere in West Africa, and are much more modest than predictions made for other donor projects in Togo or West Africa generally. (The AIP, for example, projected an average 150% farm size increase by the end of two years). These modest projections are made because the experience of many other West African animal traction efforts has been that the learning curve for animal traction is shallow. It takes a long time for farmers to achieve mastery of the technology. Effects on surface area expansion and yields are small over a five year period, while the major increases in near-term income are due to appreciation in the value of draft animals for eventual sale as beef.

3.1.2 Selection of Sites and Farmers:

It has become clear during the AIP and the design of this project that adopters of animal traction need access to enough land to permit them to increase their farm size, as well as enough dry season water for their draft animals. The sites selected for an expanded extension effort are those in the Savanes and Kara regions which meet these criteria. (Annex 3 details land requirements for adoption.) In addition, the project will select several sites where farmers already own or take care of cattle. Such farmers are likely to be successful early adopters of animal traction for two reasons. If their cattle

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are idle resources, serving primarily as a store of wealth and for social prestige, these farmers can get a return on their investment in animal traction which is more than twice as great as that for farmers who must purchase oxen in addition to equipment (see Annex 2, tables 12, 13). Also, farmers with a traditional attachment to cattle are likely to learn how to break, train, handle, and take care of draft animals much more quickly than farmers with no such attachment.

Within the zones selected for project intervention, the choice of specific villages for extension effort will also meet the above three criteria. While zonal selection will be completed by the beginning of the project, selection of villages will be the responsibility of the PCV's and front line extension supervisors, working with the extension agents under their supervision. Before the TA team even arrives, a short-term animal traction expert will work with PCV's and front line extension supervisors to develop a simple set of operational criteria to select promising animal traction villages within their zone.

The operational criteria developed by PCV's, front line extension supervisors, and the short-term animal traction expert will also be used in identifying the most promising farmers within the targetted villages. PCV's will use AIP experience to assess attributes of the most promising adopters, and the most likely disadopters. In addition to individual access to suitable land and water, and experience with or ownership of cattle, several other criteria will be examined in choosing farmers, including availability of family labor, extent of cash crop production, current farming practices, and residential stability in the village. The operational criteria for selecting villages and farmers will serve as the basis for the monitoring and evaluation system to be developed by the agricultural economist for the DRDR's and for PROPTA.

3.1.3 Technology Adaptation:

The analysis of animal traction technology must begin with a general principle--animal traction is a means to increasing production, not a production end in itself. As an input, it interacts with the other elements of an area's farming system. Also, since it is not a single indivisible input such as seed, but a complex of elements with many feedback loops to other inputs, to the off-farming environment and to institutions, animal traction represents a larger perturbation of normal hoe farming practice, as well as a very sizeable debt burden on farm family income. While the nature of the perturbation can be very beneficial in terms of increased production, it can also result in confusion and loss of production and income at the farm level. Whether the net result of the introduction of draft

power to the farm is positive or negative depends on how well and how quickly the farmer gains control of the technology, so that major power constraints can be overcome and improved management decisions made.

Animal traction technology should be perceived of as a tool to do a job. It follows then that it is indispensable to first define the job to be done before selecting the animal traction equipment a farmer should acquire and use. This has sometimes not been the reasoning used in the past; in many projects in Togo, the equipment was often selected with little reference to the farm enterprise package. This has resulted in the overequipping of farmers, high levels of indebtedness, low rates of payment and underutilized tools. This project will increase farmers' control over animal traction technology by encouraging farmers to purhcase only those implements which they want and can use.

A fully articulated farming package using animal traction has not been developed for the growing conditions in Togo. The design team has proposed a minimum equipment package and has written into TAT's plan of work the progressive development and definition of agronomic and economic constraints to a fully-integrated farming system appropriate to agricultural realities in Togo. Many diverse elements of such a system are known and are practiced to varying degrees in Togo, but no effort has yet been made to compile what is known and what is not known. Much of TAT's work within PROPTA will be to more fully define and develop the appropriate farming systems. As there are developed, the selection of equipment becomes more and more self-evident. Specific areas of attention are weeding, minimum tillage, cropping mix, and rotations. Adaptive field trials will take place on farmers' fields and the CATs.

One of the key limiting factors to the success of animal traction in West Africa has been the failure to gain widespread acceptance of the elements designed to carry out weeding. Acceptance and skill development with weeding implements can lead rather rapidly to a restructuring of farm operations, to permit better occupation of the full growing period, greater likelihood of success with relay or double crops, and greater water availability during early crop establishment. In addition to these yield influencing effects, adoption of mechanical weeding permits surface area expansion up to about 60% beyond the level set by available hand labor for the average family.

There seems to be a number of reasons why weeding implements are seldom used. Equipment may not be well-designed for local conditions. Extension emphasis on this operation may be low because

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the agents have poor skills with equipment. Farmers may perceive a high risk factor associated with draft animals and equipment working in an established crop. Finally, there may be economic and social opportunity costs in replacing the hand hoe with the draft technology which are perceived to be greater than the potential benefits of adoption.

The TAT project intends to address head-on this critical stumbling block to animal traction success at the farm level. It will concentrate on early training of extension officers and middle management on weeding. In turn, project technical assistance will place special emphasis on demonstration and on training farmers in weeding techniques. Also, weeding implements and recommendations will be adapted to address constraints to their adoption.

It is important that technical recommendations lead to maintenance rather than degradation of soil fertility. Along these lines, tillage recommendations will be developed in the project's extension areas according to soil and climatic conditions. Unfortunately, this has not been the case in the past and is unlikely to occur in the project until the TA team is fully established in the second year. Even then, the project is going to have to be able to demonstrate to farmers and other projects that its tillage recommendations are practical and make a noticeable difference. the CAT demonstration/testing fields will be important sites for this activity.

In areas where lateritic shot and shallow soils are abundant the project should seek to develop less intensive tillage methods. One approach may be to establish ridges which would be split every year to form a new set of ridges and furrows. This would limit the depth of tillage, avoid the mixing of shot with the upper soil layers, turn under any late season weed growth from the year before, and improve surface roughness characteristics.

In areas where soils are structurally stable or "active," in Charreau's terminology, the plow should probably be used only to help break up small roots during the field clearing and opening process. Tillage operations should then become progressively less intense, concentrating more on the requirements of different crops for timely seedbed preparation.

Even when exceptionally well-planned and executed, crop rotation trials take several years to generate useful results. The project's role in crop rotation work will be confined to economic evaluation of rotational schemes recommended by research institutions, and monitoring of rotation impacts on the productivity levels of

holdings on which draft animals are used. IRAT recently published a ten-year synthesis of results which, when combined with work being done by the OAU/SAFGRAD group, can be used to prepare extension recommendations adapted to different production environments, farm cropping patterns, and past cropping history (Baran and Marquette, 1982; M'Po and Martin, 1982). Working with this information over the life of the project, the agronomist and Togolese staff may suggest modifications to current rotation trials to deal with the technical adjustments needed to make rotations economically attractive to project area farmers.

The project will undertake some field testing at the training center at Agbassa, on CATs and in farmers' fields on methods to establish forage crops. The objective of these tests is to extend dry season grazing on cropped land and to improve the grazing quality of fallowed area.

The project's technology adaptation will be worthwhile only if it is based on the "state-of-the-art" for animal traction technology in Togo, and if its results are in turn disseminated to other projects and animal traction activities in Togo. This means, first, establishing linkages with projects already doing adaptive research on animal traction, as well as with IRAT and other agronomic research units, and, second, feeding results of project adaptive research into the PROPTA monitoring and evaluation system, so that other projects can quickly make use of the results.

3.1.4 Extension Strategy:

The number of farmer-adopters targetted by this project is much more ambitious than the targets or results of the AIP, and than the targets initially discussed for the current project. If the selection of farmers proceeds as outlined earlier, a more effective extension approach is adopted, and the technology is adapted to northern Togo, these ambitious targets can be met.

Extension personnel and PCVs need training which permits them to understand the basic conceptual rationale for animal traction (i.e., overcome peak labor constraints, increase soil/water infiltration, reap beneficial effects of mixed farming on soil fertility, and gain beneficial farm income effects of beef production). A fuller understanding of the rationale for anima traction will help them find those farmers who are most likely to successfully adopt the technology. In addition, the extension agents in particular need more hands-on training so that they are comfortable and competent around draft animals, and so they themselves are capable of using the equipment, including the weeding and ridging tools. PCVs

need a fuller understanding of local farming systems, including basic attributes and soil-water needs of important crops, rotations, subsistance strategies, intercropping patterns, interference of the latter with row cropping for animal traction, and social constraints to adoption. One of the primary roles of the TA team (and in particular the agronomist) will be to plan and organize training of personnel involved in the DRDRs' animal traction extension.

A second change in the extension approach involves the role of the PCVs. PCVs will step back from their village role and become responsible for multivillage zones (secteurs or sous-secteurs). The PCVs' counterparts will be the front line supervisors of extension agents (chef secteur or chef sous-secteur). PCVs will assist the front line extension supervisors in coordinating the animal traction activities of the extension agents under their supervision. The PCVs will help insure that adequate equipment and animal supplies are available to extension agents on time, that extension agents explain credit terms to farmers, and that farmers understand them. They will help extension agents establish workplans to increase their efficiency and the number of farmers they contact. Finally, they will assess the extension agents' training needs and communicate these to the project agronomist so that he can plan, with the PCVs, appropriate training programs for extension agents.

The third change will be an emphasis on some of the technical themes discussed earlier, for example, weeding with draft animals, animal care, and analysis of on-farm constraints to adopting the technology. This third emphasis again will require solid training of extension agents and PCVs.

The reorientation and expansion of the extension program implies close technical supervision of the PCVs by the agronomist. It will also require PCVs to be trained to develop plans of work and strategies to broaden their coverage to include the several villages of their secteur or sous-secteur. PCV job descriptions need to be open in stating that, while they will have great freedom of movement, PCV assignments are jobs requiring daily and weekly routines according to the season, and requiring advance planning and structured workplans.

3.1.5 Draft Animal Supply:

Successful animal traction requires an adequate supply of fairly young, healthy animals trained for draft power whose weight, breed, and conformation are appropriate. This is true whether farmers purchase animals or use animals that they previously held as an idle resource. This project is designed to assure a supply of the appropriate animals to new farmer-adopters. Initially, the project

will assist PROPTA in supplying animals to traction projects. At the end of the thirty-month project, several experimental activities to provide the appropriate animals through private marketing channels will have been developed.

Analysis of the Togolese livestock situation in Annex 3 indicates that without important increases in cattle supply, planned expansion of animal traction by the GOT, PROPTA, and donors will by 1992 be constrained by a limited supply of suitable replacement animals. This implies the need, in the medium term, for increasing supply either by imports or by domestic stall feeding, ranching, or herd expansion programs. In the near term, during the life of this project, enough suitable animals can be obtained from the Savanes region's herd, possibly supplemented by imports from Upper Volta or Benin. PROPTA, with the help of AID and other donors, needs to explore animal traction alternatives which put less pressure on supply, such as single ox, cow, or donkey traction. While animal traction will put pressure on domestic supplies of young male cattle, it will in the medium term lead to a small increase in Togo's meat supply, as discussed in Annex 3.

AID support to PROPTA's participation in supplying draft animals is designed to meet an immediate need while at the same time encouraging the development of private marketing channels for draft animals which currently do not exist (except for a few areas of the Savanes region). Before discussing PROPTA's role, it is first necessary to clear up misconceptions on the part of those who support full long-term PROPTA involvement in supplying draft animals and those who support no PROPTA role.

It must be acknowledged that any government involvement in livestock markets in West Africa is risky, and requires great care in planning and implementation. AID and donor experience with state interventions in African livestock markets for meat on the hoof has often been ill-conceived and disappointing. A number of studies have demonstrated that West African livestock markets tend to be well-developed efficient resource allocators, and that state intervention in those markets leads to uneconomic misallocation of resources. Several of the rationales provided to support PROPTA's involvement in supplying draft animals take insufficient cognizance of the riskiness of the effort or of alternative approaches. First, farmers' ignorance of the right kind of animal needed for draft power is said to be a rationale for PROPTA procuring animals. However, farmers' ignorance on this point can best be addressed by extension and training, not by state procurement of animals. Second, it is said that cattle traders wanting to bring appropriate animals from neighboring countries may be impeded by capricious and unpredictable

application of quarantine regulations unless PROPTA is the buyer. This problem, again, is one that should be addressed more directly. (In fact, PROPTA will be used to facilitate the more uniform application of quarantine regulations for draft animal traders.) Third, a lack of effective demand is said to require the involvement of the state in animal procurement. For antrac projects to succeed, they must create a growing demand on the part of farmers for draft animals. However, once that demand is created, the source of supply does not really matter. This is no a priori reason that the state has to provide the supply.

Despite the above caveats, there is one strong and convincing rationale for PROPTA's short-term involvement in animal procurement and distribution. Due to very limited knowledge by both farmers and traders concerning the qualities of good draft animals there are currently only very limited and sporadic private marketing channels for draft animals, and even those do not exist outside of the Savanes region. The result is that buyers and sellers cannot find each other without incurring high transaction costs. As animal traction expands, and as private traders' contacts with PROPTA and projects increase, these transaction costs will be greatly reduced, as farmers will know where to find traders with suitable animals and vice versa. It is likely that in the next few years private marketing channels for draft animals will develop quickly, as they did several years ago in Benin and northern Ivory Coast, following expanded animal traction programs.

The near term objective of project support to PROPTA for animal supply is to insure that antrac projects and farmers have access to suitable draft animals when they need them. This will involve PROPTA purchase of suitable animals from private cattle traders at predetermined places and times. PROPTA will take over the animal purchase functions of PRODEBO and of the AID AIP, with some improvements. Quality control will be better and scales will be used in determining sales price. The Tantiegou station, to be expanded under this project, will be the focal point for the operation. After appropriate health screening and vaccination, the animals will be sold and shipped to projects requesting them, either broken and trained or not, according to the request. Animals for the AID extension project will be sent to the appropriate CATs, where they will be broken, trained, and then supplied to farmers. The World Bank, FED, Entente Fund, and IFAD projects are planning to purchase their draft animals from PROPTA, and other projects (such as FAO's Togo Nord) have informally expressed interest in doing so.

A second objective of this component of the project is to use AID and PROPTA contacts with private traders to encourage the development of private marketing channels for draft animals. Several

trial activities will be undertaken during the project, possibly including the following: Permitting private traders to use one of the four holding corrals in Tantiegou for quarantine purposes, and charging them full cost; encouraging the regularly timed PROPTA purchases from private traders at Tantiegou and elsewhere to develop into a larger draft animal market with a number of private buyers (farmers and other traders), in addition to PROPTA; paying traders for delivery in the requesting project's zone or at farmgate rather than just at Tantiegou; and providing credit to private traders who would, in turn, sell on credit to farmers. The GOT will covenant to encourage these activities on the part of private traders.

PROPTA will assure the health of the animals it provides to projects and farmers by using the Tantiegou station as an observation, quarantine, and vaccination post for animals it has purchased. PROPTA will include the cost of these health interventions in the price it charges projects for draft animals. Farmer-adopters in the extension component of the AID project will make a down-payment on animals which includes the cost of these health interventions.

The AID TA will assist the GOT's two DRDR's to set up an animal death insurance system, the cost of which will also be included in a farmer's down-payment. (No AID funding will support the health insurance system.) Health cards and ear tag identification will be used to check up on farmer claims for insurance payments. Payments will be made only to a farmer who can prove the dead animal is his (ear tag proof) and that it was properly cared for (health card marked by vet agent for the appropriate health intervention).

The AID extension component, PROPTA, and most other projects, will work with the GOT veterinary service to insure adequate follow-up for draft animals. Since the vet service seldom has adequate medicine or logistical support, the AID extension component and the DRDR's will provide these to the vet service as needed to insure adequate health follow-up for draft animals. Most other projects and PROPTA itself will have a similar relationship to the veterinary service.

Approximately half the new farmer-adopters in the AID/DRDR extension efforts (as well as many of the farmer-adopters in the World Bank, Entente Fund, and FED-Savanes projects) will already have their own animals. These animals will need to be broken, trained, and probably vaccinated. Insuring adequate health and support services for farmer-adopters already possessing animals will require a certain flexibility on the part of PROPTA and the DRDR's, but these farmers will be able to fit into the health and supporting system for draft animals to be developed and coordinated by PROPTA.

3.1.6 Credit:

While animal traction can be a profitable and beneficial technology, the high investment cost required leads to large negative cash flows in early years for a farmer-adopter. These cash flow problems can only be addressed by sale of the equipment and animals on credit. The initial AID project submission included a significant credit component, to provide medium-term credit to DRDR farmers in Kara and Savanes regions as well as short-term credit to PROPTA for animal purchase. Because of the low interest rate proposed by DRDR for the medium term credit, and the likelihood of decapitalization of the fund, the credit component has been cut out of the project. Credit to DRDR farmers will now be provided by GOT, which will bear all risk for the decapitalization of its own credit fund.

The GOT credit fund will be deposited in the two branches of the national agricultural credit bank (CNCA) which are used by the DRDRs in Kara and Savanes regions. Since CNCA is very thinly staffed and has little experience in credit delivery to smallholder farmers, GOT DRDR personnel (with AID and Peace Corps advice) will informally participate in delivery of this credit to farmers, and follow-up on repayments. The DRDR will draw down its credit account to pay PROPTA and UPRGMA for animals and equipment, which it will then provide to farmers. Farmers will then make repayments to the CNCA, again with the follow-up of DRDR extension agents.

While credit under the AIP was heavily subsidized, the equipment and animals were sold at full cost to DRDR farmers. The fact that 32 AIP farmers have adopted animal traction on these terms puts AID in a strong position to discuss with DRDR (and other donor projects) the rationale for reducing subsidies on equipment and animal price, or on credit, in order to insure stable, permanent sources of credit.

PROPTA will have a revolvilng fund for animal purchase, provided and controlled by FED. PROPTA will use this fund to purchase from private traders draft animals which it will vaccinate (with the Animal Health service), quarantine, train and then sell to projects at full cost (including the cost of holding and health care). It is expected that this fund will "revolve" twice a year. Some of the fund may be used to provide credit on a trial basis to cattle traders who will, in turn, deliver draft animals on credit to farmers. Although AID TA will not have direct control over the FED revolving fund for PROPRA, the TA will, of course, have an interest in the financial management of the fund, since the TA will be setting up the technical side of the animal purchase system.

3.1.7 Summary:

With a well thoughtout targetting of promising zones, villages, and farmers, and with GOT extension personnel and PCVs trained in understanding animal traction techniques (as technical and economic rationale for their adoption), the ambitious extension effort proposed here can be successful. More emphasis will be put on certain technical themes, such as weeding and animal care; many current technical recommendations will be modified and adapted to local farm situations.

The project will also insure a supply of healthy suitable animals to farmer-adopters in the two DRDR zones, as well as to a number of other animal traction projects. PROPTA will be the immediate focus of this animal supply effort; private marketing channels to deliver draft animals will be encouraged and developed.

While credit is critical to adoption of animal traction, this project includes no credit component. GOT will provide and administer credit from its own investment fund to farmers working with the two DRDRs receiving AID support. FED will provide a revolving fund for the purchase of animals by PROPTA.

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3.2 Institutional Analysis

3.2.1 Introduction:

This project is to operate at two levels. Nationally, the project provides inputs to PROPTA, the animal traction promotional and organizational service. Regionally, in the Savanes and Kara regions, the project supports a broad program of farm-level extension services through the regional rural development agency, DRDR.

A variety of donor-contributors, government technical services, field agents, village craftsmen and beneficiaries (farmer-adopters) all come into contact with the AID-funded project at some point. These contact points may be either (or both) at the national or regional levels. Together, these various entities, described below, make up the institutional framework which helps to make animal traction work in Togo. Through this project, AID will be making a direct contribution towards reinforcing the capacity of the two northern DRDR structures to implement PROPTA-supplied inputs and to reorganize the linkages between farm extension activities.

3.2.2 National Animal Traction Policy and Practices - PROPTA

Background:

Cognizant of the confusion among animal traction promoters, and increasingly aware and appreciative of the potential of animal traction to help realize food production goals, the GOT and interested parties in the donor community, including AID, formed a working committee in 1981, chaired by a high-level representative of the Minister of Rural Development, and conveniently seconded in its secretariat functions by the administrative structure of PRODEBO (Promotion et Developpement d'Elevenge Bovin - FED funded).

The COCA (Comite de Coordination de la Culture Attelle has become the official ground of debate and discussion of all questions of policy regarding animal traction. Its membership cuts across the ministerial and service lines and includes representatives of each of the donor (or banking) organizations and agencies which are involved with animal traction. The COCA has evolved as an advisory body to a point where its recommendations are referred to the Minister of Rural Development for adoption, promulgation and implementation. It enjoys official status and is governed by a set of by-laws. While in one respect, its formulation is almost ad hoc, without a permanent staff and a distinct physical location; in

another repsect, it is a body which is very much alive, active and capable of speaking with the authority of the GOT (and the concurrence of the donor community) in matters related to animal traction.

The GOT, with the support of representatives of the FED and AID, has undertaken to give a major impetus to the institutionalization of agricultural development, with animal traction as the primary farm management tool. A working group, within the COCA, met regularly since July 1981, to draw up a plan for the organization of an institution which will oversee the implementation of the essential elements of a farm management system which uses animal traction. This institution is PROPTA, Projet de Promotion de la Traction Animale; the French word in the title is "project," as distinguished from "organization" or "parastatal," appellations with connotations of permanency that were specifically rejected by members of the small working committee. PROPTA will be responsible for facilitating the interplay of the full range of government, donor and private animal traction-related policies and activities.

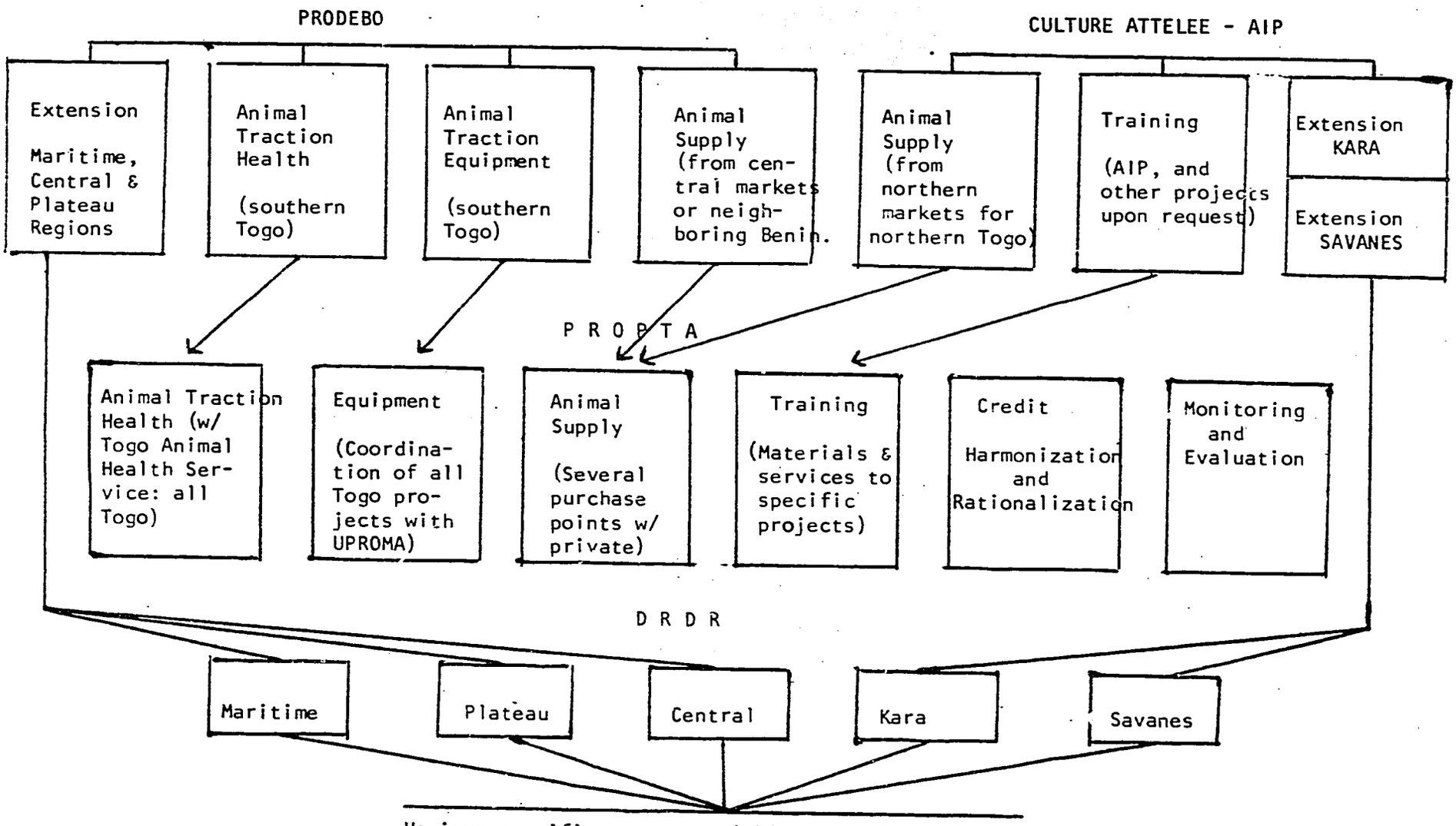
Organization and Functions:

Following more than a year-long dialogue with interested parties (AID included) on the form and substance of PROPTA, the Ministery of Rural Development signed on September 5, 1982, and put into effect an executive order which dissolves the two regional animal traction support entities, PRODEBO (FED-investment) and Culture Attelee (AID's AIP), and transfers their physical structures, personnel and responsibilities to the new national organization. Presently, implementation procedures are underway to carry out these changes without major disruption to the on-going supply of services guaranteed by the two former animal traction regional outfits. Schematically, PROPTA has effectively assumed the following functions of PRODEBO and Culture Attelee (with field-level extension operations being reserved to individual projects, or parts of projects).

PROPTA is a national structure in organization and responsibility. PROPTA receives regular budgetary support from the GOT.

The policies under which PROPTA works are set by the COCA. PROPTA is the implementing agent of Togo's national animal traction program. The Director and the Deputy will be called upon to make management decisions and set work priorities for such questions as flows of money for the revolving funds, repartition of draft

Transfer of Functions/Responsibility to PROPTA and/or Field-Level Projects



Various specific projects within each of the five economic zones.

animals and equipment to various client-projects, coordination of veterinary services with the GOT Animal Health service. They will be required to maintain a continuing dialogue with COCA decision-makers on one hand, with GOT technical services with another, with the plethora of project managerial and technical personnel (including DRDR's) with yet another, with private parties who may eventually participate profitably in furnishing important antrac-type goods and services. Most project managerial units in West Africa do not have a history of successful implementation of such multi-faceted projects. The gradual approach taken by this project design, and seconded by the cautious support being offered PROPTA by FED, augers well, however, for an institution-building process which will result in a strong managerial unit.

PROPTA management capacities exist at a level which has satisfied, to date, the implementation of its predecessors - PRODEBO and Culture Attelee. Both PROPTA's prospective Director and Deputy have shown themselves capable of assuming incremental responsibilities, providing that adequate orientation and training are received in advance.

In-service training of senior and middle-level PROPTA personnel is envisioned in the project. AID is funding a year-long agricultural project manager course for the prospective Deputy. AID hopes to enroll the PROPTA Director in a managerial course, such as the PAID-University of Pittsburgh workshop. Individuals responsible for the various operation branches of PROPTA will be given the opportunity to hone their particular skills. The project coordinator and the AID Project Officer will be alert to training openings. Special emphasis early on in the project is to be put on training of financial accounting personnel. This may be arranged, in part, through the periodic short-term Financial Management expertise that the project will engage.

PROPTA's technical staff is now only partially able to fulfill the work responsibilities which have been assigned to it in the articles of organization. The experience to date of its two predecessor organizations, PRODEBO and Culture Attelee, has been primarily with animal purchase and health, with a mixed history of experience in field-level extension (PRODEBO all but abandoned this area to separate projects in 1982), training of field-agents, and equipment procurement/distributions. Even less experience has been gained in the areas of credit and monitoring/evaluation. Donor assistance, through FED and AID, in a variety of forms, is aimed at building PROPTA's capacity to handle all these aspects of the animal traction program in a way that brings some organization and rationale to national and donor efforts.

Directed, as PROPTA is at present, by a Doctor of Veterinary Medicine, specialization to date has been in the area of draft animal selection, maintenance and health. A regular staff of veterinary agents has been assigned to PRODEBO and they have satisfactorily assured animal health needs, at least in southern zones. Albeit, the interventions to date have been unilateral and generally without even a simple coordination with the national Animal Health service. This project builds on the technical expertise which PROPTA enjoys at present, combines it with the on-farm approach to livestock health which Culture Attelee has taken in the north, and plans with FED instigation, to work towards strengthening the capacity of the Animal Health service to meet the special requirements imposed by the introduction of animals for labor on the farm. PROPTA plans to sign an agreement with the Animal Health service which will outline the assistance which will be exchanged over the next several years. Three Peace Corps volunteers (livestock veterinarians) are being recruited to help with this program at PROPTA's central posts of Dapaong, Kara and Atakpame.

PROPTA inherits the experience of both PRODEBO and Culture Attelee in procuring draft animals. This includes a demonstrated and acknowledged ability to conclude purchase agreements with private sources such as individual herders or dealers. Connections and business dealing have already been made with reliable dealers in neighboring Upper Volta and Benin. In sum, designated PROPTA personnel are acquainted with (a) the requisite characteristics of animals for traction purposes, (b) sources of suitable oxen, (c) the logistics of transport, (d) rapport with GOT Animal Health service, (e) the methods of payment and effectuating large cash transfers.

Orders for animal traction equipment which is manufactured and assembled by UPROMA has to date been handled by each project on a unilateral basis. Grouping of demand will permit PROPTA to negotiate with UPROMA the purchase and delivery (as needed) of implement units. While PRODEBO and Culture Attelee formerly estimated their own project needs and arranged for delivery and payment, PROPTA will now assume this role in the place of the various projects. UPROMA, which has a well-deserved reputation for quality work and management, has evidenced its preference for dealing with one entity in scheduling equipment needs, and will play an active role in assisting PROPTA to better serve the project-clients.

Training of one form or another (field-agents, farmers, farmer-groups, artisans, etc.) has been part of both PRODEBO and Culture Attelee's responsibility in the past. A complete program

of training has been or is being drawn up by PRODEBO and/or Culture Attelee personnel, in collaboration with INADES, a private West African rural training institution (which receives AID regional funding) with regional offices in both Dapaong and Atakpame. Training staff of PROPTA will continue to be reinforced by inputs from Peace Corps volunteers as well as the Project TA team--each in his/her particular area of specialty. In addition, PROPTA will add to its training specialization skills by promoting exchanges with the training staffs of various projects.

PROPTA will have to develop expertise in the area of credit programs. While personnel under its direction may have had the occasion to become familiar with one or several of the many mid-term credit systems used in providing animal traction units to farmers, there has been no systematic approach to the issue. PROPTA has already been charged by COCA, as one of its first tasks, to carry out a thorough analysis of current credit systems, with a view eventually towards recommending a single package. This work will be done under the leadership of the TA agricultural economist, in collaboration with those Togolese ag economists which the GOT may assign to PROPTA, either on a short or long-term basis (AID will recommend that Togolese with AID-funded degrees in ag economics from U.S. institutions be considered).

Monitoring and evaluation procedures are nigh non-existant within GOT institutions and are only nascent, at best, in those projects which are tightly run by donor-sponsored technical assistance teams. Yet PROPTA's articles of organization assign this function a first-place priority. It will be the responsibility of the agricultural economist and the AID project coordinator to work within PROPTA, and with the COCA, in setting up an adequate system of reporting and information collection/analysis which will cover all cooperating projects in-country. To assist PROPTA in establishing this section as a viable part of its services, the cooperation of individual projects, as well as GOT services (TOGOGRAIN, Agricultural Statistics, CNCA, and Cooperatives and Mutuals) will be necessary.

Infrastructure:

The infrastructure is comprised principally of a ten-office, L-shaped, one-story building in Atakpame, next to the SOTOCO national headquarters. Construction of this structure was funded by the FED and served as the headquarters for PRODEBO. Its size appears adequate for the functions to be assumed by PROPTA, with the exception of limited additional animal health facilities which may be designed and built with AID assistance in coordination

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with existing facilities at the Animal Health service. PROPTA also inherits from PRODEBO several rural extension-agent points (usually a lodging/office), in good condition, albeit generally unoccupied, situated in the three southern economic regions; there is one 15 hectare animal traction Technical Support Center, located 10 kilometers east of Atakpame, which is well-built with indigenous low-cost materials and serves presently as the training point for extension agents and farmers with whom a single Peace Corps volunteer works in the Plateau region.

AID will finance the construction of PROPTA's northern antenna, a 215 m^2 office building, to be directly attached to the Kara region DEDR headquarters in Kara. PROPTA's Deputy Director, and head of the northern office, is also Director of the AID extension program. In the first capacity, he will occupy an AID-funded house (150 m^2) in Kara, which becomes PROPTA's property.

Finally, PROPTA will gain AID's construction of an animal procurement and holding center at Tantiegou, comprising several simple structures (equipment shed, warehouse, office) and about 50 enclosed hectares of pasturelands, corrals, spray races and a loading ramp.

Personnel:

Human resources under PROPTA's direction are drawn primarily from PRODEBO and Culture Attelee's personnel lists, with appropriate recommended additions scheduled to join PROPTA as it begins to fully exercise its new fuctions. The complete list of personnel is given in Annex (Financial, Indicative Budget of the GOT Contribution). Staff positions are expected to be drawn for the most part from the ranks of qualified current GOT personnel. The only exception will be three Peace Corps volunteer Veterinary Extension Agents. These volunteers will help to ensure that a working relationship is established between PROPTA and Animal Health which satisfies the need for surveillance of the draft animals and serves the requirement that a long-term capacity for this function will be developed within a GOT technical service.

Budgetary Support:

Besides ongoing support to GOT "direct-hire" personnel who are assigned to PROPTA (actually, they are detached from their regular service--Agriculture, Veterinary Health, Cooperatives and Mutuals, Animal Production, etc.), estimated at about $26,000 annually, PROPTA receives a portion of the GOT investment budget.

This contribution from the treasury to the operational account has not yet been announced for 1983. While cuts are the rule in most government services, the accent on the food production sector of rural development leads project designers to be cautiously optimistic about PROPTA receiving most of its required annual budget, or about $50,000. It is reasonable to assume that this level of support will be forthcoming during each of the years of the project.

Outside sources of budgetary assistance are limited to two donors: FED and AID. FED budget assistance, which has not yet been obligated (albeit earmarked at about $300,000), pending a request from PROPTA, will be for the establishment of revolving funds for the purchase of animals, equipment, and medicines. The revolving funds will require considerable skill in financial management. FED has recruited the services of a German volunteer to sit in PROPTA's office and supervise the disbursement and recuperation of these revolving accounts. Furthermore, FED is engaging a full-time financial analyst for all of its project operations in Togo, who will be available to spend a proportionate amount of time (about 20%) on the PROPTA activity.

AID assistance to PROPTA is limited to construction (described above), on a one-time basis; Technical Assistance (70% of the time of the agricultural economist and the livestock specialist are charged to PROPTA; 25% of the time of the project agronomist and 60% of the coordinator's time is so charged); trucks for the transport of personnel, cattle and equipment; discrete inputs to PROPTA's office furniture and equipment (in support of the TA), as well as equipment and supplies for training and survey (monitoring and evaluation) acctivities conducted by members of the TA team. In summary:

Technical Assistance	$ 747,299
Vehicles	101,947
Construction	170,900
Commodities	161,541
Operating Costs	66,951
Training and Survey Equipment	75,000
Total (approximate)	$ 1,323,665

One possible indirect contribution to PROPTA from another donor may result from discussions held between members of the Project Paper team and SOTOCO, the IBRD-sponsored national cotton

production company. SOTOCO has a growing computer capacity which could be used to advantage in recording and analyzing operations related to monitoring and evaluation of animal traction activities. SOTOCO has shown itself interested in cooperating in a joint program using data processing equipment. This could be of inestimable value to PROPTA and the project.

3.2.3 Regional Extension Services - DRDR:

Background:

This project builds on a long-standing working relationship with the two GOT northern rural development agencies--DRDR--in the Kara and Savanes economic regions. A history of close collaboration dates back to the 1960's, when AID funded the construction, equipping and technical assistance to Togo's first agricultural training center, located in the Kara region. The center was under the immediate direction of the Kara DRDR. Peace Corps volunteers were assigned to the AID project as extension agents who assisted GOT encadreurs in a variety of work situations in the surrounding villages. Some small-scale animal traction activities were encouraged through the AID project. In this way, AID-PC-DRDR links in animal traction were first forged.

Almost twenty years later (following a succession of volunteers and short-term funding from Self-Help and Culture Attelle-AIP), AID's relationship to the agricultural development process in the Kara region is being reinforced, and the opportunity exists to extend that support gradually to the Savanes region. AID is very familiar with the rural development structure within the two regions, is intimately acquainted with DRDR personnel at all levels, and enjoys a professional rapport with DRDR staff and associated MDR technical services that is well-earned. The hard work of a number of groups of Peace Corps volunteers, related to the Culture Attelee AIP, is in no small measure responsible for the status which U.S. development assistance enjoys in the regions.

AID-DRDR:

AID has direct access to the DRDR Directors and their staffs. Contact is maintained through the exchange of correspondence, reports and occasional meetings in Kara, Dapaong or Lome. In the absence of the Culture Attelee project Director (attending a one-year training course, September 1982-July 1983), the Kara DRDR Director has acted in his place in managing project activities--particularly questions of personnel, budget and GOT-contribution. He has worked on a day-to-day basis with the

project technical advisor, an AID contractor. The project's animal procurement activities, in the Savanes region, with the attendant potentially difficult issues of financial management of important sums of cash, have all received the close attention of the local DRDR Director.

AID/Togo is pleased with DRDR's substantive support and the harmonious working relationship that has contributed to AIP project implementation, as well as to the design of this project. Both Kara and Savanes DRDR Directors have expressed their desire that continued infusions of AID funding assistance for animal traction directed at the farm-level be channeled through the major GOT rural development entities in each region, with themselves as the ultimately responsible parties. This means that the content and scheduling of annual programs of work, budget allocations from both the AID funds, regular GOT funds at the disposal of the DRDR (budget d'investissement), as well as those GOT funds assigned in specific support of this project, assignment of regionally based rural development personnel (technical and extension services), and possible collaboration with other field-level antrac-related projects in regions (i.e., Projet Vivrier, FED-Kara, FED-Savanes--for which the DRDR Directors are ultimately responsible before their government), will take place in concert with the AID Project Officer, the project Technical Assistance team leader, the Togolese project management unit and the DRDR Directors of the Kara and Savanes regions.

The GOT has also insisted, in writing, that AID apply strict financial controls and accounting systems in the implementation of the animal traction project. The GOT encourages the insertion of those regulatory measures which AID deems wise and necessary in order to ensure that project activities unfold in an orderly, honest and efficient manner, for the long-range advantage of the project's ultimate beneficiaries. While neither of two evaluations of the ongoing Culture Attelee-AIP project focused directly on the financial management aspects of the project, no indication has arisen that would indicate other than that budgeting, disbursing and accounting procedures have been satisfactory. The DRDR Director's careful project surveillance has been partially responsible for this good record. Arrangements for a similar relationship are expected to be established for this project.

PC-DRDR:

Peace Corps volunteers who have worked on animal traction activities, including the ongoing Culture Attelee-AIP, are invited by the GOT upon request of the tutellary ministry which has, in

turn, received notice of a specific need from the technical service--in this case, Direction General du Developpement Rural (in charge of the five regional DRDRs). Subsequently, volunteers are assigned to either the Kara or Savanes region DRDR, under the ultimate work authority of the DRDR Director; under the ultimate civil responsibility of the GOT prefect in the prefecture where the volunteer resides.

Most of the volunteers working on the forthcoming animal traction project are slated to serve as a technical resource to Togolese counterparts. Their placement within the DRDR structure will be at the level of Chef Sous-Secteur (sub-division chief), where they can play a supportive role to the chief's ag extension program for the sub-division (generally, an area of about 200 km^2). Volunteers at the sub-division level are to provide the requisite technical assistance to enable DRDR field-agents to introduce and backstop animal traction farm technology in a timely fashion. This role has evolved according to new needs. Formerly, the PCV farm-level role prescribed that he/she work directly with field agents (2 or 3) in providing training and services to a small number of farmers (1-3 per agent) and farmer-groups. This project believes that the extension volunteer's time can be better spent in passing on skills and services to trainers and supervisors, the sub-division chiefs, who can plan the farm-level animal traction promotion and support campaigns with the field-agents.

A few other volunteers within the antrac program will have more specialized roles at the DRDR level. Two trainers will assist in organizing and giving antrac in-field and on-center training sessions, in collaboration with DRDR training personnel. They will be based at the two DRDR training centers: Agbassa (built under the Culture Attelee-AIP) in the Kara region, and Tantiegou (an ag center built in the mid-60's by the BDPA, next to which this project will construct the cattle buying/holding center). Finally, a construction volunteer assigned to the project will circulate between the two regions to supervise planning for and actual construction of small additions to DRDRs' animal traction infrastructure, as well as set up a maintenance/repair schedule of existing facilities. (Job descriptions for all of the PC positions are found in Annex 10; a schedule of all anticipated PCV partaicipation is also included.)

DRDR Field Personnel:

The AID rural extension phase of this project relies heavily on the ability, capacity and motivation of regular DRDR field personnel to promote and backstop animal traction. No

additional field-agents are being recruited by DRDR to serve only for the duration of the project. This personnel, Division Chiefs, Sub-Division Chiefs and Field-Agents, receives an annual work program from the DRDR. It is generally composed of introducing recommended improved farming methods and the use of available farm inputs (usually improved seeds, fertilizer, and pesticides). Sometimes, the ag staff receives some in-service training on the application of methods or technologies prior to extending them to farmers; sometimes, the staff is left to its own devices--book-knowledge, dated instruction from ag school, or simple guess-work. Altogether too often, the agricultural extension personnel of the DRDR are under-trained, under-supported and under-motivated.

The animal traction projects in northern Togo of the last 3-5 years have oftentimes successfully introduced the technology to agricultural agents, including those attached to the DRDR. Of primary importance, the field agents (particularly those who have worked with the Culture Attelee-AIP) have received instruction on incorporating animal traction technology into a package of improved farming techniques that can be extended to those farmers (and groups) who seem able to utilize an antrac unit profitably.

The introduction of animal traction technology has received a priority position on the GOT's list of farm extension themes for this decade. This project assists DRDR in improving the instruction in animal traction technology to the field personnel, from the Division Chief on down. Animal traction technology is to be presented as a potentially appropriate tool which, when combined with other farming improvements, can offer significant gains in yields, production and income. AID anticipates steady progress in helping the DRDR inscribe antrac technology as the eventual principal thrust of a field-agent's role.

DRDR and Other GOT Technical/Planning Services:

The role of each DRDR is to coordinate in the field the inputs of each of the Ministry of Rural Development entities situated up-country. Most of the technical divisions of MDR are under the supervision of the Director of the DRDR in the economic region where they are located. These services include Agricultural Statistics, Cooperatives and Mutuals, Agricultural Research, Young Farmer Agricultural Education/Training, Plant Protection, Livestock Production and Agricultural Credit. (Some rural services such as Animal Health, Rural Engineering, Forests and Hunting are situated, almost anomalously, under the Ministry of Rural Works, albeit, inter-ministerial cooperation is evidenced in Togo.)

While various project may have working agreements with one or several of the services under MDR's tutellage, the field coordination of the activities goes through the Director of the regional DRDR. This project envisions working in various ways with several of the above GOT services. AID's work program will be drawn up in concert between the national directorates of these services (in Lome), and the appropriate field personnel. While working through these various services may have some occasional disadvantages, it is the most effective way to ensure the institutionalization of the various and sundry components of animal traction development.

AID already enjoys strong, working relationships with many of the services of the MDR and other ministries at the regional level (particularly Animal Health and Agricultural Credit). Initiatives have already been undertaken to include Agricultural Statistics and Agricultural Research as the first of MDR's services to relate to the adoption (and the adaptation) of animal traction technology. Animal Health, while under a separate ministry, is literally "condemned" to continue to enjoy a strong working partnership with the AID farm extension program. AID believes that based on the performance of working relationships to date (under Culture Attelee-AIP), and the prospects for steady support from the leadership at DRDR Kara and Savanes, there stands a chance for the progressive integration of planning and technical services into an effective structure at the service of rural development in northern Togo.

DRDR - PROPTA

The actual working relationship between these two primary project implementation agents has yet to be worked out in all the details, and will probably await the effective establishment of PROPTA, with each of its several sections in place and functioning. The full operational capability of PROPTA will only occur when both AID and FED inputs come on line. However, based on the experience of the relationship of PRODEBO and Culture Attelee to the DRDR structure, and given the organizational structure of the Ministry of Rural Development, the tutellary body for both parties, something can be said, at least for the nature of the relationship.

PROPTA's creation has been necessitated by a number of factors, alluded to above. There has never been an intention to retain the PROPTA structure on a permanent basis. Once PROPTA has accomplished the task for which it was created--essentially, to institutionalize an improved system of farming and the support

thereof, into the Togolese rural private and public economy--there is ample provision for it to be dismantled and its separate functions assusmed by other entities.

DRDR, on the other hand, is an ongoing arm of the GOT, located at the level of each economic region, to promote the effectiveness of the several rural development organizations under its direction, for the principal purpose of increasing food production. Its immediate concerns are continually changing as the rural economy develops. In the case of animal traction, DRDR admits to its lack of capacity to meet the demand for antrac units and to introduce the technology in an effective manner. PROPTA consequently is at the service of the DRDRs, and of the various donor sponsored (and run) projects (which were themselves necessitated because of DRDR incapacities).

At present, DRDR Director and the PRODEBO/Culture Attelee management units meet on a regular basis to exchange information and to discuss the supply of animals, equipment and services. (In the case of Culture Attelee, the Kara region DRDR Director has, in fact, served as interim Director of the AIP-project during the absence, for schooling, of its regular Director.) Since DRDR Directors are considered as the GOT's principal rural development officers in the regions, they could be said to have a higher position than the PROPTA Director. However, this higher position does not translate into giving orders for the execution of PROPTA's work plan. PROPTA's Director ultimately answers to the COCA board and the Minister of Rural Development.

AID believes that the evolving relationship between PROPTA and DRDR is productive, mutually reinforcing and designed to resolve issues at the regional levels, not to create new ones.

3.3 Economic Analysis

3.3.1. Introduction:

It is difficult to project the benefits of animal traction. Animal traction leads to multiple phased changes in the farming system that are harder to predict than changes brought about by the introduction of a single new crop variety or fertilizer package. At the same time animal traction brings wide ranging changes in rural commercial, social and livestock production systems, leading to significant secondary benefits such as diffusion to other farmers, growth of blacksmithing and repair services, and increased livestock production. At the farm level, one can project hypothetical direct benefits which are likely to arise from this project. But to proceed to predict secondary benefits is impossible because we simply do not know if the Togolese situation matches other areas where these secondary benefits have grown widely and rapidly following the introduction of animal traction. And it is precisely these secondary benefits which must arise if the high personnel and logistics costs involved in contacting "early adopters" is to be justified.

Available information is thus not adequate to make an informed decision about this project on economic grounds. Rather a judgment must be made as to whether we expect secondary benefits from the project to be adequate to justify the costs. This judgment needs to be made based on expertise of the U.S. and other donors with animal traction, but it is ultimately made on the basis of impressions, not data.

3.3.2 DRDR Extension Component:

The benefits from animal traction are long-term. It may take farmers four to five years to become sufficiently skilled in animal traction to be able to reap its full benefits. The secondary benefits of technology diffusion to other donors are even longer-term. This project, together with others in other parts of Togo, provides the "start-up" necessary to set in motion the long-term process of farmer adoption, skill development, and diffusion. The extension component's high cost per beneficiary will not have to be replicated by the GOT in order for animal traction to expand. Once the initial learning and demonstration period is over, existing and underutilized government channels, together with the private channels that will develop, will be able to encourage expanded adoption of animal traction. Due to the long-term nature of animal traction development, costs and benefits of the extension activities initiated by this project are carried through a seventeen year time period.

Costs:

Table 1 in Annex 2 shows under the DRDR columns all economic costs associated with the project's extension component. These include AID costs for 30 months, Peace Corps costs for three years, and DRDR costs (including increased operating costs and new CAT staffing) over 17 years. It is likely that these figures overestimate costs, since many DRDR staff are currently underutilized. This is to say that their salary (used to figure cost here) is much higher than the opportunity cost of their participation in animal traction extension activities. Also, once farmer-adopters are through the initial five year learning period, they will continue to reap the benefits from animal traction without much further advice from extension agents. All benefits and costs are in constant prices, so the AID inflation factor is not included as an economic cost. Farm level production costs (equipment and animals supplied by GOT, as well as other inputs) are netted out of production benefits rather than included here under costs.

Benefits:

Tables 12 and 13 show the financial benefits of animal traction to the farmer, based on market price, yield, and input price information (Tables 4 -6), cropping pattern (Tables 7-10), and estimates of yield and area increases from animal traction (Table 11). These yield and area estimates are reasonable, conservative, and based on data from long-term monitoring of other West African projects. For example, while the AIP projected a 150% on-farm area increase in one year, experience elsewhere in West Africa (including, now, from northern Togo) cautions against expecting any area increase in the first year, and suggests only a 30% increase at the end of five years. This 30% area increase, and a 20% yield increase over five years, are hypothesized for project farmers.

The financial rate of return to a farmer adopting animal traction is much higher if he has animals already, as seen in Tables 12 and 13. His ability to handle the animals may also be better. By targetting especially farmers who already own animals, this project will be able to work with more farmer-adopters, and their learning period will likely be shorter, than if the project worked only with farmers who want to buy animals as well as equipment.

Farm level economic benefits are calculated in Tables 14 and 15. These tables assume market prices as estimated in Table 4 for output to be reliable indicators of economic value. Farmer-adopters are assumed to farm 4 hectares of land in the cereals zone or 3 in the root crop zone the first year of adoption. Economic costs of production are netted out of the farm level benefits. These include

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equipment, animals, and traditional inputs, but no fertilizer or improved seed varieties. As fertilizer and new seed varieties spread, of course the benefits to animal traction will increase above what is calculated here. No incremental labor cost is netted out of farm level benefits, as evidence from Upper Volta and elsewhere suggests no increase in total farm labor requirements. Draft animals are assumed to increase their weight by 90% in the five years between purchase and replacement.

Comparing Costs and Benefits:

The net present value (NPV) of project extension costs is far in excess of the direct benefits which would be generated either by the initial farmer targets discussed in the design phase of the project, or by the "modest extension effort" discussed during AID/W review of the initial project proposal. The fact is that the costs of the minimum level of TA, construction, and commodities required to support any effective antrac extension effort can be justified only with much broader extension targets than those proposed earlier. The earlier proposed targets (numbers of farmer-adopters contacted by PCVs and extension agents) were chosen based on past experiences in the AIP. The targets have been revised upward taking into account the fact that this project will provide the structure, technical supervision, and analytical tools for PCVs and the extension supervisors and agents they work with to recruit 40 new antrac farmers in 1983, 216 in 1984, and 240 in 1985. These targets are ambitious but can be met under the conditions discussed in the technical analysis. (Benefits calculated here also include 31 recent AIP adopters who need this project's inputs to successfully sustain their use of antrac.)

The targets chosen for the extension component of the 30-month LOP have direct benefits equivalent to an NPV of $1,280,710, as shown in Table 17. These benefits alone are inadequate to justify the costs of $2,838,823 (NPV) shown in Table 1 for the extension component. As discussed earlier, animal traction projects can in general be justified only with reference to their long-term indirect benefits. The level of long-term indirect benefits needed to justify costs is $2,838,824 minus $1,2880,710 (direct benefits), or $1,558,114 (NPV). Is it likely that such a level of indirect benefits could be achieved? As stated earlier, this is a judgmental question which in the absence of data cannot be decided on the basis of economics. Our judgment is that if the project inputs are in place, if PCVs and extension agents establish structured workplans and receive adequate training and supervision, and if targets for farmer-adopters are thereby met, then it is reasonable to expect these indirect benefits to occur.

We have constructed a scenario of indirect benefits in Table 18 which assumes that following the end of the project in years 4, 5, and 6, 200 farmers a year will adopt antrac due to a) the demonstration effect from the project's 496 new farmer-adopters and b) extension agents in place who are informed, well trained and supervised. The scenario then assumes leveling off of this demonstration and extension effect, to 100 new adopters a year for years 7 through 13. The NPV of these indirect benefits is $1,687,000 which when added to the direct benefits calculated earlier exceeds project costs at a 10% discount rate. Antrac projects have led to similar wide indirect adoption effects in similar areas of West Africa once project-induced antrac has had an impact (for example, Northern Cameroon, Benin, Northern Ivory Coast, Southern Mali). One could construct other reasonable scenarios of indirect benefits, projecting fewer secondary adopters but attempting to place a value on the better equipment repair and cattle marketing services which widespread antrac adoption will encourage.

If the direct targets cannot be achieved, the project is probably not economically viable. For example, the original lower targets (40 new farmers, 1983; 108, 1984; and 120, 1985) would lead to direct benefits of only $725,260 (NPV), substantially below the NPV of project costs. To make up the different by hypothesizing even greater indirect benefits is somewhat implausible.

Evidence from AID evaluations and from other projects suggests that animal traction is a viable technology in Togo. This same evidence, however, cautions that care be taken in selecting sites, recruiting farmers, training extension agents, and adopting the technology. This project will insure that such care be taken. It is our judgment that this project's targets for direct beneficiaries can be met, and that the indirect benefits are likely to be sufficient for project costs to be justified.

3.3.3 PROPTA Institutional Support Component

This project supports PROPTA in its efforts to coordinate a number of activities carried on by disparate animal traction projects, in particular training of field extension agents, rationalizing credit and subsidy terms, monitoring and evaluation of farm level animal traction results and problems, and supplying draft animals. Coordination has specific tangible benefits in Togo, where many projects are working without sharing information, resulting in mistakes that get repeated and successful approaches that do not get diffused. If PROPTA can encourage the exchange of ideas and information then successful approaches, training materials, and

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technical modifications developed by one project will be much more quickly diffused to farmers in all project zones. And all projects' extension staff will be more effective in working with farmers who want to adopt animal traction.

As with secondary benefits of the extension component of the project, it is hard to make projections of the quantitative benefits which would result from our institutional support to PROPTA. But we can calculate costs, and see if there are reasons to believe they will be matched by a satisfactory level of benefits. Table 1 shows the NPV of AID and GOT costs in supporting PROPTA. Kara region contains approximately 100 DRDR field extension agents, excluding agents paid by various projects. Say that projects account for another 100 agents, and that similar numbers are obtained in the Savanes, Centrale, and Plateau regions. If we divide the NPV of PROPTA costs during its first eight years by these 800 agents we get a cost per agent of $2,651. What sort of benefit would justify this cost? The net present value of one farmer adopting antrac three years from now (i.e., once PROPTA's coordination and training functions have filtered down to the field level agent) is $2,468. In order for our investment in PROPTA to be justified then, PROPTA would have to increase field agent effectiveness enough so that on average slightly more than one additional farmer for every extension agency would adopt animal traction, beginning at the close of this project. Given the current low level of information flow among projects and inadequate training of extension agents, it is likely that PROPTA's interventions would greatly increase agents' effectiveness. Current agent to antrac farmer ratios in the AIP zone average 1:2 or 1:3. It is certainly reasonable to expect that each extension agent, after becoming better informed and trained, could cause one more farmer to adopt antrac.

AID support to PROPTA's animal procurement function requires an analysis of the cost-effectiveness of PROPTA performing this function compared to alternative methods. The two most likely alternatives are allowing private marketing channels to supply draft animals, or continuing the present system of individual projects procuring their own animals. As discussed in the Technical Analysis, private marketing channels for draft animals are almost non-existent in Togo, because given the limited importance of animal traction until now, there are very high transaction costs involved for private traders with draft animals and farmers to find each other. It is likely that these channels will quickly develop as animal traction expands, and this project will undertake some trial activities, discussed in the Technical Analysis, to encourage such expansion by lowering the transaction costs. For the immediate future, however, most draft animals will be provided by either projects or PROPTA.

Once it is accepted that the lack of well developed private marketing channels necessitates temporary state involvement in animal marketing, we still must decide the nature of that involvement. Why need it take the form of PROPTA rather than the existing more decentralized system of several projects doing their own buying? By looking at the cost per head of various project-specific animal procurement activities, we can see why consolidating the buying operations of several projects at PROPTA's Tantiegou station is likely to be cost-effective.

Table 20 shows costs incurred by projects in procuring draft animals and getting them to their respective project zones. The data are not strictly comparable because they do not all include or omit the same costs. However, they can provide an idea of how some costs could be significantly reduced with a better managed procurement system. Specific points of intervention suggested in Table 20 are costs involved in scouring the countryside to find sellers, carrying costs from buying and then having to hold inappropriate animals, and purchase prices inflated due to unastute procurement and bargaining. The proposed PROPTA system at Tantiegou will significantly reduce all three sets of costs. By establishing standard times at which traders can bring their animals with the expectation of selling at Tantiegou, "trader contact" costs will be significantly reduced, since fewer trips to villages or to Upper Volta by project or PROPTA personnel will be necessary. Also, by permitting PROPTA buyers at Tantiegou to carefully select animals without the time pressure they are under when buying on the road, fewer inappropriate or too-young animals will be bought, thus reducing the carrying costs incurred while waiting for these animals to gain enough weight to be able to pull farm implements. Finally, by establishing frequent regular contact with a number of buyers, it is likely that PROPTA will be better informed about market prices than are some projects, and that PROPTA will pay prices closer to market prices.

The primary cost in establishing the new system will be the animal scientist's time devoted to it, and the construction of the Tantiegou station. Projects now have technical assistance personnel involved in supervising or controlling animal purchase. That proportion of the AID animal scientist's time devoted to PROPTA's animal procurement would be similar to what TA in other projects spend currently. Most of the costs in Table 20 would remain the same, except those mentioned above which reflect inefficiency and high cost. So the major incremental cost of the operation is the $63,900 construction for Tantiegou. If this cost is amortized over twenty years the annual cost is 958500 CFA. (The station will still serve a quarantine function long after PROPTA no longer exists). The technical annex predicts average annual demand for new or replacement

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animals over the next five years to be 1800. If 1400 of these are supplied by PROPTA, the incremental cost per head of PROPTA procurement (i.e., the cost of constructing the Tantiegou station) would thus be 684 CFA. If demand is only half of these projections (perhaps many antrac farmers will have their own animals) cost per hed would be 1368 CFA.

For the reasons stated earlier, it is likely that the Tantiegou operation would result in savings which would exceed the cost per head of building the Tantiegou station, even at the level of 1368 CFA. The benefits per head of reduced resources needed to contact sellers, fewer purchases of inappropriate animals, and better information on market prices and animal availability could be well above 1368 CFA/head, and certainly above 684 CFA. In addition, without the Tantiegou station, the inefficiencies apparent in Table 20 will increase. As projects need greater numbers of animals over the next few years, probably more money per head would be spent on contacting sellers and, under pressure to produce greater numbers, project buyers in the bush might continue to purchase even greater numbers of unsuitable animals. AID support to PROPTA's Tantiegou operation therefore appears to be a cost-effective activity, by comparison both with costs per head under the present system and likely cost increases if the present system has to supply greater demand in the near future, as anticipated.

3.3.4 Conclusion:

Animal traction projects, and especially those which strengthen institutions and supporting services, do not lend themselves to rigorous benefit cost analysis. This project's primary benefits will be indirect, yet it is difficult and risky to predict indirect benefits due to extension or to better coordination and training. Many of the costs involved in this project can be critically analyzed only by assessing the indirect benefits needed to justify the costs, and then assessing the likelihood of those benefits being achieved.

The extension component has ambitious targets for direct beneficiaries. These targest can be achieved if the approaches to extension described in the Technical Annex are undertaken. But achieving the targets alone will not produce sufficient benefits. Significant secondary benefits (adoption of antrac by other farmers following the example of those direct beneficiaries targetted by the Project) are also expected, and together with direct benefits would be adequate to justify investment in the extension component of the project.

Analysis of AID institutional support to PROPTA is similar to that of the project's extension component. The level of benefits needed to justify project costs is calculated, and, through examination of extension agent/antrac farmer ratios, these benefits are deemed likely to occur if PROPTA becomes an effective coordinating and training body.

The animal procurement capacity which this project will provide to PROPTA is a short-term solution to animal supplies in the absence of private marketing channels for draft animals. The medium-term solution to be started under this project is to facilitate the development of those channels. The immediate alternative to animal procurement by PROPTA is the present system, with several separate, project-specific buying operations. Even now, an examination of procurement costs of projects shows that PROPTA is likely to be more cost effective. As demand increases in the next year or two beyond the current system's capacity, it is likely that the PROPTA alternative will be even more cost-effective than by comparision to the present situation.

The three components of this project form a coherent set of activities. Based on examination of all available data and non-economic judgments about likely adoption and diffusion rates, the project appears to be a sound investment, generating benefits in excess of costs at a 10% discount rate.

3.4 Engineering Analysis:

The engineering, infrastructural component of this project is fundamental, yet limited in scope and complexity. The project will finance the construction of several types of small offices, houses, warehouses, sheds and corrals. Several existing field offices, apartments and warehouses will also be renovated.

3.4.1 Project Sites, Construction, and Renovation Needs

Project activities will be directed from several administrative locations. The national headquarters for PROPTA (Project for the Promotion of Animal Traction) is at Atakpame, the capital city of the Plateaux region. The northern headquarters for PROPTA will be constructed by the TAT project at Kara, capital for the Kara region. Housing for the Togolese project director will be built in Kara. Kara is also to be the administrative center for extension work in the region. At Dapaon, the capital of the Savanes region, no construction is planned. Existing facilities at DRDR will probably cover existing needs. In Tantiegou, just north and west of Dapaon, the TAT project will construct a national animal buying center for draft animals. A subsidiary buying station and training center will be completed at Agbassa in the Kara region. Agbassa was the main focus of animal traction activities during the Accelerated Impact Program for animal traction which began in 1979. A residence for the Director of the Center will be added to the structures already built there under the previous AID activity.

Besides the administrative and coordination points listed above, the project will base its outreach activities on the development of technical support centers called CATs (Centres d'Appui Technique). Both new construction and renovation is involved in the CATs. Ten CATs will eventually be operating during the TAT project, five each in the Kara and the Savanes regions. These centers will be constructed as simply and basically as stability and durability allow, and will be appropriate to the rural milieu and their farmer training and support functions. An example of this simplicity in construction is the PRODEBO Training Farm at Kamina.

In the Kara region, four CAT sites have been identified and inspected. These are Kante, Nampoach, Kagnissi, and Warengo. The first two will be the subjects of renovation; the latter two of new construction. A fifth site will be chosen in 1983. Nampoach is the site of an old CAT now occupied by a DRDR production farm. An office/warehouse block exists along with a covered stable of steel truss construction, threshing floors, and rainwater collection and

cisterns systems. Only minor repairs and construction of a corral are needed. Kante is also a renovation site. It now serves as an animal health corral with some storage and office space. Repairs to the corral and some storage space improvement is needed to turn it into an equipment and animal supply depot. Both Kagnissi and Warengo will require new construction, as will most probably the unidentified site.

In the Savanes region two renovations (Gando and Toaga) and one new construction site (Naki-Est/Nayega) have been identified. Another site for renovation is being considered. A fifth (unidentified) site will probably require new construction. The renovation sites are all old farm development centers built during the 1950's and 60's. They all have a complement of housing, warehouse, office, stable, and workshop space in various stages of use and repair. None require basic structural renovation. The key elements in each reconstruction are new corral facilities, repair to roofs, windows, and doors, and interior painting. In the Naki-Est Nayega area, a new CAT will be constructed west of Gorodo village. This center will have the same elements as the new CATs in the Kara region.

Water supply is a concern at Nampoach, Kagnissi, Naki-Est/Nayega, and probably at the unidentified sites. While well construction for these five centers is budgeted under the project, assistance will be sought from an on-going AID-funded well-drilling project presently in the Savanes region, as well as from well digging equipment funded by the FED for the Kara and the Savanes DRDR area operations. Each site will enjoy at least one drilled and capped well with a manual (or foot) pump.

3.4.2 Sites and Works:

In Kara, the project will build the PROPTA northern headquarters next to the DRDR building, a location which will facilitate coordination with regional authorities. The site is on a gravelly soil just north of the DRDR parking lot and south of a warehouse. Water and power will be necessary for the sanitary facilities. No unusual site development problems are foreseen.

The Project Director's house will be situated in a residential quarter in Kara, on gravelly soil. The house will consist of living and dining rooms with verandas, three bedrooms, a kitchen, a bathroom and storage and service dependencies. Utility hookups (water and electricity) will be made to the large Kara grid. An individual septic tank will be provided. A specific site

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has not yet been proposed. Once identified, it will be inspected by REDSO/WA Engineering to ensure physical suitability and easy access to all services.

At Agbassa, one house will be added to the two residences already constructed. The site will be just east of the current two dwellings. It is located on a medium depth ferrilitic oxisol underlain by lateritic gravel and at depth, a solid lateritic horizon. The house design will resemble that planned for the residences at the new CATs.

The national buying center at Tantiegou will require the construction of six 6.25 hectare pastures, a block of four holding pens with associated chutes, a spray race, treatment squeezes, corral and loading ramps. Associated with the main animal handing facilities are a combination office and storage structure, machinery shed, isolation pen, and pumping station with a cistern reservoir. The site is located adjacent to an irrigated agriculture center developed in the late 1950's.. Holding pens and office/storage structures are to be located on an exposed well-drained lateritic horizon neighboring a sandy clay-loam bottomland (bas-fond) on which the pasture fences will be erected.

While soils and site characteristics naturally vary at the CAT sites chosen across the project area, their selection was based on consideration of general criteria of land availability, good drainage (for corral construction), road access, water availability, and favorable topography. The REDSO/WA engineer visited all positively identified sites except Nampoach and Kagnissi. Before construction or renovation begins at these and the as yet unidentified sites, a REDSO/EA engineer will make a site visit to verify their acceptability.

3.4.3 Contracting Mode:

The design team recommends the use of direct or host-country contracting procedures for design and construction of planned structures. The contracting procedures will be established with the assistance of the REDSO/WA engineering staff.

It was not believed advisable to prepare detailed plans of structures at the PP stage. Instead the REDSO/WA engineering staff have prepared criteria for durability, thermal design, and material selection which will be used to guide evaluation of design bids and monitoring of the construction process. (See Annex 7)

A request for proposals to design project structures will be prepared by the OAR/Lome with REDSO/WA assistance. Proposals will be evaluated according to the criteria above. The selected design firm should have the capability to undertake the role of a supervising architect during actual construction. Construction of the approved design will be subject to a competitive bidding process within Togo. With REDSO/WA assistance, a contract will be negotiated to establish the advance payment (up to 40%) and monitoring requirements needed to ensure construction quality and timely delivery.

Some elements of the construction requirements may be removed from the process if they can be more expeditiously handled by project and DRDR personnel, e.g., corral construction at the CATs. Such decisions will be made by OAR/Lome in consultation with the Government of Togo with REDSO/WA guidance.

3.4.4 Design and Construction:

The design and construction of the centers and buildings described in the preceding sections are well within the capability of several architectural firms and building contractors presently working in Togo. Two recently completed examples of competent, timely and low-cost locally-contracted designs and construction are the $140,000-Family Health Center in Lome, financed by AID and the $160,000-Projet Vivrier offices, houses and warehouses in the Kara area, financed by the Entente Fund.

3.4.5 Construction Cost Estimates:

Cost estimates were obtained by reference to construction contractor files on actual costs for July 1982. The final cost estimates were made by upgrading roof and ceilings to provide for more durable structures than those now constructed in rural areas in Togo. Examination of past inflation rates for construction materials led the design team to build in a 17% inflation factor for construction which will be done during calendar year 1983.

For office and residential construction, two estimates of square meter costs were developed. The first includes installation of water and electric systems and has been costed at $250 per square meter. The second estimate is for rural construction, office and storage structures without electrical wiring and extensive plumbing needs. Costs for this type of construction are reduced to $185 on a square meter basis.

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The quoted costs are all inclusive. They incorporate architectural design and construction management, labor, materials and transport, site development, worksite shelter and housing arrangements, contracting costs, and all other fees, permits, and indirect charges. The construction cost estimates can be found in Annex 8.

3.5 Social Soundness Analysis (Tables are found in Annex 4)

Table 1 shows population change and population density from 1960 to 1981 (based on provisional census results) of the project zone, broken down by circumscription and prefecture. It is clear that both the Kara and Savanes regions grew rapidly in population, and that there is considerable variation among prefectures in the rate of population growth. Over the last decade, the average rate of population increase in the Kara region slowed somewhat, from 2.3 to 1.8 percent but the average rate of population growth in the Savanes region increased noticeably, from about 2.8 percent per year to 3.2 percent per year. Both changes are probably due more to changes in regional migration rather than major changes in birth and death rates.

The density of settlement is important for animal traction projects, because much of the early increase in farm production in most contexts in West Africa that is attributable to such projects is usually due to increases in cultivated area, and the success of such projects depends in part on the availability of uncultivated land. Although the density figures in the table are rough (they include both urban and rural populations and they do not allow for both wildlife and forest reserves in which settlement is forbidden), they show that population density varies greatly between prefectures, and suggest that, other factors being equal, Keran, Doufelgou, Bassar, Tone and Oti prefectures might be more promising zones in which to concentrate project resources than Binah and Kozah.

Table 2 shows the ethnic diversity of the project zone, and Figure 1 shows the approximate distribution of ethnic groups at about 1960. The ethnographic data on the diverse groups in the project region vary greatly in age and in quality. Various funded (including AID sources) and conducted studies of these groups have not yielded useful results on the sociological impact of agricultural projects. Although the GOT and several donor organizations have tried to establish pre-cooperatives based on traditional social structures, able to invest in agricultural equipment and manage it, general experience of the Togo Animal Traction AIP with cooperative ownership has not been good, and it seems preferable that the project try, where possible, to give credit and equipment to single families rather than cooperatives.

The information collected in the next agricultural census could be much more useful than in the last one if it were more completely exploited and analyzed. Statistique Agricole tabulated

the last census by hand (although there was supposed to be provision for use of computers); use of machines with SPSS[1] could give a large number of multiway tabulations with more detailed categories (e.g. prefecture rather than region). If the monitoring and evaluation unit uses the agricultural census as the basis for its own work, it might be valuable to verify that the questionnaire actually inventories fields belonging to or cultivated by all members of the household, since the last agricultural census arrived at very small total cultivated areas in some regions, and since the linguistic intricacies of field categories may mean that surveyors are omitting to ask for some kinds of fields.

The relationship among variables such as access to land, household income, family size, and propensity to adopt animal traction equipment (observed in southern Mali and eastern Upper Volta) could make it difficult to disentangle the causes and the effects of use of animal traction. For example, in the Eastern ORD, women in animal traction households work fewer hours per day than women in other households. But most of the difference can probably be attributed to the larger size of animal traction households and to economies of scale in domestic work.

Discussions of the division of labor among members of family farms in northern Togo shows that it varies from one ethnic group to another, that there have been many recent changes in all households, and that use of animal traction has not noticeably diminished the time most women reported devoting to artisanal work and commerce.

Although a strong case has been made that the entrustment system in Tenkodogo, Upper Volta has lower costs and higher returns than animal traction in which farmers kept animals on the farm year round, northern Togo differs from southern Upper Volta in several significant ways. Forage and water may be more available during the dry season than further north, cash cropping is more prevalent, and rainfall may be less uncertain. The sum of these differences may mean that the costs of animal traction are somewhat lower, and the benefits (chiefly by allowing farmers to prepare land for cash cropping during the early weeding of grain crops) somewhat higher. However, water is a problem for some farmers trying to keep cattle during the dry season, and it would be advisable to try to coordinate work with the AID-funded Togo Rural Water Supply Project and projects from other donors to try to locate wells in those

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[1] SPSS: Statistical Package for the Social Sciences.

zones where animals are being placed. Renting some pieces of equipment and teams has been profitable elsewhere, and the project might do well to encourage it, both as custom-work by farmers owning draft animals, and by renting out equipment (like the carts) that may be too expensive for farmers to purchase. It should be possible to set reasonable user fees by experimenting. Other innovations that make dry-season use of animals more profitable should also be encouraged where possible--for example, by making some technical trials on using oxen for dry-season irrigated gardening, and then trying to coordinate with the work of gardening projects. It has been proposed that OAR/Lome design an ancillary small-scale rural works project midway through TAT implementation, which could do a good deal to encourage use of animals for transport and dry season garden use.

We have seen that (as elsewhere) traditional cropping systems in northern Togo use labor-intensive methods of raising yields: ridging and mounding, construction of terraces, incorporation of manure and plant material into the soil and interplanting with nitrogen-fixing legumes (which gives an 'implicit rotation'). In general Peace Corps volunteers and extension personnel transferred in from outside the region do not have a detailed knowledge of traditional farming practices in the district in which they are working. Such knowledge should include the names of major cultivars, their relative yields, their growing period, and their relative resistence to drought, disease, insect, and other herbivore damage. Training in ethno-scientific methods would be very valuable for both PCVs and Togolese extension personnel, and could lead to developing notebooks and traditional cultivation practices (and on local experience with introduced practices) for each district. Such work could greatly improve communication among locally-recruited farm extension agents, farmers, and higher-level technical service personnel.

Traditional land tenure systems have within themselves the means for relocating uncultivated land and should pose no barrier to the expansion of cultivated area through use of animal traction. However, we have little current information on recent changes, and it may be the case that increasing population or the forced resettlement of some populations (for example, after the establishment of the Keran game reserve) has increased population pressure on the land in some places and changed current land-holding practices.

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3.6 Financial Analysis

3.6.1 The AID Project Grant:

AID grant expenses of about $3 million including inflation and contingencies are budgeted most heavily during the first half of the project obligation schedule. First year spending requirements are disproportionately large as much of the construction is a prerequisite to other project activity and commodity purchases require most of life-of project amounts up-front for cash-flow purspoes (See Tables 1 to 5, Annex Five for a budget breakdown).

Since the technical assistance team will not arrive until the ddle of year 1, the first year obligations include funds for the terim Project Coordinator and an Assistant. During years 1 to 3, long-term technical assistance costs are in direct proportion to the 8 person-years work in years 2 and 3. Short-term assistance budgeted includes the Livestock Marketing Specialist, Anthropologist, and Animal Traction Data Specialist, and the involvement of an independent accounting firm.

Vehicles are to be purchased locally in year 1 and assuming a useful life of 2 1/2 years will be replaced in year 3 by the GOT. Most other commodities will be purchased during the first half of project life with replacement by the GOT of small office equipment such as typewriters and copy machines in year 3, as needed. All major office furniture will be procured locally in year 1 except for metal filing cabinets which are generally unavailable in Togo. Training and survey equipment is budgeted to begin in mid-year 1 to coincide with arrival of the technical assistance team. Their veterinary fund of $25,000 will have a fast replenishment rate and needs to be entirely financed at project inception.

Construction will begin early in year 1 and is expected to be finished by early year 2. Estimates for all construction include a 17% inflation factor for material price rises anticipated before construction completion. At the five locations where it is feasible to renovate existing technical support centers (CATS), the cost is only $6,000 per center compared to new construction costs per CAT of $30,000. The drilling of seven wells will cost $70,000 with digging equipment already supplied by the FED to Kara and Savanes regions DRDRs, as well as drawing on the equipment resources of the Togo Rural Water Supply project (693-0210).

Operating costs financed by AID comprise only about 9% of the U.S. contribution, involving primarily some local salaries, travel expenses of GOT personnel, small supplies and maintenance of cars,

motorcycles, trucks, mobylettes and bicycles. Operating costs are expected to remain constant over the life of the project, albeit subject to inflation.

AID financed local currency expenditures during the life of the project are $1,396,000 or about 47% of total project costs. All construction expenses ($512,000) are through host country contracts in local currency, about 51% of commodity purchases are in local currency and the establishment of the veterinary supplies fund requires minimal local currency. The $180,000 in local costs for long-term technical assistance includes rent and utilities for team housing. The short-term technical assistance local costs primarily involve secretarial, translation and communication expenses. The evaluation requires translation and secretarial services in local currency of $7,000.

The management of local currency funds is primarily assumed by the Togolese Project Director in Kara with the technical assistance of the AID Project Coordinator uniquely responsible for local costs under the technical assistance contract. Host country construction contracting, local commodity purchase, operating expense disbursements and the revolving funds are all directly under the control of the Project Management unit in Kara.

The following funding summary assumes an exchange rate of 300 CFA = $1.00, contingencies of 10% and an inflation estimate of 12%. Since the actual exchange rate has risen greatly during the past year, resulting in a net rise of dollar value of about 30% during the past six months, it is assumed unlikely that the exchange rate will drop below 300 during the first half of the project when the majority of all AID financed local currency costs are to be realized. Given the high rate of overall expenditures during the first half of the project when inflation can be most accurately estimated, a 12% inflation factor is safe and reasonable.

Budget Summary (000's)

Category	AID		GOT	Total
	$	FX		
T.A.	1,145	180		1,325
Personnel (local)			240	240
Construction		513		513
Commodities	157	262		419
Operating/Misc. costs		291	120	393
Purchasing fund			342	342
Inflation	105	50	41	196
Contingency	197	100	40	337
TOTAL	1,604	1,396	765	3,765

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3.6.2 Government of Togo Contribution:

The $765,000 contribution by the Government of Togo, including inflation and contingencies, consists of services and materials to complement AID inputs and resources which the GOT has already demonstrated its ability to provide. Almost one third of the GOT budget involves salary costs for personnel working full-time or at least half-time on project activites, most of whom are already employed by the government, some of them under the current AIP activity. The GOT will support a staff of four full-time professionals at Kara and Agbassa, two professionals at Tantiegou working about 75% of their time on project activities, and seven others at PROPTA headquarters in Atakpamen who will average about half-time on the project. Also included in GOT financed personnel costs are 17 office support staff and 68 laborers, including 33 herders, cattle-breakers, and security guards for the 11 CAT centers.

More than two-fifths of the GOT contribution ($342,000) will go towards creating a revolving project purchasing fund to provide medium-term credit to farmer-adopters. Credit will be provided, as necessary, for the purchase of draft animals and/or equipment. In that this fund is strictly GOT in origin, AID has no direct say over the terms and interest rates which will be applied. In fact, AID hopes to use the judicious administration of this contribution, in as much as possible, as an example of the sort of credit management that AID believes will eventually be appropriate for the GOT to adopt on a nation-wide basis.

Approximately $102,000 of the planned GOT contribution to this project is reserved for miscellaneous items, including training costs of GOT cadre ($67,500); minor construction/building modifications ($22,500); installation of utilities to the PROPTA office in Kara ($1,000); various office supplies ($11,000). Contingency (12% - $40,000) and an allowance for inflation (15% - $41,000), complete the GOT contribution.

AID project grant agreements require the host government to conduct annual audits of project records. The Office of Program Financing in the Ministry of Plan and Administrative Reform will offer this service as it has during the AIP activity, submitting audit reports to appropriate GOT officials and the AID Project Manager. However, the engagement of an independent accounting firm as described below will augment this function as well as greatly enhance project financial management.

During the course of the AIP activity, the GOT contribution was timely, adequate and fulfilled GOT commitments. GOT project financing originates with the Ministries of Rural Development and

Planning and Administrative Reform which seek the Ministry of Finance's fund disbursement approval. The GOT has no plans to use any PL-480 generated counterpart funds in this project. The AID Project Manager and the Project Director will closely monitor the status and uses of the GOT contribution (with accounting firm assistance) and advise GOT officials of project needs on at least an annual basis, to ensure smooth and continuous funding.

3.6.3 Financial Management Controls and Reporting Requirements

It is essential that project management include qualified financial management personnel who are aware of AID financial procedures and reporting requirements. In order to ensure financial management standards acceptable to AID and to contribute to the financial management capacity of Togolese institutions the AID contribution includes two person months of on-site accounting firm assistance per year. A scope of work for an engagement which will provide staff training, system design and maintenance of controls is outlined in Annex five, Appendix III.

Since Kara is the project headquarters site, its staff will include a senior level accountant with several years of experience to serve as the overall Project Financial Manager. AID will assure that this Financial Manager is trained in those areas of accounting procedures which are specific to AID and to this project in particular. Among other responsibilities, the Financial Manager will supervise at least one accountant at Kara to maintain day-to-day records, inform the AID Project Manager and the Project Director and Project Coordinator of budgetary variances, cash-flow status and control weaknesses when appropriate, and comply with all written reporting requirements of the West African Accounting Center (WAAC), the fiscal center for AID Lome. In order to fulfill these requirements the Financial Manager should receive periodic short-term technical training by the accounting firm. Also during the first year, the Financial Manager should visit WAAC for a thorough briefing on AID accounting procedures and requirements. WAAC will follow-up with necessary financial management support when its representative makes his or her periodic visits to Togo.

The Project Director in Kara will ensure that AID receives project quarterly reports demonstrating by budget line item, cumulative disbursement status and budget variances to date. To verify that revolving fund current account balances are sufficient and necessary, quarterly reports will include all cash outflows from purchase of animals, equipment and veterinary supplies, and all cash inflows from AID deposits, farmers loan repayments and reimbursements for animal purchases for other projects. In order to assess the

suitability of the cattle purchasing payment procedures in Dapaon the Financial Manager will visit the buying station at least monthly to compile a report detailing any non-check (purely-cash) transactions and summarizing overall financial activity.

The Dapaon cattle purchasing center staff will include an accountant to record cattle transactions and forecast future needs. The PROPTA buying agents (a Peace Corps volunteer and his or her counterpart) will have check signing authority on the cattle purchasing account. However, the absence of widespread check payment system in the region at this time limits the speed at which a check system can be made fully operational. As a transitional step toward enhancing confidence in a checking system, cattle sellers will receive checks drawn on the PROPTA cattle purchasing account at CNCA in Dapaon to be cashed during the two mornings each week that a buying agent will be at the CNCA office to facilitate transactions involving cattle vendors. Evenutally, when vendors understand and have confidence in the checking process, the presence of the buying agent at CNCA will be unnecessary. Other local expenses in the Dapaon area will be determined appropriate by the Financial Manager. The Dapaon accountant will submit monthly reports to the Financial Manager and Project Director in Kara detailing cattle volume, prices, petty-cash fund uses, and purchasing activity projections for the next quarter. Copies of bank reconciliations and all receipts should also be forwarded to Kara for inclusion in project status reports.

The staff accountants at Kara and Dapaon will meet at least monthly with CNCA credit agents in their respective cities to review loan procedures and assess loan repayment delinquencies. Delinquent loans and overdue interest should be detailed in quarterly reports submitted to project management and to the AID Project Manager. An analysis of CNCA collection efforts and procedures should be included.

The home office of the technical assistance team will submit semi-annual financial reports to AID illustrating contract expenditures to date, projections for the next six months and the financial implications of changes in the work plan. Reports should be by budget line item, separating dollar costs from local currency expenditures, and received by AID within 30 days after the end of each six-month period.

3.6.4 Recurrent Costs:

The annual incremental recurrent cost to the GOT of continuing activities initiated under this project is $213,793, broken down as follows:

Personnel	32,204
Commodity replacement	102,695
Operating costs	85,300
Miscellaneous	25,800

This annual incremental recurrent cost burden represents approximately 6% of total LOP costs, a smaller proportion than most other projects in the AID/Togo portfolio. It is also to be noted that the personnel component of incremental recurrent costs (i.e., the component that it is most difficult for a government to reduce once the personnel have been engaged) is quite small.

Given the recent history of GOT financial support to the AIP activity and the level of GOT's commitment to animal traction, the government is likely to bear these incremental recurrent costs, and to actually allocate annual funds for them. The GOT has been forthcoming, not only in meeting its financial commitments to the AIP project, but (when the new TAT project was not authorized as expected in 1982) in providing funds to help continue AIP activities.

The agriculture sector in Togo will receive increasing emphasis on an increasing share of GOT financing under the reforms agreed on by GOT with the World Bank and IMF. Within the agriculture sector, animal traction is a priority activity, receiving significant personnel and financial support. It is likely that this support will increase to cover the additional recurrent costs needed to continue the activities initiated under this project.

PROJECT COUNTRY: Togo

PROJECT TITLE: Togo Animal Traction Development Project (693-0218)

FUNDING: $3,000,000 (Grant)

LIFE OF PROJECT: 2½ years (Initial Obligation FY 83) PACD August 31, 1985

IEE PREPARED BY: for
Vernita Fort
REDSO/WA Natural Resources Advisor

DATE: September 1982

ENVIRONMENTAL ACTION RECOMMENDED:

A. Categorical exclusion for: (1) establishment of the revolving fund where AID does not reserve the right to review and approve individual loans made to farmers for instituting animal traction farming packages, (2) monitoring and evaluation, (3) controlled applied agricultural research, (4) institution building;

B. Deferred recommendation on: (1) well development; (2) building construction, (3) rice production in the bottomlands; (4) animal grazing

C. Negative determination on all other project activities.

GUIDANCE FOR PROJECT IMPLEMENTATION: This IEE not only reviews environmental effects of certain project elements. It also provides critical guidance and directives on the development of other project elements that must be followed to maintain the validity of the project and the IEE recommendation, and to keep environmental problems to a minimum.

Concurrence: _____ Date 28 JAN 83
John Lundgren
AID Representative
USAID/Togo

BUREAU ENVIRONMENTAL OFFICER'S DECISION: George Thompso

Approved: _____

Disapproved: _____

Date: 9/22/82

Clearance: Timothy Bork, GC/AFR _____ Date _____

Identification and Evaluation of Environmental Impacts in Impact Areas

A. LAND USE AND NATURAL RESOURCES

1. Changing the character of the land through:

a. Increasing the population L

b. Extracting natural resources L

c. Land clearing ..... M

d. Changing soil character ..... L+

2. Altering natural defenses L

3. Foreclosing important uses ..... N

4. Irreversible, inefficient commitments L

5. Building/Construction ..... U

6. Jeopardizing humans or their work ..... N

B. WATER QUALITY

1. Physical state of water L

2. Chemical and biological states L

C. ATMOSPHERIC

1. Air additives ..... N

2. Air pollution ..... N

3. Noise pollution ..... N

D. CULTURAL

1. Altering physical symbols ..... N

2. Changes of cultural traditions L

E. SOCIOECONOMIC

1. Changes in economic/employment patterns ..... L+

2. Changes in population L

3. Changes in cultural patterns L

F. HEALTH

1. Human nutrition ..... H+

2. Pesticide toxicity L

3. Water boone disease vectors ..... U

4. Zoonotic disease incidence L

4.0 Project Implementation and Management

4.1 Introduction:

USAID implementation of this project will be the responsibility of the assigned GDO under the supervision of the OAR.

Once conditions precedent to disbursement have been satisfied, the initial funding requirement will be for construction. The GOT will competitively select a local A&E firm and a local construction contractor satisfactory to AID. Final plans and specifications developed by the A&E contractaor shall be subject to REDSO engineering approval. Selection of the construction contractor as well as the substance of the contract with the GOT will also be subject to REDSO engineering approval. AID will insure that these approvals will be required and made by including this provision in project implementation letter No. 1. AID/Togo will request WAAC to disburse funds in favor of the GOT as required under these contracts.

4.2 Procurement Plan:

Procurement of vehicles and commodities will be through issuance of PIO/C's by AID/Togo. Commodity and vehicle procurement shall be in accordance with the detailed procurement plan set forth in Annex 12.

4.2.1 Procurement of Technical Assistance Services:

Procurement of long and short-term technical services will follow the normal AID contracting procedures. A decision must be made soon after project authorization and obligation as to whether these services shall be sought from Title XII institutions and/or through general commercial or private (PSC) sources. A draft Request for Proposal for these services has been prepared and is available for SER/CM review. The contract(s) will be direct AID contracts, as the GOT has insufficient experience to undertake host country contracting of this type.

4.3 Implementation Schedule:

The pro forma schedule by which the above elements of the project will be carried out is set forth below:

1983	February	- Project Review and Authorization by AID/W
	March	- Project Agreement Signed by GOT and AID
		- Project Management Unit of AID AIP Assumes Responsibility for Interim Phase
		- Conditions Precedent met

		- First Disbursement of Project Funds
		- TA Interim Phase Coordinator Begins Contract Service
		- Project Facilitator Recruited and Hired Locally
		- Confirmation of Assignments of Peace Corps Volunteers
	April	- Draft and Issue PIO/Cs
		- Order Equipment and Materials
		- Preparation of Architecture/Engineering and Construction Plans
		- Prepare RFP for Long-Term Technical Assistance
		- Short-Term Consultant: Agricultural Statistics (one month)
	May	- Bids Submitted for A&E and Construction Contracts
		- Contacts Initiated Between Project and Centrally-Funded Environment Monitoring Projects
	June	- Reception of Proposals for Technical Assistance
		- Award of A&E Contract
		- PACD of AID AIP
	July	- Evaluation of Bids for Technical Assistance (including GOT participation)
		- Award of construction contract
	August	- Selection of Technical Assistance Contractor(s)
		- Sign Contract(s) for Technical Assistance
		- Begin Construction: Project Offices and Lodging
	September	- Begin Construction: Renovation of Technical Resource Centers
	October	- Arrival of Technical Assistance Team
		- Assignment of CY-83 PCVs
		- Work-up of Environmental Monitoring Program
	November	- Reception of Equipment and Materials
		- Short-Term Consultant: Socio/Anthropologist (3 months)
1984	January	- Lay-out Project Plan-of-Work
		- Implementation of Project Environmental Monitoring Program
		- Provisional Reception of Project Offices and Lodging
	February	- Provisional Reception of Technical Resource Centers
	March	- Final Reception of Construction of Offices an Lodging
		Internal Interim Evaluation (Include TAT, TA, GOT, AID/Lome, REDSO)

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	April	- Final Reception of Construction of Technical Resource Centers
		- Short-Term Consultant: Livestock Marketing (2 months)
	October	- Assignment of CY-84 PCVs
1985	February	- Short-Term Consultants: Agricultural Statistics and Livestock Marketing (1 month)
	March	- Project Evaluation
	September	- PACD

4.4 Evaluation:

There will be two evaluation studies scheduled; one midterm study scheduled for March 1984, and a final evaluation and design study scheduled for March 1985. A detailed description of the information needed for each of these studies is found in Annex 9.

4.4.1 The midterm evaluation is designed to ensure that the project is proceeding on course and, if not, to permit any necessary mid-course changes. Because of the reduced term of this project (30 months), it is recognized that this first study will not likely have much real "history" on which to base its evaluation. Nonetheless, such an early study is viewed as necessary to ensure that the project is proceeding as planned. In addition, such an early study should be able to generate useful benchmark data for use in the subsequent evaluation. The midterm evaluation should be considered as an "internal" evaluation (without outside consultants, except as some of the project short-term consultants' term of contract may coincide in time with the evaluation), and include TAs, OAR, GOT and REDSO.

4.4.2 The final evaluation study will have a dual purpose: On one hand, it will serve as a final evaluation of the project's accomplishments; on the other hand, it will be specifically designed to address the broader issues as to whether this project activity deserves extension and further AID support and, if so, to what degree. In effect, the second part of this evaluation study will be designed to serve as a combination PID and PP amendment if the study determines that the project should continue. The OAR and REDSO will then use the information so provided to prepare whatever approval documentation appears required. It is contemplated that the final evaluation shall be undertaken by a mixed team including outside technicians, GOT, OAR, and REDSO representation. The final study should be led by a direct-hire Project Design/Evaluation Officer.

4.5 AID Manageme

4.5.1 Overview:

The AID office in Lome, Togo is composed of a five person direct-hire staff. The AID Representative supervises the activities of a program officer and three project management officers, all with specific program and project management responsibilities. (See Table 1) Together this staff has responsibility for monitoring a variety of bilateral, regional, an centrally-funded projects in Togo, as well as a nominal amount of residual AID interests in Benin.

A significant amount of the regional and centrally-funded activities falling under OAR/Lome's monitoring oversight are principally backstopped elsewhere, i.e., Abidjan and/or AID/W, and involve little or no management responsibilities for OAR/Lome beyond keeping abreast of events and coordination with the bilateral programs. It should be noted also that a number of activities arrive at their PACD in CY-83, including a small IRT portfolio which in any case is being implemented through non-AID agencies, i.e., Peace Corps and University of Benin. Furthermore, a substantial part of the bilateral program is implemented through PVO's working in varying degrees of independence with a corresponding reduction to the OAR/Lome management burden. The actual number of significant units-of-management supervised by OAR/Lome is limited to approximately one dozen activities. (See Table 2)

In a typical year, based on the above staffing level, 60 person months of direct-hire professional staff time exists. Taking into account illnesses, annual leave (including R&R), and home leave, the actual availability probably drops to approximately 48 person months per year. Measured against this level of staff availability, the present program portfolio, augmented by the activity proposed in this Project Paper, is within OAR/Lome's capacity for sound management.

On the other hand, given the size of the existing project portfolio coupled with the demands of this new project, it is clear that a re-evaluation of the existing AID/Lome staffing level would have to be undertaken in the event any additional major bilateral project activities were to be added to either the Togo or Benin programs.

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4.5.2 Project Management Responsibilities:

Management of this project in Togo will involve the full range of day to day duties common to field management of T/A projects of this type in West Africa. Such duties include:

i. Liaison and coordination with concerned host government ministries;

ii. Liaison, and in conjunction with host goverment officials, supervison of the activities of the T/A tea-

iii. Financial management, including approval and monitoring of expenditures of AID funds;

iv. Regular site visits;

v. Reporting on project progress to both REDSO/WCA and AID/W;

vi. Providing, as required, regular policy guidance to the T/A team to ensure project implementation proceeds in uniformity with the goal and purpose of the project;

vii. Approval and supervision of commodity procurement, reception and use;

viii. Coordinating program planning and specific inputs of volunteers with Peace Corps officials.

In addition to the above Lome responsibilities, existing delegations of authority place with REDSO/WCA the responsibility for providing legal, contracting, engineering and commodity assistance and approvals. Authority to issue implementation letters and approve deviations from the terms of the grant agreement is also vested with REDSO.

4.5.3 Conclusion:

Based on the above described duties and responsibilities of AID/Lome and REDSO/WCA, and given the existing staff availabilities, it is concluded that the addition of this project to the existing AID/Lome portfolio will not exceed the normal caseload for a mission of this size. It is obvious that the assigned AID/Lome project manager will be required to devote an average of 60% of his/her time to this project. This level of involvement appears feasible given that officer's caseload. The

present occupant of this position has the "hands-on" experience in the field of animal traction required for this project, and was specifically recruited by AID/Lome for the purpose of managing the antrac program in Togo; he has been involved in all of the design activities of this project. However, this set of favorable circumstances also places an implicit burden on AID/Lome. Should this individual be absent on leave for an extended period (such as home leave), or receive another post assignment, it will be necessary to seek an equivalently experienced replacement. By its nature, this type of project cannot be easily managed for any lengthy period by someone lacking the requisite experience and/or knowledge with respect to African animal traction. This places a clear burden on the Africa Bureau: the need to identify and recruit other officers with similar skills and background for positions such as the one discussed above.

4.6 Conditions Precedent, Covenants and Special Provisions

Other than the standard conditions precedent found in all Proags no special conditions will be required. The most important GOT action, the legal formation of the principal implementing agency, PROPTA has already been accomplished. Among the covenants to be included in the Proag will be a requirement that the GOT provide funding for the credit facility at the levels contemplated in this paper. The GOT has already committed itself to provide the required first year funding.

Special Provisions:

A special provision is included in the attached draft authorization. At the time of PID review and approval in AID/W, the original project funding was $5.0 million and the project life established at 5 1/2 years. At that time, AID/W specified it wished to reserve to itself the authority for final PP review and approval. With this redesigned and truncated project and the introduction of the special evaluation/design study at the end of year 2, the need for further AID/W involvement in this project appears unnecessary. Thus, the authorizations contain an explicit redelegation of authority to the AID Representative, Lome with the concurrence of REDSO/WCA Director, acting on the findings of this study, to authorize additional funding of up to $2.0 million and extend the life of the project by an additional 36 months. Presumably any decision to go beyond these limits (and thus exceed those contained in the original PID), would require the preparation of a new PID and its approval by AID/W.

Table 1

OAR/Lome Program Responsibilities

Robert Ritchie	Rudolph Thomas	Paul Guild	Sidney Bliss
Program Officer, FS-2	Gen. Development Off., FS-2	Project Mgr., FS-3	Rural Development Off., FS-3
H/L due 11/83	H/L due 11/83	H/L due 9/84	H/L due 11/83

General/Sectoral Responsibilities

Program Administration	Health	Water/Sanitation	Agriculture
Office Management	Human Resources	Agriculture (Secondary Officer)	Energy
Admin Support (except vehicles)	Population/Demography	Health (Secondary Officer)	Environment
Private Enterprise/Labor	Sanitation (Secondary Officer)	All Benin Matters	27%
Participant Training Admin.	20%	Vehicle Support	
78%		13%	

Project Management Responsibilties

Low-Income Housing	10%	Family Health Center	30%	Togo Rural Water	55%	Animal Traction	60%
AMDP	12%	CCCD	30%	Ag Training & Extension (OICI)	20%	Credit Union (WOCCU)	10%
		La Kara Skills (NCNW)	20%	IRT - Farm Skills	1%	IRT - Solar Energy	3%
				IRT - Spring Captation	1%		
				PL 480/Cathwell	10%		

N.B. Percentages shown indicate estimated allocation of each officer's time.

Table 2

AID Activities in Togo (January 1983)

I. Bilateral Projects

Title and Number	PACD	Officer(s)	Percent of Officer's Time
Togo Agricultural Training (693-0217) (693-0225-new)	30-9-83	Guild W/PVO(OICI)	20
Togo Animal Traction Development (693-0218) (698-0410.18-terminating)	31-8-85	Bliss (w/contract team)	60
Development of Togo Credit Union Movement (693-0220) (693-0224-new)	30-9-83	Bliss (w/WOCCU)	0
Togo Family Health Center (693-0212)	31-3-85	Thomas (w/contractc..., i.e. CEDPA, Columbia Univ.)	0
Togo Rural Water Supply (693-0210)	31-12-84 (to be extended)	Guild (w/contractors)	55
Togo Low-Income Shelter (693-0213)	31-10-83	Ritchie (w/PADCO)	10
Regional and Central Projects			
Combatting Communicable Diseases (698-0421)	1987	Thomas (w/CDC)	30
IRT: Rural Solar Technology (698-0407.09)	30-6-83	Bliss (w/U/Benin)	3
IRT: Capitalization of Spring Water (698-0407.20)	31-3-83	Guild (w/Peace Corps)	1
IRT: Farm Skills (698-0407.26)	15-7-83	Guild (w/Peace Corps)	1
Kara Region Women's Skills (698-0388.12)	30/9/84	Thomas (National Council of Negro Women)	20
PL-480 Title II Program Togo/Benin	on-going	Guild (w/CRS)	10
AMDP (693-0433.12)	on-going	Ritchie	12

LOGICAL FRAMEWORK

TOGO ANIMAL TRACTION DEVELOPMENT (693-0218)

NARRATIVE SUMMARY (a)	OBJECTIVELY VERIFIABLE INDICATORS (a)	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes	1. Increased land under cultivation by antrac farmers.	1. PCV DRDR reports	1. Antrac technology can be profitably adapted to farming systems and social systems in northern Togo.
	2. Increased yields of basic cereal and pulse crops by antrac farmers.	2. PROPTA monitoring and evaluation reports.	2. Non-formal market prices, rather than official state market prices, continue to determine prices farmers receive.
Increase the productivity and income of farmers in Togo	3. Antrac farmers' income increases due to beef sales and increased volume of marketed produce.	3. Agricultural census annual sample survey.	3. Non-formal market prices provide an incentive for production.
			4. PROPTA and DRDR maintain their antrac supporting services.

NARRATIVE SUMMARY (b)	OBJECTIVELY VERIFIABLE INDICATORS (b)	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Purpose:			
To restructure, coordinate, and harmonize antrac extension in Togo through:	Conditions that will indicate that purpose has been achieved: End of project status.		Assumptions for achieving purposes:
1. Support to PROPTA to insure support services (supply, training, monitoring/evaluation, and harmonization of credit/ subsidy terms.	1. PROPTA provides coordination and facilitation of animal/equipment supply extension training services, credit/ subsidy terms, and monitoring/evaluatio for half of antrac projects in Togo.	1. Project evaluation at month 24.	1. GOT provides necessary personnel and operating funds for PROPTA and regional programs.

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
2. Support to antrac extension and applied research by DRDRs in areas of Savanes and Kara regions not served by other donors.	2. Savanes and Kara region DRDR extension staff trained in antrac and backstopped by sector chiefs, veterinary CNCA, and agricultural statistics staff.	2. PROPTA monitoring and evaluation reports.	2. Other donor-assisted projects agree to provide micro and project-level data to PROPTA monitoring and evaluation unit.
	3. Private marketing channels delivering suitable antrac animals to farmers on a trial basis.		3. Other projects and national training institutes agree to participate in joint review and modification of training programs.
	4. Antrac adopters use improved and adapted technology and repay loan obligations.		4. UPROMA continues to operate and develops an outreach capacity for rural artisans.
			5. Other donors supply initial capital requirements of PROPTA for equipment and animal health care products, and participation in uniform medium-term credit system.
			6. Animal herd growth rates and structure are maintained at current level or improved.
Outputs:	Magnitude of Outputs		Assumptions for Achieving Outputs:
1. PROPTA monitoring and evaluation procedures and unit established.	1. Annual updates of technical, economic, financial, and social feasibility of antrac.	1. Annual reports of PROPTA, DRDR Kara, DRDR Savanes, Uproma.	1. Building design and construction contracts let in timely fashion.

2. PROPTA extension training programs drawn up and used.	2. Animal traction handbook revised.	2. PCV monthly reports.	2. Commodity orders and delivery on schedule.
3. PROPTA-North antenna established in Kara.	3. PROPTA assists in or runs 6 training programs in yr 1; 10 in yr 2; 5 in yr 2 1/2.	3. Reports at REDSO/WCA controller's office.	3. Contract to qualified firm for TA let in a timely fashion. TA team arrives by 9/83.
4. Tantiegou buying center established, functioning with standard animal health and maintenance procedures, providing animals to antrac projects.	4. 1,400 animals supplied by PROPTA to antrac projects, yr 2.	4. Accounts of PROPTA, PROPTA-North, DRDR-Savanes, DRDR-Kara.	4. FED V financing obtained in early 1983 for animal traction equipment and draft animal health care units with PROPTA.
5. Delivery of antrac animals to farmers through private marketing channels developed and encouraged by PROPTA.	5. 100 animals supplied to farmers through interventions in private marketing channels.	5. PROPTA monitoring and evaluation unit's studies of farmer adoption rates and on-farm impact of antrac.	5. Ministry of Rural Development assigns qualified staff to PROPTA and DRDR upper and middle-level staff positions.
5. Regional revolving fund procedures developed to maintain veterinary supplies for Kara and Savanes DRDRs.	6. 1,400 animals receive ear tatoo and health cards.	6. Evaluation at month 24.	6. COCA maintains a policy rule and ensures closer participation among donors and GOT in PROPTA operation.
7. CATs established and functioning as extension, training, and adaptive research centers.	7. 5 CATs rehabilitated; 5 CATs built. At each CAT: - 4 annual adaptilve field trials or demonstrations. - 4 farmers trained yr 1; 20 yr 2; 10 yr 2 1/2		7. National Directorate of Agricultural Research; IRAT, SOTOCO, SAFGRAD/OUA provide data and recommendations from agronomic experimentation.

8. DRDRs establish animal insurance program in Kara and Savanes regions.

9. Antrac adopters plow and weed with adapted technology.

8. Sufficient numbers of PCVs with adequate training and support from PC/Lome, are recruited and assigned.

NARRATIVE SUMMARY (c)

Inputs:

AID ($000)

Technical Assistance	1,325
Construction	513
Commodities	419
Operating Costs	219
Subtotal	2,548
Inflation	155
Contingency	305
TOTAL (AID)	3,008

GOT ($000)

Personnel	240
Miscellaneous Expenses	102
Subtotal	342
Inflation	41
Contingency	40
Purchasing Fund	342
Total (GOT)	765

Notes on the Economic Analysis

In the absence of any solid, systematic farm-level information, the project design team was obliged to rely on previous experience in Togo and elsewhere, on extensive discussions with Togolese expatriate technicians and on field visits with farmers and local-level agents.

Representative Cropping Package:

The conventional wisdom in Togo argues that the typical amount of land cultivated per family is very small (less than 2 hectares). On the one hand, there is very little solid evidence to support this rule-of-thumb and, on the other hand, given average family size (7 to 9), it is difficult to imagine how families feed themselves, given expected yields. Consequently, the project design team hypothesizes that farm area is in fact somewhat larger and that, where it is not, people must have significant sources of non-farm income. In any case, the extension of animal traction should be directed at smallholder farmers who are fully engaged in farming as a livelihood. It is with these clients in mind that the cropping packages in Tables 7 and 8 are presented. The two packages are presented as rough approximates of what is currently observable. The distinction between a cereal zone and a root crop zone is necessary, given the significant ecological differences north and south of Gando (slightly above 10° North latitude) and also in light of the economic implications of growing a root crop.

Yields and Prices:

Official reporting of yields and output prices were found to be widely variable and of highly questionable reliability. In compiling the yields and prices used by other projects and studies, wide variability was also observed. In the end, a very rough synthesis of past experiences, field visits and existing data was adapted. For the purposes of analysis, it was decided to use conservation (i.e, traditional) yield estimates throughout, so as not to overstate the case. Concerning farm-gate prices, approximations of open market prices have been used, as better than 95% of marketable surpluses are sold on the open market.

With the adaption of animal traction, some area and yield effects have been presumed over time (see Table 5). Within five years, it is expected that the farm adopting animal traction will increase its cultivated area by 30%. Although, given the existing labor stock and with disposable land, it may be argued that technically there are no constraints to a much more significant expansion, experience elsewhere in West Africa indicates that 30% is more realistic (see Sargent et al).

In this analysis, no other improved inputs besides animal traction (i.e. seed, fertilizer) have been assumed. Here again, the intent is to remain on the conservative side of projected improvements. In the particular case of fertilizers, the every high level of national price subsidies (upwards of 75% of real price) argues that demand for fertilizers has been artificially induced.

Despite the lack of any other improved inputs, a yield improvement of 20% over five years has been assumed (Table 5). This is due to more timely planting, better seedbed preparation and the progressive adaption of weeding to animal traction methods.

Animal Health and Insurance:

The purchase of two draft animals represents the largest single cost item in adopting animal traction and, quite obviously, without animals there would be no animal traction. It is thus extremely important to protect this investment and the farmer's liability. Over the past few years, there has been a growing recognition in Togo of the need for this protection. However, to the extent that insurance schemes have been implemented, they have been done in a fairly ad hoc fashion. As part of the initial package, TAT is proposing a program of linked animal health care and animal insurance, at least for those farmers which the project is assisting directly. Insurance costs will be paid by farmers and the GOT. There is no AID money involved.

This insurance scheme will insist that the farmer respect certain preconditions in order to benefit from the plan. Farmers will be expected to construct a simple stable, keep it clean and initiate on-farm measures to provide dry season food. They will also be expected to purchase annual health cards for each animal. These cards will allow project officers to determine whether farmers are negligent

in animal health care or whether the Veterinary Service is negligent in performing its responsibilities. The cost of these health cards will be 1000 CFA/animal/year. They cover the standard set of annual veterinary interventions.

It would be unfair to calculate insurance premiums on the basis of the current population of work animals and the current ability to deliver veterinary services to animal traction farmers. If we assume 5,000 working animals (2,500 pairs) at 75.000 CFA per animal and a 3.5% mortality rate, the annual insurance premium per farmer would be about 5,000 CFA per year. For the various analyses, an annual cost of 7,000 CFA has been adopted as the cost of animal health care and insurance.

Appreciation in Animal Value:

In the analyses presented by other current projects in Togo, they have all consistently mishandled the role beef production plays in a farming system based on the use of animal traction. At the worst (Projet Vivrier-Entente Fund), the argument is made that the animals are actually worth less after five years work than when they were purchased and at best, others argue that animals are worth the same as when they were bought.

As is argued throughout this Project Paper, the introduction of animal traction technology into the agricultural system entails adjustments throughout the system. One basic pre-condition of being able to use animal traction technology is the on-farm husbandry of large animals. As in this case those large animals are beef cattle, benefits are derived from a joint-product enterprise. There are the benefits derived from a new on-farm source of energy for field crop operations, and the benefits derived from an on-farm source of beef production. As a general rule-of-thumb in the African context, animal traction oxen at least double in value over five years. In the analyses presented here, this has been incorporated into the benefit flow as 100.00 CFA in the fifth year for the two animals which represents 90% of their purchase value. Given the comparable volumes of cash flows, this joint-produce benefit is most significant to the farmer in the cereal crop zones.

Agricultural Marketing:

It is straightforward corollary that the prices farmers receive are influenced not only by agricultural pricing policies but also by marketing conditions. As a policy position, the GOT affirms that it, in no way, seeks to put a ceiling on farm-gate prices. In point of fact, the vast majority of marketable surpluses are traded on the open market with no interference from the govenrment.

Togo has no tradition of government marketing boards for food crops. However, there have been attempts on the part of the government to establish strategic reserves. The purpose of these reserves has been (1) supply deficit areas with food, (2) supply urban concentrations and (3) dampen seasonal fluctuations of food prices. The current government institution, TOGOGRAIN, has been fraught with mismanagement and economic inefficiency. Its official policy argues that it is only interested in delivering reasonable priced food stuffs to deficit areas (rural and urban) but that it seeks in no way to influence the producer prices. Nevertheless, in its purchasing activities, TOGOGRAIN has been assisted by local political and administrative officers in acquiring food stuffs. TOGOGRAIN's purchasing activities are likely to be curtailed as a result of continuing GOT discussions with the World Bank. It is not clear that those producers who do sell to TOGOGRAIN receive significantly lower prices than they would on the open market, particularly given the time of the year when they sell (at harvest and shortly thereafter).

The most important fact concerning TOGOGRAIN operations is that it controls less than 3% of the marketable surplus and does not represent any significant force in the food commodity market. It should be noted, however, that TOGOGRAIN's long-run theoretical objective has been, at least until recently, to contract as much as 50% of the marketable surpluses. Given TOGOGRAIN's current condition and its management capacity, it is extremely unlikely this will occur. Nevertheless, it is the opinion of the design team that any government institution set up to ensure transfers from farm surplus to deficit areas and/or to create strategic food reserves should compete in the open market for food supplies.

TABLE 1: Allocation of Expenditures by Year and Destionation ($)

	PROPTA				DRDR			
	YR 1	YR 2	YR 3	YR 4	YR 1	YR 2	YR3	YR 4 etc
Technical Assistance	204,871	365,952	176,476		166,079	227,968	116,484	
Commodities	236,541	10,000			140,468		7,000	
Construction	170,900				341,250			
Operating Costs	66,951	40,735	20,367		88,888	49,564	24,782	
Subtotal	679,263	416,687	196,843		736,685	277,532	148,266	
Contingency (12%)	81,511	50,002	23,621		88,402	33,303	17,791	
SUBTOTAL AID	760,774	466,689	220,464		825,087	310,835	166,057	
PEACE CORPS	20,000	20,000	20,000		140,000	220,000	240,000	
GOT								
Personnel	49,878	49,878	49,878	49,878	45,786	45,786	45,786	45,786
Misc.	21,000	21,000	10,000		20,000	20,000	10,000	
SUBTOTAL GOT	70,878	70,878	59,878	49,878	65,786	65,786	55,786	45,786
RECURRENT				114,399				99,394
T O T A L	851,652	557,567	300,342	164,277	1,030,873	596,621	461,843	145,180

NPV @ 10% for 8 years = $2,121,408 ÷ 800 = $2651

NPV @ 10% for 17 years = $2,838,824

TABLE 2A: Allocation of AID Expenditures by Year and Destination: Technical Assistance ($)

	PROPTA			DRDR		
	YR 1	YR 2	YR 3	YR 1	YR 2	YR 3
Long-term						
Interim Coordinator (50/50)	21995	-	-	21995	-	
Project Coordinator (60/40)	38994	77988	38994	25996	51992	25996
Agricultural Economist (70/30)	45493	90986	45493	19497	38994	19497
Livestock specialist (70/30)	45493	90986	45493	19497	38994	19497
Agronomist (40/60)	25996	51992	25996	38994	77988	38994
Short-term						
Livestock (100/0)	-	24000	8000	-	-	-
Anthropologist (20/80)	6000	-	-	24000	-	-
Training/Data (70/30)	8400	17500	-	3600	7500	-
Financial Management (50/50)	12500	12500	12500	12500	12500	12500
Subtotal	204871	365952	176476	166079	227968	116484

TABLE 2B: Allocation of AID Expenditures by Year and Destination: Commodities ($)

	PROPTA			DRDR		
	YR 1	YR 2	YR 3	YR 1	YR 2	YR 3
Commodities						
Vehicles						
Station Wagon	20,000					
8 Ton truck	21,000					
3 Ton truck	14,000			14,000		
Pick-up	22,500			22,500		
LT WT Pick-up	15,000			7,500		
2 Wheels				23,000		
Subtotal	92,500			67,000		
Spares (92/67)	9,474			6,901		
Subtotal Vehicles	101,974			73,901		
Animal/farm equipment	22,500	10,000		2,500		
Veterinary equipment	4,000			6,000		7,000
Training equipment	37,500			12,500		
Survey equipment	37,500			12,500		
Office equipment (50/50)	33,067			33,067		
Total Commodities	236,541	10,000		140,468		7,000

TABLE 2C: Allocation of AID Expenditure by Year and Destination: Construction ($)

	PROPTA			DRDR		
	YR 1	YR 2	YR 3	YR 1	YR 2	YR 3
Construction						
Kara				91,250		
CATs				180,000		
7 Wells				70,000		
Agbassa	7,400					
Tantiegou	63,500					
Misc. materials	100,000					
Total construction	170,900			341,250		

TABLE 2D: Allocation of AID Expenditures by Year and Destination: Operating Costs ($)

	PROPTA			DRDR		
	YR 1	YR 2	YR 3	YR 1	YR 2	YR 3
Operating Costs						
2-wheel maintenance				11,100	11,100	5,550
Vehicle pool (57/29)	7,555	7,555	3,777	3,844	3,844	1,922
Truck pool (35/14)	20,000	20,000	10,000	8,000	8,000	4,000
Bonuses (0/100)				4,000	4,000	2,000
GOT Per diem (50/50)	2,000	2,000	1,000	2,000	2,000	1,000
Office utilities (0/100)				1,200	1,200	600
Kerosene (0/100)				600	600	300
Paper (20/80)	2,440	2,440	1,220	9,760	9,760	4,880
Job Printing (80/20)	6,240	6,240	3,120	1,560	1,560	780
Training (25/75)	2,500	2,500	1,500	7,500	7,500	3,750
Transport (US-Togo)	26,216			39,324		
Total Operating Costs	66,951	40,735	20,367	88,888	49,564	24,782

TABLE 3: GOT AVERAGE ANNUAL INCREMENTAL RECURRENT COSTS ($)

	PROPTA		DRDR'S	
Personnel				
Kara/Agbassa (50/50)	10870		10870	
Tantiegou (100/0)	3876			
Atakpame (100/0)	4608			
CAT's (0/100)			1980	
Subtotal Personnel		19354		12850
Commodities				
Vehicles (101/73)	34029		24595	
Animal/farm equipment	6500		500	
Veterinary equipment	900		2500	
Training equipment (75/25)	7500		2500	
Survey equipment (75/25)	7500		2500	
Office equipment (50/50)	6835		6835	
Subtotal Commodities		63264		39430
Operating Costs				
2 Wheel maintenance			11100	
Vehicle Pool	7555		3844	
Truck Pool	0000		8000	
Bonuses			4000	
GOT per diem	2000		2000	
Office utilities			1200	
Kerosene			600	
Paper	2440		9760	
Job Printing	6240		1560	
Training	1250		3750	
Subtotal Operating Costs		39485		45814
Other Expenses				
Misc. Office Supplies	1650		1650	
Training, Kara and Savanes Atakpame	0000		12500	
Subtotal Other		11650		14150
Subtotal		133753		112244
less personnel		(19354)		(12850)
TOTAL		114399		99394

100X

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TABLE 2 : FARM GATE PRICES (CFA/kg)[1]

SOURCE	SORGHUM	MILLET	MAIZE	YAMS	CASSAVA	COWPEAS	BEANS	PEANUTS	RICE	COTTON
SARGENT, 1978	50	49	60	-	-	-	73	52	45	60
WORLD BANK, 1980	40	40	40	30	15	-	55	100	50	60
D.A.I., 1981	50	-	-	30	-	112.5	-	66	-	-
PROJET VIVRIER, 1981	60	60	50	25	25	-	80	55	50	60
NORD-TOGO, 1982	55	55	60	-	-	-	-	60	80	60
GTZ 1982	60	-	60	-	11.5	130	-	70	70	65
DROR-Savanes, 1982	85	-	85	-	-	-	140	65	60	65
SARGENT, 1982[2]	60	60	60	30	12	130	130	70	70	65

[1] As can be seen from the various source material presented in this Table, no one appears to be systematically monitoring producer prices. Official pricing policies are sporadically applied. The GOT Agricultural Statistics Bureau does monitor prices, but the most recent report available is 1978.

[2] These are the prices that have been adopted by the Project Design Team. They are the result of examinations of the various source materials and methodologies used, site visits and discussions with participants throughout the marketing and production chains.

TABLE 5 : AVERAGE YIELDS (kg/ha)[1]

SOURCE	SORGHUM	MILLET	MAIZE	YAMS	CASSAVA	COWPEAS	BEANS	PEANUTS	RICE	COTTON
TRADITIONAL METHODS										
SARGENT, 1978	588	382	-	-	-	-	142	392	900	600
DAI, 1981	765	539	800	10,000	-	300	300	570	775	635
PROJET VIVRIER, 1981	500	500	850	10,000	7,500	-	400	950	850	-
NORD-TOGO, 1982	875	-	2,207	14,027	-	-	-	1,393	675	-
SARGENT, 1982 [2]	680	470	825	10,000	4,000	300	300	570	775	635
IMPROVED METHOD[3]										
DIA, 1981	800	650	900	10,000	-	400	-	500	-	650
PROJET VIVRIER, 1981	1,000	800	1,500	10,000	7,500	-	600	1,200	1,200	900
NORD-TOGO, 1982	-	-	2,471	-	-	-	-	1,800	2,457	-
GTZ, 1982	800	-	1,700	-	3,300	800	-	1,000	2,000	1,000
SARGENT, 1982[2]	870	725	1,400	12,000	5,000	600	600	900	1,600	850

1 The TAT project area extends over differing soil, rainfall and other growing conditions. Besides, the various other projects have widely different methodologies for data collection and place little importance on monitoring the effects of project interventions. Consequently, it is extremely difficult to accept or reject any one set of estimated average yields.

2 The average yields adopted by the project design team reflect a synthesis of existing data, site visits, interviews and research results from other similar agro-climatic zones in West Africa.

3 The difference between traditional and improved methods varies not only among the various projects but also in the uniformity with which a particular package is applied. The most can be said regarding the packages referred to in Table 3 is that "improved" usually involves some improved seed, fertilizer and some animal traction interventions.

Table 6: PRODUCTION INPUT PRICES - 1982

SEED VARIETIES (CFA/kg)[1]	LOCAL	IMPROVED
Sorghum - 15 kg/ha	60	85
Millet - 8 kg/ha	60	85
Maize - 25 kg/ha	60	90
Yams - 1,000 kg/ha	30	-
Manioc - 7,000 cuttings	1.5	-
Cowpeas - 15 kg/ha	130	150
Beans - 40 kg/ha	130	150
Peanuts - 80 kg/ha	70	130
Rice - 80 kg/ha	70	80
Cotton - 25 kg/ha	-	130

FERTILIZERS, INSECTICIDES[2]	FINANCIAL	ECONOMIC
NPKSB (CFA/kg)	45	150
15-15-15 "	35	130
UREA "	35	130
TRIPLE SUPER PHOSPHATE	35	130
COWPEA INSECT TREATMENT/ha	4,000	?
Actelic - 1 sachet/300 kg	125	?

ANIMAL TRACTION DRAFT TEAM[3]	
ANIMAL	55,000
YOKE	5,000
NOSE RINGS (2)	700
CHAINS	
TETHER ROPES (2)	1,700
HEALTH CARD/YR	2,000
INSURANCE/YR	5,000

1 Local seed varieties are priced at market producer prices. Improved seed varieties are priced at either actual prices practiced in Togo or at C.I.F. approximations. A shadow-pricing exercise to reveal hidden or indirect subsidies would significantly raise these prices.

2 Economic prices for fertilizers are approximations of current world prices, C.I.F. Lome. They do not include in-country handling and transport costs.

3 Current market prices.

Table 7 : CROPPING PACKAGE FOR THE CEREALS ZONE*
(From near Gando north to Upper Volta)

CROP/INTERCROP	SERVICE AREA (hectares)
1. Bulrush millet with a cowpea intercrop	0.7
2. Sorghum intercropped with 4-6 month millet	2.0
3. Maize	0.3
4. Peanuts	0.4
5. Cotton	0.3
6. Rice	0.3
TOTAL	4.0

NOTES:

*While most of the cereal zone falls below marginal rainfall for yams, it has good climatic conditions for cassava production. However, cassava becomes a household garden crop for most of the Savanes region above Gando. The reason given by most farmers and field staff was that during the dry season both domestic stock and wildlife consume the tuberous roots and foliage, which implies the need for expensive fencing if cassava cultivation is to succeed.

1. In some parts of the cereal zone, double cropping is attempted with 4-month millet and transplanted sorghum following the early 60-day millet crop.
2. Sorghum fields, particularly those planted late, will contain a range of cultivar maturities, as well as the millet intercrop. Staggered planting is also common. These practices can be seen as accomodating the high rainfall variation in the zone. No attempt is made here to factor these practices into the economic analysis.
3. Maize use is similar to that further south, but a larger proportion of the crop is grown and stored as dried grain.
4. SOTOCO farmers average about 0.50 hectares of cotton. This figure was discounted to obtain an average figure for the zone.
5. The cereals zone possesses many valleys and water courses, especially in its eastern and southern reaches. As these are areas of concentration for the planned Savanes extension effort, rice is included in the farm model. In drier parts of the zone this surface area would be occupied by other cereals.

Table 8 : CROPPING PACKAGE FOR THE ROOT CROPS AREA
(from Gando south)

CROP/INTERCROP	SERFACE AREA (hectares)
1. Yams with minor cassava component and a cowpea intercrop	0.5
2. Bulrush millet with a cowpea intercrop	0.4
3. Sorghum in a mixed maturity stand	1.4
4. Maize	0.2
5. Peanuts	0.3
6. Cotton	0.2
7. Rice (?)	
TOTAL	3.0*

NOTES:

*The three hectare base is a rough average estimated by the project design team which incorporates the effect of larger individual holdings in Bassar, Bafilo and Gando areas on the average farm size across the zone.

1. Except for small areas at the extreme south and north of the root crop zone, yams dominate the root crop component of farms. In dryland areas, cowpeas, peanuts, and/or sorghum are intercropped on and among yam mounds. To simplify calculations, cowpeas were chosen to model the intercrop. In bottomland areas, rice will often appear as an intercrop with yams. Given the lack of even a rough estimate of bottomland availability, it was not possible to assign rice as an intercrop to the model.
2. Bulrush millet is a 60-75 day crop cultivar often intercropped with cowpeas. Some areas also intercrop with 4-6 month millet and relay crop with mixed maturity sorghum. The latter combinations were excluded from the calculations for ease in numerical manipulations.
3. The sorghum mixed maturity stands 4-6 months may also be partially intercropped in some areas with millet, cowpeas, or peanuts.
4. For most of the root crop zone, maize is used as an early roasting food and does not cover large surface areas. The Bassar prefecture is an exception to this statement, but it does not substantially raise the model parcel size for maize encountered throughout the zone.
5. The inclusion of cotton in the model reflects the intensive efforts of SOTOCO in Bassar, Kante, Broukou, and Gando areas of the root crop zone.
6. Rice cultivation will replace some sorghum or maize area where bottomland is plentiful, e.g., Tamberma land.

Table 9 : REPRESENTATIVE BUDGET FOR CEREALS ZONE

(Approximately from Gando North)

	INITIAL AREA	INITIAL YIELDS	INITIAL PRICES	INITIAL GROSS VALUES	
GROSS PRODUCTION					
Millet/	0,70 ha	470 kg	60 CFA	19.740 CFA	
Cowpeas	-	300	130	27.300	
Sorghum/	2,00	680	60	81.600	
Millet	-	470	60	56.400	
Maize	0,30	825	60	14.850	
Groundnuts	0,40	570	70	15.960	
Cotton	0,30	635	65	13.383	
Rice	0,30	775	70	16.275	+ 245.508 CFA
ON-FARM CONSUMP					
Cereals for 9 people 9 x 200 kg = 1800 kg x 60)					108.000
SEED REQUIREMENTS					
Cereals	125 kg		7.500		
Cowpeas	21		2.730		
Groundnuts	48		3.360		
Rice	30		2.100		
SUB - TOTAL					15.690
MISC. FARM INPUTS (20%)					121.818
GROSS FARM REVENUES PER YEAR					24.364
					97.454

Table 10 : REPRESENTATIVE FARM BUDGET FOR ROOT CROPS ZONE

(Approximately from Gando south)

	INITIAL AREA	INITIAL YIELDS	INITIAL PRICES	INITIAL GROSS VALUES	
GROSS PRODUCTION					
Yams /	0,50 ha	10.000 kg	30 CFA	150.000 CFA	
Cowpeas	-	300	130	19.500	
Millet/	0,40	470	60	11.280	
Cowpeas	-	300	130	15.600	
Sorghum	1,40	680	60	57.120	
Maize	0,20	825	60	9.900	
Groundnuts	0,30	570	70	11.970	
Cotton	0,20	135	65	8.255	+ 283.625
ON-FARM CONSUMPTION					
7 people x 200 kg = 1,400 kg					
Cereals 960 x 60					
Tubes 500 x 30					- 69.000
SEED REQUIREMENTS					
Yams	500 kg			15.000	
Cereals	50			3.000	
Groundnuts	36			2.520	- 20.520
SUB-TOTAL					194.105
MISC. FARM INPUTS (20%)					- 38.821
GROSS FARM REVENUE PER YEAR					155.284

Table 11: Index of Increased Output

	Yr.1	Yr.2	Yr.3	Yr.4	Yr.5	Yr.6.etc.
Yields =	100	105	110	115	120	120
Areas =	100	110	120	125	130	130
Overall Increase =	100	116	132	144	156	156

Table 12: Financial Farm Budget for Root Crop Zone
With Introduction of Animal Traction (FCFA)

	Without Project	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yrs.7-10	Yr. 11	Yrs.12-15
A. Gross Crop Value[1]	283,625	283,625	329,005	374,385	408,420	442,455	442,455	442,455	442,455	442,455
B. Consumption	69,000	69,000	69,000	69,000	69,000	69,000	69,000	69,000	69,000	69,000
C. Production Costs[2] (seed stocks (20520) plus misc farm inputs (38821))	59,341	59,341	65,275	71,209	74,176	77,143	77,143	77,143	77,143	77,143
D. Gross Farm Revenues	155,284	155,284	194,730	234,176	265,244	296,312	296,312	296,312	296,312	296,312
ANIMALS and EQUIPMENT @ 8%										
E. Downpayment 10%		(18,600)								
F. Annuity (.2504 of 167,400, plus 7,000)		48,920	48,920	48,920	48,920	48,920				
G. Equipment Maintenance			4,000	4,000	4,000	4,000				
H. Custom Work		10,000	10,000	10,000	10,000	10,000				
I. Animal Appreciation						100,000				
J. Net Income		116,364	151,810	191,256	222,324	353,392				
K. Incremental Net Income		(38,920)	(3,474)	35,972	67,040	198,108				
5-yr return on investment = 53%										
ANIMALS and EQUIPMENT @ 13%										
L. Downpayment 10%		(18,600)								
M. Annuity (.2842 of 167,400 plus 7,000)		54,575	54,575	54,575	54,575	54,575				
N. Equipment Maintenance			4,000	4,000	4,000	4,000				
O. Custom Work		10,000	10,000	10,000	10,000	10,000				
P. Animal Appreciation						100,000				
Q. Net Income		110,709	146,155	185,601	216,669	347,737				
R. Incremental Net Income		(44,575)	(9,129)	30,317	61,385	192,453				
5-yr return on investment = 45%										
EQUIPMENT only @ 13%										
S. Downpayment 10%		(7,600)								
T. Annuity (.2842 of 68,400, plus 7,000)		26,439	26,439	26,439	26,439	26,439				
U. Equipment Maintenance			4,000	4,000	4,000	4,000				
V. Custom Work		10,000	10,000	10,000	10,000	10,000				
W. Net Income		138,845	174,291	213,737	244,805	275,873				
X. Incremental Net Income		(16,439)	19,007	58,453	89,521	120,589				
5-yr return on investment = 123%										

Table 13: Financial Farm Budget for Cereal Crop Zone With Introduction of Animal Traction (FCFA)

	Without Project	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yrs.7-10	Yr. 11	Yrs.12-15
A. Gross Crop Value[1]	245,508	245,508	284,789	324,071	353,531	382,992	382,992	38[illegible] 992	382,992	382,992
B. Consumption	108,000	108,000	10[illegible],000	108,000	108,000	108,000	108,000	10[illegible] 000	108,000	108,000
C. Production Costs[2] (seed stocks (15691) plus misc farm inputs (24364))	40,054	40,054	44,059	48,065	50,068	52,070	52,070	5[illegible],070	52,070	52,070
D. Gross Farm Revenues	97,454	97,454	132,730	168,006	195,463	222,922	222,922	222,922	222,922	222,922
ANIMALS and EQUIPMENT @ 8%										
E. Downpayment 10%		(18,600)								
F. Annuity (.2504 of 167,400, plus 7,000)		48,920	48,920	48,920	48,920	48,920				
G. Equipment Maintenance			4,000	4,000	4,000	4,000				
H. Custom Work		10,000	10,000	10,000	10,000	10,000				
I. Animal Appreciation						100,000				
J. Net Income		58,534	89,810	125,086	152,543	280,002				
K. Incremental Net Income		(38,920)	(7,644)	27,632	55,089	182,548				
5-yr return on investment = 46%										
ANIMALS and EQUIPMENT @ 13%										
L. Downpayment 10%		(18,600)								
M. Annuity (.2842 of 167,400, plus 7,000)		54,575	54,575	54,575	54,575	54,575				
N. Equipment Maintenance			4,000	4,000	4,000	4,000				
O. Custom Work		10,000	10,000	10,000	10,000	10,000				
P. Animal Appreciation						100,000				
Q. Net Income		52,879	84,155	119,431	146,888	274,347				
R. Incremental Net Income		(44,575)	(13,299)	21,977	49,434	176,893				
5-yr return on investment = 38%										
EQUIPMENT only @ 13%										
S. Downpayment 10%		(7,600)								
T. Annuity (.2842 of 68,400, plus 7,000)		26,439	26,439	26,439	26,439	26,439				
U. Equipment Maintenance			4,000	4,000	4,000	4,000				
V. Custom Work		10,000	10,000	10,000	10,000	10,000				
W. Net Income		81,015	112,291	147,567	175,024	202,483				
X. Incremental Net Income		(16,439)	14,837	50,113	77,570	105,029				
5-yr return on investment = 110%										

110 x

Table 14 : Farm Level Economic Benefits in the Root Crop Zone (FCFA)

	Without Project	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yrs 7-10	Yr 11	Yrs 12-15
Income:										
A. Gross farm revenues	155,284	155,284	194,730	234,176	265,244	296,312	296,312	296,312	296,312	296,312
B. Revenue from custom work		10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
C. Animal appreciation		20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
D. Total income		185,284	224,730	264,176	295,244	326,312	326,312	326,312	326,312	326,312
Costs:										
E. Antrac equipment/animals		186,000					110,000		110,000	
F. Animal health		2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
G. Equipment maintenance			4,000	4,000	4,000	4,000	8,000	10,000	10,000	10,000
H. Total costs		188,000	6,000	6,000	6,000	6,000	120,000	12,000	122,000	12,000
I. Net income		(2,715)	218,730	258,176	289,244	320,312	206,312	314,312	204,312	314,312
J. NET INCOME - INCREMENTAL		(188,000)	63,446	102,892	133,960	165,028	51,028	159,028	49,028	159,028

NPV @ 10% = FCFA 756018
$ 2520

K. Carting income	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
L. Purchase cost	61,000								
M. Maintenance	2,000	2,000	2,000	4,000	4,000	6,000	6,000	6,000	6,000
N. Net carting income	(39,000)	22,000	22,000	20,000	20,000	18,000	18,000	18,000	18,000
O. INCREMENTAL NET INCOME (J + N)	(197,000)	85,446	124,892	153,960	185,028	69,028	177,028	67,028	177,028

NPV @ 10% = FCFA 859429
$ 2864

Table 15 : Farm Level Economic Benefits in the Cereal Zone (FCFA)

	Without Project	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yrs 7-10	Yr 11	Yrs 12-15
Income:										
A. Gross farm revenues	97,454	97,454	132,730	168,006	195,463	222,922	222,922	222,922	222,922	222,922
B. Revenue from custom work		10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
C. Animal appreciation		20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
D. Total income		127,454	162,730	198,006	225,463	252,922	252,922	252,922	252,922	252,922
Costs:										
E. Antrac equipment/animals		186,000					110,000		110,000	
F. Animal health		2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
G. Equipment maintenance			4,000	4,000	4,000	4,000	8,000	10,000	10,000	10,000
H. Total costs		188,000	6,000	6,000	6,000	6,000	120,000	12,000	122,000	12,000
I. Net income		(60,546)	156,730	192,006	219,463	246,922	132,922	240,922	130,922	240,922
J. INCREMENTAL NET INCOME		(158,000)	59,276	94,552	122,009	149,468	35,468	143,468	33,468	143,468
NPV @ 10% = FCFA 660426 $ 2201										
K. Carting income		24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
L. Purchase cost		61,000								
M. Maintenance		2,000	2,000	2,000	4,000	4,000	6,000	6,000	6,000	6,000
N. Net carting income		(39,000)	22,000	22,000	20,000	20,000	18,000	18,000	18,000	18,000
O. INCREMENTAL NET INCOME (J + N)		(197,000)	81,276	116,552	142,009	169,468	53,468	161,468	51,468	161,468
NPV @ 10% = FCFA 763837 $ 2546										

XZII

Table 16 : Composite Farm Level Economic Benefits[1] (FCFA)

	Without Project	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yrs.7-10	Yr. 11	Yrs.12-15
Average benefit, including carting	FCFA 126,369	(197,000)	83,361	120,722	147,984	177,248	61,248	169,248	59,248	169,248

Simple average of benefits in cereal and root crop zones, Tables 12 and 13.

Table 17 : Direct Economic Benefits Due to Extension (000 FCFA)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	2
71 Farmers[1] begin Yr. 1	(13,944)	5,921	8,563	10,501	12,567	4,345	12,001	12,001	12,001	12,001	4,196	12,001	12,001	12,001	12,001	4,196	12,001	12,001		
108 Farmers begin Yr. 2		(21,287)	9,007	13,025	15,973	19,116	6,610	18,274	18,274	18,274	18,274	6,383	18,274	18,274	18,274	18,274	6,383	18,274		
120 Farmers begin Yr. 3			(23,652)	10,008	14,4:2	17,748	21,240	7,344	20,304	20,304	20,304	20,304	7,038	20,304	20,304	20,304	20,304	7,038		
Total direct benefits	(13,994)	(15,366)	(6,082)	33,534	43,012	41,209	39,851	37,619	50,579	50,579	42,774	38,688	37,313	50,579	50,579	42,774	38,688	37,313		

Net present value @ 10% = FCFA 217,578,520 = $725,260.

71 Farmers begin Yr. 1	(13,994)	5,921	8,563	10,501	12,567	4,345	12,001	12,001	12,001	12,001	4,196	12,001	12,001	12,001	12,001	4,196	12,001			
216 Farmers begin Yr. 2		(42,552)	18,005	26,076	31,964	38,285	13,229	36,557	36,557	36,557	36,557	12,798	36,557	36,557	36,557	36,557	12,798			
240 Farmers begin Yr. 3			(47,280)	20,006	28,973	35,516	42,540	14,699	40,619	40,619	40,619	40,619	14,220	40,619	40,619	40,619	40,619			
Total direct benefits	(13,994)	(36,631)	(20,712)	56,583	73,504	78,146	67,770	63,257	89,117	89,117	81,292	65,418	62,778	89,177	89,177	81,372	65,418			

Net present value @ 10% = FCFA 384,213,770 = $1,280,710.

[1] Includes 31 from AIP.

114x

Table 18: Indirect Economic Benefits Due to Extension and Diffusion (000 FCFA)

Yr of adop-tion	Number of farmers	YR 4	YR 5	YR 6	YR 7	YR 8	YR 9	YR 10	YR 11	YR 12	YR 13	YR 14	YR 15	YR 16	YR 17	YR 18	YR 19	YR 20
4.	200	(39400)	16672	24144	29596	35450	12250	33850	33850	33850	33850	11850	33850	33850	33850			
5.	200		(39400)	16672	24144	29596	35450	12250	33850	33850	33850	33850	11850	33850.	33850	33850		
6.	200			(39400)	16672	24144	29596	35450	12250	33850	33850	33850	33850	11850	33850	33850	33850	
7.	100				(19700)	8336	12072	14798	17725	6125	16925	16925	16925	16925	5925	16925	16925	16925
8.	100					(19700)	8336	12072	14798	17725	6125	16925	16925	16925	16925	5925	16925	16925
9.	100						(19700)	8336	12072	14798	17725	6125	16925	16925	16925	16925	5925	16925
10.	100							(19700)	8336	12072	14798	17725	6125	16925	16925	16925	16925	5925
11.	100								(19700)	8336	12072	14798	17725	6125	16925	16925	16925	16925
12.	100									(19700)	8336	12072	14798	17725	6125	16925	16925	16925
13.	100										(19700)	8336	12072	14798	17725	6125	16925	16925
TOTAL		(39400)	(22728)	1416	50712	77826	78004	97056	113181	140906	157831	172456	181045	185898	199025	164375	141325	107,475

NPV @ 10% = FCFA 506,138,770

= $1,687,000

Table 19: NPV of 1 Farmer Adopting Antrac in Yr. 3 (FCFA)

Year	1	2	3	4	5	6	7	8	9-12	13	14-17	18	19-20
			(197,000)	83,361	120,722	1.7,984	177,248	61,248	169,248	59,248	169,248	59,248	169,248

NPV @ 10% over 20 yrs. = FCFA 740,607
$2,468.

Table20 : Animal Purchase and Distribution Costs per Head (FCFA) of 2 Different Projects

	1979-80 (65 Head) (USAID-FED)	1981 (351 Head) (USAID-FED)	1982 100 Head)
Purchase Price	40,155	39,551	67,950
Price delivered to project zone	37,313	34,417	59,000
Total procurement/ transport costs	2,842	5,134	8,950
Contacting sellers	118 (commissions)	769 (transport)	1,020[3]
Wages for guarding, herding, embarkation	220	344	1,450
Health care (medicine, vaccinations)		127	
Transportation	2,453[2] (195 km = 13/km)	1,779 (195 km = 10/km)	7,500 (600 km 13/km)
Overhead		2,882[1]	
Carrying costs for animals bought too young (@ 10%, spread over remaining herd)	119		3,933

[1] Includes loss of 581,385 due to poor payment system.
[2] FED transport by hoof = 1,250.
[3] 50/km x 1600 km plus 3 salaries @ 7,000/day for 5 days plus 1 chauffeur @ 1,000.

TECHNICAL ANALYSIS

LAND ISSUES

- Land Availability
- Project Site Selectior

LIVESTOCK

- Supply and Demand
- Animal Supply Procedures
- Animal Handling Procedures
- Animal Health Care

EQUIPMENT

- Tool Mix
- Equipment Manufacture
- Spare Parts, Repairs and Rural Artisans

CROPS

ANNEX THREE

TECHNICAL ANALYSIS

LAND ISSUES

Land Availability

Table 1 gives population densities on a prefecture basis for Kara and Savanes regions in 1981. The figures cannot be taken as definitive because they do not incorporate allowances for recent expansion of game reserves nor separate rural from town populations. Still they elicit the question of whether there is land available for the expansion in cultivated surface area often expected from the introduction of animal traction. The question is fundamental to determination of project viability. To answer it, the following analysis examines first, the potential and expected impact of the adoption of animal traction on surface area cultivated at the farm level and, second, the availability, capability and use of the land resource base at the regional level.

The Potential Impact of Animal Traction on Expansion of Cultivated Area

In a recent review of West African animal traction projects, it was noted that a range of 4-55% increase in cultivated surface area may be expected in the medium-term following the introduction of draft equipment. (Sargent et al, 1981) However, simple application of these average impacts to the Togo Animal Traction Development Project (TAT) would be unwise because of the complexity of the interaction between the introduced animals and equipment with farm operations. The discussion which follows, outlines some of the interactions which have led the PP team to the conclusion that expansion in cultivated surface area will be modest, probably under 30% over the five and one-half years of the TAT project.

There have been several studies which indicate that larger land holders are more likely to be early adopters (Barrett et al., 1981; Delgado and McIntire, 1981; Sargent et al, 1981). The reasons for this are known and relate generally to the ability of bigger farmers to undertake greater initial risks and financial debt burdens than smallholders can. The principal effects of draft equipment use by this stratum of farmers may often be increased labor productivity. The time required for a given operation may be reduced and its timeliness improved. There may therefore be little incentive to expand surface area, particularly if off-farm enterprises offer greater returns. Increased capital productivity (better seedbed preparations, improved fertilizer incorporation) may also permit intensification rather than extensification of production.

Another complicating factor at all farm sizes is that the equipment used may not be reducing the key labor bottlenecks which limit expansion. It may be that no equipment is available which can be employed for a particular operation. An important example for the Kara region is the digging

of yam mounds. While many workers have tried to develop mounding equipment, no design has passed field tests.

Available equipment may also not be adapted to local cultural practices. The ridger now being extended in Togo cannot be used to weed the slopes of the ridges formed. Consequently, hand labor must be used. Provisions of a modified set of ridger wings with attached scrapers would reduce labor requirements.

Even when equipment is available and adapted, it may not be used for a variety of reasons. Often extension agents and animal trainers receive training only on the plow, ridger, harrow and cart. The weeding implements, despite the weeding labor constraint which often dominates hand hoe agriculture, receives little attention in training and, consequently, little stress is laid upon them in extension programs. Nearly all extension personnel encountered during the Project Paper design had received no practical instruction in the use of the available weeding equipment. Few had even been exposed to the construction of the long yokes, alternative weeding tools ("Canadien" shovel and chisel points), or the use of single animals for cultivation.

Besides these phenomena, there may be no economic incentive for a head of household to mechanize weeding operations which restrict the surface area capable of being cropped. A male head of household may see zero opportunity cost to the use of women and children to weed, or may perceive an increased social opportunity cost if he abandons group weeding parties and has to spend more of his own time in the fields.

Another reason to believe that the introduction of animal traction will not result in rapid land expansion is that the technology involves readjustment of many elements of current farming practice. There is a learning curve for acquisition of skills in handling and caring for draft stock, using, adjusting, and maintaining equipment, and modifying crop programming and cultural practices to take better advantage of available draft power and equipment. It cannot, and should not, be expected that a farm family will transform itself into expert animal traction farmers in one, two, or three growing seasons. A reasonable progression might be use of the plow and ridger for two crop years before mechanical weeding is attempted. This may be followed by two years of testing of equipment, animal and crop combinations before the farmer is capable of expanding crop area. Even this fairly optimistic progression would mean only that expansion <u>could</u> start by the fifth growing season.

Should all of the farm-level constraints to surface area expansion be removed, there still may be no economic incentive to do so. Access to markets may be restricted or producer prices may be too low. The Economic Analysis in Annex Two discusses these potentially restraining factors.

Individual access to land can also play a role in curbing expansion. However, as discussed in the Social Soundness Analysis in Annex Four, traditional land tenure systems in northern Togo are not normally restrictive in this sense.

Monitoring the Actual Impact of Animal Traction on Farm Size

While the design team's best guess is that farm expansion due to animal traction technology will be on a modest scale, it would be irresponsible to claim that the available information decisively supports the forecasted impact. Therefore, the project will track farm size status over time using data collected by the Agricultural Statistics Service and the extension agents who work from the CATs. This information, combined with other farm level data, will be analyzed by the Monitoring and Evaluation unit of PROPTA (see Annex Twelve) to determine whether, and at what rate, the use of animal traction leads to crop land expansion.

Also, given the overall thrust of the project to develop viable national policies for animal traction, the Monitoring and Evaluation Unit will analyze past (1970-71) and current census (1981-82) and agricultural census (1982-83) data to determine:

- if the data permits interpretation of animal traction effects on cultivated surface area;
- if so, what are trends in expansion and rates of expansion attributable to draft power; and,
- if not, how to modify the ten-year agricultural census and annual agricultural sample survey questionnaires, sampling procedure, and/or execution of field work to permit analysis and interpretation of the impact questions.

Regional Land Availability, Land Use, and Capability Issues

The preceding sections indicated that the AID-funded TAT project will most probably not have a major impact on expansion of crop area. However, other agricultural and rural development projects are likely to have a much quicker and widespread effect on land occupation, as they have the explicit objectives to clear land for resettlement or production and to increase access to land.

In addition, there are changes in land use in northern Togo which affect the future potential for agricultural expansion. One is the rapid expansion of wildlife reserves along the Keran and Oti rivers. While official figures on the amounts of land included were not obtained, it is clear from the new boundaries of the reserves that dislocation of some farming population has already occurred. While the net impact on present and future agricultural production cannot be estimated without more detailed study of the land capability and population pressure on areas outside the reserves, it is clear that a significant portion of higher productivity alluvial soils has been removed from the agricultural sector in eastern and southern Savanes region. However, it is beyond the scope of the design team to speculate on the relative tradeoffs between game reserves which protect wildlife and add tourist value, and use of the land for agricultural production.

There are at least three major project-level phenomena which do or will have important land use implications. First, agricultural development projects in northern Togo may over-intensify land use or excessively modify drainage patterns in individual watersheds, increasing run-off and erosion and, potentially, environmental degradation. There have already been some unofficial reports that road and land clearing activities in parts of the Kara region have resulted in higher peak run-off rates. Some remedial actions (planting of tree bands) have begun in some areas. Second, current draft equipment packages almost invariably include carts. Besides questions of cart design and cost, which as the economic analysis in Annex Two explains may push a farmer's debt burden beyond feasible levels, carts may increase the distance and intensity at which firewood is collected. While there are no quantitative studies which examine such changes in firewood collection behavior, informal reports from neighboring West African countries indicate that when a cart is used to haul wood, tree stand utilization increases skill socio-economic advantages to cart use may outweigh environmental disadvantages in many of northern Togo's environments, over the near and medium-term. Third, over a 15 to 20-year period, acceptance and the economic use of animal traction equipment could lead to significant land expansion.

Therefore, the need remains to ask questions about land use in the Kara and the Savanes regions, and, optimally to promote the investigation of similar questions at the country-level through PROPTA, the umbrella project which will coordinate national animal traction efforts. On the other hand, the design team seriously questions how much effort reasonably can be expected from an implementation project such as TAT on analysis of large regional and national issues of basic natural resource utilization. While the TAT project will collect and analyze farm-level data on the impact of animal traction on local land use, its resources cannot be stretched to undertake region-wide soils, vegetation, and water resources inventory nor set up extensive ground survey sampling, aerial photography or other remote sensing monitoring procedures needed to support informed natural resource allocation policy decisions.

If AID, other donors and the GOT are serious about land issues, it is the position of the design team that they should vigorously support a single national resource inventory and monitoring system to serve as the basis for project design, as well as policy formulation, rather than ask individual projects to undertake under-funded and fragmentary analysis in which little real confidence can be placed. The environmental analysis in Annex Nine follows up on this point by suggesting a range of systems to monitor land use which are linked to the availability of extra-project funds (centrally-funded programs, REDSO/WA, etc.). In the absence of external funding the TAT project will be able to do little more than very rough extrapolation from farm-level data.

There are a number of reasons why the preceding discussion has been qualitative rather than quantitative. First and foremost, there is very little reliable data on any aspect of animal traction, a state which is commented upon at length in Annex 9 - Evaluation. Secondly, attempts to associate the general phenomenon of land expansion with the introduction of animal traction can be extremely misleading. In general, unless a significant portion of a region's populace adopts animal traction, it is almost certain that, over the medium-term, land occupation due to population growth will greatly overshadow that due to greater available power at the farm-level. Other phenomena that confound cause and effect analysis are: increases in land occupation due to declining soil fertility and shortened rotations (again a symptom of demographic pressure); movement onto shallower or more draughty soils which have an initial low productivity potential which in turn requires cultivation of larger expanses to achieve the same production as on more fertile sites; and, major donor efforts to open new territory to agricultural activity. Examples of the latter include integrated rural development projects such as FED-La Kara and the UNDP-FAO Project North-Togo which build access roads, supply water, clear land, and create the service infrastructure to support resettlement. Both projects were made possible, in whole or part, by a continuing effort by the WHO to control the Simulium fly vector for onchocerciasis in West African river valleys.

The PP team suspects, though it cannot conclusively demonstrate, that the introduction of animal traction technology has had little impact on expansion of the agriculturally occupied land area in northern Togo to date. Population growth is likely to remain the principal long-term cause. In the medium-term donor-assisted resettlement projects (FED-La Kara and the Oti Valley project) and production-oriented projects (UNDP-FAO's Project North-Togo, IBRD's SOTOCO II project) are likely to have a much greater effect on land occupation than draft animal technology. This is due to their direct effects in clearing areas for resettlement and production blocks and indirect effects through construction and rehabilitation of roads, water supplies, and markets.

In sum, the best current guess by the design team is that surface area expansion at the farm level will occur slowly. In part, site selection criteria were used to ensure this result. Most sites for extension centers (CATs - Centres d'Appui Technique) were chosen in areas where individual parcels were observed to be above 0.25 hectares, large enough to initiate animal traction use. Past experience also indicates it may take from three to five growing seasons before weeding implements are used. However, it must be noted here that the project will make concentrated effort beginning in year two (1983-84 growing season) to extend the use of weeding equipment. It is expected that a minimum of two seasons will be required for farmers to master and integrate the equipment with their crop programs. The extension effort, even if unusually successful, only provides the ability to reduce the weeding labor constraint. In practice other factors may inhibit an increase in farm size, e.g., crop prices, perceived risks or competing economic opportunities.

Project Site Selection

While essentially all project sites were proposed by regional authorities, final selection of work locations was guided by basic land availability criteria. Land criteria took into account the physical surface area available and land capability. For the former only rough qualitative estimates of occupation rates are available. While population density figures and maps are available, they are not corrected for town and urban populations nor forest and wildlife reserve areas. Also, little confidence can be placed in existing estimates of farm size, as is discussed in the Social Soundness Analysis in Annex Four. A recent AID-funded study of agricultural activity in northern Togo (Hermann, 1982) gives a very useful inventory of available maps, population density data, soils surveys, aerial photography, and Landstat coverage but could not stratify land occupation rates for different parts of the north, even in qualitative terms.

Faced with this situation, the team worked with available soils reconnaissance maps and site visits to make extremely rough determinations of land occupation by crops and livestock. Besides occupation, additional selection criteria used were: proximity to other donor-assisted projects (avoided), water availability, density of tree cover (higher density areas were avoided), road access, existing physical infrastructure, presence of government extension agents, and past and current history with animal traction.

Two of the final sites have less than optimal land availability. At Tantiegou, the site of the national buying center, there is a lack of free range. The available area consists of about 38 hectares of bottom land (bas-fond) next to an old BDPA irrigation project. Six, six-hectare pastures will be enclosed and improved under a rotational grazing system. Brewery wastes, cotton seed, other crop byproducts, and fodder will be used to support animals moving through the buying station for a two-week quarantine. While a larger area would be desirable, the design team believes that its proximity to major cattle suppliers and to CNCA Dapaon, which will eventually manage the cash transactions, outweighs the low land availability.

The second suboptimal site is Kante in the Kara region. This site is located at a Service d'Elevage corral and storehouse. Its use will be restricted to transhipment of animals and equipment for which its location near the intersection of north-south and east-west roads gives it a comparative location advantage. However, it is a last priority center, and will be dropped if a Peace Corps volunteer is not available to help staff it.

ANNEX THREE TECHNICAL ANALYSIS

LIVESTOCK

SUPPLY AND DEMAND

The initial livestock question in any animal traction project is whether there is a sufficient supply of suitable draft animals to meet projected demand. Table 1 gives the national herd figures for each region from 1970-75 and 1981. The largest concentration of cattle is in Savanes region followed by Centrale, Kara, Plateaux and Maritime regions. The most important cause of this distribution is reported to be the increase in incidence of trypanosomiasis from north to south. The gradient in disease is also reflected in the breed of animal raised. In the Savanes region the Zebu group of cattle (Bos indicus) are found with the dominant breeds of the Bos taurus or taurin species. In the north larger animals are found. Crosses with Zebu cattle are frequent in herds made up of Samba and Borgou breeds weighing up to 250 kg. Other breeds found more to the south include N'dama (up to 200 kg), Baoule (up to 180 kg), and the smaller Lagunaire and Nuturu breeds (around 110-120 kg).

Using the available data herd growth rates were calculated from 1970-75 period and extrapolated to 1981. The results of this calculation are found in the last line of Table 1. While substantial counting, migration and seasonal errors may be included in the figures, it appears that national herd growth may be slowing and relative national distribution may be shifting. Herds in the Kara and Centrale regions appear to have been in equilibrium state for some time. The Savanes herd may also be stabilizing. The Plateaux and Maritime herds, on the other hand, seem to have increased substantially since 1975. In-migration (especially from Ghana) may have played a significant role in herd growth in these two regions, but this cannot be confined without better information on herd composition.

Cattle density figures are given in Table 2. They show a north to south decrease in density of occupation. All regions except Savanes have experienced an increase in rates of land occupation by cattle during the 1979-1981 period.

Table 3 gives a comparaison of the only available independent estimate of the national cattle herd. It dates from the 1972-73, 73-74 agricultural census. Unfortunately, the sample drawn excluded herders without farms from the survey. As the census takers were aware, this would normally result in an underestimation of the animal population of the country. The comparison generally bears this out except for the Savanes region, where the census significantly overestimated cattle numbers compared with the count of the Animal Health Service.

TABLE 1

NATIONAL HERD SIZE

NUMBER OF HEAD OF CATTLE BY REGION (000's)

Year	Region: Maritime	Plateaux	Centrale	Kara	Savanes	National Total
1970	11	28	52	31	72	194
1971	10	30	52	33	67	192
1972	11	31	50	32	74	198
1973	12	32	51	32	81	208
1974	11	33	50	31	81	206
1975	11	31	55	32	98	227
N/A						
1981	15	47	58	33	92	245
1981 Est.[1]	11	35	59	33	142	280

Sources: Adapted from Josserand, 1979, p.12, for years 1970-75.
Department of Animal Health 1981.

Notes : [1] Calculated from the 1970-75 data. Growth rates used: Maritime-0, Plateaux-0.0204, Centrale-0.0611, Kara-0.0064, Savanes-0.0617, National-0.0314 (Actual-0.0212).

TABLE 2

CATTLE DENSITY

BY REGION 1970, 1975, 1981

Region	Density (cattle/km2) 1970	1975	1981
Maritime	1.68	1.75	2.34
Plateaux	1.64	1.84	2.77
Centrale	2.55	2.70	2.83
Kara	7.11	7.30	7.56
Savanes	8.40	11.30	10.67
Togo	3.40	3.40	4.31

Sources: Josserand, 1979, p.19. 1981 figures calculated by the PP team from Animal Health Service data on regional population.

TABLE 3

COMPARISON OF ANIMAL HEALTH
AND AGRICULTURAL SURVEY AND STATISTICS
SERVICE ESTIMATES OF
REGIONAL CATTLE POPULATIONS IN 1973[1] (000's)

Region	Animal Health Estimate	Agricultural Statistics Estimate
Maritime	12	N/A
Plateaux	32	17
Centrale	51	58
Kara	32	31
Savanes	81	93
Togo	208	199

Sources: Animal Health Service and Agricultural Statistics Service 1972-73 and 1973-74.

[1] The Agricultural Statistics Service gives no explicit data for its estimate obtained during the 1972-73 and 1973-74 agricultural census. The design team arbitrarily selected 1973 as the midpoint of the survey work.

The two other major points of difference are the figures for the Plateaux and Maritime regions. In the former, the census figure is about half the Animal Health Service's estimate, while in the latter, no data for cattle are given. A new agricultural census is underway (1982/83) which has corrected its sampling procedure to include herders in the census in all regions. Data from this work should be available in 1984.

Given general considerations for animal conformation and size needed for animal traction, a rough estimate of the total pool of draft cattle should probably include animals only from the Savanes, Kara, and Centrale regions. In 1981 this population was estimated to be 183,000 head, or 75% of the national herd. To determine the likelihood that this portion of the herd can supply draft animals, it is necessary to examine propable demand levels for draft power and competition for animals as a meat supply.

Table 4 gives a projected demand for draft animals based on rough estimates of requirements given for current animal traction projects. The jump from 500 to 1000 animals in 1983/84 is due to the team's evaluation of when the new generation of animal traction projects will begin to consolidate field activities (TAT, FED-V, and SOTOCO II). An annual growth rate of about 24% in reinvestment of new pairs is assumed over a ten-year period. An assumption is also made that without important increases of animal supply, expansion in animal traction will be restricted by the supply of replacement animals by about 1992.

It is necessary to refer to existing knowledge about herd strucure to explain why the assumption about supply saturation is made. Table 5 gives the national herd age structure as reported by Josserand (1979) for 1975. One of the findings of the report was that the relative offtake rate for male animals increased during most of the 1970-75 period, but was leveling off by 1975. For a tropical African herd the percent representation of males in the 1-2 and 3-5 year classes was very low in 1975. The leveling in male offtakes rates may have reflected a realization on the part of herders that they were reducing herd growth rates and the finished weight of animals going to market.

Assuming that offtake rates stabilized at 1975 levels during the following six years, the 1981 national herd structure would be represented by the calculations presented in Table 6. With no imports, a survival rate of .95, and recruitment of males only for animal traction, it seems clear that animals of appropriate size (age) are present in limited quantities in Togo. Purchase of about 2,000 head of 2 1/2 to 3 1/2 year old males will definitely increase competition on local cattle markets and prices will rise from their current 55,000 CFA per head.

However, analysis of the impact of animal traction on meat supply is not so straightforward. In early years meat is withdrawn from the market. Then, after five years of use a cohort of animals in the 220 kg range will be entering the marketplace as replacement cohort of 120 kg is purchased. Using a conversion factor of 50% for live weight to carcass weight shows that in 1982/83, while the total demand of 1,400 head removes 84 tons of meat from the market, the slaughter of 900 eight to ten year old animals would provide 99 tons of meat, an increment of 15 tons. In succeeding years a net increase in meat supply would occur until steady state conditions were achieved. Table 7 presents the evolution of the impact of male animal reinvestment for draft purposes on meat supply. Two years of steady state conditions would be required to wipe out the accumulated meat withdrawal of 375 metric tons accumulated over 15 years. The annualized average of 25 tons net meat withdrawal due to animal traction represents 0.8% of estimated national beef supply and .16% of national meat supply in 1981 terms. However, the 1977-82 programs withdrew about 2% of the beef supply and .9% of the national meat supply. This along with

increased demand from Nigeria for meat probably accounts for the jump in animal prices from 30,000 to 55,000 CFA over the same period.

TABLE 4

PROJECTED DEMAND FOR DRAFT ANIMALS

Year	New Animals	Replacement Animals[1,2]	Total Demand	Useful Herd Size[4]
1982/83	500	900	1,400	186,000
1983/84	1,000	900	1,900	187,000
1984/85	1,000	900	1,900	192,000
1985/86	1,000	900	1,900	195,000
1986/87	1,000	900	1,900	198,000
1987/88	1,500	1,400	2,900	210,000
1988/89	1,500	1,900	3,400	204,000
1989/90	1,500	1,900	3,400	208,00
1990/91	2,000	1,900	3,900	210,000
1991/92	- [3]	2,400	2,400	214,000

Notes: [1] Assumes replacement of animals after five years of use.

[2] Table starts with a base of about 4,500 animals distributes over the past five years. The 1982/83 through 1986/87 replacement figures are calculated on this base.

[3] Model assumes saturation at 15,000 animals or 7,750 pairs by 1990/91.

[4] Useful herd sizes refers to the herds from Savanes, Kara, and Centrale regions for which an intrinsic rate of natural increase of 0.0223 for Savanes, 0.0057 for Kara, and 0.0099 for Centrale is calculated from the 1970-1981 period.

TABLE 5

HERD AGE STRUCTURE 1975
(%)

Male	Age	Female
.6	7 - 10	1.4
.8	6 - 10	14.1
1.4	3 - 5	21.1
2.1	1 - 2	12.7
21.1	Calves	24.7

Source: Calculated from Josserand, 1979, p.19

TABLE 6

HERD AGE STRUCTURE 1981
(Estimated)

Male		Female
1,500	7 - 10	3,400
2,00	6 - 10	34,600
3,400	3 - 5	51,700
5,200	1 - 2	31,100
51,700	Calves	60,500

Total 245,100

Source: Calculated from animal health records and herd age structure recorded in Josserand, 1979, p.19

It should be noted that the above discussion is based on data which needs to be verified and modified using the results of the 1982/83 agricultural census now underway. However, if the data and assumptions are fairly accurate the analysis indicates that:

- the national herd growth rate slowed during the late 1970's;
- the trend developed during the early 1970's towards heavy offtake of young bullocks resulted in a herd structure in which males of sufficient age and weight for draft use are underrepresented;
- if these trends hold true for the regional herds (especially in the Savanes region) continuing upward pressure on bullock prices can be expected, unless cheaper animals are available in quantity from Ghana, Benin, and southern Upper Volta;
- as the size and lucrative nature of livestock markets in Nigeria and Ivory Coast make them increasingly competitive with the Togo market, it is clear that animal traction projects will need to adopt new strategies to ensure supply of appropriate reasonably priced draft animals over the next five years.

The largest untapped supply of draft power is the cow population. With proper nutrition cows can work up to about one month before calving. However, control of breeding and close nutritional supervision is required. Neither of these conditions is fulfilled at present nor likely to be met over the near-term until good dry season fielding practices are established at the farm level. The key to dry season feeding at the farm level practices will be a combination of fodder conservation and establishment of forage crops on fallow and/or relay cropped land. (See the section on forage crop establishment in this annex). Since such practices will take at least four or five years to extend at the farm-level, it would be 1987 before a strong emphasis on cows as draft animals could or should be made. In the short-run, the TAT project can only attempt, where possible, to reduce tillage intensity so that a single ox can be used, or that the same oxen can be used on more than one farm. The discussion in this annex of cropping practices and equipment packages discusses these options in more detail.

For the long-term, the TAT project will establish pilot herds at Tantiegou and Agbassa which will be managed with extension practices to see if national herd growth rates can be sustainably increased.

All of these problems require attention. It will be the livestock specialist's job to prioritize these efforts in consultation with GOT staff and expatriate technicians so that good use of project resources and time is made.

TABLE 7

IMPACT OF PROJECTED EVOLUTION
OF ANIMAL TRACTION ON MEAT SUPPLY

Year	Meat supplied by slaughtered animals[1]	Meat withdrawn by purchases[2]	Net change
	MT	MT	MT
1977-82	0	270	(270)
1982/83	99	84	15
1983/84	99	114	(15)
1984/85	99	114	(15)
1985/86	99	114	(15)
1986/87	99	114	(15)
1987/88	154	174	(20)
1988/89	209	204	5
1989/90	209	204	5
1990/91	209	234	(25)
1991/92	264	144	120
1992/93 Steady state[3]	341	186	155

Notes: [1] The quantity of meat supplied by replacement animals from Table 4 evaluated at 220 kgs/head x .50 carcass conversion ÷ 1000 kgs/MT = 0.11 mt/head.

[2] The quantity of meat withdrawn from the market for draft purposes, evaluated at 120 kgs/head x .50 carcass conversion ÷ 1000 kgs/MT = .06 MT/head

[3] Steady state assumes no expansion or loss in animal traction units and annual slaughter and replacement at 3,100 animals. (Refer to Table 4 for the data on animal numbers.)

ANNEX THREE

LIVESTOCK

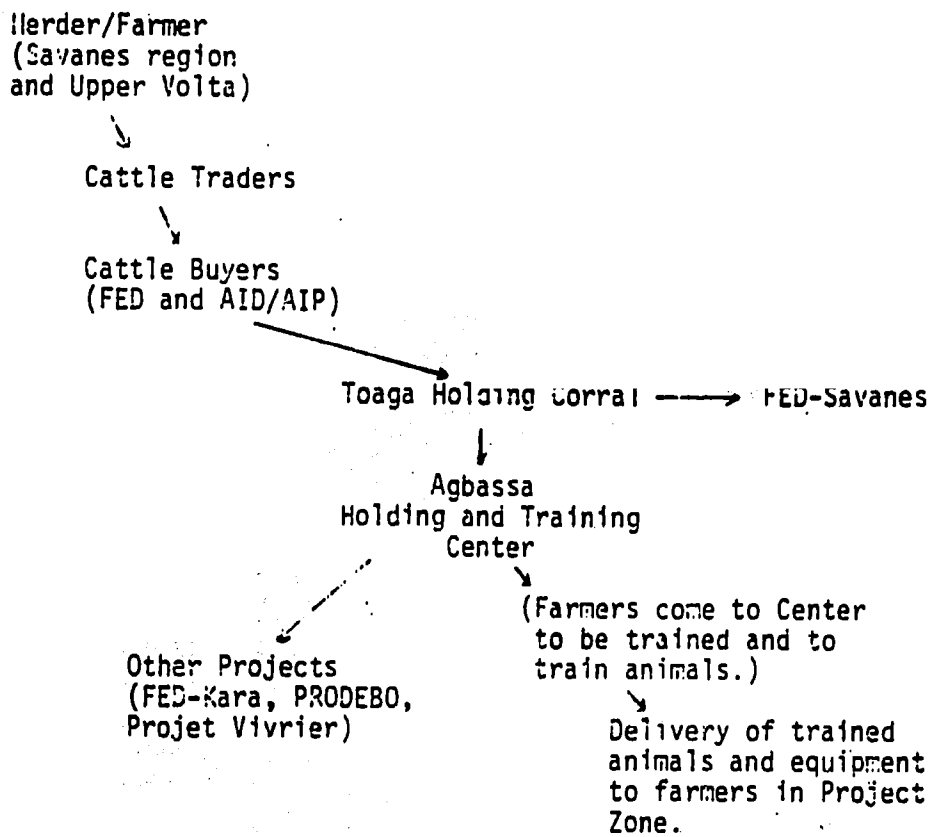
ANIMAL SUPPLY PROCEDURES

Many projects involved in animal traction in Togo carry out their own buying operations. The UNDP/FAO Project North-Togo buys many of its animals on contract from Upper Volta sources. SOTOCO buys animals in Guering Kouka (Kara region) and Benin. PRODEBO, which currently has responsibility for supply of draft animals to Centrale, Plateaux and Maritime region, buys animals in Centrale, Kara and Savanes and has explored contract purchases in Upper Volta. The FED La Kara, FED Savanes, and the AID-funded AIP in animal traction have joined forces to coordinate buying operations in the Dapaong (Savanes) area. A buying team composed of a FED Savanes livestock technician and a Peace Corps volunteer cattle buyer purchase stock throughout the year for shipment to FED and Projet Culture Attelee (AID) animal training and distribution centers. The AIP project in turn supplies the Kara region extension teams, the Entente Fund's Projet Vivrier (Atchangbade-Sirka) and several PVO projects. The intervention of the projects in cattle markets has led to inter-project competition. Besides the upward pressure on prices this has had, the duplication in project buying activities has undoubtedly added to the handling and distribution costs of animals. Consequently, one of the major driving forces behind the movement among donors and GOT to create a national animal traction organization has been to assure the needed supply of animals. It has been generally concluded that a unified buying and distribution system would be able to achieve this goal and benefit from certain economies of scale in operating and management costs. In order to explore these points further, the following sections describe current national buying organizations that can support animal traction extension efforts.

Current Procedures - FED and AID

As shown in Figure 1, herder and farmer suppliers of animals generally sell their stock to merchants, who have been involved mainly in meat marketing activities in the past. There are no formally organized cattle markets in the Savanes region. Buyers and sellers get together at mutually agreed upon places and times, although there are generally recognized areas for transactions. Currently, the FED and AID project buyers have established good relations with merchants which

Figure 1. CURRENT ANIMAL SUPPLY



has facilitated the delivery of stock to the Toaga holding corral. At purchase time, animals are eartagged and a cash payment made. When 20 to 40 animals have been accumulated for trans-shipment, the Animal Health Service sends a veterinary team to inspect and vaccinate the group. The animals are then carried by truck to the FED-Savanes project zone or the Agbassa center where they are held for observation, deticking, breaking and training. The current extension practice is to bring farmers to the centers where they learn to train animals that have already been broken. The trained pair of animals and an equipment package are then brought to the farmer's house or field by truck. Projects requesting animals from Agbassa receive broken animals ready for training. The final cost of the animal includes all material charges from initial purchase--vaccination, treatment, feeds , and transport.

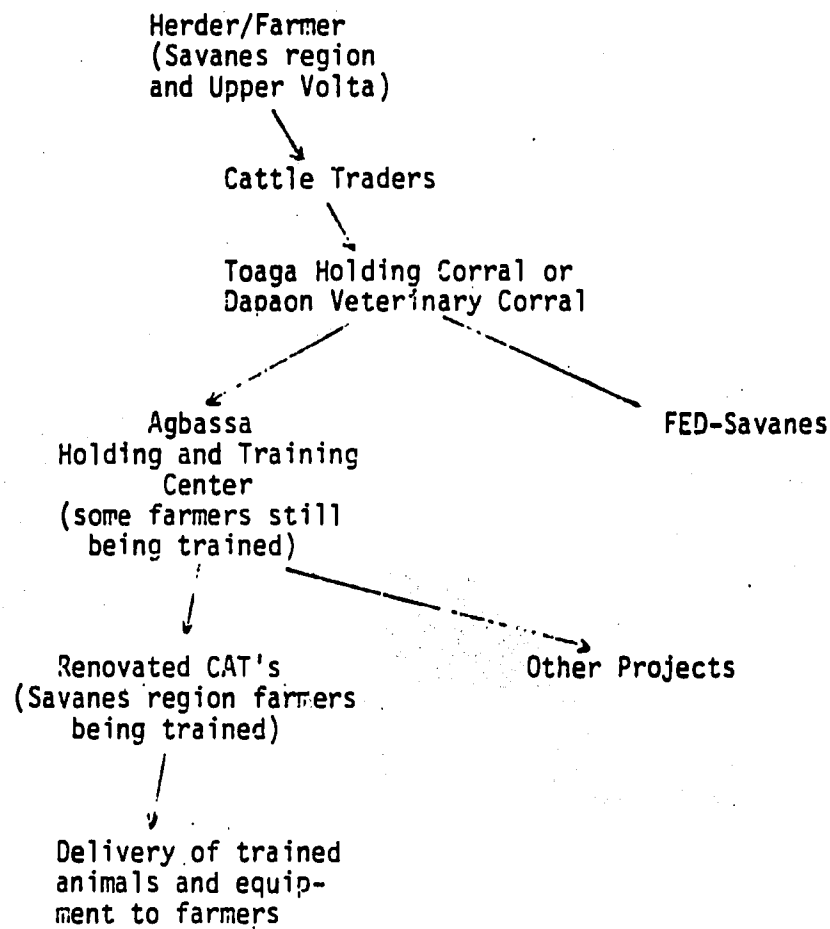
Planned Procedures

The TAT project will play the major role in assisting PROPTA to establish a national draft animal procurement and distribution system. AID funds will be used to construct the physical infrastructure and provide technical assistance to develop a national buying center at Tantiegou (Savanes region), reinforce the Agbassa center's functions in stock holding and transshipment, and improve the ability of PROPTA headquarters to operate efficiently as the national clearing house for draft animal ordering house, purchase, and delivery. TAT will help to develop these functions in a phased and flexible manner. This approach is necessary due to time requirements for project initiation, the creation and organization of PROPTA, and the careful development of management and administration systems. Three periods in the evolution of the new animal supply and distribution procedures need to be considered: The project's interim period of 1982-83 when activities will be focused on construction, activity consolidation, and modest expansion: full-scale project operations from 1983/84 to early 1988; and projections of some of the shifts in the structure of supply operations to be tested in 1987/88, if project objectives are achieved.

Interim Period 1982/83 (Figure 2)

This phase will basically be one of consolidation and preparation for full-scale activities. Buying methods will be much the same as at present, in that PROPTA agents will still need to travel extensively in the Savanes region to locate cattle traders and arrange purchases.

Figure 2. INTERIM PERIOD SUPPLY



However, it has already been demonstrated that traders will deliver animals to a holding corral near Dapaon once good relations are established. This trend will be encouraged. Both the Toaga and Dapaon veterinary corrals will be used to handle the higher volume of animals expected in the first year of the project. This will enable the project to bridge the gap between current holding capacity and that which will become available at Tantiegou. Cash handling procedures will be modified to increase security and to begin moving towards a checking system held at the CNCA agency in Dapaon (see the Financial Analysis in Annex 5).

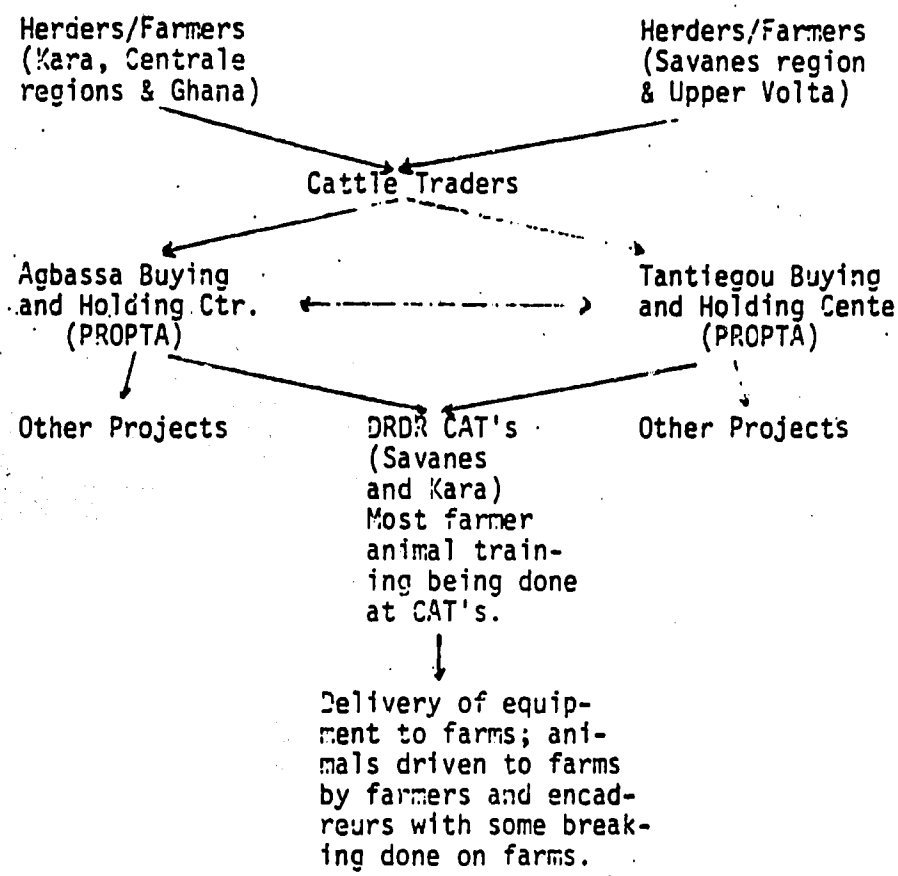
Until the construction is finished at Tantiegou, Agbassa will remain the principal holding station for cattle. It will also probably have to maintain its animal breaking and training activities until CAT operations are established. However, as early as practicable, Agbassa's role should shift from an extension support post for the Kara region to that of the southern element of the PROPTA buying system. The actual timing of this shift depends on the rates at which PROPTA's animal procurement procedures are developed, CAT's become functional, and the bridge across the Kara River to the Bassar prefecture is completed. When these conditions are met, nearly all breaking and training operations should be transferred to the CTA's.

Full-Scale Project Operations (Figure 3)

By late 1983 the physical infrastructure and basic operating methods should be established for the national animal supply program. Both will undoubtly have to be modified during the course of the project to meet changing supply and demand conditions.

Cattle traders will probably maintain their position as the major suppliers of animals to PROPTA. The biggest changes in this relationship will be the shift of the buying location to Tantiegou (about 10 kilometers distance from Toaga), the attempt to establish a regularly scheduled draft animal market, and the adoption of a bank check purchase system to replace cash transactions. While the physical move to Tantiegou should be accomplished in 1984, both the market scheduling and check purchase system may take another year, or more, to gain acceptance. At Agbassa, the transition from regional extension support to PROPTA national functions should be complete by the end of 1984. If the Kara River bridge is completed by then (current construction plans are for completion by March 1983, although access roads may take longer), animals purchased in Kabou, Guerin Kouka and Nampoach will be transferred to Agbassa for vaccination, holding, and shipment. By the end of 1984, Tantiegou and Agbassa will have

Figure 3. FULL SCALE PROJECT OPERATIONS



instituted a standard two-week quarantine and observation period, isolation procedures, and feeding regimes.

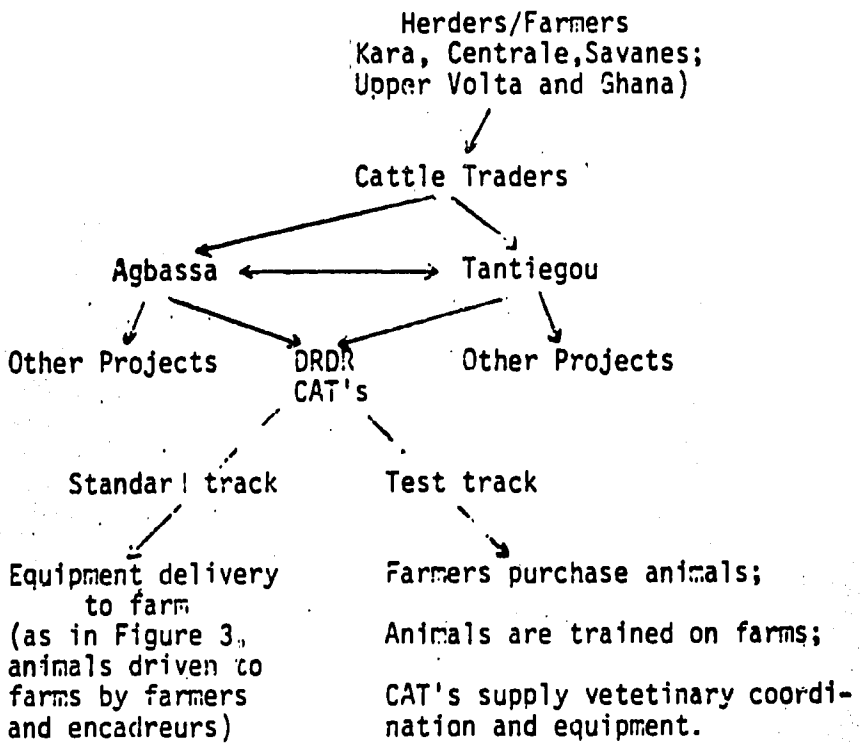
In preparation for the 1985 growing season, essentially all animal breaking and training activities will have been transferred to the CAT's. Additionally, as explained in the section on extension in this annex, farmers will be breaking and training animals at these support centers. This contrasts with the current practice of delivering already broken animals to farmers. The change has important implications for the supply and cost of supply of draft animals.

It is envisioned, for example, that many farmers will learn to break and train their animals, which will enable them to train replacements. If these farmers also can purchase replacement animals directly from herdsmen, they can save substantial mark-up and handling charges and perhaps avoid the supply uncertainties incurred when dealing with a public institution. Some individuals who are particularly skilled in animal handling will begin to train animals for a fee, if experience in neighboring countries holds true. Both of these trends, if they are of sufficient magnitude towards the end of the project, should permit a second restructuring of animal supply procedures to be tested at one or two CAT's in the Kara or Savanes regions during the last half year of the project (October 1987 - March 1988).

Future Testing Restructured Supply Procedures (Figure 4)

The second restructuring of animal supply procedures would be aimed at moving animal purchase, especially purchase of replacement animals, breaking and training, to the individual farm-level and reorganizing CAT operations to focus on support activities in veterinary follow-up coordination, new equipment delivery, farm management extension, demonstration (e.g. use of cows for animal traction, reduced tillage practices, forage crop-rotations, etc.), and possibly cattle auctions. Other than short demonstration of new techniques, farm management practices, and special group extension programs, the center should withdraw from on-site farmer training related to animal delivery. Admittedly, there are likely to be only a few CAT's at which this can be tried, but it is a first step towards weaning farmers away from public, and more costly, animal supply in order to foster the growth of private suppliers for draft animals. Tests of this approach are probably going to be possible only in the Savanes and those areas of Kara where regional herds contain animals of the desired build and size.

Figure 4. TEST OF CAT RESTRUCTURED OPERATIONS



The suggested approach may be extended to other areas, if private suppliers develop. One example of this would be equipment delivery. If UPROMA begins an outreach program to establish rural artisans (blacksmiths), it could conceivably franchise them as UPROMA sales and service agents. However, this type of activity is likely to take a decade or more to bring about.

The modifications suggested here have important implications for PROPTA. The most important one is that, where feasible, PROPTA uses its position in certain markets to promote local private operations. However, this possibility will not confront PROPTA for some time, even in locations in the Savanes and Kara regions where direct supply of draft animals to farmers by private traders has good long-term potential. It will probably take ten years before private suppliers can become dominant in the Savanes region. PROPTA could still retain this role as the national supplier of animals to the three southern regions.

The desired transformation of CAT's from animal traction promotion centers to technical support centers will also require changes in the way regional services operate. As private animal suppliers come into the animal traction market, the animal health service will have to provide initial inspections and vaccinations at the farm-level rather than at the buying center. Extension agents will have to adjust from a promotional and demonstration role to greater emphasis on crop, livestock, overall farm management, and the marketing of old animals.

In a project of 5.5 years duration it is unlikely that anything more than testing of modified supply procedures will be possible. It is more likely that even the modest restructuring discussed above would have to be put off for several years.

LIVESTOCK

ANIMAL HANDLING PROCEDURES

NATIONAL BUYING PROGRAM

The TAT project will underwrite the efforts of PROPTA to establish a national animal supply process as discussed previously. To be successful, animals of the necessary conformation, size and health status must be purchased, undergo veterinary inspection, treatment (vaccinations), and quarantine and be shipped in good condition to the various extension projects around the country. Currently, facilities available to handle animal purchase are inadequate. Individual projects purchase animals (some on their own, most through the AIP project organization) which are inspected, vaccinated and shipped to work sites as quickly as possible. The AIP has partially resolved the problem by using the Agbassa center as a multipurpose holding, training, and extension operation. However, the volume of animals to be purchased requires that government facilities be constructed at the purchase site and handling procedures regularized to avoid the greater risk of disease and stress damage that increased animal grouping entails. However, during the interim period of the project, transitional procedures will have to be employed to bridge the gap during the construction of the buying center. The following sections describe recommendations for the interim period and the full scale project activities.

INTERIM PERIOD 1982/83

As discussed under the heading of animal supply, buying activities will still carried out at Toaga and Dapaon during 1982/83. Agbassa will remain the principal transshipment point, used for holding and quarantine purposes. Changes in prescribed procedures will relate mainly to feeding, loading and transport.

Currently feeding is done through grazing available pasture, with some fodder provision during the dry season. While free pasturage will have to be continued for much of 1982/83, the greater number of animals will require the storage of fodder and feeds at Toaga. Stover and a fenced fodder enclosure already exist at Toaga. The project will regularize the supply of cotton seed and brewers grain from SOTOCO and the Brasserie du Benin by contracting for a minimum monthly supply negotiated on an annual or semi-annual basis. Fodder supply will be coordinated with the Toaga crop production activities to ensure availability of crop residues (sorghum and maize stalks, peanut and cowpea hay, etc.) Toaga will also serve as the storage

depot from which feeds and fodder are supplied to the Dapaon veterinary corral, if needed. It is not anticipated that holding time for animals will exceed one week before they are transferred to Agbassa or the larger project centers (FED-Savanes, FED-La Kara, UNDF/FAO Project North Togo).

Animals at Agbassa are grazed in and around the 275 hectares on which the center is located. During the interim year of the project, much greater use should be made of crop residues produced on the third of the surface area that is cultivated. Additionally, pasture areas should be managed for improvement. A small test plot of hybrid Bermuda grass has been established at Agbassa.[1] Following its progress through a second dry season will enable project staff to determine if it should be tested on a larger scale. The strain available produces no seed, but can be easily established vegetatively through spriggin (the harrowing of segments of a grass plant into a seed bed). The cotton seed and brewers grain contract to be established should include the needs of the Agbassa for supplemental feeding. Calculating an average holding period of 15 days with up to three kilograms each of brewers grain and cotton seed daily, will require 45 kg of each for up to 2,000 animals across the various buying and holding centers. The project budget includes funds for the supplemental feed and locally fabricated mineral (salt licks) needs.

There are some minor modifications in the way animals are currently loaded and transported by truck that would significantl reduce the shipping injury and stress that occurs with current operations. First, the corrals at Toaga and Dapaon should be improved. Basically, this would require that the chute and ramp sides be completely planked from about 15 cm from the ground or ramp floor to the top rail. This will eliminate the existing problem of abrasive bruises, and cuts that now occur when animals stick their heads through holes and get stuck. Truck gates should be modified so they can work as a vertical drop gate rather than a swinging hinged gate. Trucks now move 6-10 feet away from the loading ramps before it is possible to close the gate. While no animals have been lost during this operations, it is not worth the risk to continue this method. While all trucking of animals should occur during the cooler parts of the day, all trucks that move cattle should have tarps to provide shade and protection from rain on route and in the event of a breakdown. Finally, all animals should be deticked before shipment to other holding stations or projects.

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[1] Personal communication by Dr. Murray Brown of Sam Houston State University, Texas.

FULL-SCALE PROJECT ACTIVITIES

The shift in national buying activities from Toaga and Dapaon to Tantiegou will permit better standardization of handling practices. The physical infrastructure has been designed to permit easy flow of animals from purchase through shipment. See Figure 7 for the physical plan of the buying center.

Animals purchased at the center will be ear-tagged and held in the receiving/shipping corral for veterinary inspection. They will then be driven either into the pasture areas or through a spray race for deticking. For management purposes, up to 40 animals will be grouped to form a lot kept separate from the other lots for a two-week quarantine and observation period. Animals which develop diseases will be separated from the lot and held in the isolation corral for treatment or culling. Towards the end of the two-week period the lot will be vaccinated and deticked, if necessary.

Animals will be grazed in six 6.25 hectare pastures on a rest-rotation cycle that will have to be developed by the livestock specialist. This surface area is insufficient in and of itself to support a weekly maximum 120 head of cattle averaging 175 kg each. This size herd is equivalent to 84 tropical animal units (A.U.) of 250 kgs each. Rainy season bottom land pasture can usually support 6.33 A.U.s/hectare. This would indicate the need for 255 hectares of pasture land, which is not available to be fenced in the project area. However, the project seeks animal maintenance with only modest if any weight gain during the quarantine period. Through a program of free grazing, night or partial day grazing in the fenced pasture, and feed supplements, animals should be maintained in good condition. During the dry season, however, significant amounts of fodder will be required on a regular basis. While initially it will be possible to use the residus from surrounding seed multiplcation and production fields, by the third or fourth year of the project the livestock specialist and agronomist will have to establish fodder production fields near the buying station.

LIVESTOCK

ANIMAL HEALTH CARE

The basic precondition to the successful use of draft animals in the tropics is maintenance of animal health. In Togo, the main health preventions that must be taken with draft animals vary from north to south. Thus, animal traction projects will have to vary their health care programs to meet the different intensities of disease and parasite challenges found across the country. To do this, significant improvements will have to be made in the way veterinary services are supplied.

At present, most veterinary work is based on vaccination campaigns, inspection of purchased lots of livestock on their way to major meat markets, or interventions at the farm level when acute illness occurs. At such times a health control report (Fiche Sanitaire de Controle - see Figure 5) written up by the agent from the Department of Veterinary Services and Animal Health (DVSA). While Togolese veterinarians and veterinary agents are well trained, the existing system for animal health follow-up does not meet the needs of an animal traction program for two reasons. First, it does not ensure regular treatment of individual animals. Secondly, an animal insurance program will require proof of adequate treatment to justify animal replacement or demonstrate farmer negligence. Consequently, the TAT project will install a health care system to be used with all animals destined for use in the DRDR extension programs in the Savanes and Kara regions.

HEALTH CARDS FOR DRAFT ANIMALS

The health card system will begin at the time animals are purchased for the Savanes and Kara regions' animal traction program. All cattle purchased will be vaccinated, deparasitized, and given an initial prophylactic trypanosomiases treatment. TAT extension cattle will be assigned a numbered record sheet in triplicate to be used to track treatments. This card will provide a central record for an individual animal until death or sale occurs.

When the animal is sold to a farmer, part of the farmer's down payment will be used to cover scheduled veterinary interventions and an insurance premium. Each animal the farmer acquires will be accompanied by a durable health card with detachable tabs listing the types and number of treatments to be done that year. Veterinary agents will sign and date the card and the tab, removing the tab

which, should the need arise, be cross-verified with the card. The animal health card remains with the farmer. The tabs will be filed with the central record sheets for the animal kept by the concerned DVSA office. Additional copies of the record sheet will be held at the CAT and the DRDR headquarters with summary sheets sent to the PROPTA office in Kara. New health cards will be issued each year as part of the farmer's annual loan repayment.

In the event of an animal's death, an inquiry committee including the local veterinary agent, sector extension chief, and local field extension agent, will determine the cause of death. Treatment records will be examined to determine if negligence is assignable to the farmer or the Veterinary Service. If the farmer is proven negligent, all outstanding loan obligations remain in force, and the farmer must bear the cost of a replacement animal. Should cause of death be accidental, e.g., snakebite, or the Veterinary Service shown to be negligent, e.g. failure to vaccinate or treat, then the insurance clause of the loan contract will go into effect and the project will replace the animal.

Initial purchase of veterinary supplies and vaccines will be financed by the project for the DRDR extension programs in the Savanes and Kara regions. As the health cards will be purchased as part of the loan down payment and repayment schedule, farmers will be prefinancing the purchase of drugs, vaccines, antibiotics, etc. This will enable the offices of the DVSA to carry out the required field work in coordination with the DRDR extension personnel.

Health cards will have four categories of treatments: vaccinations, deparasitization, anti-trypanosomiasis treatment and special interventions. Sample cards for a northern, fairly light disease challenge zone and a more southerly, more stressful zone are given in Figures 6.A. and B.

For at least the initial two years of the project, the treatments placed on the card should be based on the recommendations of the regional and livestock sector veterinarians on the DVSA. The central registry and health card system will permit the monitoring of disease and parasite incidence and subsequent modification of cards during the latter half of the project. Some vaccinations may be excluded from the animal health card if they are routinely given to all animals at the buying stations or in national campaigns. Substantial changes in the cards should be expected over the life of the project as health practices for draft animals become standardized in zones of different disease and parasite challange.

Part of the scope of work for the livestock specialist will be to carefully monitor the health card system and evaluate and modify it in collaboration with other project and DVSA staff. The ultimate

objective is to develop a follow-up system which maintains good animal health in a cost-effective manner in the central animal registry. Properly analyzed by the livestock specialist and Togolese colleagues, this information will feed into PROPTA's Monitoring and Evaluation Unit. Here, the information will be used to guide national discussion on veterinary intervention for draft animals.

FARM LEVEL ANIMAL CARE

Many health problems can be avoided through simple measures taken by farmers. To ensure that the basics of shelter, food and water are respected, farmers will be required to construct a simple shelter using local materials and equip it with a water container or trough before animals are delivered. During training with the animals, farmers will be taught how to maintain a clean shelter, provide adequate water, and assure the right fodder and feed. Extension agents will be expected to monitor the status of these basic conditions during their visits. In addition, extension agents will demonstrate to farmers simple treatment for wounds and bites, deticking, and first aid for more acute trauma such as lacerations, sprains, bone and sheat damage, etc. The extension agents will learn these skills, and how to pass them on, during training sessions, supported under the project.

ZOONOTIC DISEASES

Cattle and humans overlap in their susceptibility to a range of diseases and parasites and can communicate them either directly, by serving as a host reservoir for a pathogen or parasite carried by an insect vector, through consumption of contaminated milk, meat, or hides, and contact with contaminated wastes. The Division of Veterinary Services and Animal Health is aware of most of these problems. It retains the chief responsibility for inspecting imported and local animals entering the meat market or being shipped to other regions.

For the TAT project, veterinarians from the DVSA will inspect all animals for communicable diseases such as anthrax and tuberculosis. Design team discussions with veterinarians indicate that tuberculoses is rare in Togolese herds. Periodic visits by veterinary agents to treat cattle under the health card system will enable them to check for symptoms of this disease and others, such as tetanous.

Figure 5

DIRECTION DES SERVICES VETERINAIRES
ET DE LA SANTE ANIMALE

République Togolaise
Union-Paix-Solidarité

REGION D'ELEVAGE DE .....
CIRCONSCRIPTION DE .....

FICHE SANITAIRE DE CONTROLE

CANTON .....

TROUPEAU N° ..... RACE .....

VILLAGE .....

Nom du Responsable du Troupeau .....

DATE DE LA VISITE ET NOM DE L'AGENT	NOMBRE DE TETES	ENTREES			SORTIES				TOTAL	INTERVENTIONS ET OBSERVATIONS
		Nés	Achetés	Transférés	Abattus	Vendus	Morts	Transférés		
	Taureaux Vaches Boeufs Tourillons Bouvillons Génisses Veaux Velles									
	Taureaux Vaches Boeufs Tourillons Bouvillons Génisses Veaux Velles									
	Taureaux Vaches Boeufs Tourillons Bouvillons Génisses Veaux Velles									
	Taureaux Vaches Boeufs Tourillons Bouvillons Génisses Veaux Velles									
	Taureaux Vaches Boeufs Tourillons Bouvillons Génisses Veaux Velles									
	Taureaux Vaches Boeufs Tourillons Bouvillons Génisses Veaux Velles									
	Taureaux Vaches Boeufs Tourillons Bouvillons Génisses Veaux Velles									

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Figure 6.A Sample Health Card Low Disease / Stress Area

DRAFT ANIMAL HEALTH CARD

Animal Central Registry No _____ Owner _____

Eartag No _____ Location _____

Treatment	Agents Name and Signature	Date of Treatment	Treatment Stubs
A. Vaccinations			
Rinderpest			Reg.No. Date: Signature: Rinderpest
Bovine Pleuro-pneumonia			Reg.No. Date: Signature: BPP
Anthrax			Reg.No. Date: Signature: Anthrax
Blackleg			Reg.No. Date: Signature: Blackleg
B. Deparasitization			
Internal Worms # 1			Reg.No. Date: Signature: Worming # 1
Internal Worms # 2			Reg.No. Date: Signature: Worming # 2
C. Trypanosomiases			
Antitryp # 1			Reg.No. Date: Signature: Tryp # 1
Antitryp # 2			Reg.No, Date: Signature: Tryp # 2
D. Special Treatments			
Pineye			Reg. No. Date: Signature: Pinkeye

Figure 6.B Sample Health Card High Disease / Stress Area

DRAFT ANIMAL HEALTH CARD

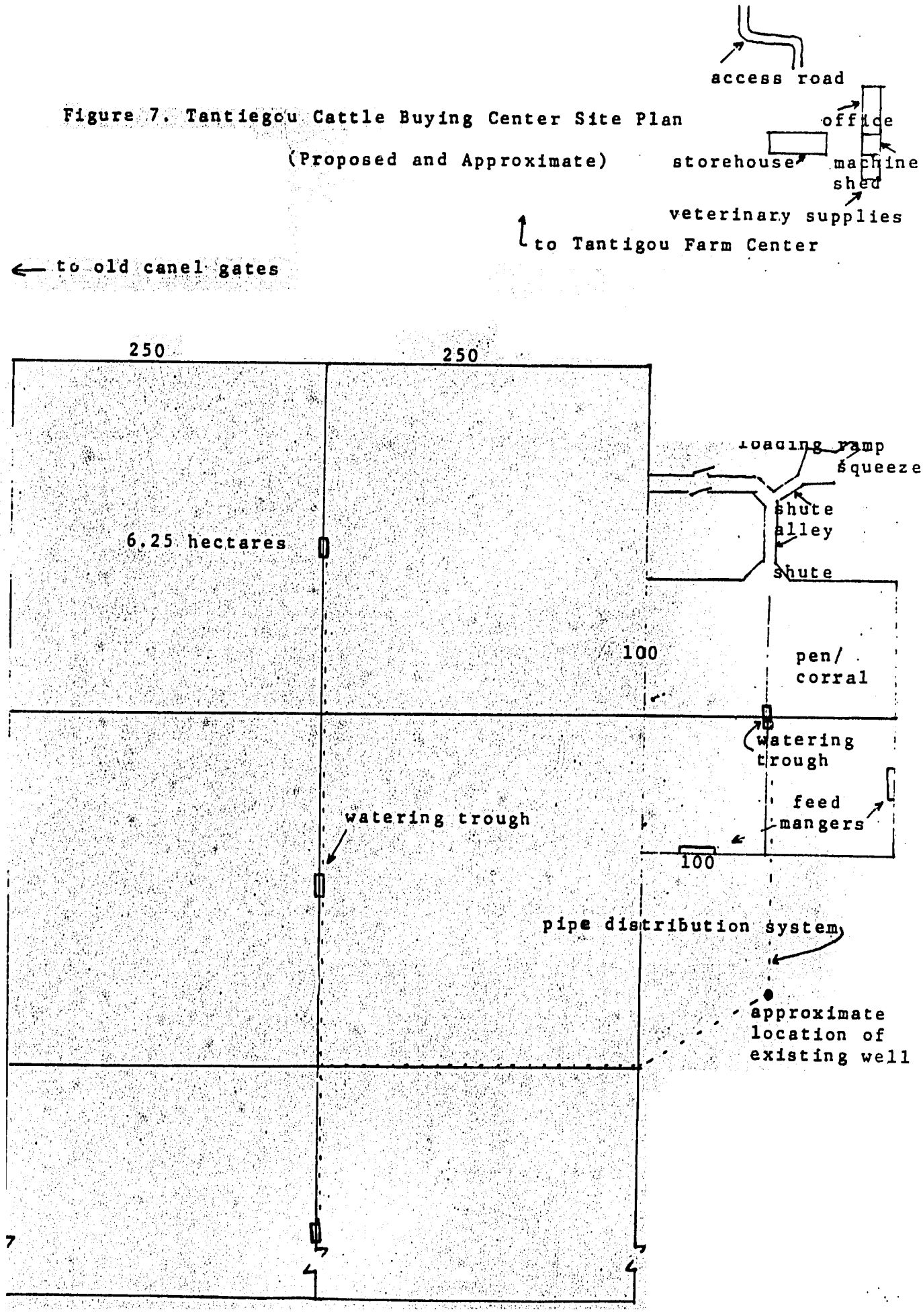
Animal Central Registry No _____ Owner _____

Eartag No _____ Localite _____

Treatment	Agent's Name and Signature	Date of Treatment	Treatment Stubs
A. Vaccinations			
Rinderpest			Reg.No. Rinderpest Date: Signature:
Bovine Pleuro-pneumonia			Reg.No, BPP Date: Signature:
Anthrax			Reg.No, Anthrax Date: Signature:
Blackleg			Reg.No. Blackleg Date: Signature:
B. Deparasitization			
Worming # 1			Reg.No, Worm.# 1 Date: Signature:
Worming # 2			Reg.No. Worm.# 2 Date: Signature:
Worming # 3			Reg.No. Worm #3 Date: Signature:
Worming # 4			Reg.No. Worm # 4 Date: Signature:
C. Trypanosomiasis			
Antitryp # 1			Reg.No, Tryp. #1 Date: Signature:
Antitryp # 2			Reg.No, Tryp.# 2 Date: Signature:
Antitryp # 3			Reg.No, Tryp.# 3 Date: Signature:
Antitryp # 4			Reg.No. Tryp.# 4 Date: Signature:
D. Special Treatments			
Pinkeye			Reg.No. Pinkeye Date: Signature:
Mange/ Acaracide			Reg.No. Mange Date: Signature:
Ticks # 1			Reg.No. Ticks #1 Date: Signature:
Ticks # 2			Reg.No. Ticks #2 Date: Signature:
Ticks # 3			Reg.No. Ticks #3 Date: Signature:

Figure 7. Tantiegou Cattle Buying Center Site Plan

(Proposed and Approximate)



TECHNICAL ANALYSIS

EQUIPMENT

One of the major debates going on about animal traction in Togo, is what types of draft tools should be included in the implement package to be extended to farmers. At the moment, most projects have developed a standard tool set based on selections from the following elements: a multipurpose tool bar which can be equipped with an eight-inch moldboard plow and ridger, a five-tined weeding triangle equipped with "Canadian" shovels and chisel teeth, a spike-tooth harrow, a one-row planter, peanut lifter blades, and a two-wheel cart. Almost every project has a different conception of which elements must be contained in an extension package to work. Unfortunately, there has been little formal monitoring of on-farm equipment use to guide selection. However, one general consensus is that the single-row planter is too expensive for the limited use it would receive in a growing season. While the planter model used is manufactured in Upper Volta and Senegal with a variety of seed plates, only the groundnut plate has been made available with the units imported to Togo. To be used for maize crops, seed holes in the plate have been blocked with wax to permit wider spacing of hills. Of course, even this modification does not permit the planter to be used to sow small seed grain.

Despite its current inutility, the planter serves as a good specific example of the more general problems across the equipment packages: The failure to match the elements of the packages with an understanding of either the constraints to crop production in the different farming zones of the country or the ability of farmers to undertake the debt burden of a pair of animals and equipment. The following discussion deals with the problem of matching equipment packages to the farming systems in the project zone. The Economic Ananlysis in Annex Two discusses the financial implications of the equipment package.

TOOL MIX

As discussed in the section on crops, there are two major operations which are holding down productive utilization of existing soil and water resources. These are land preparations during the early part

of the growing season and weeding throughout the season. This statement indicates that primary tillage tools and weeding implements should comprise the initial package. However, this does not imply that all farmers need or should obtain all of the tillage equipment. Experience to date suggests that much of the equipment delivered remains inutilized or underutilized. This situation is most likely due to an introduction of equipment before a farmer knows how to use it in the cropping systems, or to farmers who have no perceived need for the tool. The primary example of such and unused piece of equipment is the weeding triangle. Despite its potential utility, unless a farmer plants in rows and is shown how to make and adjust a long yoke for a team of animals, the weeder is unlikely to be used for cultivation. Nowhere did the PP team actually observe a weeding triangle in use and only a few projects indicated that some farmers have been using it. The most frequent occuring example of no need for a tool is observed with farmers who receive a spike-tooth harrow, but who grow most of their crops on ridges. However, neither of these examples can or should automatically eliminate these tools from consideration in an animal traction project. They do, however, point up the need for extension personnel and project technicians to view the available equipment as production means which must be selected to fit the production ends a farmers has in mind. In the case of the weeder, an extension effort will be required first to demonstrate the yield difference that timely weeding can make. Secondly the farmer should be trained to make effective use of the implement by modifying planting arrangement and adjusting shovels to obtain good weed removal with little crop root damage. In the case of the spike-tooth harrow, its technical viability will probably be dependent on site selection. Where it is used extensively now, i.e. by farmers working with the GTZ project around Sokode, crops are already grown on the flat and farmers use the harrow as a land-preparation and weeding tool. After plowing, planting is delayed until weeds have germinated. The spike-tooth harrow is then employed to knock down the weeds and prepare the seedbed. While this delays planting and probably reduces yield, it may have a positive effect on labor productivity.

In sum, tool selection has a ripple effect throughout farming operations which should not be ignored. The PP team believes that the interdependencies have been overlooked by many projects in an attempt to get animal traction going. As the Economic Analysis (Annex Two) suggests, pushing equipment at farmers faster than they can adapt it, is more likely to hinder than promote animal traction at the village-level.

While greater attention should be paid to adjusting equipment packages to meet individual farmer needs as described above, there are some general environmental considerations that tend to suggest the elements of a basic tool set.

Research elsewhere in West Africa has stressed the advantages to water conservation and date of planting of end-of-season deep plowing.[1,2] However, several factors limit this approach in northern Togo. The long-cycle and late-planted crops are harvested after the soils have dried and hardened. Available animals are generally too light-weight and the plows too small to do a very effective job under these conditions. At the other side of the dry season, soils are harder still. While farmers can wait to plow until soils soften up, this, may delay early plantings to later than optimal dates. These facts suggest that scarification using the chisel tines on the weeding triangle may enable farmers to take advantage of the early rains. Use of the triangle in this manner, along with the potential benefits of early weeding, argue strongly for inclusion of the weeding triangle in the equipment package in areas where flat cultivation is practiced or practicable. While this might imply a reduction in the importance of the plow in the equipment package for early land preparation, both the plow and ridger are used extensively by farmers for late land preparations where heavy weed growth has already occured. It is unlikely that attempts to reschedule farm operations to carry out early land preparation on a whole farm basis will be successful in the near term. So, the plow will have to be retained with the ridger as basic equipment package elements. This is probably also justified based on long-run intentions to introduce forage follows which would have to be turned under with a plow when the land returns to the cropping cycle.

Farms on shallow soils containing high laterite gravel or "shot" content, probably should not use the moldboard plows. Fields in this category were observed to suffer greater clay and loam fraction loss under plowing than under hand hoeing in parts of the Bassar prefecture. If extensive land preparation is undertaken on these soils at all, a more reasonable approach would be to establish ridges and band tie them. The PP team's general recommendation is that the initial equipment package include the weeding triangle and tine sets, the ridger, and the plow. From this base, additions or delations should be based on an understanding of the individual's farm management practices and soil conditions.

EQUIPMENT MANUFACTURE

Equipment manufacture for animal traction has been standardized with the opening of the UPROMA (Unite de Production de Materiel Agricole) factory in Kara in 1981. The equipment designs are based

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[1] Charreau and Misou, 1971.
[2] Gaudefroy-Demeunbynes and Charreau, 1961.

on those of ARCOMA (Atelier Regional de Construction de Materiel Agricole) in Upper Volta. At present UPROMA is funded under the CNPPME (Centre National de Promotion de Petites et Moyennes Entreprises) program of UNIDO (United Nation Industrial Development Organisation). The equipment produced is lightweight and adapted to the pulling ability of the West African short horn animals available in Togo. The equipment is easy to assemble and maintain with only simple tools.

Some problems exist with the supply of basic manufacturing materials. This has led to a requirement that all projects prefinance equipment manufacture.

SPARE PARTS, REPAIRS AND RURAL ARTISANS

The TAT PID suggested that a component of the proposed project would be the development of a spare parts manufacture and parts supply capacity through training and equipping of rural artisans. During the project design process it was discovered that Project North Togo has already established a very well-organized blacksmith training program and that UPROMA is planning to initiate its own training and outreach program. In addition, Projet FED-Savanes has recently created a machinery assembly and training workshop at Tantiegou which will provide equipment and repair skills for much of the Savanes region. In the light of these important developments on the part of other major donors, it was decided that AID support is not required for this sub-activity.

TECHNICAL ANALYSIS

CROPS

As the Social Soundness Analysis explains, the project area is a patchwork of ethnic groups. The diversity of cropping systems and the types of links between crop and livestock activities varies considerably as well. However, for purposes of this analysis the two northern regions have been divided into two zones, the root crop zone and the cereals zone. The root crop zone extends from the Bassar prefecture north to the town of Gando. The cereals zone extends from Gando north to the border with Upper Volta.

In the root crop zone, yams are a significant component of food crop production. They are the dominant root (tuber) crop except for areas at the extreme north and south of the zone where cassava is also well-established. In upland areas, cowpeas, peanuts, maize, and/or sorghum are cultivated as intercrops on and around the yam mounds. In bottomland areas, rice will often appear as an intercrop among the mounds. The slopes of these mounds are also intercropped with cereals and pulses.

In the cereals zone, root crops drop out of the cropping pattern. As most of the cereals zone receives less than 1000 mm of annual rainfall, it is a marginal zone for yam production. Few yam fields are found beyond Gando and Mango. However, there are favorable climatic conditions for cassava, but this root crop is limited to small household gardens. The reason given by most farmers and field staff for this phenomenon was that both domestic stock and wildlife heavily attack both the foliage and the roots of cassava, which remain succulent during the dry season.

Besides the root crop difference, the major crop distinction between the cereals and root crops zones is the larger field size in the former. Stands of bulrush millet and 4-6 month sorghum were observed to cover from 60 to 100% more surface area in the cereals zone. More farmers were observed to grow maize and rainfed rice in the cereal zone than in the root crop zone, and field size for these crops was again greater. Cowpeas were a frequent intercrop in cereal stands along with peanuts, which were also grown in pure stand in many areas.

Cotton is grown in both zones under the direction of SOTOCO encadreurs. In the old Kara region very little cotton was formerly grown. Now that the Bassar and Assoli prefectures have been added to the region, cotton must be considered to be an important cash crop. The surface area devoted to cotton decreases across the root crop zone, then increases again in the cereal crop zone. Due to the presence of fewer pests, the seed from cotton produced in the Savanes region is distributed as the next season's seed across much of the country.

Besides the above annual crops, farmers in both zones make extensive use of fruit and pod bearing trees (shea nut, nere, baobab, ficus spp., etc.).

The implications for animal traction of the differences between the two zones are important. The root crop zone will always have a component of its cropland which cannot be fully prepared with animal drawn implements. No animal drawn equipment has been designed that can move the volume of earth needed to prepare the large mounds (0.5-1.4 meters high) used for yam or cassava production. As yam fields make up substantial proportions of farms, especially when the farms are small, the implication is that only farmers with larger fields are likely to obtain the full benefits of labor efficiency from the use of animal traction. On the other hand, in the cereals zone most farmers have the potential to employ animals on all of their cultivated surface area. However, the cereals zone is drier than the root crop zone and also has greater rainfall variability. Larger farm sizes will be needed in the cereals zone to make the use of animal traction profitable. These circumstances and field observations of field size and cropping patterns have led to the development of two basic crop models which are used for the calculations presented in the economic analysis in Annex Two. These models are presented in the following two Tables.

Table 1. Crop Model for the Root Crop Zone
(Gando south to Bassar and Assoli prefectures)

Crop/Intercrop	Surface Area (ha)
1. Yams (with a minor cassava component) and cowpea intercrop	0.5
2. Bulrush millet with cowpea intercrop	0.4
3. Sorghum in mixed maturity stand	1.4
4. Maize	0.2
5. Peanuts	0.3
6. Cotton	0.2
7. Rice ?	?
TOTAL	3.0 *

Notes to Table 1.

* The three hectare base is a rough average estimated by the team. It incorporates the effect of larger individual holdings in Bassar, Bafilo, and Gando areas on the average farm size across the zone where root crops are important.

1. Except for small areas at the extreme south and north of the root crop zone, yams dominate the root component of farms. In dryland areas, cowpeas, peanuts and/or sorghum are intercropped on and among yam mounds. To simplify calculations in the economic analysis, cowpeas were chosen to model the intercrop. In bottomland areas, rice will often appear as an intercrop with the yams. Given the lack of even rough estimates of bottomland availability it was not possible to assign rice as an intercrop.

2. Bulrush millet is a 60-70 day set of cultivars often intercropped with cowpeas. In some areas, farmers intercrop with 4-6 month millet or relay crop with mixed maturity sorghum. The latter combinations were excluded from the economic calculations for ease in manipulation in the economic analysis.

3. The sorghum mixed maturity stands (4-6 months) may also be partially intercropped in some areas with millet, cowpeas or peanuts.

4. For most of the root crop zone, maize is used as an early roasting food and does not cover large surface areas. The Bassar prefecture is an exception to this generalization, but the impact of the inclusion of this area does not substantially raise maize area throughout the zone.

6. The inclusion of cotton reflects the intensive extension program of SOTOCO in Bassar, Kante, Broukou, and Gando areas. The TAT project is lending no direct support to the cotton extension efforts, although it can be expected that animals will be used to prepare land and hill cotton rows. There is no feasible way, nor would it be desirable, to attempt to remove cotton from farmer's rotations.

7. Rice cultivation will replace some sorghum or maize area where bottomland is plentiful, e.g., Tamberma country.

Table 2. Crop Model for the Cereals Zone
(Gando north to the Upper Volta border)

Crop/Intercrop	Surface Area (ha)
1. Bulrush millet with a cowpea intercrop	0.7
2. Sorghum intercropped with 4-6 month millet	2.0
3. Maize	0.3
4. Peanuts	0.4
5. Cotton	0.3
6. Rice	0.3
TOTAL	4.0

Notes to Table 2.

1. In some parts of the cereals zone, double cropping is attempted with 4-6 month millet and transplanted sorghum, following an early 60-day millet crop.

2. Sorghum fields, particularly those planted late, will contain a range of cultivar maturities, as well as the millet intercrops. Staggered planting is also common. These practices can be seen as accomodating the high rainfall variations in the zone. No attempt is made here to factor these practices into the economic analysis.

3. Maize use is similar to that further south in the root crops zone, but a larger proportion of the crop is grown and stored for dried grain.

5. SOTOCO farmers average about 0.5 hectares of cotton per family. This figure was discounted across the farming population to obtain an average figure for the zone.

6. The cereals zone possesses many small valleys, especially in the eastern and southern reaches. As these are areas of concentration for planned Savanes regional extension effort, rice is included in the farm model. In drier parts of the zone, this surface area would be replaced by other cereals.

Given the results of the economic analysis reported in Annex Two, and the observations of the members of the design team, it is believed that animal traction extension efforts should use the total surface area figures developed above as screening criteria for farmer selection. Over the near and medium-terms, working with farmers who have smaller holdings would be ineffective and likely to lead to high default rates on loans.

Given these general observations on the cropping patterns and crop models for the two major zones in the project area, and specifications for the minimum farm sizes with which the project should be working, the question now becomes one of determining what to do at the farm level in terms of agronomic practices that make the best use of the available animal traction power sources and crop production technologies. The following sections address these questions under the rubrics of:

- agronomic practices,
- fertility maintenance,
- rotations, and
- agroforestry

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SOCIAL SOUNDNESS ANALYSIS

INTRODUCTION

ON ETHNIES IN THE PROJECT ZONE

ON COMMUNICATION STRATEGIES: THE USE OF ETHNOSCIENCE

ON THE EFFECTS OF ANIMAL TRACTION ON LABOR ALLOCATION

ON MOTIVATION AND THE NATURE OF PROJECT BENEFITS

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CONCLUSIONS

SOCIAL SOUNDNESS ANALYSIS

INTRODUCTION

Togo Animal Traction will include interventions on the national level and at the regional level. On the national level the project will strengthen the PROPTA (Projet de Promotion de la Traction Animale) in its role of coordinating procurement and distribution of draft animals and equipment in Togo, will establish a monitoring and evaluation unit to set up comparable measures of the effects of the traction equipment, and will strengthen training capabilities. On the regional level, the project will strengthen the DRDR's capacity to coordinate the supply of draft animals, equipment and medium term credit to smallholder farmers in the Kara and Savanes regions, and will improve the support services available to farmer-adopters. Specific field interventions of the TAT will be concentrated in the two northern regions. A series of revolving funds will be set up to fina e procurement of draft animals, equipment and and some support services for those parts of Kara and Savanes regions that are not served by other projects. It includes a program of short and long-term technical assitance to PROPTA, primarily in the north, and the development of short-term training programs to be administered by many cooperating animal traction projects. Intervention in the Kara and Savanes regions will include training for field level DRDR personnel and field agents of other projects in the region, technical assistance to improve local level coordination in animal traction activities and to modify and adapt equipment recommendations, and to improve agronomic and animal feeding recommendations. Eight Peace Corps Volunteers will serve in the northern regions as a technical an logistical resource for agricultural extension district-level workers and establish several small-scale storage-and-service points (CAT's) for distributing inputs.

Figure 1 shows the location of the Kara and Savanes regions.[1] Within these areas, AID-funded extension activities will cover zones not served by other agricultural extension projects. Figure 2 shows all current animal traction project zones in the prefectures of Keran, Doufelgou, Kozah, and Binah - all in the Kara region. Figure 3 shows approximate locations of other major rural development projects in northern Togo.

The major benefits of the project will come from increases in labor productivity as farmers master animal traction techniques. Elsewhere in West Africa, projects promoting animal traction have found that farmer-adopters are able to increase cultivated area 10 to 30 percent and to increase yields 15 to 40 percent, depending on the crops (Sargent et al., 1981). If marketing facilities are adequate and

[1] Recently expanded to include the prefectures of Bassar and Assoli.

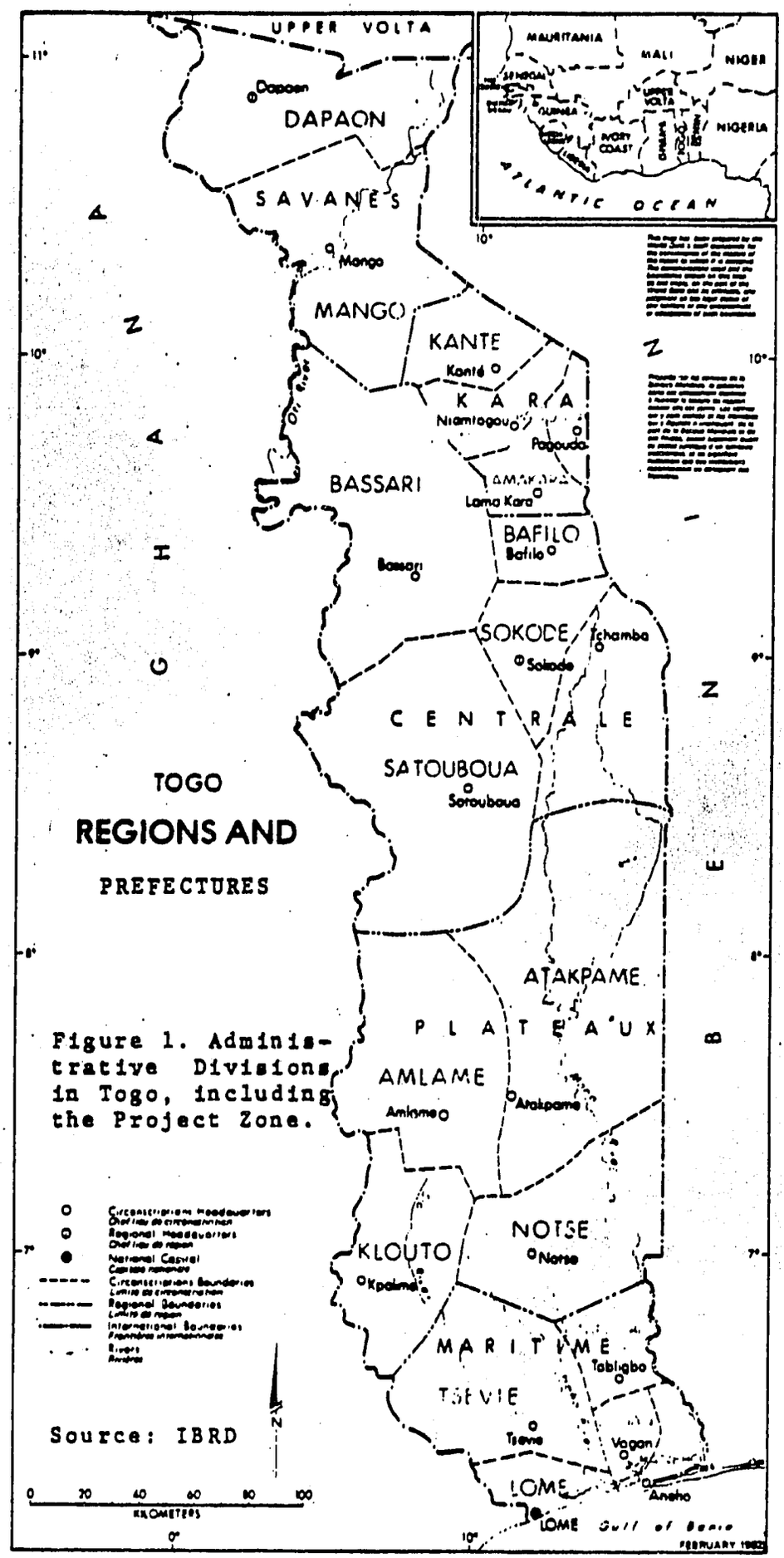
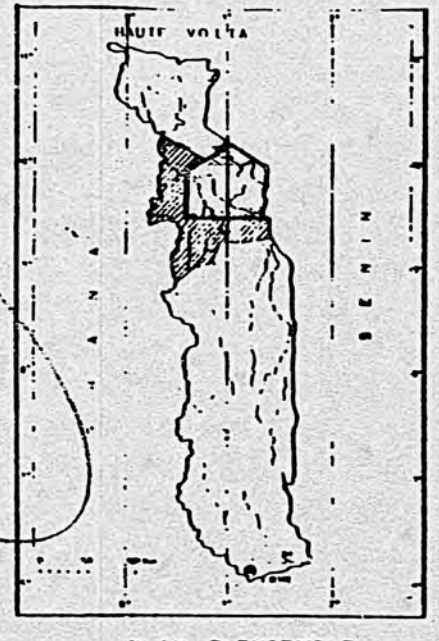


Figure 1. Administrative Divisions in Togo, including the Project Zone.

165X

REGION DE LA KARA



PLAN D'ENSEMBLE

Situation de la Région de la Kara

Limite de la Préfecture Administrative

Limite d'Etat

Routes

Cours d'eau

Blocs ORPV

1. Atteria
2. Bassar
3. Dapaong
4. Bagaladi
5. Siou Kawa
6. Naga
7. Sinu
8. Atakou
9. Atakole
10. Kéran
11. Kazawal

Blocs en circulation

12. Sola
13. Matema

Blocs en préfiguration

14. Sara-Kawa
15. Nandouffo

A. Projet TOGO NORD PNUD/FAO

B. Projet VIVIER Atchangbadé Sokodé USAID/FE

C. Projet F.I.D. Vallée de la Kara

D. Projet BINAH SEO

E. Réserve de la Faune

F. Zone à reboiser

G. Zone de Pêche [illegible]

Résidence Encadreurs DRDR

Résidence Monteurs DRDR

Résidence Adjt Technique DRDR

Encadrement DRDR

(à) Centre Formation Agricole d'Alteda

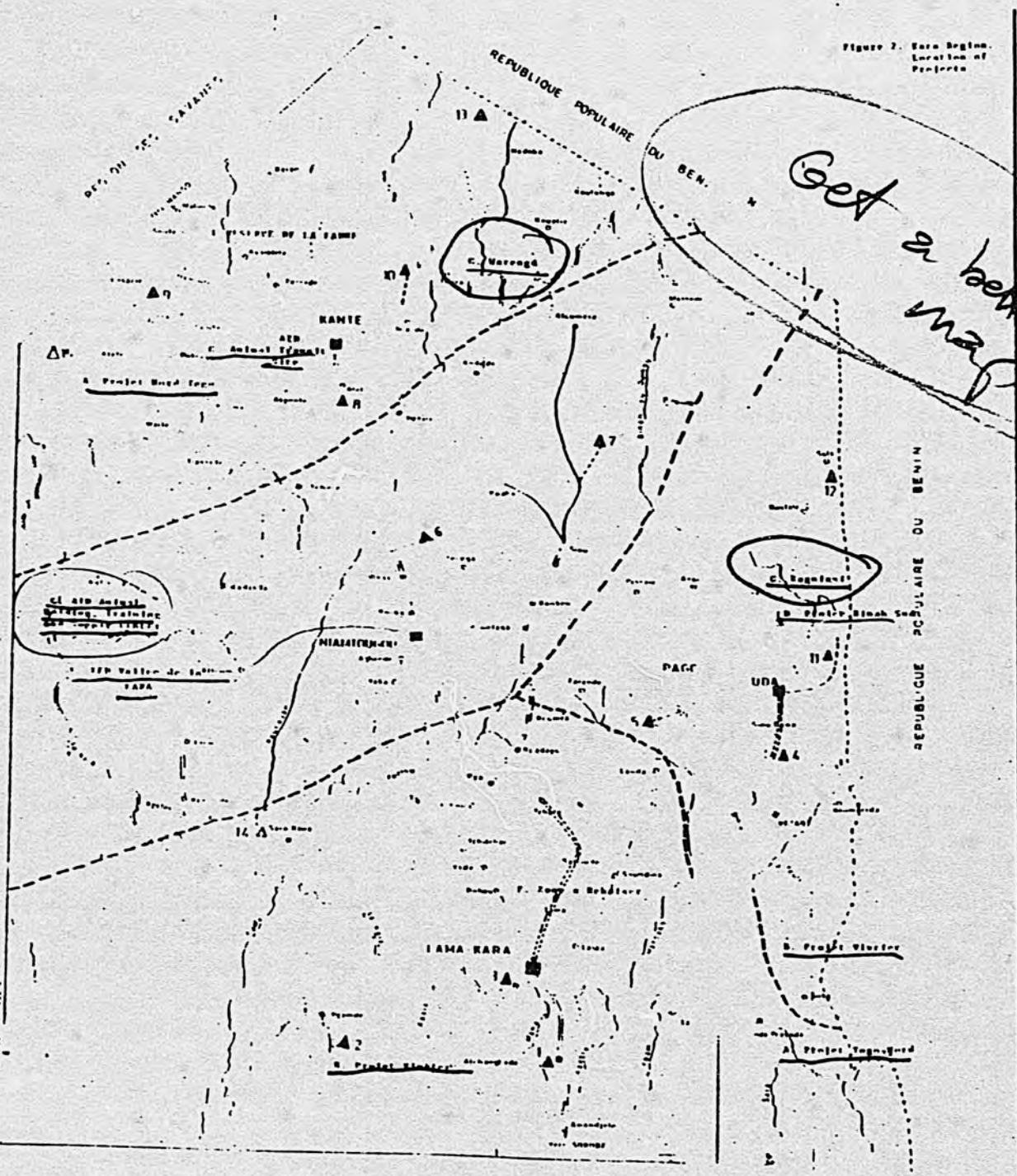


Figure 2. Kara Region. Location of Projects

Get a better map

Figure 3. Savanes Region: Other Projects

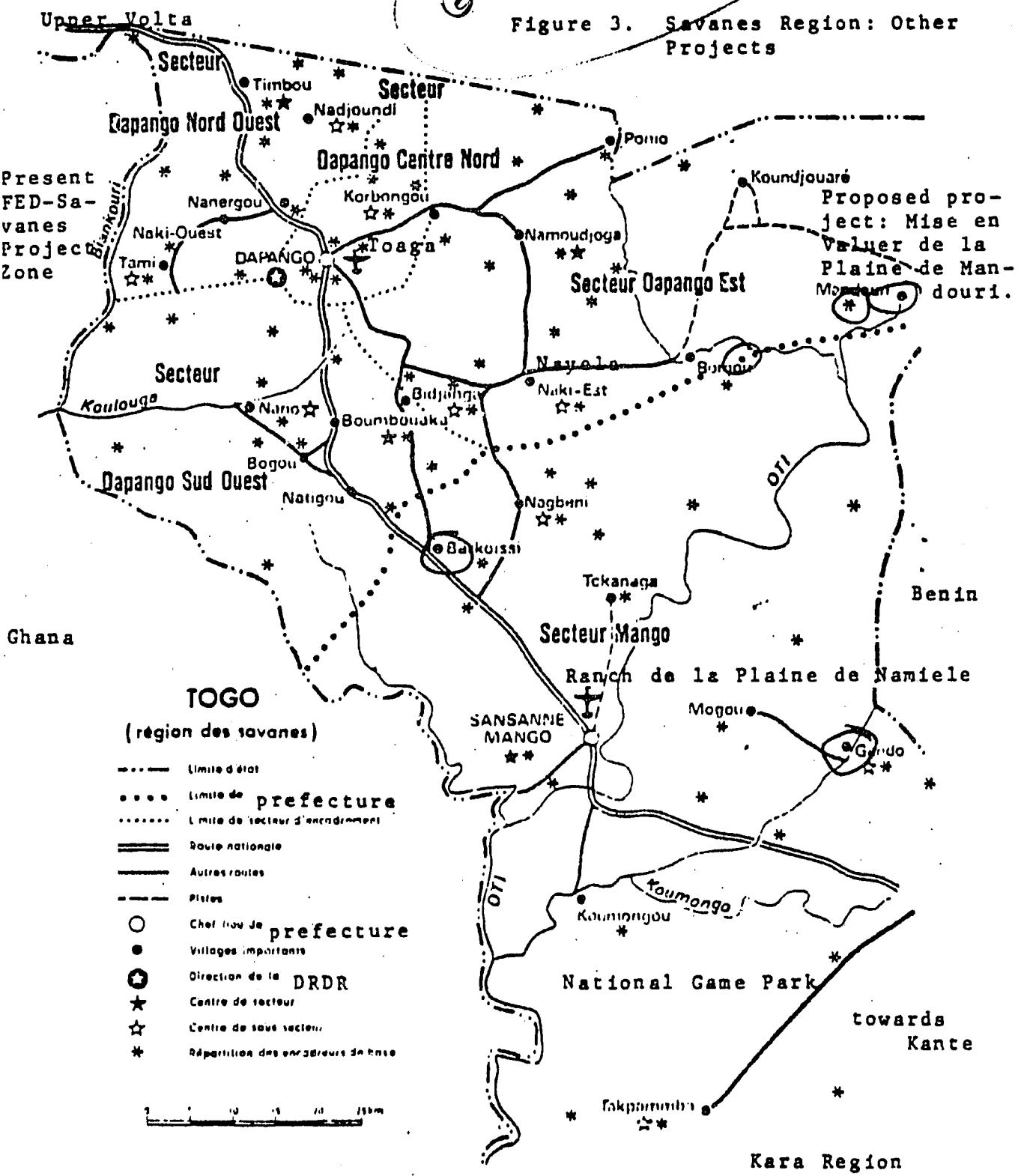


Table 1:

Resident Population of Project Zone, 1960-1980 by Circumscription/Prefecture

1970 Circumscriptions[1]	1960 population	1970 population	% change 1960-70	1980 Prefectures[2]	1981 population	% change 1970-81
Kara						
Kande	31,893	41,431	29.9	Keran	44,762	8.0
Lama Kara	87,543	99,.215	13.3	Kozah	120,878	21.8
Niamtougou	43,369	52,070	16.7	Doufelgou	66,120	27.0
Pagouda	38,359	44,588	16.2	Binah	50,077	12.3
Bassar	72,953	95,475	30.9	Bassar	118,345	23.9
Bafilo	21,147	29,445	39.2	Assoli	32,444	10.2
	295,264	362,224	22.7		432,626	19.4
Savanes						
Dapaong	140,466	183,164	30.4	Tone	249,079	36.0
Mango	47,023	57,559	22.4	Oti	77,747	35.1
	187,489	240,723	28.4		326,826	35.8

Sources: 1 K. Zachariah and N.K. Nair, Togo: External and Internal Migration in Demographic Aspects of Migration: Volume 2: World Bank Working Paper.

2 Togo. Direction de la Statistique. Resultats Provisoires du Recensement General de la Population et de l'Habitat (9-22 novembre 1981): Comparison avec Recensement General de la Population 1970 (1-30 avril).

Table 2: Population Density 1970 and 1980

Circumscription	Area[1] (km2)	1970[3] density	1980 density	Prefecture
Kara				
Kara	1075	92.3	112.44	Kozah
Pagouda	480	92.9	104.3	Binah
Niamtougou	1275	40.8	51.8	Doufelgou
Kande	1660	24.9	27.0	Keran
Bassari	6100[2]	15.65	19.4	Bassar
Bafilo	-	-	-	
Savanes				
Dapaong	4570	40.1	54.5	Tone
Mango	3900	14.7	19.9	Oti

1 J.Mirival, N. Agbegninou, 1974

2 SOTED/BCEOM/BDPA, 1981

3 Table 1.

and producer prices are remunerative, animal traction should be able to contribute towards increasing farm employment and to raising rural household income. Over the long-term it is possible that animal traction will allow farmers to adopt something of a field rotation pattern using green manure crops, and that resulting improvements in soil structure and fertility will allow more intensive cultivation of the soil, reduce fallow periods,and slow the rate at which wooded land is cleared for cultivation.

Experience in animal traction projects (Sargent et al., 1981 and Barrett et al., 1981) has shown that realizing the potential benefits depends on the interaction of many factors. Much of the short-term increase in farm production comes from expansion in cultivated areas rather than increases in yields, and so uncultivated land must be available and the system of land tenure must be able to reallocate land to adopter farmers. Farmers generally master land preparation

techniques with animal traction before they are able to use the weeding equipment skillfully. Since some sorts of weeding cannot yet be done with present equipment and practices, the availability of labor at certain points in the year becomes crucial. Because the equipment is expensive, and because it takes several years to learn to use it effectively, net income usually drops in the first years after adoption and adopter households often need supplemental income from non-farm activites to meet increased cash expenses, including the annual payment for the animal traction loan.

This analysis will first discuss the population in the project zone, their social organization, and their present farming systems. A discussion of the probable effects of animal traction on the allocation of land and labor follows. Finally, this analysis will approach some issues that could potentially affect motivation to participate in the project.

ON ETHNIES IN THE PROJECT ZONE

How do they farm?

One of the lessons donor organizations have learned in working in West Africa over the past years is that farming in the Savana area can be difficult. Ingidenous farming technologies have often evolved

fairly sophisticated ways to deal with uncertainty over the distribution of rainfall on the Savanna and with the need to increase labor intensity where available land for agriculture is limited (Netting, Cleveland and Stier, 1980). In planning an agricultural project, it is useful to have a rough idea of the current farming system in each of the project districts, and to have a guide to the vocabulary farmers use in describing their own technology.[1]

Animal traction projects have a few more specific problems to face. Traditional farmers often prefer to cultivate several crops in association (e.g. sorghum, millet and legumes). Intercropping has many advantages: it reduces the risk of crop failure through disease or infect infestation, it makes for an "implicit rotation" within each year (rather than between years), and it provides substantially higher returns per hectare and per hour worked than pure stands (Norman, cited in Metting et al., 1980.p 332). However, devising intercropping patterns that allow farmers to use the equipment for weeding has not always been easy. For example, where early millet and late millet or late sorghum are to be intercropped, the farmer has a choice of planting them in the same rows, or of planting the late grain in parallel rows, 80 cm apart, and close to the early millet. This system requires some extra hand-weeding until the early millet is harvested, but allows the farmer to ridge mechanically after the early millet has been harvested. Swanson (1979b. p.109) found Gourmantche farmers generally preferred the second system.

1. Bassari and Kotokoli

Both the Bassari and the Kotokoli cultivate roughly the same crops: yams, sorghum, short-cycle and long-cycle millet, maize, Kersting's groundnut, peanuts, taro, sweet potato, cassava, Bambara groundnuts, rice, and fonio. The Bassari cultivate cowpeas (Vigna); the Kotokoli seldom do. Peanuts and cotton have been cash crops since at least the 1930's. Both the Bassari and the Kotokoli plants yams in mounds and sorghum and other grains on ridges, and the only organic matter incorporated into the earth is weeds, which are buried during land preparation. A very typical rotation starts with yams, planted either the year a plot is cleared and burned or the subsequent year, followed by sorghum interplanted with different varieties of beans or peanuts and corn, followed by an indefinite number of years of alternating yams and sorghum without associated crops, followed eventually by fallow (Froelich, Alexandre and Cornevin, 1963. pp. 17-21; Cornevin, 1962. pp. 98-101; SOTED/BCEOM/BDPA, 1981. p. 88).

[1] Transcriptions of some terms are rough; and it was not always possible to check them against a standard orthography.

2. Kabiye, Naoudemba and Lamba

The Kabive are one group of several non-Muslim farmers who keep livestock in hill regions in the West African savanes that have evolved very complex and labor intensive cultivation methods. Others include the Kofyar of the Jos region in Nigeria, the Mafa of the Mandara mountains in northern Cameroun, and the Dogon of the Bandiagara plateau in Mali. Such cultivation system often traditionally included intensive use of manure from stabled animals, household refuse, slope-retention or terracing techniques, ridging, tied-ridging, and mounting techniques (cited in Netting et al., 1980. pp. 192-197). The intensity of cultivation of different plots of land often reflects the distance from the compound; thus, land nearest the houses is often heavily manured, permanently cultivated, and scrupulously weeded, while fields more distant from the house receive less manure (although plant material may be incorporated into the soil) and are cultivated less continuously.

According to Sauveget (1962.p.12), the Kabiye call the zone around the compounds dessida, (although in Tchichao, Kabiye refer to this area as nono hayim). At any rate, it is this region that is most carefully terraced and manured. Early bulrush millet (milo, misi in plural) is planted there in late April or early May, and is one of the first crops that can be harvested during the hungry season before the principal grains are ripe. Early maize (samala) is often also planted there and dominate the space after millet is harvested. It is harvested green during July and August, and the leaves are one of the main forages for smallstock during the rainy season (Cridel n.d.8). Greens (nyatu), gumbo, peppers, tomatoes, taro, and tobacco are also often cultivated in the house plots. Most of the protected trees are also found around this zone, they include baobabs, mimosa (nere), oil palms and mangos.

Outside the house fields, there is a zone of bush fields, called tare (Cridel, 1969.p.13) or te hayim, which are periodically fallowed. These fields are generally planted to sorghum (mila) and late millet (amala) intercropped with peanuts, or else to yams. Cridel writes that the late millets and sorghums both take eight months to maturity, however, the varieties described to the team anthropologist were:

kohoulemain - 6 months, white sorghum, higher yielding than other varieties, but less well liked for beer;
kiseme - 5 months, red sorghum, more drought resistant than kohoulemain, and good for both beer and pate.

Sorghums are sown at the same time as the early millet and maize, and are usually interplanted with peanuts, either the local variety (ketu), or a type brought from Benin (dahome).[1]

[1] Extensions agents usually prefer that the recommended variety, RMP-12, is planted in pure stands.

The sorghum receives a first weeding (akoza) in June, and a second weeding (alula) several weeks later. The stalk is ridged (ebahu) in September.

The amount of land Kabiye or Lamba farmers plant in yams is variable. In some areas, it is considerable. For example, data from Project North-Togo shows the following proportions of yam fields: 33 percent in Landa-Pozenda, 26 percent in Binah, and 9 percent in Helota (Bossi, 1980); an animal traction farmer-adopter in Pagouda had planted about 30 percent of his cultivated area for this year in yams, according to the notes of the PCV who measured his fields. Kabiye distinguish several types, among them:

kabange - "twisted" yams, earliest cultivar, low yield;
he abala - early yams, called "male" because they're larger;
he aloseo - late yams, called "female" because they're smaller.

The late yams are planted in February in mounds about .5m tall, and harvested in October; the early yams are planted in November in mounds about 1.0m high, and harvested in October, during the so-called "hunger" period. One limiting factor for the amount of yam cultivation is the amount of work needed to make the mounds; another is the heavy cost of planting material, about 4.000 CFA for 30 mounds.

Toward the end of the wet season in July and late August, some households plant sweet potatoes, sweet cassava, and Bambara groundnuts in mounds about .5m high. Rice is sometimes interplanted in these fields. In addition, households in some areas have started cultivating vegetables on the edges of low-lying areas (bas-fonds).

Rainfall decreases sharply north and west of Niamtougou, and the soils in the Lamba and Naoudemba areas are also said to be less fertile than on the Kabiye plateau. People use ridges, tied ridges, and contour dikes to retain water and slow erosion. Some areas apply manure and household refuse to fields, and many areas use leguminous crops and incorporate plant material to enrich the soils. Fonio takes on greater importance as a hungry-season crop. In most other ways, however, crops and techniques resemble those used in the Kabiye area.

3. Konkomba

Although Froelich et al. group the Konkomba with the Moba in most respects, the Konkomba names for crop varieties from around Guerin Kouka are very like those from around Bassar, (and techniques appeared similar), while the Moba crop names and techniques seem much closer to those of the Gourma to the north. Froelich (1953. p. 56) writes that the Konkomba don't manure their fields and are less careful to take advantages of nitrogen-fixing legumes than the Kabiye. A

common rotation pattern starts with yams, the year after a field is cleared (interplanted with early millet and other crops), the sorghum, usually interplanted with peanuts, and eventually fonio.

The bulrush millets most common in Guerin Kouka were:

inya - an early millet cultivar brought in from the Kabiye area;
iyo nokpur[1] - four-month millet harvested with a long panicle;
iyo dja - a three-month millet used when the rains are late, with a shorter panicle, about 20cm.

When Froelich wrote, he found only one early millet variety. Maize is widely cultivated today, both a traditional variety, ekkama me, a relative drought-resistent red variety, La Posta maize, and F-4, an early-maturing hybrid variety.

Although Froelich recorded seven sorghum varieties (1953. p.56), the anthropologist was informed of only two traditional cultivars:

idi je (or ididye) - a red sorgum maturing in six months;
idi mai - maturing in three months.

Nella 219 peanuts have been tried in the area; it matures early (three months), but stores poorly and people don't much like the taste. Traditional peanut varieties included:

diabo - with two seeds, three-month maturation and high oil yield;
adiora - with three seeds, four-month maturation, eaten roasted; and
RMP-12.

Yam fields are cleared around x months before planting, and are planted from roughly December to March, according to Froelich, but the PCV who worked in the area noted there were plantings at several times during the year. The team anthropologist was told the principal types were:

larbaco - matures in four months, harvested in September or October, preferred taste, and most commonly sold commercially;
kpinah - somewhat later maturing (five months), harvested in November or December, covered with small hairs, widely sold commercially;

[1] Froelich notes that the IFAN-approved orthography is iyu.

kikki - late maturing (December or January) with small tubers, five or six per hill. People dig them up while working on new mounds and roast them in fires in the field;
sakkata - later than kikki, harvested early in the dry season;
kpilindou - like kpinah, matures in five months, but hairless;
bayer - late variety with whitish skin. Breaks easily, and so is hard to harvest and transport;
four - late variety that resembles kikki, but with darker skin;
diatouba -harvested after kpinah, with somewhat smaller tubers.

It is said that a good farmer will do 2 to 4 ha. of yams, often paying 60.000 to 80.000 CFA for the labor to form the mounds. The problem, of course, with a predominant reliance on yams is that projects have made little if any progress in finding ways to mechanize any of the field work.

Cassava is relatively little cultivated, the main types being:

bantye pi - with a white tuber, not liked in pate preparation;
kal ba - red variety used for pate;
mbanly maing - imported from near Ghana.

4. Tchokossi

Time spent by the team anthropologist in the field in the Tchokossi area was even more limited than elsewhere. Name-finding for cultivars was even more difficult to transcribe than elsewhere, and even less was found in the way of published enthography to verify orthography than elsewhere. Therefore, this description is pretty cursory. Like the Gourma, the Tchokossi seem to have a whole range of sorghums with maturation periods ranging from six months downwards. If the rains seem to start early and to show promise of continuing regularly, people try to cultivate the long-season varieties; where the rains are late, or where sorghum has to be replanted because of a dry period after the rains have started, farmers start sowing the shorter season varieties. The type of soil also affects the choice of cultivar. For example, clayey fields in higher areas dried out faster than sandy low-lying areas, and so were more likely to be planted to shorter season sorghums.

Most households plant early millet near the concession so they can scare birds off the crop. Fields around the house are not manured. There is also a short-cycle millet that is planted later in the season,

if rains seem likely to end early. Many people plant considerable amounts of cotton, and, to comply with the SOTOCO planting dates, many interrupt their planting of grain crops to finish the cotton fields, and then resume planting grain, using the shorter season varieties.

La Posta maize is grown widely, often interplanted with sorghum and even fertilized (one farmer interviewed was using one 40 kg sack of 15-15, but didn't know the area of his field. RMP-12 peanuts and Allen cotton are also planted and fertilized.

5. Gourma and Moba

Because much of the prefecture of Dapaon resembles the southern parts of Upper Volta in soils and rainfall, and because many groups of Moba were politically subject to Gourma principalities, it makes sense that there should be a good deal of similarity between the two groups in agricultural techniques. In the households interviewed at Nayega and near Barkoassi, Gourmantche names were used for millet and sorghum cultivars (though not for maize). However, there is considerable local variation in any large ethnographic area, and so it is to be expected that not all aspects of farming in Moba areas would resemble ethnographic accounts of Gourmantche farming (Swanson, 1979a, 1979b), which draw mostly heavily on experience around Fada N'Gourma. It would be very worthwhile for PCVs or TA doing agricultural extension in Dapaong to obtain a copy of Swanson's work[1] and with more time and more experience in the area to verify in more detail the similarities and differences.

In both Gourmantche areas and Moba areas, the land nearest the compound receives whatever manure and household refuse is available, and is often planted with early millet and with maize. The Moba term for the in-field is chinchen kuab, (as constrasted with bush fields, or fua kuab. Generally, fields near the houses in Nayega were intercropped with six-month millet in addition to maize and early millet, but some households planted only early millet in order to be able to graze smallstock near the house in the later part of the rainy season.

In Gourmantche households, the physical layout of th plots is similar, but the way they are conceptualized is a little more complicated. Households' heads have one or more large "grain fields" (kauana), and persons other than the household head may have one or more extra grain-fields (suali-kuanu) outside the village. In addition, all household members may each cultivate small plots within the village (lifeloli) planted to maize, early sorghum, millet, tobacco,

[1] A copy is on file with OAR/Lome and in ORSTOM's Lome library.

osoango - an early-maturing bitter type which stores poorly, but is used for beer and as a substitute for early millet;
dagbani - 3 1/2 month cycle, cultivated mostly for beer;
contooli - 3 1/2 month cycle, very susceptible to *Striga*.

ON COMMUNICATION STRATEGIES: THE USES OF ETHNOSCIENCE

In the brief fieldwork during this project design, the anthropologist was struck by how seldom the animal traction PCVs and extension personnel working outside their home region knew the names of the major cultivars their farmers were planting, and the major characteristics of those cultivars. In part, the aim of this section was to give workers in different districts a sketchy idea of some of the relevant categories their farmers use in thinking about what they farm. Ideally, there should be notes for each area (perhaps corresponding to the extension sub-region) that give the major cultivars for major crops, and the knowledge farmers have of the soil preferences, drought resistance, susceptility to disease and insect infestation and bird damage, storage characteristics, and the uses local households make of different cultivars. A couple of readings in ethnoscientific methods during in-country training might be very useful to PCVs, and, if translated into French, some of the material might interest Togolese section chiefs and give them somewhat better communications link with their local-level extension agents. Anyone with local-language fluency and a little persistence would be able to get a much fuller and richer picture of the ethnography of farming than was possible here. The work in eliciting these categories and the knowledge that accompanies them is good practice in listening to farmers.

If project (or central) funds are available to develop area-specific training materials of this sort, it might be very valuable if someone like Swanson (who is presently under a Purdue contract on the SAFGRAD farming systems research in Upper Volta) or another anthropologist with strong liguistic skills and an interest in agronomy could spend a month or so in the Gourma areas of Dapaon to verify how local practices compare with what had been observed in Upper Volta. Training units could be developed that would allow PCVs and Togolese extension people to develop similar cultivar and farming notes for their own regions.

ON THE EFFECTS OF ANIMAL TRACTION ON LABOR ALLOCATION

The basic labor allocation questions any animal traction project social soundness analysis has to address are whether the changes that adoption will bring into a household will affect household patterns of work in ways that permit the household to meet its global goals. Questions arise concerning the costs and benefits from alternative ways of handling livestock in savanna farming zones: entrusting cattle to semi-sedentary Peul herders (who themselves do some cultivation) with periodic culling of the farmer's entrusted herd for meat production or, farmers keeping draft animals on the farm, year-round. Much of the materials we have on this question comes from Delgado's (1978,1979) farming system studies of the Mossi and Bissa cultivators and of Fulani cultivators and herders in Tenkodogo, in southeast central Upper Volta (a short distance northwest from the Togolese border).

Under the entrustment system, farmers give their cattle into the care of Peul herders/cultivators throughout the year.[1] The farmer generally makes certain gifts to the Peul herder over the course of the year, typically (around Gando in Togo) about 20 kg. of sorghum or millet each harvest per animal entrusted, a similar payment of grain when an entrusted cow gives birth, and a small amount of money (1.000 CFA) if an animal is taken out of the herder's care (either by the farmer's taking it back, or because it is sold). In addition, the herder has the right to the milk and the manure the animal produce.

Peul women process and sell the surplus milk from the cows, and the household as a whole applies the manure from its own cattle and from entrusted cattle to its fields. Cultivators sometimes request some of the manure. Sometimes they are given permission to carry manure away from the corrals. Sometimes the Peul will agree to a manure contract (nadoine) in which the herds are grazed on the farmer's harvested fields during the dry season. In most cases, the cultivators getting the manure are expected to feed the Peul family for the duration of the contract, and in many cases the cultivators also pay a fee.

The herder manages the farmer's herd. If the farmer wants to sell the animal, the herder locates a buyer (either a collector for one of the larger cattle markets, or another herder) and communicates the offering price to the owner, who either accepts or declines. When an animal is taken ill suddenly, the herder contacts the owner if possible before selling it, but the owner is obliged to take the herder's report of the price and the necessity for selling the animal.

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[1] Farmers keep smallstock on the farm.

In Tenkodogo region, if the sick animal is taken to the veterinary service, the owner is notified, and is obliged to pay the cost of vaccinations and medicine. If an animal dies in the bush, the herdsman is supposed to bring the head of the animal to the owner for proof (Delgado, 1979. p.25ff). Predictably, farmers worry that they are cheated by the herdsman and accuse Peul in general of being prone to steal the cattle of owners.

Delgado's overall conclusions are drawn from linear programming models that are hard for an anthropologist to follow, but the reasons why keeping the bulls on the farm year-round would be difficult in Tenkodogo are fairly straightforward. One is the problem of forage and water late in the dry season, when herds and at least some adult male herders are obliged to go up river valleys in search of grazing areas, and to stay until the rains are well underway.[1] The herds are thus far away from the village at the time draft animals would be needed to prepare land. The Peul often plant later than other farmers in the village because some men are still on transhumance at the start of the rains. Another problem is that fields are not fenced, and the animals are difficult to control near the crops; again, during this part of the year, children cannot watch the animals alone, but must be accompanied by adult men. (Delgado, 1979. p.38). Delgado argues, first that there are economies of scale as herd size increases to about 40 animals (ibid:121). He also argues that the increased need for herd supervision during the rainy season conflicts with the peak labor requirements for grain cultivation (shown in Figure 5) in November. (The labor requirements shown are per hectare: few families cultivate as much as one hectare of rice, so that July peak is less serious than it looks, but many farm families cultivate more than a hectare of millet, sorghum, and cowpeas, so that the November peak is rather more important than it looks.) In sum, Delgado contends that the need for transhumance (due to lack of forage) and the need for male labor to keep animals out of fields during the cultivation season, would take labor away from cropping enterprises if farmers had to keep the animals on the farm year-round.

However, indications are that the forage problem is less acute in Dapaon (and considerably less acute in the Kara region) than in Upper Volta, and the distances travelled to find dry-season pasture are smaller. Therefore, when draft animals in Gando are entrusted to the Peul, it is still possible to retrieve them at the start of the rainy season for land preparation. Animal traction projects contend that draft animals are less likely to suffer injury if they are kept on the farm year-round and animal insurance schemes often refuse to cover death or injuries incurred while animals with the Peul. Delgado's work points out the crucial role that the availability of supplemental forage and dry season water sources play in the decision not to keep

[1] Although small boys and girls can watch over animals for part of the year, they are not strong enough to dig wells in lowland areas or water the herds from existing wells.

draft animals on the farm during the dry season.

However, Tenkodogo farmers are cultivating very little in the way of cash crops: about 83 percent of land is devoted to sorghum/millet/cowpeas fields. A later paper that compares Tenkodogo results with a farming system study of animal traction in the Operation Riz area near Segou in Mali showed that animal traction enjoyed much more in the way of benefits where the time for planting cash crops coincided with the heaviest weeding labor requirements for grain crops, and where the rented oxen hours could be substituted for hired manual labor in preparing rice seedbeds. However, the overall profitability of animal traction depended on having access to hired labor later in the season (Delgado and McIntyre, 1981. p.8). An idealized composite model,which gave a hypothetical farmer in Tenkodogo increased cash-cropping opportunities, showed that while there were extra costs to cropping grain with animal traction, there were increased returns to labor for cash crops, and that the profitability of renting ox teams and equipment grew with the proportion of cultivated area planted to cash crops.

In sum, opportunities for growing cash crops and opportunities for renting out ox teams and equipment during the period when seedbeds are prepared for cash crops, and for renting out ox teams and carts for transporting grain during harvest both substantially improved the profitability of animal traction use. However, in the model, the cost of extra hired labor for weeding continues to be a constraint to the profitability of animal traction (although a less severe constraint than the lack of food crops). This need for extra manual labor is tied to problems in adapting weeding equipment to local conditions: a survey of animal traction projects throughout West Africa has shown that a minority of farmers who could buy the weeding equipment used it. If a program of technical trials were able to modify the equipment to weed more effectively, the requirements for supplementary manual labor could be substantially reduced.

ON MOTIVATION AND ON THE NATURE OF PROJECT BENEFITS

The design team has assumed that the principal benefits to come from the project will stem from increases in labor productivity as farmer master animal traction techniques, as the technical package that accompanies the draft equipment is refined and as the equipment itself is more closely adapted to local conditions and practices. The principal goal of the project, then, is to increase farm production and thus to raise rural household income. But the question has to be asked if the marketing system and the producer prices will allow in-

creases in productivity to result in increased net incomes.

There is also a subsidiary question of whether raising household income is a valid goal for all the populations to be affected by the project. The technical analyses make it clear that one of the constraints that will be encountered in trying to make draft animals and traction equipment available to farmers will be the supply of suitable traction animals, and one of the long-term aims of the applied research component is to evolve a locally adapted herd management strategy that can be diffused to private herders in Togo to improve the supply of animals with the correct conformation for animal traction (and with good resistence to local diseases), while maintaining or improving the sustainable carrying capacity of available grazing land. We have seen that a good part of the Togolese national herd is either owned by or managed by herders under the entrustment system, and we have a certain amount of social analysis of the Peul that says essentially that any efforts to increase the productivity of herding in order to increase offtake rates for slaughter, or analogously to increase the number of animals kept permanently on smallholder farms, are bound to fail because the Peul in general live outside a commercial economy and have no use for money (Riesman, 1980).

However, Delgado's recent work shows that (contrary to findings elsewhere) Peul households in Tenkodogo are deeply involved in a market economy. Indeed, also output per worker of Peul households was roughly the same as for Mossi or Bissa households, cash income in Peul households was roughly four times that for Mossi or Bissa households (Delgado, 1979. p.98), and sales of cattle were by far the most important component of the cash income of households.

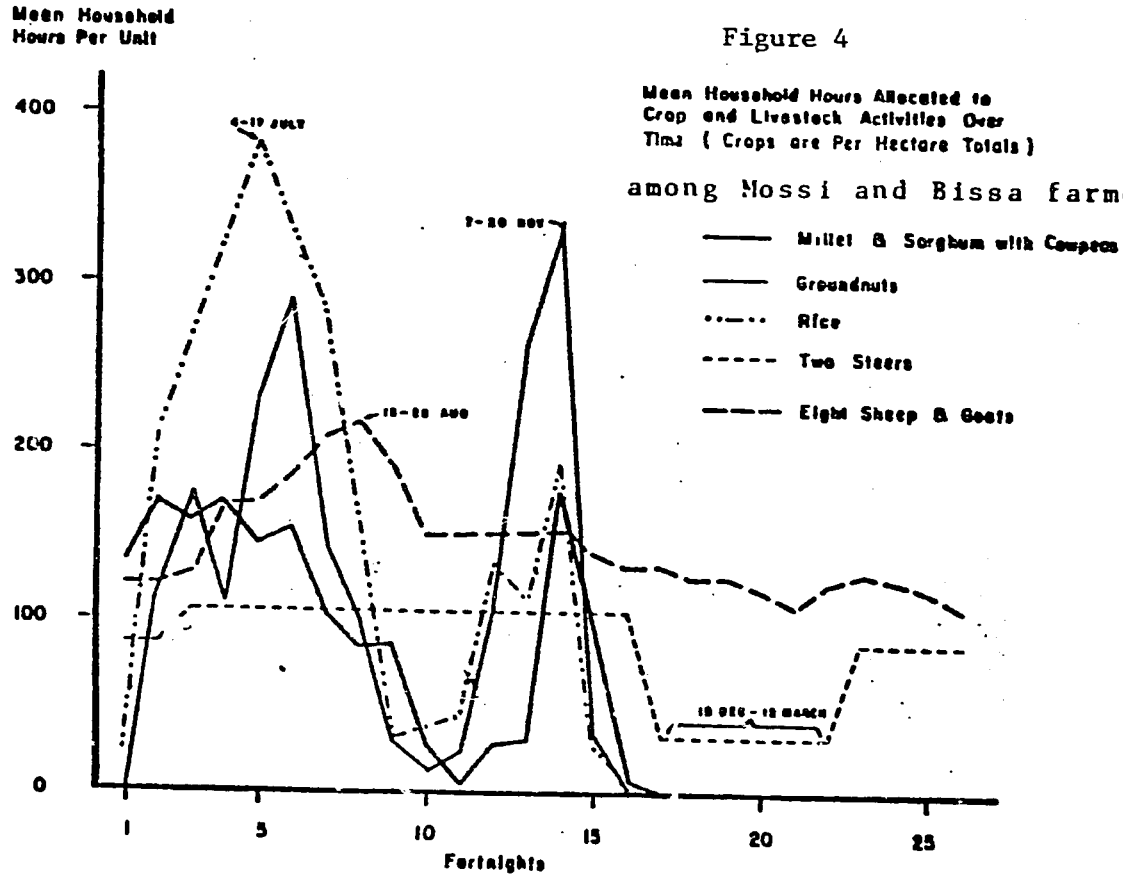
A rather graver concern is whether the current structure of producer prices will permit smallholder farmers to receive reasonable return to their labor. This is a concern the Economic Analysis discusses in far more detail, and this section will only sketch the outline of the problem. Project North-Togo recently tried to approach this question using labor input and yield data from a small sample of its farmers, and estimating the gross margin per work-hour. The project economist felt that a reasonable return to labor for farm families would have to be somewhat higher than the official minimum wage of 15.000 CFA in order to take into account the presence of older and more experienced workers in the household. They set their target income at 25.000 CFA per month, or about 142 CFA per hour worked.

Table 6 shows the gross margin per work-hour, evaluated at official producer prices for the five principal crops in the project zone. The small size of the sample makes some estimates suspect, but it seems clear that the returns to labor for peanuts, rice and sorghum are fairly low. Fortunately, the official Togolese marketing body

Figure 4

Mean Household Hours Allocated to Crop and Livestock Activities Over Time (Crops are Per Hectare Totals)

among Mossi and Bissa farmers in Tenkodogo



Source: Delgado, 1978

(described in more detail elsewhere) handles a very small part of total marketed foodgrains--about 2 percent. However, recent efforts to increase amounts marketed through appointing buying committees, including local-level administrations, have a potential, at least, for abuse, and announced goals of rapidly increasing the proportion of marketed grain handled by official channels cannot fail to arouse concern. However, it seems that the most feasible way to work toward reconsideration of producer price policy is to strengthen the government's capacity to monitor agricultural household production and returns to labor under manual and animal traction (in much the same way as the government now follows consumer prices) in order that the costs of production be taken into account more accurately in setting acceptable price ranges. The thornier question of the effectiveness of TOGOGRAIN will have to be approached in a wider context than this project analysis.

ON MINIMUM PARTICIPANT PROFILES

A survey of West African project promoting animal traction suggested that the threshold farm size after adoption of animal traction would be about 4 hectares for use of donkey drawn equipment and about 6 hectares for use of bullock-drawn equipment (Sargent et al., 1981). However, this gives us little help in assessing a prospective threshold farm size, since we know very little about what increase in cultivated area can be expected under animal traction, although we know that most projects that tried to measure the increase in cultivated area found it was less than 30 percent.

Most of the data we have on cultivated area for the project zones come from the last agricultural census, and so are dated. They are shown in Table 7. Although the Agricultural Statistics Service continues to monitor yields in a sub-sample of farms, it does not measure cultivated area for the sub-sample, but estimates that cultivated area increases 2 percent (in global terms) a year from the 1972-74 base figures. However, farm areas published in Tourne, et al. (1974. p.39) and Miravel et al (1974.p.92) differ considerably from the census figures.

The census figures do, however, give us a very rough framework for comparison. The figures on cultivated area for 14 animal traction farmers in the AIP are probably in part estimates (almost all figures are rounded to the nearest quarter hectare) rather than actual measurements, and they are also distorted by the inclusion of three collective fields. Even omitting the collective fields, however, the median cultivated area for individual farmers was about 3.5 hectares which seems higher than in the population as a whole. Random samples of farmers

Table 3: Gross margin per work-hour for traditional and improved cultivated crop practices - Project North-Togo, 1981. In CFA at official producer prices.

	Traditional	Improved
peanuts	118	110
maize	331	183
rice	84	137
sorghum	115	
yams	348	

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from Project North-Togo zones in Landa Pozenda, Binah, and Helota also seem considerably larger than the census sample farms.

In sum, we seem not to have very good estimates of farm size for the project zone, and we have no very exact idea of the potential increase in cultivated area animal traction would make possible. Some of this information will probably be available when the current agricultural census is tabulated, but much of the information will have to be generated by the TAT Monitoring and Evaluation Unit. Because of the probable association between large farm size and higher propensity to adopt animal traction equipment, changes over time in cultivated area (or cultivated area per worker) are likely to be a more accurate measure of the effects of animal traction than comparison between manual cultivators and animal traction households in the same area.

However, it is possible to draw a few inferences from what we know. Dapaon, Mango, and Bassar circumscriptions seem to have larger farms, on the average, than Kante, Kara, Niamtougou, and Pagouda, and, if it is also true that more unoccupied land is available in those circumscriptions, TAT might do well to allocate extension resources toward those areas. Clearly, however, there is a need to adapt an animal traction package to the middle range of farmers, in part by reducing the amounts of equipment sold to farmers and tailoring the equipment package more closely to the locality, and in part, by adapting the technical recommendations that accompany the equipment. Again, this will be one of the tasks of the Monitoring and Evaluation Unit.

Table 4: Distribution of farm size by Circumscription (percent)

Circumscription	less then 2 ha,	2 to 4 ha.	more than 4 ha.	total
Dapaong	18.5	37.7	43.8	100
Mango	67.2	23.0	9.8	100
Region des Savanes	31.0	33.9	35.1	100
Kante	83.7	12.2	4.1	100
Lama Kara	94.4	2.4	3.2	100
Niamtougou	97.8	1.1	1.1	100
Pagouda	95.1	4.9	-	100
Region de la Kara	93.1	4.4	2.5	100
Bafilo	87.4	6.3	6.3	100
Bassar	48.9	34.1	17.0	100
Region Centrale	55.1	32.2	12.7	100

Source: Agricultural Census, 1972-74.

Table 5: Size of farms in hectares: Project North-Togo zones of operation

Zone	1 ha,	1-2 ha.	2-3 ha.	3-4 ha.	24 ha.	Total no.
Landa Pozenda	2%	24%	24%	18%	32%	50
Binah	10%	28%	34%	24%	12%	50
Helota	3%	12%	23%	16%	46%	90
Total	4%	19%	26%	18%	33%	190

Source: M.Bossi, 1980. Donnees structurelles essentielles sur les exploitations agricoles dans les zones d'action du Project Nord-Togo. Mimeo. Kara

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ON TRADITIONAL LAND TENURE SYSTEMS AND ON RECENT LAND REFORM LEGISLATION

Although it is common to say that traditional land tenure systems hold land as collective property, most of the information we have on land tenure suggests that in many areas, most cultivated land is held by individuals rather than collectives, and there is evidence from other areas that as categories of land become more valuable and more scarce, ownership is more likely to be individual. In most of the areas for which we have information, there are means to allocate or lend land to those who need it, with the borrower making at most token presents to the lender. A survey in the Gourmantche area asked landowners how willing they would be to lend land to a non-kinsman, and most respondents said they were willing. However, in many areas, the crops or trees that a person plants are seen belonging in perpetuity to the planter, and so, if a land-borrower plants trees on a plot, he can be seen as trying to lay permanent claim to the land.

The ethnographic evidence we have, therefore, would suggest that traditional land tenure systems would have ways of allotting land to farmers who wanted to expand cultivated area and so would pose no insuperable obstacle to expansion of cultivated area under animal traction. However, it is necessary to remember that the ethnographic accounts we have are old, and tend to be based on how people say the systems works, rather than on the observed incidence of different kinds of land tenure disputes. It may also be the case that increasing density of settlement has altered land tenure systems significantly.

In addition, there is the problem that land is passing out of the traditional tenure systems. The Government of Togo has initiated a program of land reform that consists principally of: legal registration of land ownership (Ordonnace No. 12 du 6 Fevrier 1974); establishing means of bringing land under government ownership, or under control of cooperatives; establishing procedures to consolidate land holdings; and establishing the Direction de la Legislation Agro-Fonciere, in the Ministere de l'Amenagement Rural to oversee land reform. The aim of land reform is not to redistribute large-holders' lands (as in Latin America), but rather to make land available to the state for development of irrigated perimeters, for resettlement programs, for game reserves and restricted forests, or for other development purposes.

One of the functions of the Monitoring and Evaluation Unit will be to keep track of changes over time in land use patterns, through aerial photographs and Landsat imagery. Some kind of tracking ability for the actual availability of land would be valuable, perhaps by adding a question to the agricultural census form (which already includes questions on parcels of fallow land) on the approximate duration of fallow on different parcels that are being put back into production,

or by questions about whether the farmer is finding it difficult to locate or borrow suitable land.

CONCLUSIONS

The ethnographic data on the diverse groups in the project region vary greatly in age and in quality, and efforts by AID to fund additional sociological studies have not yielded useful results. Although the GOT and several donor organizations have tried to establish pre-cooperatives able to invest in agricultural equipment and manage it, the experience of the Animal Traction AIP with cooperative ownership has not been good, and it seems preferable that the project try, where possible, to give credit and equipment to single families rather than cooperatives.

The information collected in the ongoing 1981-82 agricultural census could be much more useful than that of the last agricultural census if it is more completely analyzed and interpreted. Statistique Agricole tabulated the last census by hand (although there was supposed to be provision for use of computers); use of machines with SPSS could give a larger number of multiway tabulations with more detailed categories (e.g. prefecture rather than region).[1] If the Monitoring and Evaluation Unit uses the agricultural census as the basis for its own work, it might be valuable to verify that the questionnaire actually inventories fields belonging to or cultivated by all members of the household, since the last agricultural census arrived at very small total cultivated areas in some regions, and since the linguistic intricacies of field categories may mean the surveyors are omitting to ask for some kinds of fields.

The relationship among variables like access to land, household income, family size, and propensity to adopt animal traction equipment (observed in southern Mali and eastern Upper Volta) could make it difficult to disentangle the causes and the effects of the use of animal traction. For example, we have seen that in the Eastern ORD, women in animal traction households work fewer hours per day than women in other households. but that most of the difference can probably be attributed to the larger size of animal traction households and to economies of scale in domestic work.

Although Delgado made a strong case that the entrustment system in Tenkodogo had lower costs and higher returns than animal traction in which farmers kept animals on the farm year-round, northern Togo differs from southern Upper Volta in several significant ways.

SPSS is the Statistical Package for the Social Sciences.

Forage and water may be more available during the dry season than further north, cash cropping is more prevalent, and rainfall may be less uncertain. The sum of these differences may mean that the costs of animal traction are somewhat lower, and the benefits (chiefly by allowing farmers to prepare land for cash cropping during the early weeding of grain crops) somewhat higher. However, water is a problem for some farmers trying to keep cattle during the dry season, and it would be advisable to try to coordinate work with the AID Togo Rural Water Supply Project and projects from other donors in order to try to situate wells in some zones where animals are being placed. Renting some pieces of equipment and teams has been profitable elsewhere, and the project might do well to encourage it, both as custom work by farmers owning draft animals, and by renting out equipment (like the carts) that may be too expensive for farmers to purchase. It should be possible to set reasonable user fees by experimenting. Other innovations that make dry-season use of animals more profitable should also be encouraged where possible--for example, by making some technical trials on using oxen for dry-season irrigated gardening, and then trying to coordinate with the work of gardening projects. It has been proposed that OAR/Lome design an ancillary small-scale rural works project midway through TAT, which could do a good deal to encourage use of animals for transport and dry-season garden use.

We have seen that (as elsewhere) traditional cropping systems use some labor-intensive methods of raising yields: ridging and mounding, construction of terraces, incorporation of manure and plant material into the soil and interplanting with nitrogen-fixing legumes (which gives an "implicit rotation"). In general, Peace Corps Volunteers and extension personnel transferred in from outside the region did not have a detailed knowledge of traditional farming practice in the district they were working in. Such knowledge should include the names of major cultivars, their relative yields, their growing period, and their relative resistence to drought, disease, insect, and other herbivore damage. Training in ethnoscientific methods would be very valuable for both PCVs and Togolese extension personnel, and could lead to developing notebooks on traditional cultivation practices (and on local experience with introduced practices) for each district. Such work could greatly improve communication among locally-recruited field extension agents, farmers, and higher level personnel.

Traditional land tenure systems have means for reallocating uncultivated land and should pose no barrier to the expansion of cultivated area through the use of animal traction. However, we have little current information on recent changes, and it may be the case that increasing population or the forced resettlement of some populations (for example, after establishment of the Keran game reserve) has increased population pressure on the land in some places and changed current land-holding practices.

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APPENDIX I: AID BUDGET BREAKDOWN

TABLE 1

TECHNICAL ASSISTANCE
-$-

	YR 1	YR 2	1/2 YR 3		Ave.Annual Incremetal Recurrent Costs
LONG TERM					
Interim Coordinator[1] for 6 months	43,990				-
Project Coordinator[2]	64,990	129,980	64,990		-
Ag. Economist	64,990	129,980	64,990		-
Livestock Specialist	64,990	129,980	64,990		-
Agronomist	64,990	129,980	64,990		-
SHORT TERM					
Livestock[3]		24,000	8,600		-
Anthr.	30,000				-
Training/Data Management	12,000	25,000			-
Financial Management	25,000	25,000	25,000		-
EVALUATION TEAM[4]			60,000		-
Secretarial/Translation			7,000		-
	370,950	593,920	359,960		
TOTAL TECHNICAL ASSISTANCE				1,324,830	-o-

Footnotes to Table 1, Technical Assistance

1. $43,990 for 1 year includes $31,490 for an Interim Project Coordinator for 6 months. Assume an annual base salary of $22,000 with differential, COLA, travel to and from U.S., rent, utilities and other costs totaling $20,490. The remaining $12,500 is for a second interim staff member who is to be recruited in Togo and is familiar with Peace Corps/Animal Traction activities to assist the Interim Project Coordinator. The Facilitator would be on a PCS Contract including housing and per diem for 6 months.

2. The average yearly cost of one Technical Assistance Team member assuming a family of four is calculated as follows:

Base salary	$35,000
Differential	7,000
COLA	1,050
Travel R&R or t/from post	8,000
Travel (emergency/medical)	2,000
Air and sea freight	9,415
POV	2,500
Residence Rent/Utilities ($7,000/2,100)	9,100
In-country per diem	5,880
Insurance	1,190
Education allowance	4,000
Storage	3,000
Overhead (@ 1.9)/Fee (@.08)	41,845
Total	4129,980

In country per diem assumes average travel of 7 days per month times 12 months times per diem of $70 which is a weighted average of Lome per diem (currently $90) and up-country ($57) based on anticipated travel.

3. The short-term technical assistance is calculated as follows:

Salary (36 days - 6 weeks)	$5,000
Per diem (42 days @ $70)	2,940
Travel (to/from U.S.)	2,000
Secretarial/translation	550
Insurance	184
Communications/other	134
Overhead and Fee	5,292
Total	$16,000

Anthropologist	- 12 weeks (one trip)
Livestock Specialist	- 12 weeks (two trips
Training/Data Specialist	- 12 weeks (two trips)

4. Financial Management Technical Assistance will include periodic financial reviews, management analysis and financial staff training by an independent accounting firm as described in Annex Five.

APPENDIX I: AID BUDGET BREAKDOWN

TABLE 2

COMMODITY PROCUREMENT

	QUANTITE	UNIT PRICE	SUB-TOTAL	YR 1	YR 2	½ YR 3	U.S. TRANSPORT	Ave. Annual Incremental Recurrent Costs
VEHICLES (C.I.F.Lome)[1,2]								
Station Wagon	2	10,000		20,000			W[4]	
LT WT Pick-up Wagon	3	7,500		22,500			W	
Trail Bike (100 cc)	13	1,000		13,000			W	
Mobylette	15	500		7,500			W	
Bicycle	25	100		2,500			W	
Spare Parts (25%)			81,875	16,375			W	
Trucks							W	
8-ton	1	21,000		21,000			W	
3-ton	2	14,000		28,000			W	
Pick-up	5	,000	94,000	45,000				58,625
ANIMAL/FARM EQUIPMENT								
Scales	4	,000		4,000			(2,400)[5]	
Self-Catch Gates	5	500		2,500			(1,500)	
Tags	10,000	0.5		5,000			(2,500)	
Tarpaulins (10m x 10x)	20	500		10,000			W	
Motor and Pump	2	,000			10,000		(6,000)	
Misc., Tools and Equipm.			35,000	3,500			W	7,000
VETERINARY EQUIPMENT								
Syringes/Needles	20	20		400			(240)	
Innoculation Guns	10	40		400			(240)	
Sterilizers	10	20		200			(120)	
Balling Guns	10	15		150			(990)	
Spearing Equipment	5	200		1,000			(600)	
Frigo kerosene/Elec.	26	500		6,000		7,000	W	
Misc.			17,000	1,850			W	3,400
TRAINING EQUIPMENT[3]			50,000		50,000		(5,000)	10,000
SURVEY EQUIPMENT[3]			50,000		50,000		(5,000)	10,000

Table 2 (cont.)

COMMODITY PROCUREMENT (cont.)

	QUANTITY	UNIT PRICE	SUB-TOTAL	YR 1	YR 2	½ YR 3	U.S. TRANSPORT	Ave. Annual Incremental Recurrent Costs
OFFICE EQUIPMENT								
Safe	1	350		350			W	
Typewriter, manual	8	400		3,200			W	
Typing Table	8	125		1,000			W	
Sharp Drypaper Copier	2	5,000		10,000			W	
Photostencil	1	4,000		4,000			W	
Mimeograph Machines	4	500		2,000			W	
Desk Calculators with Printers	7	150		1,050			W	
HP-, Printers, Program Library, Data Cards	3	700		2,100			(500)	
			23 700					7,900
Director's Reception Salon	1	2,500 Q		2,500			W	
Office Desks	8	600 Q		4,800			W	
Office Chairs	9	175 Q		1,575			W	
Tables with Drawers	20	125 Q		2,500			W	
Straightback Chairs	63	39 Q		1,890			W	
Filing Cabinets, Metal 4-Draw, Legal, Lock	20	800		16,000			(8,000)	
Cabinets, Armoire-Style, Lock	16	260 Q		4,160			W	
Bookshelves	14	200 Q		2,800			W	
			36 225					4,528
Electric Lamps	5	100		500			W	
Electric Fans	5	100		500			W	
Kerosene Lamps	30	7		210			W	
Director's Home Furnishings	-	-		5,000			W	
			5,210					1,242
TOTAL COMMODITIES			-----	377,000	10,000	7,000		------

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APPENDIX 1: AID BUDGET BREAKDOWN

Table 3

CONSTRUCTION

		SQUARE METERS	COST M2 $	SUB-TOTAL $	YR 1	YR2	1/2 YR 3	Ave.Annual Incremental Recurrent Costs
KARA								
1. Office block with Director's office, Director's secretary, Accounting, Secretary pool, 2 T.A. offices, Conference room, Bathroom, Corridor space	1	215	250		53,750			
2. Director's house - 3 bedrooms		150	250		37,500			
TOTAL				91,250				
AGBASSA								
House CAT-type		40	185	7,400	7,400			
TANTIEGOU								
1. A. Office block: 2 offices		40	185		7,400			
B. Storehouse		20	185		3,700			
C. Veterinary Supply house		20	185		3,700			
D. Machinery, Equipment		20	185		3,700			
TOTAL				18,500				
2. Holding Pastures/Pens								
A. Fenced Pasture - 5,000 m x $6.00/m					30,000			
B. Gates 20 x $50 ea.					1,000			
C. Pens/Corral/Alley/Shute 100m x $20					2,000			
Crush/Squeeze 40m x $60					2,400			

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Table 3 (Cont)

CONSTRUCTION (cont.)

	SQUARE METERS	COST M2 $	SUB TOTAL	YR 1	YR2	½ YR 3	Ave.Annual Incremental Recurrent Costs
D. Pumping Station, Water Reticulation				10,000			
TOTAL			45,000				
TECHNICAL SUPPORT CENTERS (CAT)							
1. New Construction							
A. Naki-Est	140	185 + 29.29		30,000			
B. New Savaes Site (Bogou?)	140	185 + 29.29		30,000			
C. Warengo	140	185 + 29.29		30,000			
D. Kagnissi/Pagouda	140	185 + 29.29		30,000			
E. New - to be determined	140	185 + 29.29		30,000			
			150,000				
2. Revovation[2]							
A. Gando				6,000			
B. Nampoach				6,000			
C. Toaga				6,000			
D. Kante				6,000			
E. Existing - to be determined				6,000			
			30,000				
WATER WELLS							
5 CATs, 2 Center @ $10,000/ea.	40	250	70,000	70,000			
MISC. CONSTRUCTION MATERIALS							
Cement, wood, roofing			100,000	100,000			
TOTAL CONSTRUCTION			512,550				

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Footnotes to Table 3

1. All construction estimated included 17% for increased cost before actual completion of all construction which is likely to be year 2. Cost per square meter are based on quotes by REDSO Engineering Office after site visits.

2. Most Construction expense is for the construction of 5 new technical support centers at a cost of about $214 per square meter and the 7 wells. Renovating of 5 existing centers will yield considerable savings with a unit cost of $6,000.

3. All construction is in local currency through Togo-based contractors.

TABLE 4

VETERINARY SUPPLIES FUND*

	YR 1	U.S.PRO-CUREMENT (Transport)	YR 2	YR 3	Ave.Annual Incremental Recurrent Costs
VETERINARY SUPPLIES FUND[1]					
Drugs - Tantiegou	11,000	(5,500)[2]			-o-
Drugs - Agbassa	2,500	(1,250)			
Feed Supplements	10,000				
Misc.	1,500				
TOTAL VETERINARY FUND				25,000	-o-

* In summary budget Veterinary Supplies Fund included in commodities

Footnotes to Table 4

1. The Veterinary Supplies fund for drugs will finance direct purchase of vaccines and all cattle will be prices to include vaccination cost. When a project farmer receives an animal on credit he will pay a downpayment sufficient to immediately repay the vaccination costs. Thus fund replenishment from project farmers will be immediate and not in proportion to loan balance repayment. The feed supplements and miscellaneous fund will be directly replenished as farmers purchase animal health services on a cash basis.

2. Transportation costs of items (or parts thereof) marked for U.S. procurement are non-add here. They are listed for indicative purposes only and are included in Tabe 5, Operating Costs.

APPENDIX 1: AID BUDGET BREAKDOWN

TABLE 5

OPERATING COSTS

	YR 1	YR 2	1/2 YR 3	Ave. Annual Incremental Recurrent Costs
Vehicle Pool[1]				
5 cars	11,400	11,400	5,700	11,400
Truck Pool				
8 trucks	28,000	28,000	14,000	28,000
Motorcycle Pool				
$50 x 12 mo. x 13 units	7,800	7,800	3,900	7,800
Mobylette Allowance				
$10 x 12 mo. x 15 units	1,800	1,800	900	1,800
Bicycle Allowance				
$5 x 12 mo. x 25 units	1,500	1,500	750	1,500
Bonuses[2]	4,000	4,000	2,000	4,000
GOT per diems[3]	4,000	4,000	2,000	4,000
Office Utilities[4]	1,200	1,200	600	1,200
Kerosene[5]	600	600	300	600
Paper & Office misc.[6]	12,200	12,200	6,100	12,200
Job Printing[7]	7,800	7,800	3,900	7,800
Training[8]	10,000	10,000	5,000	5,000
Transport (US - Togo)[9]	65,540			-o-
TOTAL BY YEAR	155,840	90,300	45,150	85,300

TOTAL OPERATING COST ALL YEARS ==========

Footnotes to Table 5, Operating Costs

1. Vehicle (Car and truck) maintenance based on average maintenance cost to date. Motorcycle maintenance is budgeted at $50 per month based on present experience for Peace Corps and agricultural projects in the region. Normal maintenance costs for mobylettes and bicycles average $10 and $5 per month, respectively.

2. Bonuses are based on GOT rates and are not considered an automatic subsidy. Personnel assigned to the project are asked to perform at a level which is considered clearly superior to normal standards. The Project Director makes the decision to make incentive payments, based on his knowledge (supported by work documentation and reporting of Sector Chiefs) of actual work performance. Incentives are denied to those performing at a level below what has been determined to be the high standard set for project personnel. None of the potential recipients are officials of the Government of Togo, but are employees who are hired on an "as needed basis", and paid from the GOT operating account.

3. GOT per diem is based on GOT rates and expected travel.

4. Office utilities for Kara and Atakpame facilities are based on monthly costs of water at $10, electricity at $20, and telephone at $70. Utility installation costs are included in the GOT contribution.

5. Kerosene is for security night lanterns at each project site and for refrigerators at Agbassa and Tantiegou.

6. Paper and office supplies are found in local stationary stores. These costs cover principally those needs of the Technical Assistance Team. The GOT contribution supplements this line-item.

7. Job printing will be done in Togo for reports and evaluations.

8. Training costs enable the project to supplement the training budgets of the GOT (DRDR's) in order to organize field and classroom sessions.

9. Transport costs are based on the following standards:

   - 60% of FAS for furniture and major appliances,
   - 50% of FAS for other large equipment pieces,
   - Airfreight at$5.00 per pound.

APPENDIX II

Indicative Budget of the Government of Togo Contribution

Personnel

	Monthly					Ave. Annual Incremental Recurrent Costs
Kara Headquarters/Aghassa Center:						
Project Director	$300	*				
Financial Director* BAC-Togo Scale)	267	*				
Training Director	166	*				
Center Director	200	*				
Secretary	83	0				
Accountant** (BEPCM-Togo Scale)	133	*				996
Typist (2)	132	0				
Office Clerks (5)	330	0				1,584
Drivers (3)	200	*	(2)	0	(1)	3,960
Herders/cattlebreakers (13)	780	*	(1)	0	(12)	800
Carpenters/mansons/other workers (15)	900	*	(10)	0	(3)	8,640
Warehouseman (1)	60	0				3,600
Security guards (2)	120	0				720
	$3,671					1,440
						$21,740

Life of project personnel costs (30 months) $110,130

* post secondary school training in accounting

* secondary school training in accounting

Tantiegou Animal Buying Center:

Director of Operations	267	*	
Training Director	166	*	
Secretary	83	0	
Security guards (2)	120	0	996
Herders (2)	120	*	1,440
Cattle buyer	117	*	1,440
Accountant (BEPCM)	133	*	
	1,006		$3,876

Life of Project (30 months) x 75% $22,635
(It is estimated that Tantiegou employees will spend an average 75% of their time for project related activities.)

[1] costs not covered in the GOT general budget are classified as recurrent in an incremental sense.

* = Budget general

o = Budget d'Investissement (GOT)

	Monthly			Ave.Annual Incremental Recurrent Costs
PROPTA Headquarters - Atakpame:				
Director	$400	*		
Deputy Director	300	*		
Training Director	217	*		
Equipment Director	217	*		
Animal Health Director	217	*		
Financial Director	267	*		
Director of Monitoring/Evaluation(M&E)	217	*		
Assistant Director for Animal Health	166	*		
Assistant Director for M&E	166	*		
Assistant Director for Training	166	*		
Accountant	133	*		
Secretary	83	*		
Typists (2)	132	o		1,584
Drivers (3)	200	*		
Security guards (2)	120	o		1,440
Office clerks (2)	132	o		1,584
	$3,133			$4,608
Life of Project (30 months) x 50% (Assume 50% average time attributable to project)			$46,995	
Technical Support Center (CATS's) (11 centers - includes Kamina)				
Herders (11)	66	o		660
Cattle breakers (11)	660	o		660
Security guards (11)	660	o		660
	$1,980			$1,980
Life of Project (30 months)			$59,400	
Summary Personnel Costs:				
Kara/Agbassa			$110,130	
Tantiegou			22,635	
PROPTA			46,995	
CAT			59,400	
Life of Project Personnel Costs			$239,160	

* = Budget general
o = Budget d'Investissement

		Ave. Annual Incremental Recurrent Costs
II. Other Expenses		
Utility Installation/Misc. Office Supplies	12,000	3,300
Training: Kara (25,000 x 75%)	18,750	6,250
Savanes (25,000 x 75%)	18,750	6,250
Atakpame (60,000 x 50%)	30,000	10,000
Misc. Construction	22,500	-o-
Total Other Expenses (adjusted)	102,000	$25,800

Summary of GOT Contribution

Personnel	$239,160
Purchasing Fund[2]	342,000
Other Expenses	102,000
	683,160
Contingency (12%)	40,000
Inflation (15%)	41,000
TOTAL GOT Contribution	764,160

[2] Purchasing Fund amount determined as follows:

40,000,000 CFA per year for 3 years will be contributed from the GOT Investment Budget. Fromthis amount personnel costs of $33,000 and other expenses of $22,500 will be deducted. The balance (at 300 CFA = $1) is for the purchasing fund.

Table : GOT Funding of Equipment/Animal Purchase for AID/DRDR Extension (FCFA)

	Year 1 (40 adopters)	Year 2 (216 adopters)	Year 3 40 adopters)
Equipment @ 76,000 x 100% of adopters	3,040,000	16,416,000	18,240,000
Animals @ 110,000 x 50% of adopters	2,200,000	11,880,000	13,200,000
Carts @ 61,000 x 50% adopters	1,220,000	6,588,000	7,320,000
Sub Total	6,460,000	34,884,000	38,760,000
Plus Contingence @ 12%	775,200	4,186,080	4,651,200
Sub Total with contingencies	7,235,200	39,070,080	43,411,200
Inflation (10%/year)	0	3,907,008	9,116,352
TOTAL	7,235,200	42,977,088	52,527,552
	$24,117	$143,257	$175,092

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ACCOUNTING FIRM REVIEWS

1. The contractor will provide professional services by designing and implementing a comprehensive, simple, timely and reasonably accurate Project management reporting and monitoring system for (Host government) Project management staff.

A. The system will provide:

- (1) An adequate internal control for cash receipts, disbursements, balances, property and financial reporting;
- (2) Quarterly, annual and life of Project budgets,
- (3) Ready identification of actual and potential problems - identify causes of variances from Project plans (budget) including an analysis of technical assistance contract progress against scope of work stated in the contract
- (4) Control over changes and modifications of the Project and activities within the Project by continous monitoring;
- (5) A comparison of actual accomplishment with goals established for the period (quantity).

B. Participate in furthering financial management capabilities of (host government) Project personnel to maintain the above system.

C. Submit quarterly reports for the 30 months Project life. The initial report will include a description of the system (a simple system) design. Progress on the status of installation of this system and training of personnal to run will be included in each subsequent quarterly report.

2. The Contractor will monitor and present the financial progress of the Project. This is comprised of:

   A. The draw-down of funds from Govt of Togo and AID combined in order to analyse the arrival of inputs (contractors and commodities) in accordance with the plan as put forth in the Project document and as amended thus far (USAID accounting office will report on dollar costs on a quarterly basis).

   B. Review of financial statements issued by Project accounts staff and in doing so, special consideration should be given to recommending interventions to be taken by management to meet proposed inputs (commodities, technical assistance and others) in a timely manner.

3. Provide a projection of the next quarter's dollar and local currency costs by line item based on discussions with Project management staff and technical assistance contract personnel.

4. Prepare a long form audit report for each year. Special emphasis is to be given to the following areas:

   A. Effectiveness of the Project financial management including internal control procedures.
   B. Implementation of recommendations made in previous reports.
   C. A throughout assessment of the annual financial statements,
   D. Verifications that inputs have been used as outlines in the

documents and amendments.

Copies of this audit report are to be submitted to USAID/Lome, Project management and WAAC/Abidjan.

5. Payments will be made as written reports are submitted.

APPENDIX IV

UNITED STATES GOVERNMENT

memorandum

DATE: July 28, 1982

REPLY TO ATTN OF: John J. Cloutier, Financial Analyst

SUBJECT: Togo Trip Report: July 8 - 22, 1982

TO: Gordon W. Evans, REDSO Director

THRU: Henry S. Holland, Acting Controller

Purpose: This two week trip combined two scheduled TDY's; (1) to work as a design team member on the Togo Animal Traction project paper examining financial management and budgetary issues; (2) to review the USAID Lome project portfolio for local cost composition and to assess the adequasy of host country accounting systems based on criteria for certification established for the SAHEL.

Project Paper Summary: The AID grant of $5 million over a 5 1/2 year project life is budgeted most heavily during the first half of the project obligation schedule. First year spending requirements are disproportionately high as most of the construction is a prerequisite to other project activity and the revolving funds require most of their life of project amounts up front for cash flow purposes. See attachment for a summary of AID and GOT projected expenditures.

The large proportion of local currency expenditures in the AID grant and the specific procedures required for administering revolving funds necessitate careful design and adherence to specific control measures. It is essential that project management include qualified financial management personnel who are aware of AID financial procedures and reporting requirements.

Since Kara is the project headquarters site its staff will include a senior level accountant with several years of experience to serve as the projects overall financial manager. AID will assure that this financial manager be trained in those areas of accounting procedures which are specific to AID and to this project in particular. Among other responsibilities the financial manager will supervise at least one accountant at Kara to maintain day-to-day records, inform the USAID Project Manager and the Project Director of budgetary variances, cash-flow status and control weaknesses when appropriate and comply with all written reporting requirements of the West African

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
REV. 1-76
GSA FPMR (41 CFR) 101-11.6
5010-112

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Accounting Center (WAAC), the fiscal center for USAID Lome. In order to fulfil these requirements the financial manager should receive periodic short-term technical training and assistance by AID and short-term training in Lome early in the first year of the project. Also, during the first year the financial manager should visit WAAC for a thorough briefing on AID accounting procedures and requirements.

The Project Director in Kara will ensure that AID receives project quarterly reports demonstrating by budget line item cumulative disbursement status and budget variances to date. To verify that revolving fund current account balances are sufficient and necessary quarterly reports will include all cash outflows from purchases of animals, equipment and veterinary supplies and all cash inflows from AID deposits, farmer loan repayments and reimbursements for animal purchases for other projects. In order to assess the suitability of the cattle purchasing payment procedures in Dapoang the financial manager will visit the buying station at least monthly to compile a report detailing any non-check (purely cash) transactions and summarizing overall financial activity.

USAID Togo Local Currency Status: In response to Assistant Administrator Ruddy's concern that non-Sahelian posts assess the accounting procedures and controls in those projects where AID financed local currency is involved (as per State 119708), I represented WAAC as the USAID Togo Controller office in performing a review of each projects' accounting system. My review included examination of documentation for advance replenishment and preparation steps of such documentation by host country entities, examination of USAID project financial records and financial monitoring procedures with project managers and an analysis of the extent of local currency by project. The last task included a review of flows of funds, ministries and accounting centers involved and status of local currency funding compared to project budgets.

I found that if certification were to be required at this time, based on those criteria established for the SAHEL, that all USAID Togo projects have adequate accounting systems so as to justify certification. However, to ensure the maintenance of certifiability during the next year AID must follow-up closely those projects where local currency volume is increasing. This entails continuing project manager involvement with and visits to local project management and accounting staff, strengthening reporting requirements to AID in some projects and close monitoring by WAAC of the overall status of local currency funds. These findings and a discussion of the projects which wil require special attention to ensure continuing accounting system adequacy were cabled to AID/W (Lome 4238).

Conclusions: The Togo Animal Project must have both qualified financial management personel and an adequate accounting system in place before AID can disburse funds to establish the revolving funds or begin other project activity. The accounting controls and reporting requirements as written in the project paper are essential for reasonable accountability of the $2.5 million in AID financed local currency funds. Overall, the status of local currency controls in other projects is adequate and areas for improvements were discussed with appropriate USAID and project staff.

cc: Larry Bond, Chief, AFR/DP/CCWAP
Lou Eldredge, Acting DD/TS
James Ito, REDSO Controller
Jim Osborn, PDO
John Lundgren, OAR Togo

TRAINING PLAN

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Project Manager Training

Training of Middle-Level Agricultural Field Staff

Encadreur Training

Special Training Topics
- Animal Traction Equipment Repair
- Veterinary Services
- Credit

Audio-Visual Materials
- Collection
- Production

Radio Support

Problems Noted with Existing Training Programs

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PROJECT MANAGER TRAINING

The current AID Project Director has general agricultural training from the University of Benin. He has had no management training, but like many young promising cadres has been thrust into a management position. While most training under the project should take place in-country, this higher level management training is not available in-country. The Francophone management program with solid financial training as well is offered at the Centre d'Etudes Financieres et Bancaires (CEFEB) in Paris, with a subsequent auxillary training program for rural development project directors in Montpellier, France. Due to his importance for the project, the Project Director should stay away no more than the nine months duration of the CEFEB course. This precludes an English language learning program and study at an American institution. A waiver must be sought for training in France.

An alternative management training program would be that conducted by the University of Pittsburgh, either in Pittsburgh or in Ouagadougou. The disadvantage, however, is the course length, only a few weeks. The project Director's responsibilities demand a solid training program lasting several months.

While final arrangements had not been made at the time of the design team's visit, it is believed that funding for the CEFEB training will be made available by the GOT. AID, under the TAT project will finance tuition, room, and board costs (about $10,000) for the rural development project management course at Montpellier. All transportation costs are to be borne by the GOT.

TRAINING OF MIDDLE-LEVEL AGRICULTURAL FIELD STAFF

Middle-level field staff are defined as Togolese rural development officials who have the rank of sector chief or sub-sector chief. In number, there are 6 sector chiefs and 15 sub-sector chiefs for the Kara region; and a few less for the Savanes region. In the past, this level of staff has been peripheral to the animal traction extension effort. Generally, their past training and experience has not given them the skills needed to provide even minimum technical supervision to village extension workers.

An unfortunate situation has arisen in that encadreurs have been trained in animal traction techniques while their supervisors have not. Besides preventing the middle-level staff from carrying out their technical oversight duties, this has placed them in an embarassing professional position, which, in turn, has probably made them reluctant to participate or lend support to draft animal programs. The TAT project aims to remove this constraint to the effectiveness of extension supervision through training and the assignment of PCV animal traction volunteers as counterparts

Middle-level staff of the DRDR field services will be trained at Agbassa and Tantiegou during annual two-week refresher sessions. Sector chiefs and sub-sector chiefs may be grouped together for this training without problems arising from difference of rank. The PCVs assigned on a one-to-one basis to the sector and sub-sector chiefs will go through the training with them. Training will be given by the Agbassa and Tantiegou staffs, composed of Center Director, Training Director, PCV Animal Traction Trainers and supplementary inputs from livestock, crops, equipment, and credit specialists. The training curriculum will be the same hands-on

training as for encadreurs, whereby the Sector chiefs will also be required to get behind animals and perform field operations. In addition, the curriculum will include instruction in the following skills that extension supervisors need: agricultural record keeping; management of agricultural support centers: extension programming; and, monitoring and evaluation of encadreurs. Training will take place during the dry season at the residential training centers available in Agbassa and Tantiegou.

ENCADREUR TRAINING

Primary emphasis will be placed on encadreurs (village extension workers) within the general training program. They constitute the personnel category with highest training need and the highest potential multiplier effect.

The first training element will consist of an 8-week session, offered twice a year (Nov. - Dec. and Feb. - March) at Agbassa for the Kara Region and at Tantiegou for the Savanes Region. This training in animal traction will be offered to 10 trainees at a time who will be selected by the DRDR among present or future encadreurs. With two training sessions a year for five years, the number of encadreurs to be trained will be 20 x 5 or 100 per region. Eight-week training periods should help to counter the present criticism that 3-6 week encadreur training sessions are insufficient.

Trainers will be staff from the DRDR, AID project personnel including contract advisors and PCVs, plus training staff from organizations in the regions that have similar interests and competencies, such as the Regional Cooperative Training Center and INADES-Formation.[1]

Instruction will include a minimum of theory. Existing curricular materials will be collected, explained in detail, and disseminated for the encadreurs' library. Modest new materials will be produced and distributed as instructional aids. The bulk of the instruction will be hands-on field applications of all phases of animal traction operations and related skills.

The two centers at Agbassa and Tantiegou will contain all types of animal traction equipment and accessories that are in the present package. The center's herd will contain animals at various stages of training, so that untrained oxen are always available for practice. Principles and practices of elementary animal health will be demonstrated at the centers. Special sessions giving pointers concerning communication strategies with farmers will be given. Discussions on credit will be held with AID project staff and CNCA.

The second training element for encadreurs will consist of recyclage in the form of one-day focused learning sessions on a theme that is one, of timely interest and two, complex or problematic enough to warrant special attention. Each encadreur should participate in 4-8 refresher days per year. They will be held in a number of locations, depending upon the theme, the expertise required or the location of participants. Potential locations for the one-day training sessions include the Agbassa and Tantiegou training centers, the Centres d'Appui Technique (CAT's), and the Regional Cooperative Training Center. Again, DRDR and AID project staff, with

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[1] Job descriptions for the PCV animal traction volunteers are given in Annex Twelve.

collaboration from the other agencies, will administer the training.

The third element of encadreur training is INADES correspondence courses. These courses are currently being taken by both AID and FED encadreurs and are proving a very useful adjunct to a primarily animal traction focus. Encadreurs lack the basic principles of agricultural production without which any specialization makes little sense. The INADES staff during their accompanying face-to-face sessions and follow-up will be exhorted to introduce appropriate specificity or complementary information to make the general and widely applicable booklets more relevant. In addition, INADES will be exhorted to bring up at length with encadreurs the "why" of suggested farming techniques.[1]

The existing INADES correspondance courses are geared to a very general West African audience. Part of the job of the Technical Assistance Team, PROPTA, and other project training staffs will be to prepare complementary materials which render the courses more accurate and useful for field personnel. Optimally, INADES personnel will cooperate in this undertaking.

The fourth training element for encadreurs will be a subscription to AGRIPROMO, the INADES publication designed specifically for extension agents. It contains diagrams, interviews, suggestions, cartoon instructions and indepth articles in layman's French concerning a different agricultural theme in each issue.[1]

The fifth training element for encadreurs will be a few experimental radio broadcasts on animal traction themes. Encadreurs will be encouraged to suggest themes for the radio programs, based on problems they have met in extension, or general problems encadreurs face.

FARMER TRAINING

Initial farmer training will take place at non-residential rural centers called CAT's (Centres d'Appui Technique). In the past, farmer training has been given at Agbassa in the Kara region, but the effort will be made in the proposed project to organize training in decentralized centers nearer to the farmers' homes. CATs (5 in the Kara region and 5 in the Savanes region) constitute outreach facilities within walking distance (up to 10km) from farmers' homes. The CATs represent a logical place in which to plan animal traction training activities because they constitute the "drop off" point for cattle that have been purchased.

Staff to work at the CAT's for the purpose of farmer training will include one encadreur, one PCV, and one ox trainer. The PCV will be one of the animal traction resource workers assigned on a one-to-one basis to a sector or sub-sector chief. The encadreur will have had at least two months training at Agbassa, or the equivalent, plus some refresher training.

Selection of farmers to participate in the animal traction training will be made by DRDR and its encadreurs, as is customary. The selection process includes consideration of the following questions: does the farmer have enough land? is adequate family labor available? does it appear that the financial implications of animal traction are understood?

The first task in the training program will be to make the farmers feel comfortable with animals. Experience has shown that three days are necessary for this preliminary training. Next, animal equipment must be introduced. After the implements

[1]The TAT project will fund the INADES materials for approximately 40 encadreurs, 20 in each region. Other donor-funded projects and the two DRDR's already provide these materials to their entension staff.

have been presented, handled, and discussed, then the farmers must be shown how to adjust the parts and must learn to use the equipment behind a pair of oxen. The farmers will be introduced to field operations by making the oxen drag a log around, and eventually a cart. Introduction to equipment and basic field operations will take another 3 or 4 days.

A second consecutive week must be spent with the following training curriculum: animal health; animal shelter; credit; and practice in plowing, ridging, harrowing, and weeding. The animal health component will concentrate on basic principles, on recognizing diseases, and on simple curative actions such as the proper way to remove ticks by hand. Animal shelter practices demonstrated will include shelter construction, shelter sanitation, and provision of water and fodder. The CAT would contain both trained and untrained oxen for practice during the two-week initial training period. Farmers will not work with the same pair of oxen every day, for they must learn about the different personalities or mentalites each different pair will manifest.

The average number of farmers to be accommodated in any two-week training session will be five. They will walk or ride bicycles on a daily basis to and from the CAT. The training will take place in the dry season, from December to April. One or two training sessions will be held each dry season.

At the termination of the training, farmers will drive their pair of work animals to the farm. A project vehicle will deliver the draft equipment. During the first year each farmer will be visited by an encadreur no less frquently than every two days. One encadreur can realistically follow no more than 3 farmers who are beginners in the use of animal traction. In addition to the 3 animal traction farmers, the encadreur will continue to follow closely the farming techniques of approximately 10 other farmers who may or may not have draft animals. While encadreurs will increase the proportion of their time devoted to animal traction work, the project extension focus is on the introduction of a new power source and implements which must be adjusted to individual farm management practices. To become skilled in the extension of draft animal techniques encadreurs will have to become better farm management advisors. An encadreur who concentrates only on animals and equipment will be a poor, and probably unsuccessful, promoter of the new technology.

Farmers attempting to practice animal traction techniques, even when closely supervised, will commit errors. In order to assure that correct techniques are practiced, and in order to expand the farmer's use of animal traction, such as by learning weeding, the farmers will attend 1-2 day refresher courses (recyclage) at the CATs every year, if it is judged necessary. This group instruction will be adopted when individual routine visits by encadreurs prove insufficient.

In order to achieve an even greater multiplier effect than can be achieved by encadreurs alone, the farmers who have mastered animal traction and who demonstrate a willingness and capability to become trainers will be encouraged to play the role of animal trainers for farmers in their areas. In Benin, Upper Volta, Ghana and elsewhere in West Africa, experience has shown that some farmers will develop a part-time business in animal training for their localities. This is the objective towards which the project will work.

SPECIAL TRAINING TOPICS

Three other areas where training will be organized to support project objectives are the following: animal traction equipment repair; veterinary services; and credit.

Animal Traction Equipment Repair

Equipment repair involves blacksmith and, to a certain degree, carpentry skills (for yokes). The problem is mainly the necessity of replacing plowshare shoes, points and small axles that wear out nearly every year. To this end, existing blacksmiths working in the project area will be identified. If they have not yet acquired skills needed to repair or replace plow parts, they will be brought to one of four centers, depending upon proximity to their home, to learn how the blacksmithing work is accomplished. Two centers are part of the proposed project, Agbassa and Tantiegou. The other two are an existing project center, Project North-Togo and an equipment manufacturing unit, UPROMA.

Veterinary Services

The provision and training of veterinary agents and assistants are the responsibility of the Ministry of Animal Production. The experience gained during the recent AID animal traction project, however, shows that PCVs assigned to the project devote considerable time to animal health care.

Beyond equipment, veterinary supply vehicle, and fuel deficiencies, there seem to be several problems related to training. First, the care of draft animals kept at the farmstead requires that the primary contact agent, the encadreur, be capable of explaining and demonstrating simple animal care, e.g., treating cuts and sores, deticking, maintaining a clean animal shelter, gauging animal food and water requirements under different work conditions, etc. To date this instructional element has been only lightly developed. Secondly, veterinary assistants and veterinarians whose work has largely been confined to national vaccination campaigns and emergency intervention at the farm level, have not worked sufficiently with draft animals to develop good diagnostic skills for animal conditions under work stress. Thirdly, due in large measure to the material difficulties already cited, animal health staff have not developed programming and monitoring skills needed to ensure systematic maintenance of draft animal health.

Given the responsibility of the TAT project for the national supply of draft animals and the DRDR animal traction extension efforts in La Kara and Savanes regions, many material impediments to improved health care will be reduced. The project will also make a concerted effort to upgrade encadreur, sector and sub-sector extension supervisor, and veterinary staff skills in draft animal health topics.

For the extension staff at all levels, training will be aimed at simple sanitation and health care that must be carried out by farmers. In addition, they will learn to avoid certain dangerous practices, e.g. the use of household lindane-based sprays by farmers to de-tick their animals. One of the early roles of the PCV animal traction trainers will be to prepare instructional materials for this level of health care intervention. The second key element at this level of training will be the use of the animal health card system envisaged in the TAT project. (See Annex 3) As the card will play a central role in the livestock insurance, credit, and veterinary programs, field staff will have to fully understand and be able to explain the system to farmers. Once again training materials will need to be developed ~~for use~~ in courses at the Agbassa and Tantiegou Centers.

For training needs at the veterinary assistant and veterinary level, TAT will depend principally on the development of increased professional capacity through the much more frequent contact with draft animals that will occur under the health card system working through the training cell to be created by PROPTA. The TAT livestock

specialist will contact other donor-assisted and GOT projects to coordinate the development of draft animal health training materials and methods for use in one day technical seminars with the Animal Health service's technicians at Tantiegou, Agbassa, and other convenient sites. Special two-day sessions at training centers or regional animal health headquarters will probably be needed to introduce technical, programming, and logistic requirements for the health card system.

Credit

The project role in credit related training will be minimal. Credit policy and practices will continue to be part of encadreur and farmer training and will appear also in the new curriculum for cadres. There will not be project credit agents per se. Credit will be organized through the CNCA. An additional project contribution will consist of advising the PROPTA management in the adoption of a standardized credit policy, including uniform training materials and methods.

AUDIO-VISUAL MATERIALS

Animal traction training programs must be carried out with a greatly improved set of accompanying print and non-print support documents. Extension libraries will be developed and housed in the office of the training director in both Dapaon and Kara DRDR. They will be available in several sets and can be borrowed by projects.

An example of recent audio-visual aid to be procured is the filmstrip/slide series with accompanying cassette tape and photographic storyboard entitled La Traction Animale en Haute Volta produced by FAO. Although the setting is Voltaic rather than Togolese, and although some of the concepts need to be much more carefully explained to viewers, the module is essentially appropriate. The current project will be active in assembling a number of such existing audio-visual instructional materials. Its production cost will be modest.

Table 1. Example of Cost of the Animal Traction Module

Filmstrip or set of slides	$ 8.00
Photographic text (storyboard)	1.00
Cassette tap commentary	12.00
	$ 21.00

To be ordered from Distribution and Sales Department FAO, Rome, 10 of the above modules, with slides probably rather than filmstrip, depending on existing projection equipment, should be purchased.

Production

The project will include a modest capacity to produce audio-visual support

materials. The GOT will request that a Peace Corps Volunteer with training and experience in graphic arts and audio-visual communications be assigned to PROPTA in 1984. The long lead time is suggested to permit PROPTA to establish its training agenda and procedures and to enable Peace Corps time to carry out specialist recruitment. A recommended scope of work for this volunteer is included in Annex 12.

The audio-visual materials would be produced by PROPTA. They would be part of a national collection available to projects, government services, and the DRDR training directors in all five economic regions of Togo. Examples would be photographs, posters, slides, simple diagrams, brochures with the purpose of offering clear, simple explanations to farmers and extension workers of animal traction techniques and related systems (credit). The PCV/communications specialist would work closely with subject matter specialists (veterinarians, CNCA credit agents, agricultural machinery experts, etc.) to receive the most accurate and up-to-date information to be put into cheap and durable audio-visual packages.

RADIO SUPPORT

The project will include an innovative extension component which consists of modest rural radio programming and transmission. The idea was first discussed with the Director of Cabinet in the Ministry of Information who enthusiastically endorsed the idea. Then the idea was presented to the director of the state-run regional radio station in Kara and with the regional rural development directors where it was also applauded.

Radio-Kara broadcasts from a 50KW transmitter over FM in Kara and over medium and short wave elsewhere. The signal can be heard all over Togo and into neighboring countries. Broadcasts are in French, Ewe, and Kabiye. Currently, the broadcasting schedule is the following: 05.30-08.30; 12.00-14.30; 16.30-23.00 or ten hours a day. The programs consist of news, personal or official communications, and a literary program. There is absolutely no programming devoted to development or to the rural population in particular.

The director of Radio-Kara would like to launch a weekly program for rural listeners. One journalist has already been sent to the two-year training center in Ouagadougou, CIERO, that trains technicians in rural radio programming and broadcasting. The journalist has returned and is free to be assigned as liaison with technical services, such as animal traction projects, to co-produce radio programs.

Rural radio has been active for over 20 years in many West African countries, particularly Ghana (farm forums), Niger (radio clubs), and Upper Volta (rural radio). Radio is used to transmit timely information to farmers and extension workers; such as the dates of an up-coming vaccination campaign, or marketing instructions and price information for food crops, etc. Radio is used to explain to farmers in their own language the credit system and how it works, how to recognize certain animal diseases, how to give farm animals proper nutrition, etc. The radio can be used for information transfer/training purposes to supplement an extension system.

World Bank figures place Togo at the top of the list of West African countries concerning the degree of transistor radio ownership and listenership. With the existing infrastructure, and a regional broadcasting staff trained and excited about collaboration with the animal traction project as its inroad into development related programming, the possibilities of radio support to the project are particularly promising.

One of the key problems in starting, and continuing, rural radio extension is the creation of a strong link between rural technicians and the radio programmers. Even when the technicians realize the value of the communication tool and programmers are enthusiastic, there needs to be a strong point of coordination to ensure good information exchange and follow-up. As PROPTA will have country-wide responsibility for coordinating animal traction extension and training materials, it is strongly recommended that PROPTA's national director designate one individual from the PROPTA-North office in Kara to see to it that project and Radio-Kara staff interact to produce radio programs.

Early programs may be timely 90-second spots, such as a series concerning input availability, planting dates, other field operations, and vaccination campaigns, or they may constitute an 8-10 minute explanation on credit package components and conditions. Eventually, a program of weekly themes should be developed. Some external assistance may be needed to elaborate a full rural radio program, but as such programming will serve a much larger audience than animal traction farmers alone, it is recommended that such costs be borne by the GOT.

PROBLEMS NOTED WITH EXISTING TRAINING PROGRAMS

1. Most people agree that the national extension service is far from effective. The GOT appreciates the assistance projects have given to the improvement of extension (largely encadreur) training. Now the problem is to transfer projects' training capability into national hands.

2. A timing and programming problem arises in planning training sessions for farmers, encadreurs, and cadres, for instance at PRODEBO's Kamina center. Projects request training at the same time, to the extent that PRODEBO cannot entertain so many requests. Training is also usually requested too late in the year, just before or during the first rains, when farmers should be preparing to seed.

3. Animal traction farmers are having increased difficulties repaying their loans for equipment. And as the minutes of the May 19, 1982 COCA meeting attest, UPROMA prices have substantially increased. In addition to a desired national effort to standardize subsidy procedures, a training emphasis on how farmers should manage their family budgets appears a necessity.

4. Some training programs in animal traction appear to have no written curriculum. Even for those that do, it is difficult to perceive what training actually takes place because a curriculum consists of a list of chapter headings. Information concerning training programs should be more in evidence and be more accessible to interested parties.

5. Project training directors admit a dearth of teaching materials, especially audio-visual aids such as filmstrips, slides, diagrams, photos.

6. The fact that some farmers are much more comfortable around and proficient with oxen than encadreurs attests to the fact that encadreur training is not all that it should be.

7. Unfortunately, one level of personnel, say encadreurs, often do not want to impart the knowledge they have worked hard to acquire and which is associated with the "prestige" of their personnel category. When faced with a farmer with a problem, such as a broken plow, the encadreur has a tendency to say "tell me and I'll fix it" rather than "here's how you can fix it". Through a fear of losing prestige, some staff guard their knowledge jealously rather than sharing it.

8 The ingrained pedagogical system in evidence involves much more giving orders from one level of personnel to the next lower level than it does giving explanations. The "why" is all too often neglected in a so-called pedagogical setting.

9. Existing training cycles are often too short. There is not time to cover all the required topics and be assured that the trainees level of mastery is adequate.

10. Some people believe that trainers must be literate. There are some excellent blacksmiths who have trainer qualities despite their illiteracy.

11. The fact that some blacksmiths make plowshares out of scrap iron, which is not of sufficient quality (i.e. semi-hard steel), demonstrates the fact that an important technical fact has been ignored in a training program, or that proper materials have not been provided.

12. Judged missing from the Nor Togo project were supply depots (pharmacies) for animal drugs and laboratories in which to analyze animal diseases.

13. Projects have learned to be wary of literate but unmotivated encadreur candidates who flock to examination centers announced over the radio, score relatively well on verbal tests, but are looking only for a white-collar job.

14. There seems to be a paucity of information exchange between agencies, services with nevertheless common interests. An example is the mutual lack of understanding of CNCA and the plethora of credit systems adopted by various projects.

15. National institutions such as CNCA are justifiably worried about the future of project-oriented and led development when project funds and advisors will have left the country.

16. There appears to be a need to identify rural artisans among villagers who may already have relevant skills, such as blacksmithing or welding.

17. If a public service, such as a DRDR, desires the collaboration of an external/private agency, such as INADES-Formation, the former has the obligation to clearly define what role that outside agency is to play. In the past, some public services have neglected this responsibility.

18. The little curricular materials for animal traction (i.e., 1979 SOTOCO-PPODEBO manual) which exist are out of date in that they present diagrams of equipment which is not used any more.

19. The capacity to repair spare animal traction parts appears not to be widespread. One hears very frequently that new parts can be ordered much more easily than old ones repaired.

20. The physical number of encadreurs, for instance animal health encadreurs in the Savanes Region where animal traction is quite common, is insufficient.

21. DRDRs should have a small library of training materials on animal traction; they don't.

22. Encadreurs should necessarily speak the local language of the farmers they supervise; this is not always the case.

23. In some projects, farmers may be given too much without sufficient personal counterpart contribution. The Dapaon DPDR requires that farmers pay for animal parasite control. INADES-Formation insists that correspondence course enrollees pay a token contribution: a mandatory financial gesture on the part of the farmer is a sound idea.

24. One of the reasons projects have instigated their own credit systems is evident in such criticisms as "it takes too long to go through the CNCA and farmers must order their animals a year in advance". Any attemot at rendering more viable national institutions must deal with such a situation.

25. Some projects depend on the part-time services of an extension agent, for instance a vet. The full-time secondment method would be more reliable to take care of project needs.

26. Encadreurs have played the role of gendarmes in terms of recuperating loan payments. More and more, however, they see that role as detrimental to their overall development concern and transfer that role to the professional lending agents of CNCA.

27. It is not sound training procedure to hand over to a farmer a team of animals already trained.

28. Farmers often don't use their animal traction equipment for weeding. When 220 farmers from the Savanes Region were all bused to Tantiegou, they observed the weeding operation, and many tried for themselves back on their own farms.

29. It is clear that ag. students still have a predominantly textbook education and one which does not favor local, cost-effective solutions. For example, students will speak of chemical fertilizer and will ignore the character or benefits of organic fertilizer.

ENGINEERING ANALYSIS

CONSTRUCTION COST ESTIMATES

I.	KARA		$91,250
	A. Office Block	sq. m.	
	1. Director's office	24	
	2. Director's secretary	6	
	3. Asst. Director's office	20	
	4. Accounting office	36	
	5. Secretarial pool	24	
	6. Technical Assistants' office (2)	40	
	7. Conference room	25	
	8. W.C.	5	
	9. 20% wall, corridor allowance	35	
	Sub total	215 sq. m. @ $250/m	$53,750
	B. Director's House		
	150 square meters @	$250/m	$37,500
II.	AGBASSA (Animal Traction Holding/Training/Supply Center)		$ 7,400
	A. Center Director's House		
	40 square meters @	$185/m	7,400
III.	TANTIEGOU (PROPTA National Buying Center)		$63,900
	A. Holding pastures, pens, chutes, etc.		
	1. Concrete corner posts, steel posts, barbed wire: 5,000 meters @ $6/m		$30,000
	2. 20 gates @ $50		$ 1,000
	3. Chutes, crushes, steel posts with bolted planks: 200 meters @ $20/m		$ 4,400

B. Tantiegou Water Supply		
1. 6,000 liter water resevoir, and pumping station		$ 5,000
2. Water reticulation system		
a. 1,200 meters pipe and fittings: @ $250/m		$ 3,000
b. 10 - 1 cubic meter water troughs: @ $200		$ 2,000
C. Office Space	sq. m.	
1. Offices 2 x 20 sq. meters	40	
2. Veterinary storage	20	
3. Working storage space	20	
Subtotal	80 sq. m. @ $185/m	$ 14,800
D. Machinery Shed	20 sq. m. @ $185/m	$ 3,700
IV. KARA and SAVANES REGIONS (Technical Support Centers - CAT's)		$180,000
A. New Construction: 5 sites @ $30,000		$150,000
1. House 40 sq. m.: @ $185/m		$ 7,400
2. Office, warehouse, work space: 100 sq. m. @ $185/m		$ 18,500
3. Corral with shade		$ 3,300
a. 80 meters of pole and plank: @ $20/m		$ 1,600
b. Shade, shelter 50 sq. m.: @ $20/m		$ 1,000
c. Chute and ramp 15 m.: @ $20/m		$ 300
d. Water trough		$ 200
e. Feed trough		$ 200
4. Drying/Threshing floor, misc.		$ 800
Subtotal		$ 30,000
B. Renovation: 5 sites @ $6,000		$ 30,000
1. Corral		$ 3,300
2. Roof, wall, paint, etc.		$ 2,700
Subtotal		$ 6,000
TOTAL ESTIMATED CONSTRUCTION COSTS		$342,550

ENGINEERING ANALYSIS

CONSTRUCTION PROGRAM

The following are the major steps which must be taken for the correct and timely design and construction contracting of the office building, holding center and field centers in the first eighteen months of the project.

1. Upon signature of the Project Agreement, OAR/Lome will request technical and cost proposals for the provision of designs, contract documents and supervision from several proven local architectural firms. The proposals will be based upon the sizes and criteria outlined in the Engineering Analysis of the PP. REDSO/WA Engineering may be required to assist.

2. The OAR/Lome, PROPTA and REDSO/WA Engineering will review the proposals and, in consultation with the Government of Togo, select an architectural firm to provide and supervise a bid package. Selection will be based equally upon indicative designs, technical capability, past performance and cost of services.

3. The architectural firm selected will negotiate a contract with REDSO/WA Contracts and will begin work on final designs, working drawings and construction specifications. REDSO/WA Engineering will provide guidance and inspect and approve final building sites.

4. The architectural firm will present final construction drawings, specifications and contract documents in a completed bid package conforming to AID regulations to the OAR/Lome, PROPTA and REDSO/WA Engineering for approval, in consultation with the Government of Togo.

5. Upon approval, the architectural firm will advertise the bid package among local construction contractors (a waiver will be necessary to limit the procurement of these construction services which exceed $50,000 to local contractors).

6. The architectural firm will report, and the OAR/Lome, PROPTA and REDSO/WA Engineering will select a local construction contractor, based upon the cost proposals, and its proven capability in the region.

7. The construction contractor will carry out the work, supervised and controlled by the architectural firm. Periodic inspection by REDSO/WA Engineering will be linked to contract payments to verify quantity and quality of work.

8. As the construction contractor completes work on various buildings the architectural firm will organize formal inspections by OAR/Togo, PROPTA and REDSO/WA Engineering for provisional acceptance and payment.

9. A formal inspection for final acceptance and payment will be organized at about six months after the completion and provisional acceptance of the last work finished.

ENGINEERING ANALYSIS

CONSTRUCTION CRITERIA

All design and construction financed by the project will conform to the following criteria:

1. Stability and Durability
   - sturdy, substantial building materials and details
   - two-bar reinforced concrete integrated corner columns and continuous bond beams
   - clean, graded aggregates
   - correct concrete mixtures and curing
   - heavy-gauged aluminum channeled roofing panels
   - dried and bolted wooden trusses

2. Economy and Efficiency
   - simple, straightforward design
   - minimized wall to floor space ratio
   - maximization of local building materials
   - basic screened and shuttered window openings
   - optimal construction scheduling

3. Ventilation and Cooling
   - studied building orientation
   - thermal siphoning through ceiling and gables
   - ceiling fans as necessary and feasible
   - wide roof overhangs
   - top-shuttered window openings
   - shade tree planting

4. Lighting
   - optimum ratio of window openings to exterior walls
   - skylights as necessary
   - bright interior paint

REDSO Engineering will provide assistance to ensure that the design and construction conform to these criteria.

Renovations:

Four small agricultural support centers located at Gando, Toaga, Kante and Nampoach will be renovated. Each generally consists of a 120 sq. m. building sectioned into an apartment, store-room and an 80 sq. m. warehouse. These 15-year old buildings are structurally sound and require only patching, fixtures and refinishing. An equipment shed and corral will be added to each to conform to the new field centers. An adequate supply of potable water will also be assured by the project.

The renovation of these centers and construction of equipment sheds and corrals will be initiated, supported and supervised by a Peace Corps Construction Volunteer working with the centers' staffs and local craftsmen and workers. The detailed scope of work for this volunteer is in Annex Thirteen. Recent experience with PC Construction Volunteers indicates that focused training, sets of resource materials and logistical support will be necessary.

Engineering Support:

Due to the size and composition of the OAR/Lome staff, regional engineering assistance will be required for successful implementation of this project. Bi-monthly short visits by REDSO Engineering will be required during the first year and a half of the project to carry out the construction program detailed in the Engineering Analysis and in this Annex.

Environmental Analysis

This project has been designed to improve agricultural productivity while taking conscientious care in the northern region of Togo, throughout the design process to prevent, minimize or mitigate any environmental problems that may be asssociated with key interventions. As a result of this design strategy, no significant negative impacts are anticipated from the project elements that are adequately enough defined to evaluate at this point. This is substantiated in the IEE and the three pesticide risk-benefit analyses found in Appendix 2 to this annex. The risk-benefit analyses detail the safety and precautionary measures that must be followed to ensure the efficacious use, handling, storage and disposal of the proposed chemicals. For the project elements that will be more fully defined as part of the implementation process, the IEE provides guidelines that the implementation team must use to prevent, minimize or mitigate potential environmental problems commonly associated with the given activity categories.

Those project elements which must be better defined include well development, rice production in the bottomlands of the Tamberma area,.building construction and animal grazing. An IEE must be written for the elements once they are more clearly defined and before any on-the-ground action towards them begins. Certain activities such as training, institution building and controlled applied agricultural research have been categorically excluded from environmental review due to their obvious benign impact on the physical environment.

The important issues concerning land use are detailed in Appendix 1 to this Annex and are mentioned throughout the PP text. Though this project will not fund an activity in land use inventory, planning and management, it unequivocally recognizes the importance of such an activity to the long term success of agricultural production and animal traction in Togo and to sustainable development itself. Thus, the project has identified potential sources and means for addressing this need. With assistance from REDSO/WA, OAR/Lome will issue requests to the S&T Bureau to mount an appropriate land use inventory, planning and management activity, from one or more of the central projects identified in Appendix 1. Such a parallel activity would significantly complement the proposed Animal Traction Development Project, and provide an extremely valuable tool for major land based development activities in Togo. The REDSO/WA Natural Resources Advisor would be the key point of contact and continuity throughout the life of the parallel activity.

Finally, an additional measure that will better ensure the maintenance or improvement of environmental quality in the project zone is the inclusion of environmental expertise in the series of evaluations proposed for the project.

ENVIRONMENTAL ANALYSIS

Appendix 1

LAND USE ISSUES

LAND USE

The expansion of agricultural production in the project zone has important implications for other land-based production activities in the region. The most immediate and visible impact of expansion is the clearing of land that may support important vegetative resources depended upon by the inhabitants to meet critical needs. For example, forests and brush are cleared as a result of agricultural expansion. This means that important sources of energy, namely fuelwood and work wood will be removed. Wild faunal species that depend on these habitats, will also be reduced in numbers, and in turn a protein source for the inhabitants is reduced. With the acceleration of animal traction as a preferred GOT approach to agricultural production, the incorporation of an increased number of animals into the land use schema will be required. Responsive grassland and livestock management will be necessary to ensure that adequate forage is available, that grasslands are not degraded and that optimum levels of vegetative and animal productivity are sustained. Such changes also have implications for the functioning and productivity of entire watersheds. The change in vegetative makeup and land use in one part of the watershed means changes in erosion patterns, stream flow and siltation rates in another part of the watershed. Changes in the aquatic environments will occur as well.

Given the population growth rate in the project zone and in the country, the demand for the zone's multiple natural resource products is increasing. The competition for land will intensify between different and important uses such as agriculture, forests, rangelands and livestock, energy crops and watershed controls. The land area itself is finite which means that sooner or later a higher quality of natural resource utilization will be needed. Piece-meal and ad-hoc land and natural resource development will not be adequate to address the emerging issues. Opportunities for efficient, complementary and optimum levels of resource productivity will be lost. Finally, the piece-meal approach inherently risks solving one problem, say in agriculture, at the expense of creating or aggravating another problem, such as deforestation which triggers impacts in the areas of energy, fiber and watershed stability and productivity. The merits of robbing one area to pay another are certainly questionable in terms of net benefits to the target population, as well as of economic efficiency.

It is important that agricultural development and animal traction in the project zone be treated within the broader context of coherent land use planning and natural resource management. It is not anticipated that the Togo Animal Traction Development project will in and of itself, significantly aggravate the type of land use problems discussed above. The project scale is relatively small, and mitigative and responsive measures, such as tree planting and technical monitoring have been designed into the project. However, the implications of this project merit concern when considered in conjunction with the other ongoing and planned land based activities in the region over time. Assuming that this project will be successful, the GOT, through the DRDR of the Kara and Savanes regions, will have improved its capability to expand agricultural productivity with animal traction as the central technique, beyond the project life. Consequently, this analysis considers it imperative that in the near future, the GOT acquire the necessary means for developing agriculture in a rational manner for optimum and complementary productivity. A viable methodology is necessary for carrying out such a sustainable and comprehensive process of resource inventory, planning and management which is adapted to the Togo context.

LAND INVENTORY, PLANNING AND MANAGEMENT

In response to the foregoing issues, the project implementation team and OAR/Lome will assist in the development of a parallel activity in land use inventory, planning and management, through AID's Science and Technology Bureau (S&T). During the development of this PP, multiple discussions were held with S&T officers on the availability of central funds that can assist the GOT to enhance its capability in land use inventory, planning and management. In the course of these discussions, and a review of the S&T portfolio, several potential candidates for providing the needed support were identified.

OAR/Lome will need to issue a request to the S&T bureau for support from these projects early enough in the life-of-project so that outputs would be able to complement the progression of the Togo Animal Traction Development project and provide land use planning and management tools in a timely fashion for follow-on activities. The REDSO/WA Natural Resources Advisor is expected to assist OAR/Lome formulate the specific request to S&T and develop a scope of work for the requisite expertise. The REDSO/WA Advisor will also be a key point of contact and continuity throughout the life of the parallel activity.

The four central projects listed and described below, represent possible sources of S&T support, and services in land use inventory, planning and management. These four projects appear to be the most promising of those investigated by the Natural Research Advisor on the

design team. There may be other possibilities. New central projects may be developed in the near future , which are relevant to the land use concerns described above. They may be on-line by the date of project implementation. The opportunity for having a parallel land use activity that is centrally funded appears to be good. Upon approval of this project, AID/Togo, with support from REDSO/WA, will begin requesting services from the following four projects, but should not be necessarily limited to considering only these four.

Pest Management and Related Environmental Protection (931-0930)

This project can provide the following services:

1) develop an information/data base, including narrative, maps and overlays on the current land use and related trends, land capability, and land suitability;

2) provide training to appropriate officials in the concepts and methods of land use inventory, planning and management; and

3) recommend a methodology that the GOT can employ and a plan of action that the GOT can undertake, that will lead to: a) agricultural development treated in the broader context of rational land use, and b) improved land use and natural resource use and productivity. A process should be identified and initiated that will result in a land use plan for the project zone, upon which subsequent agricultural and other land resource activities could be based.

Environmental Planning and Management (936-5517)

This project is designed to:

1) provide short and medium-term advisory services to AID missions and host governments on matters related to natural resource management, land use planning, environmental protection, surveying, integrated natural resource inventory and related project design;

2) mount larger term pilot activities that build host country capability for coherent natural resource management planning. A pilot activity to develop a natural resource management strategy will be carried out in one or more countries. Togo and/or its northern regions could be one of these countries. These activities will support a national or subnational regional planning effort to develop an appropriate and effective resource strategy for the selected area, integrated with or forming the basis of the broader development plans for that area;

3) provide information and analyses on selected topics and issues. This component has three elements: a) documentation of advisory services, b) state-of-the-art papers on the integration of natural resource/environmental concerns into the development process and c) comparative studies of important issues.

The aforedescribed project is being supported by a joint agreement between AID's Science and Technology Bureau, Division of Forestry and Natural Resources (ST/FNR), and the International Institute for Environment and Development (IIED). Joint funding results in a total budget of $ 3.5 million. Given proposed time frame for the project, project activities as outlined above, should begin by January 1983 with the project life extending through October 1985. By October 1982, the cooperative agreement between ST/FNR and IIED will be negotiated, a project staff will be put in place and operational agreements with AID's regional bureaus will be developed. It will be important that the Africa Bureau identify its level of desired involvement to ensure that resources from this S&T project could be made available to Togo upon request.

Soil Management Support Service (931-1229)

This project provides coordinated short-term techncial assistance in the areas of soil survey, soil fertility, land use planning and soil conservation, as well as basic support for the improvement of an international soil classification system. It will help synthesize cost-effective field operations needed for rapid efficient development, and more long-term productive utilization of land resources.

The project began in 1979 and is scheduled for completion in FY 89. The total project budget is $ 8.65 million, with about $ 6.0 million remaining at the present time.

AID/Togo will issue a request for support from this project. Again, the REDSO/WA Natural Resources Advisor will participate in defining the request and developing a scope of work, directed towards producing the outputs designated above for the parallel land use inventory, planning and management activity.

Global Land Cover Mapping

AID, FAO and UNEP are now in the process of developing agreements with NASA and with each other to participate in the NASA initiated

project, Global Land Cover Mapping. The project collects land resources data by means of satellite imagery, aerial photographs and ground truthing, and presents it on maps at various scales depending on need, with supporting narratives. NASA has recognized that to increase the utilization of this data, coordination with organisations like AID, FAO and UNEP, would be valuable.

Though the agreements are not finalized, the AID remote sensing specialist who is backstopping AID's inputs, is confident that AID will become formally involved. This means that additional central resources will be available to address land use problems and opportunities in AID client countries. Decisions, with clarity about the scope and content of the project,should be made known by the end of 1982.

ANNEX NINE ENVIRONMENTAL ANALYSIS

Appendix 2: INSECTICIDE / PESTICIDE RISK - BENEFIT ANALYSES FOR TOXAPHENE, CREOSOTE AND THIRAM

A. The USEPA Registration Status

1. Toxaphene is registered by the U.S. Environmental Protection Agency as an insecticide on livestock pest and certain crops. In the Togo Animal Traction project, Toxaphene is proposed for use as an insecticide against livestock pests.

EPA has issued a notice of "Rebuttable Presumption Against Registration" (PRAP) against toxaphene. RPARs are issued on pesticides whose current EPA registration status is being re-evaluated, based on the following risk criteria: 1) acute toxicity, 2) chronic toxicity, 3) other chronic effects, 4) significant reduction in endangered species, wildlife and nontarget species and, 5) lack of emergency treatment or antidote. After the required review and analysis is undertaken on any such pesticide, EPA makes a regulatory decision on the chemical in question.

According to AID environmental Regulations, 216.3(b)(1)(iii), if the project includes assistance for the procurement or use, or both, of any pesticide for which an RPAP has been issued, the IEE Threshold Decision will provide for the preparation of an Environmental Assessment (EA). Thus, the following Environmental Assessment has been prepared at the level of detail deemed to be appropriate for indicating the environmental implications of the use, distribution, storage and disposal of toxaphene as proposed in this project, and in the format prescribed in the Regulations.

It should be noted that in addition to the precautionary measures incorporated into the project concerning pesticides and insecticides, additional services from the S&T project, Pest Management and Related Environmental Protection (931-0930), will be requested. The Pesticide Management Specialist of AID (ST/AGR), has expressed an interest in fielding expertise to Togo, in order to supplement the work of the project agronomist in pest control and pesticide management. With this input, optimum pest control and pesticide management systems may be implemented.

Before any toxaphene is procured, its use in the project and the full range of implications must be thoroughly discussed with the GOT. A joint understanding of hazards and a joint effort of minimizing them is necessary and is requested by the AID Environmental egulations.

2. Creosote is registered by USEPA as an insect repellent, an acaricide, an herbicide, an arachnicide, fungicide, tree dressing, a disinfectant, and a horse repellent. It is registered for use on animal pests only if the animals to be treated and their projects such as milk, will not be consumed or eaten. In the Togo Aminal Traction project, creosote will be used as an insecticide against livestock pests, under the conditions stipulated by the EPA.

3. Thiram is registered by USEPA as a seed protectant. Thiram, with red dye, will be used for this registered purpose in the Togo Animal Traction project.

B. The Basis for Selection

1. Toxaphene was selected based on knowledge of its superior effectiveness compared to known alternatives for controlling livestock pests, given the proposed method of use and precautionary measures designed into the project. The merits of toxaphene compared to possible alternatives, are discussed under Section I of this Environmental Assessment.

2. Creosote was selected because of its observed success in controlling key insect pests on livestock, its familiarity, in terms of its use and application, to farmers in the region, its availability in the region, and its appropriateness as a second-level control method in the three-tier integrated approach propsed for animal pest control.

3. Thiram was selected primarily based on its superior effectiveness, compared to the few other permissible alternatives, in reducing agricultural losses from seed decay, damping-off and seedling blights caused by many seed-borne and soil-borne organisms. The merits of thiram compared to the few other alternatives, are discussed under Section I of the risk-benefit ananlysis.

C. The Extent to which the Proposed Pesticide Use is Part of an Integrated Pest Management Program

1. An integrated approach for controlling livestock pests among the project animals is anticipated in that three complementary levels and forms of control will be employed. Upon purchase of animals at Tantiegou, a toxaphene mixture will be sprayed on them. Secondly, creosote will be considered as a maintenance procedure that the extension agents and farmers can use once the animals are distributed to the Extension Support Centers (CAT's) or are in the

farmers' possession. The third level of control would be the removal of pests by hand. The chemical methods and the pysical method complement each other and their integration contributes to the effectiveness, efficiency, hazard minimization and cost savings desired in controlling the target livestock pests.

At the initial point of acquiring animals, spraying them with toxaphene mixture is considered the preferred method. A large volume of animals can be treated at any one time and the thoroughness of the method will mean that the CAT's and the participing farmers will receive relatively pest-free animals. The likelihood of introducing new pests into the area will thus be reduced. The centralized site at Tantiegou for treating animals with toxaphene, and only once, in a spraying operation that has a recycling system, minimizes the potential for contaminating the environment and overexposing the animals.

2. The application of creosote is proposed as be the second level of animal pest control. Creosote is currently widely used by the farmers to control ticks at the farm-level. This practice will be continued with thorough guidance on safe application and handling. The use of creosote will be limited, given the expected effectiveness of toxaphene and the resulting role of creosote, as an intermittent pest control maintenance measure.

The control of animal pests by hand will be the third component in this integrated approach. This method becomes important at the farm-level, where more sophisticated forms of pest control are less accessible and their hazards more difficult to control. Also, since each farm will have only a relatively few number of animals to treat, and the proposed chemical control methods should have reduced pests considerably, the hand control method is reasonable, and also effective.

Given the monitoring results that should emerge from this project, it is expected that useful data will be available that may provide guidance for the development of an improved integrated pest management approach.

3. An integrated approach to pest management that minimizes the use of chemicals, will be undertaken in implementing the project's agricultural packages. The use of thiram to dress seeds for controlling various seed and seedling diseases, will be the initial step in the integrated approach. Beyond seed treatment, the approach will include crop management practices that contribute to controlling pests. Such practices include crop rotation, optimizing the planting time to prevent attack by certain insects and diseases, and intercropping to modify the spacing of plant, or planting com-

binations of different crops in the same field. Additionally, mechanical control practices will be employed to eliminate plants that inhibit the desired crop growth. Such practices will include pulling weeds by hand or using farm hand tools, covering weeds with mulch to prevent growth, and plowing and harrowing with animal traction. These methods are all normal.

D. The Proposed Method or Methods of Application including Availability of appropriate Application and Safety Equipment

1. The toxaphen will be applied by spray racers to be built at the buying center. Toxaphene bought at 46% solution will be diluted with water to 4.6%. Approximately 6 to 7 liters of the mixture will be sprayed on each animal, leaving approximately 2 liters on the animal. Low volume, battery operated sprayers constitute the basic application apparatus. The application equipment and associated safety equipment will be required along with the other commodities to be obtained for implementing the project. Safety equipment designed into the project includes a recycling system for the runoff from the spraying operation. In this way the contamination of water, feed, forage, and soil can be prevented and thus toxic exposure to live organisms prevented or greatly limited. In addition to the proposed safety equipment and measures, training in the safe use, application, handling and storage and disposal is included as a project component. The proposed training is outlined in Section K of this environmental analysis.

2. Creosote will most often be applied by traditional means. Split sorghum stalks will be used as brush applicators by the project participants. Specific safety equipment beyond protective gloves, for the application of creosote is not deemed necessary. However, training in the careful use and handling of creosote is deemed necessary and regarded as very important. Such training and precautionary measures are designed into the project as indicated elsewhere in the PP text and in Sections B,C and E of this environmental analysis.

3. The thiram will be mixed in a sealed container. The seeds will be treated after they are well cured in a container with thiram dust formula. The container or drum (depending on quantity of seed), will be rotated until the seeds are adequately covered with the protectant. One gram of thiram will be needed for 100 grams of corn, millet, sorghum or groundnut seeds. Safety equipment including dry filter dust mask or goggles and rubber gloves, will be provided under the project to minimize hazards associated with the use of thiram. Long sleeve shirts, pants and shoes will be required for those handling the pesticide and treated products. The poten-

tial hazards of thiram are addressed in Section E.

E. Acute and long-term Toxicological Hazards, either Human or Environmental, associated with the proposed Use of Toxaphene Measures available to minimize such Hazards

1. Toxaphene is poisonous to humans when taken orally, inhaled, or brought in contact with skin. The acute oral LD 50(rat) is toxaphene is 60 mg/kg. It is toxic to fish, birds and other wildlife. It should be kept out of lakes, ponds, streams, tidal marshes and estuaries. Toxaphene should not be applied where runoff is likely to occur or when weather conditions favor drift from areas treated. Shrimp and crab may be killed at application rates recommended on the label. Toxaphene is also toxic to bees.

As mentioned above in Section D, measures which can prevent or minimize the associated hazards are incorporated into the project. They include the installation of a recycling system for the runoff from the spraying operation and the provision of protective gloves and chemical goggles to the applicators and handlers. Persons using or handling the toxaphene will be required to protect the whole body through wearing appropriate clothing and goggles, furnished under the project. Training will be provided that informs users and selected participants about the potential hazards of toxaphene and how to prevent or minimize them. A system of checks will be instituted to insure that toxaphene in appropriate concentrations of water (o.5 - 0.6%), is not applied to any animal that would be slaughtered for consumption within 28 days of application.

Since intermittent rather that prolonged exposure to toxaphene is not anticipated, a pesticide respirator is not included in the project. If increased treatment is recommended over the project life, the use of toxaphene will be assessed during the mid-point evaluation, as will the other project components, and appropriate changes made.

Concerning disposal, a tank will be built and installed with a strong liner for the disposal of excess toxaphene that will come primarily from the recycling system. The objective will be to get rid of the excess moisture from the toxaphene solution, so that the remaining dry residue of the toxaphene, is confined to the plastic container and prepared for safe burial.

The storage of toxaphene will be fully controlled at the northern center, the only project location where the toxaphene will be applied. It will be stored in very close proximity to the project site. It will be stored in a manner to prevent leakage, unapproved use, and exposure to high dangerous temperatures.

2. Creosote has been reported as toxic to humans and livestock and is carcinogenic. For humans, creosote through improper handling, is reported to be a potent skin and eye irritant, where cases of permanent vision damage have been reported. Concerning livestock, animals have become ill or have died from creosote poisoning. Creosote has also been reported as fetotoxic to livestock. Excessive doses can produce sterility in bulls and abortions in sows. A common route of exposure is often reported as the ingestion of creosote through animals licking wood or other products treated with creosote, or through their accessibility to it due to poor handling, storage or disposal. Most information which is available regarding the environmental fate of coal tar and coal tar products such as creosote, addresses the impacts of the chemical as a wood preservative and its entry into the ecosystem through the decomposition of treated wood. If through improper handling, application or storage, supplies of creosote are permitted to enter either the aquatic or terrestrial environment, the contamination of organisms, soil and water is possible.

Several measures have been designed into the project to minimize the hazards noted above. It will be essentiel to institute a system that insures that animals treated with creosote, and their animal products such as milk, will not be eaten or consumed. The project agronomist,with assistance from the S&T/AFR Project, Pest Management and Related Environmental Protection (931-0930), will have responsibility for instituting such a system. The system will be evaluated during an early project evaluation. If it is not found adequate, an alternative system or alternatives to creosote itself will be sought.

Also, all farmers participating in the project who will potentially be using creosote, will receive training about the hazards of the chemical. They will also be trained in safe methods of use, handling, storage and disposal. These practices and those associated with all of the chemicals proposed in the project, will be rigorously evaluated early in the project life, to insure that hazards are minimized.

3. The acute oral LD 50 of thiram for mammals is 375-865 mg/kg. For rats, the LD 50 is 780 mg/kg. For humans, thiram is an irritant to eyes, nose, throat and skin, and is harmful if inhaled or swallowed. Thiram is toxic to fish and should be kept out of lakes, streams, ponds and water supplies. Measures, described above, are available to minimize the human and environmental hazards which will be incorporated into the project. Only trained individuals will be permitted to handle thiram. Hand and face washing after use will minimize human toxicological hazards.

Precautionary measures to prevent the pesticide from entering aquatic environments and contaminating the terrestrial environment, will be put in place.

Thiram, as the other pesticides proposed for the project, will be under controlled storage. In this way, leakage and inappropriate acquisition and use can be guarded against. Once acquired by the project, the thiram will be stored under dry and preferably cool conditions. For safe disposal, the containers will not be reused, but rather buried away from water supplies in a safe place when empty. Distribution packets will be of a size so that makeshift containers will not have to be used for distributing the thiram. In this way thiram will always be identifiable in its own labeled sack, and the dangerous reuse of exposed makeshift containers can be avoided. Precautions will be taken to insure that food and feed is not contaminated by thiram and that treated seed is not eaten.

The red dye in the thiram provides one additional precautionary measure. In the unlikely event that treated seed remains unused, the red color will signal that it is unsuitable and dangerous as feed for livestock or for human consumption.

F. <u>The Effectiveness for the proposed Use</u>

1. Since the 1950s, toxaphene has demonstrated quite a high rate of effectiveness for the proposed use throughout the world. According to pest management specialists in AID/W, the efficacity ot toxaphene has been systematically tested and rates as an active and reliable acaracide.

2. The effectiveness of creosote as an insecticide against pests associated with livestock has been widely demonstrated over time. Effectiveness and acceptance has also been clearly demonstrated in the project zone. The effectiveness rate of creosote is considered appropriate as a second level and maintenance treatment and in conjunction with the control of certain pests by hand.

3. Thiram has demonstrated effectiveness in increasing agricultural yields by reducing losses from seed decay, damping-off and seedling blights caused by seed borne and soil borne organisms. According to AID pesticide management expertise in S&T/AGR, this effectiveness has been demonstrated over a number years, and for a variety of seed types, in its widespread use throughout the world, including the Africa region.

G. Compatibility with target and non-target Ecosystems

1. The use of toxaphene as proposed in this project, is deemed to be compatible with the target and nontarget ecosystems, in that significant disturbance of the ecosystem is not likely. Significant disturbance would occur if toxaphene entered the water supply, or associated lakes, ponds, streams, marshes or estuaries. Aquatic habitats are not predominant in the target ecosystem, and measures are incorporated into the project to insure that water bodies in the target and nontarget ecosystems are not contamined by the pesticide. The recycling system of the spraying operation will prevent runoff containing toxaphene from entering water bodies and disturbing target and nontarget ecosystems. Measures are also included for the storage and disposal of toxaphene that will reduce the potential for disturbance to the target and non-target ecosystems, as described in Section E above.

2. Creosote is deemed with the target and nontarget ecosystems, in that with proper use, significant disturbance to the ecosystems is not likely. If through improper handling, application, or storage, supplies of creosote are permitted to enter either the aquatic or terrestrial environment, contamination of organisms, soils and water is possible.

The project animals will be the immediate recipients of the creosote in the ecosystem. With proper use, handling, storage and disposal, as provided in the project, it is not anticipated that the creosote will be introduced into the ecosystem beyond the animals nor that the animals will be improperly exposed. A key concern will be making sure that the animals treated with creosote and their products such as milk, are not eaten or consumed.

3. Thiram, as proposed in the project, is deemed compatible with the target and non-target ecosystems in that significant disturbance to the ecosystems is not anticipated. An extremely small amount of the pesticide will be used relative to the size of the project zone. Even though thiram is a mercury compound that degrade to a permanent residue, negative impacts to the ecosystem should not occur if the prescribed application use and handling procedures are employed. Significant ecological disturbances could occur if a sufficient amount of thiram enters any associated ponds, lakes, streams, estuaries or marshes, or the drinking water supply. Aquatic habitats are not predominant in the target or non-target ecocystems, and application, storage and disposal measures are incorporated into the project to ensure that water bodies are not contamined. Measures to prevent contamination of the soil by thiram are also included.

They include the control of such parameters as soil moisture content, soil organicmatter content and the timing of planting treated seeds.

H. The Conditions under which the Pesticide is to be used, including Climate, Flora, Fauna, Geography, Hydrology and Soils

It should be noted that toxaphene will only be distributed to and used at the buying center in Tantiegou. Otherwise, the same general conditions apply for all the pesticide and insecticide proposals for this project.

Northern Togo, the broader region in which the project will be implemented, is characterized by savanna woodland. Average annual rainfall is approximately 1078 mm, where the majority of rain falls between the months of May and September. High ambient noonday temperatures during the dry season average around 35 - 37 degrees C while early morning temperatures during the dry season are around 23 - 25 degrees C. The dry winds of the harmattan usually occur in January and February.

The natural vegetation of the area consists largely of Guinea Savanna shrub and tree species. Occasional stands of teak introduced within this century are found in the area. However, due to burning and pressure for fuelwood, much of the natural vegetation has been displaced by the cultivation of corn, cassava, yams, rice, sorghum and cotton. A few relic forests stands in hydromorphic depressions and along water courses. Tropical ferrillitic soils, and a geological base of granite and schists, typify the region.

Two perrenial streams which are tied together, the Oti and the Keran, flow through the northern region. Other seasonal streams in the region are tributaries to the Oti and the Keran. The Oti and Keran Rivers consitute the receiving base for the larger watersheds in the region. Groundwater studies are currently being undertaken by the GOT (in collaboration with UNDP) to determine the actual capacity of the acquifers.

Fauna consists largely of wild savanna woodland species. Lions, leopards, elephants, and antelope are occasionally observed in the larger region, given the nearby established game reserves. Monkey, hippopotamuses and crocodiles are also found. Rabbits and various rodent species along with snakes and lizards occur as well. Of course domestic animals are found in the zone, including cattle, sheep, goats and pigs. There are many varieties of birds, insects and freshwater fishes.

I. The Availability and Effectiveness of other Pesticides and Nonchemical Control Methods

1. Toxaphene has been identified as the preferred pesticide for treating the newly acquired animals at the buying center, given its demonstrated effectiveness, the unlikely event of it causing ecological disturbance and its costs. Dipping tanks and necessary chemicals were considered for use in the project. However, the maintenance and cleanliness problems of dipping and the problem of maintaining proper user concentrations makes the proposed spraying system more attractive.

Other pesticides were considered which are more target specific. However, they were determined to be less effectiveness and more expensive that toxaphene for meeting project needs. Also, the supply and availability of toxaphene is more certain than of the identified alternatives.

Malathion was considered, but due to the high level of resistance the target pests have established in the target area, the effectiveness of malathion would be less than what is needed.

2. Creosote has been identified as the most suitable chemical to address the intermediate pest control need. It is effective, available and has minimal toxity problems compared to those resulting from the commercial spray can insecticides available in open markets that farmers use when alternatives are not available. Upon consultation with the pesticide management advisers in AID, superior alternatives were not known for creosote as a secondary animal pest control measure in the three-tier system.

3. Viable alternatives using thiram as a seed protectant in this project do not exist. Chlorinated hydro-carbons which have been used as seed dressing, have been suspended or cancelled and the copper sulphur base chemincals do not protect as well as thiram against seedling disease. The alternative of not using seed dressing is not viable, given the resulting anticipated losses in agricultural yields and consequent loss of economic viability.

J. The Requesting Country's Ability to Regulate or Control the Distribution, Storage, Use and Disposal of the Insecticide

The Government of Togo has had only limited experience in regulating or controlling the distribution, storage, use and disposal

of pesticides. This project presents an opportunity to strengthen the pesticide control and regulation practices of the government institutions through which the project will be mounted. The Regional Directorate of Rural Development (DRDR), The National Animal Traction Program (PROPTA) and the Directorate of Pedology are government institutions that are expected to benefit. A relatively comprehensive Crop Production Service is in place, albeit underequipped and understaffed. It has a relatively large research division that looks primarily at crop resistance to insect damage. The project implementation team, along with expertise from the previously noted pest management projects out of S&T/AGR, will assist these institutions to improve or establish pesticide regulation and control measures. In this way, the project can better insure that the safe distribution, storage, use and disposal of pesticides are continued and maintained beyond the project life.

K. The Provision for Training of Users and Applicators

Training is a major feature of the project. Trainers will be taught the techniques of animal traction, animal care and improved agricultural production. As an integral part of this training, appropriate parties will be taught about the properties of the pesticides to be used in the project and instructed in the correct and safe techniques for handling, using, storing and disposing them. Training will also include instruction on what should not be done with the chemicals that may be commercially or publicy accessible and that should not be used. This training component is also defined elsewhere in the Training Analysis. In addition, expertise from the S&T project, Pest Management and Related Environmental Protection (931-0930), will be made available, upon request, to assist with defining the training program in pesticide use, in even more detail.

L. The Provisions made for Monitoring the Use and Effectiveness of the Insecticide

A complete agricultural monitoring program is to be established under the project to follow changes that occur in the implementation of the various components. This monitoring system as described elsewhere in the PP text, also addresses the use and effectiveness of the three pesticides prescribed for the project. In addition, the first evaluation to take place during the early

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stages of project implementation, will include a thorough review of the effectiveness, use, handling, storage, disposal and any negative impacts of pesticides employed in the project. The training element on the safe and effective pesticide use and handling will also be evaluated at this time. The results of the monitoring and of the evaluation will provide guidance for redressing any inefficiencies or problems that could have emerged during the period evaluated, or provide reassurance that effectiveness is high and negative environmental impact is low or nil.

EVALUATION PLAN

INTRODUCTION

This evaluation plan has taken into account the complementary relationships between the monitoring and evaluation activity within the project, and the internal evaluations and the external evaluations. It is expected that information generated by the M&E unit will be of direct usefulness to both the annual internal evaluations and the periodic evaluations.

TIMING

As this is an agricultural project, the timing of the evaluations is greatly influenced by the cropping seasons. It is felt that both the internal and external evaluations should occur early in the calendar year. This will allow information from the previous cropping season and harvest to be compiled, interpreted and put into useable form.

INTERNAL EVALUATION

This evaluation will be held one year after the project is operational and is fully intended to be more than just a listing of the past year's doings and a projection of the next year's activities. This evaluation is not to be limited to only project technicians, but should include participation from GOT Ministries concerned, AID/Togo and technicians from REDSO/WA in Abidjan. The purpose of this internal evaluation is to take stock of the progress of various project activities, discuss the arguments for adjustments in the direction of any of these activities, and lay out detailed plans of work for the coming year.

Participation by REDSO technicians and AID/Togo will be extremely useful for two major reasons. These internal evaluation will permit AID to keep fully abrest of the project developments and assist REDSO in programming any needed short-term advisory interventions. The internal evaluation will also permit AID programmers and technicians to have periodic inputs into the ongoing monitoring and evaluation activity, particularly in terms of tracking social and environmental variables.

EXTERNAL EVALUATION

One external evaluation has been programmed. It calls for participation by GOT, AID/Togo, AID/W REDSO staff and outside consultant services, as well as by project staff.

An evaluation will be undertaken at month 24 to assess the project's success in meeting its targets to recommend modifications, and to design a follow-on activity consistent with those recommendations. It is also possible that the team may recommend against any follow-on activity.

The evaluation/design team will assess project outputs against logframe targets. If targets exceed or fall short of outputs, the team will analyze the reasons, and make appropriate recommendations for the follow-on project. In all its work the project will include effects on the 32 AIP adopters who will continue to receive support under the present project. Indeed, the AIP farmers will provide a much better understanding of technical successes and problems than more recent adopters.

The team will also assess project success, and make appropriate recommendations, with reference to the following issues:

1. Extension vs. research. Has the technical package been sufficiently adapted to on-farm conditions so that farmers can profitably adopt it? Have extension functions and lack of institutional research structure prevented the agronomist from undertaking adequate adaptive trials? Have agronomic/economic conditions prevented full use of tillage equipment (eg. weeders)? Should a follow-on activity promote further extension, or should it support a more concentrated research activity prior to funding further extension?

2. Extension management. How have PCVs filled the roles envisioned for them. Have they acquired the appropriat technical, training, and supervisory skills anticipated Have they received adequate training and logistical support from PC/Lome, and technical supervision from the AID TA team? Have DRDR extension agents been given the time, motivation, training, and supervision to be effective in promoting animal traction.

3. PROPTA. Has PROPTA's management capacity, personnel and GOT funding been sufficient to carry out its mandate? What is the extent of cooperation between PROPTA and (a) projects, (b) the GOT Animal health service? Has PROPTA improved the flow of information among projects. Have monitoring/evaluation and better information flow affected decisions by projects, the GOT, or PROPTA? How?

4. Animal Supply. How do costs and performance of the PROPTA animal supply system compare to the piecemeal approach which preceded it. Has PROPTA management of the FED revolving fund helped or impeded the timely supply of animals to farmers? Has PROPTA worked with AID to encourage private marketing channels to deliver suitable draft animals to farmers? How many animals have been supplied through PROPTA and through private channels? How should promotion of private marketing channels be expanded? Success or problems of targetting farmers who already own suitable animals.

5. Credit. PROPTA success in rationalizing projects' credit and subsidy terms. Management of the GOT credit component for project farmers in the 2 DRDRs. Repayment rates for new adopters under this project, as well as for farmers who received equipment and animals on credit under the AIP. CNCA management of credit reflows. Timeliness of provision of equipment and animals to project farmers.

QUALIFICATIONS: Outside participation in the evaluation/design effort should come from individuals or firm (s) with experience in implementation and design of field level agricultural projects in Africa. In addition, one member of the team the animal traction expert, must come from an institution with a longstanding involvement in animal traction technology (such as ISRA in Senegal, ICRISAT/Africa or IITA in Ibadan).

MONITORING AND EVALUATION

INTRODUCTION

The importation of an explicit monitoring and evaluation unit (M&E) in the design of an implementation project is somewhat particular to AID design methodology. Of the more than 20 animal traction projects in Togo, none make systematic attempt to monitor the impacts of project activities. Only the World Bank assisted cotton project, SOTOCO, makes any attempt to follow project activities,but is limited to notebooks kept by extension agents themselves and then they only carefully monitor fields.

On the other hand, the GOT readily recognizes the necessity for such an ongoing activity and feels that American technical expertise represents the best if not the only reliable source of assistance in organizing and conducting such an activity. The Ministry of Plan, responsable for coordinating foreign aid, has recently created an M&E unit primarily staffed with young technicians trained under AID auspices in the United States. Also, the Agricultural Statistics Service conducts sample surveys based on the 10-year agricultural census each year in an attempt to monitor changes in cropping patterns, areas cultivated, yields and productions.

The intention of an M&E unit is to monitor the impacts of project activities, evaluate their effectiveness and provide analyses to be used as a basis for modifying unsatisfactory project activities. Perhaps the most important requirements of such and M&E unit are cost minimization and quick turnaround time from information gathering to analysis to recommendations. As an implementation project, it is not possible to adapt information requirements and decision criteria used in a formal research program. They cost too much and take too much time from question to answer.

OBJECTIVES

As in the TAT project in general, the M&E unit's objectives are stared at different levels and concerned with a range of topics. The TAT supported M&E unit does not pretend to do everything for everybody, but will rely on GOT M&E ongoing activities and, through PROPTA, promote the inclusion of M&E units in all implementation projects.

The functional organization of PROPTA will include a TAT supported M&E cell. This cell will be responsible for developing methodologies to monitor changes in farm-level economics, to evaluate the effectiveness of different project strategies in promoting animal traction, and to monitor changes in the use of natural resources. It is not intendec that this M&E cell conduct all these monitoring activities. As the monitoring information is compiled, the M&E cell will be responsable for its analysis and presenting the analysis and resulting recommendations to COCA.

In so far as TAT is concerned, the M&E cell will be expected to implement the on-farm monitoring and analysis of the economics of animal traction in those areas where TAT is supporting extension activities. It will also be called upon to evaluate project effectiveness as a whole with particular reference to comparative capital intensity among other animal traction projects. As part of its monitoring activities, the M&E cell will also keep track of changes in resource use patterns, in particular land and labor.

As a functional component of PROPTA, the M&E unit's objective is one of promoting the necessity of such an activity as an integral component of all animal traction projects and developing methodologies with which such activities can be implemented by the various projects. As a functional component of the TAT project, the M&E unit's objective is to execute the monitoring and evaluation activities within the context of the TAT project.

INFORMATION NEEDS

It would be premature to specify information needs as part of a project design exercise. This is more properly entrusted to the implementation team. However, some general indications can be presented which help demonstrate the differences between an M&E unit in an implementation project and a more general research investigation.

1. Farm-Level Economics: The objective is first to get a fairly representative picture of farm-level economics and then to track changes in farm-level economics and their relationship to the introduction and use of animal traction. In order to do this, it will be necessary to describe the farm enterprise and its mix of activities, to monitor the nature and use of production inputs (including animal traction) and to evaluate yields, production and incomes.

2. Project Effectiveness: Here, the objective is to monitor the impact of project strategies and their costs. It will be necessary to monitor a set of indicators of project impact (number of adopters, area cultivated, credit repayment rates, etc.) and to monitor the cost of various project

sub-activities. It will also be necessary to determine a set of indicators which provide a basis for cross-project comparisons (i.e. capital intensity).

3. Resource Use: In this instance, with so many projects promoting animal traction in Togo and with national policy having placed a priority on the expansion of animal traction throughout the country, the aggregate impacts on the resource base are important to policy considerations. It will be necessary to monitor land use, allocation of labor, land clearing, national herd composition, etc. The objective is to be able to estimate the aggregate impacts of moving towards an agricultural system based on the use of animal traction on the natural resource base.

4. Assumptions: Throughout the development of this project design, a range of assumptions have been made with are critical to the predicted impact of project impact activities. The M&E unit can provide valiable input to the formal evaluations (both internal and external) of TAT. It is fairly rare that evaluations of implementation projects return to the original analyses and assumptions in the design document to rerun those analyses. The TAT M&E unit will be expected to monitor the assumptions made in this design document (for example: yields, prices and rural-urban terms of trade) such that the formal evaluation exercises will be in a position to legitimately compare before, during and after analyses.

METHODOLOGY

Here again, the design document should not specify methodologies to be used for monitoring and evaluation services. This discussion is intended to present orientations and possible areas of collaboration with other institutions. As stated earlier, the key characteristics of an effective M&E activity are cost-effectiveness and quick turnaround time. It is the choice of methodology that most directly influences these two objectives.

There is no doubt that in preparing an M&E program of work, the selection of questions to be asked is of extreme importance. If a question is not carefully and clearly stated, it is very difficult to generate a clear answer. However, in many cases similar concern is often not given to clearly identifying the clients nor to what methodology is necessary to get the data required to adequately answer those questions. There are the very concerns which can multiply cost factors geometrically. As an example, if one is trying to quantify a learning function in relation to the use of animal traction and the question is put to all animal traction farmers whether or not they weed with their animals, this would generate a large volume of data, would consume time and would not, necessarily,

answer the question. However, if it were previously known how long various farmers had been using animal traction and who had weeding implements, a much more restructed sample could be drawn and data generated would reply more directly to the question.

In M&E activities, the need to devote serious thought and time to preparing the activity before even going into the field can not be overemphasized. A premature rush to gather data will increase costs, lengthen turnaround time and very likely not answer the questions or instead answer questions concerning clients with whom one is not concerned. The notebook currently used by the World Bank cotton project has this failing. In this notebook, a basic inventory of the farm and the farm family is kept and then, for the cotton fields, all input/output data is recorded. It is not apparent that anyone has specified a set of issues to address but rather simply has gone out to collect anything and everything and then later has seen what could be with it. One observes large stacks of these notbooks sitting on the floor in various offices. Such a methodology is not only expensive but also consumes a great deal of time to produce analyses, regardless of whether or not these analyses address any real issues.

An integral component of this M&E activity will be not only the necessity on a cost basis but also the desirability, on a policy basis, to collaborate with other ongoing programs and projects in Togo. In particular, the M&E unit should work closely with the Agricultural Statistics Service, with the M&E unit in the Ministry of Plan, and through PROPTA, with other donor-assisted animal traction projects.

The first general agricultural census was taken in 1972-73 and is being repeated in 1982. During the interim years, a more modest agricultural survey was repeated each year. The Agricultural Statistics Service is relatively well equipped, both in trained manpower and data manipulation capcity. The biggest problem they have is a very poorly defined sampling methodology. Among other things, it is unclear who the sample represents and this makes it difficult to quickly respond to even the most basic question (for example, average farm size).

The Service uses a two-step sampling technique beginning with a list of all villages and towns. A random choice is drawn. For towns over 5,000 residents they are divided into neighborhoods which have the same status as a village. Within the list of villages drawn, a choice of households is drawn randomly. A total of 3,500 households are used of the 10-year census while a sub-sample of approximately 700 is used for the annual surveys. It is acknowledged that the Agricultural Statistics Service is attempting to say something about the agricultural sector in general, but even at this macro-level it is doubtful that such a sampling methodology would generate an accurate representation. For one thing, large population concentration are over-represented and the influence of population density appears to have been factored out.

This discussion is not intended to belittle the Agricultural Statistics Service. On the contrary, they have a data collector program and infrastructure in place. They have voiced strong interest in access to any technical expertise TAT might be able to offer. They have no problem in making some of their unused computer capacity available. They are willing to adjust their questionnaire forms to incorporate references to animal traction. Coming out of the 1982 general agricultural census, they are willing to reexamine their sampling methodology for the animal survey exercises. The TAT M&E unit will work closely with the Agricultural Statistics Service and attempt to develop a joint program whereby the more general descriptive information on smallholder agriculture can be generated by the Agricultural Statistics Service and the M&E unit can develop techniques to specific issues and questions.

The M&E unit in the Ministry of Plan is just getting underway and for the time being is simply taking inventory of developed activities in the country. Given the well-trained (though inexperienced) staff of this unit, the TAT M&E unit should maintain regular interaction with Plan, advise them regarding methodologies and analyses, and if possible, use staff members in carrying out data collection and analysis activities. The Ministry of Plan is most interested in comparing project performance across projects as an input into defining development policy and relationships between the GOT and external sources of development assistance. Given the national animal traction policy and the large number of animal traction projects, this orientation coincides nicely with one of the major concerns of the PROPTA M&E unit.

STRATEGY

The incorporation of an M&E activity into an implmentation project is a new idea in the Togolese environment. It will be necessary for this TAT M&E activity to prove its effectiveness and usefulness. Consequently, the development of an M&E program will occur in phases. Upon the arrival of the technical assistance team,careful preparatory work will have to be done not only on specifying appropriate methodologies and on clearly describing the clients, but most importantly, on choosing the first set of questions to be investigated. It will be necessary to choose topics of direct and immediate concern to the GOT and to other projects.

Such topics might be the financial parameters to medium-term credit programs, or the need and/or impacts of input price subsidies. As the M&E unit begins to demonstrate that its methodologies are capable of generating useful analyses and recommendations in relatively short order, it then becomes progressively feasible to persuade other projects to initiate similar activities on the one hand and to begin broadening the subject matters to be monitored and evaluated on the other.

The design team feels that this concern for building legitimacy is very important to the M&E unit's objective. Within the TAT project, the M&E unit has automatic legitimacy in that it represents a specific requirement of the donor. However, this M&E unit is also a functional component of PROPTA and as such is expected to work with all animal traction projects in Togo. Even more sensitive or challenging is the fact that PROPTA's M&E unit will be expected to evaluate these projects and the various donor strategies. A M&E unit's objective is to improve project performance. In order to do this, it must have credibility in the minds of project implementors. Basic to creating the credibility will be the demonstrated ability to respond quickly, effectively and cheaply to the concerns and problems faced by project implementors.

ANIMAL TRACTION RESOURCE WORKER (10)

LOCATION: The PCV's will be assigned to Centres d'Appui Technique (CAT's) at locations throughout the Kara and Savanes regions. Currently identified sites include Nampoach, Pagouda, Kante and Warengo (Kara region), and Toago, Gando and Naki Est/Nayega (Savanes Region).

SUPERVISION AND REPORTING: Volunteers will be assigned to the Regional Directorate for Rural Development (Direction Regionale de Developpement Rural) in either the Kara or Savanes regions. They will be supervised by the head of the extension service in each region who will determine reporting requirements in coordination with the director of the northern branch of the national animal traction project and the two regional directors of DRDR.

SCOPE OF WORK:

1. The volunteers will work as counterparts to the sector or subsector extension officers (chef secteur, chef sous-secteur). The sector and subsector officers are responsible for the management of field agents (encadreurs) who work directly with farmers. The assignment of volunteers at the sector and subsector levels is designed to reinforce the operating premise of the TAT project that all technical assistance should be directed towards strengthening existing GOT services rather than creating independent and parallel project structures of doubtful sustainability.

   The volunteer's job is probably most accurately characterized as a field-oriented, middle-management position. The volunteer will have extensive contact with farmers. The form of this contact should almost always be collaborative, with active participation by the counterpart chef secteur/sous-secteur or encadreur. The objective of this type of interaction is to increase the capacity of GOT personnel to successfully manage animal traction extension programs.
   Achieving this objective will be the major job challenge for volunteers. It may also be the major source of frustration. The challenge will come from the need to acquire, and then transfer, practical animal traction skills and the technical capacity to adapt packages to farmers' needs. Without these skills, volunteers would not be able to lend credible assistance to extension efforts. Frustration may result from the need to carefully balance the acquisition of animal traction skills with the central task of developing counterpart skills in the management of animal traction outreach programs.

2. Volunteers will work in collaboration with DRDR personnel to carry out the following tasks:
   a. identify farmers whose farming operations meet the criteria for animal traction adoption;
   b. deliver draft animals and equipment to farmers;
   c. establish management and administrative procedures at the sector and subsector levels to provide effective supervision

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of animal delivery, health follow-up, farmer training, animal nutrition, crop extension, and monitoring and evaluation of extension program impact; and,

d. develop the farm management programs at the Centres d'Appui Technique (CAT's or Technical Support Centers) in the Kara and Savanes regions.

3. Technical backstopping for the animal traction volunteers will be provided by the individuals on the technical assistance team (Project Coordinator/Administrator, Agricultural Economist, Agronomist, and Livestock Specialist) and by GOT technicians.

QUALIFICATIONS: A B.S./B.A. degree in agriculture or an agriculture-related field is highly preferred. At a minimum an A.A./A.S. degree is required. Before arrival in the country, volunteers should receive training in animal traction at a U.S. institution with an established animal traction program (e.g. Sam Houston State University). Part of this pre-service training should also include simple farm management record keeping for livestock and crop enterprises.

After training in Togo, volunteers should have a minimum FSI French rating of S-2+, R-2+. A formal in-service training period for both animal traction and local language instruction should be held after volunteers have been at a post for a few months.

ANIMAL TRACTION TRAINERS (3)

LOCATIONS: The PCVs will be assigned to the national animal traction project's training centers at Agbassa and Kamina in 1982 and at Tantiegou in 1983. The volunteer assigned to Kamina will probably reside in Atakpame. The Agbassa volunteer will reside at the center and the Tantiegou volunteer in Dapaon.

SUPERVISION AND REPORTING: The supervision of the volunteers will be done by representatives of the training division of the national animal traction project. Volunteers will report through the project's regional directorates in Atakpame and Kara to the head of the training division.

SCOPE OF WORK:

1. The volunteers will work with the training division to develop, execute, evaluate and modify animal traction training curricula, materials, and procedures. The major thrust of training will be to introduce government and project staff to the practice of animal traction. Trainees will include village extension agents, extension supervisors, students from the national agricultural training institute at Tove and the University of Benin, and middle and upper-level staff from the concerned ministries. Limited amounts of farmer training may also take place at the three training centers.

2. The PCVs will assist their GOT counterparts and supervisory staff in the development of training programs in the following subject groupings:
   - large animal husbandry,
   - animal health,
   - animal traction equipment use, maintenance and repair,
   - forage crop production and conservation,
   - agricultural credit,
   - agricultural extension techniques,
   - agricultural extension supervisors,
   - animal traction program management and administration,
   - data collection and analysis,
   - program monitoring and evaluation.

   The above list should be taken as indicative. Much more detailed program specifications will be carried out by the training division.

3. Volunteers will work and co-ordinate their programs with a wide variety of organizations and individuals, principally those in agricultural institutions and projects active in Togo. The volunteers will obtain subject matter guidance from the Technical Assistants in project co-ordinators,

agricultural economies, organizing and livestock science funded by AID, as well as technicians from national institutions and field services.

QUALIFICATIONS:

1. Due to the training subject matter a minimum A.A. or A.S. degree in an agricultural field is recommended, with a B.A. or B.S. preferred. Experience with the 4-H, FFA, or farm clubs at the leadership level would be highly valuable.

2. Strong communication skills are needed. After training, a solid S-2+, R-2+ FSI score in French is required with S-3, R-3 preferred. Additional in-service French training is recommended after several months working experience.

CATTLE BUYER (1)

LOCATION: The PCV will reside in Dapaon, the regional capital of the Savanes Region. The major work sites will be the Tantiegou buying station, Toaga holding corral, and the regional Animal Health Service in Dapaon. Frequent travel throughout the Savanes and Kara regions will be necessary.

SUPERVISION AND REPORTING: The volunteer will be assigned to the national animal traction project scheduled to be created by the Togolese government in late 1982. The supervising officer for the volunteer will be the northern regional director of the GOT project. Reporting requirements will be established by the northern regional director or his delegate.

SCOPE OF WORK:

1. The initial task of the volunteer Cattle Buyer will be to identify sources of supply for up to 2,000 head per year of draft animals. These animals are destined for distribution to all projects working with animal traction in Togo.

   The current PCV has already established good lines to local suppliers in the Dapaon area. The new volunteer will have to maintain these links and expand them through contacts with merchants, transhumant pastoralists, and sedentary herders.

   Depending on the initial results of this work, it may be necessary for the volunteer to work with GOT officials to establish contacts with suppliers in Upper Volta, Benin and Ghana.

2. The development of an adequate supply of animals requires an efficient buying organization that is trusted by suppliers. Working with project staff members, the PCV will be a central figure in the organization of procedures for price negotiation, inspection, tagging, purchase, reception, and delivery of animals to the national project's buying center at Tantiegou.

   Currently all purchases are made in cash upon delivery of animals. As the volume of purchases will increase greatly in the near term, a crucial task will be the establishment of orderly payment procedures. The PCV will work with project staff to set up payment procedures with the regional office of CNCA (Caisse Nationale de Credit Agricole--the national agricultural credit bank), in Dapaon.

3. As animals will be obtained from a wide variety of sources, their health status will vary considerably. As soon as possible after purchase, cattle will be treated against internal and external parasites, sleeping sickness, and endemic diseases (anthrax, bovine pleuropneumonia, rinderpest, blackleg, etc.), if necessary. To ensure this treatment, the PCV will work with project staff and the Animal Health Service (Sante Animale) to establish standard operating procedures for initial inspection and handling.

4. One of the major purposes of the Togo Animal Traction Development (TAT) Project is to help create viable animal traction services. The development of project staff capabilities in animal supply organization, financial arrangements for purchases and initial health treatments will be a central focus for the volunteer. The volunteer is expected to help staff move from the level of apprentice cattle buyers to individuals who can manage the buying operations with a minimum of supervision.

5. To ensure adequate technical backstopping, the volunteer will coordinate buying activities with the Livestock Specialist assigned to the Tantiegou buying station under the TAT project

QUALIFICATIONS:

1. The volunteer will need a mature, strong character to operate effectively in a trading environment where thousands of animals and up to $500,000 will change hands annually. While cash transactions will be handled through arrangements with CNCA, the potential for abuse exists. Personal integrity is a must for this position.

2. A B.A. or B.S. degree is preferred for this job with an A.A. or A.S. as a minimum standard. Training and/or experience in business skills, farm record keeping or bookkeeping is highly desirable. A ranch or farm background is highly recommended.

3. Language skills. The PCV should have strong French reading and writing skills (FSI S-2+, R-2+) after training. Local language training arrangements should be made as early as possible in the volunteer's tour of duty--fluency in the local tongue will be an invaluable addition to his many required skills.

ANIMAL TRACTION VETERINARY EXTENSION AGENT (3)

LOCATION:

The PCVs will be assigned to a regional Veterinary Health Station in one of three primary regions touched on by this project: Kara, Savanes and Plateau.

SUPERVISION AND REPORTING:

Volunteers will be responsible to the regional representative of PROPTA, through the organizational structure of the GOT Veterinary Health service, as defined in an inter-service agreement, with defined duties. They will be supervised by both the regional representative of PROPTA and of the Veterinary Health service. Volunteers will be paired with a Togolese counterpart from the Veterinary Health service. They will work with their counterpart in assuring the work performance of those veterinary service personnel, DRDR extension agents and skilled laborers, who may be put under their supervision.

SCOPE OF WORK:

1. Serve as a technical advisor for the selection and procurement of draft animals, to ensure healthy animals, in good condition. Pass on these skills to animal buyers and communicate preferred characteristic to sellers.

2. Assist in initial veterinary interventions at the moment of reception of animals, quarantine and any holding period. Advise on and/or administer treatments, as necessary.

3. Organize and conduct training cycles at the nearest holding center, directed at (jointly and/or separately) junior veterinary agents, extension agents, to include the following subjects:

   - animal nutrition
   - animal care (including shelter)
   - health card system
   - insurance system
   - symtomatic treatment of basic livestock ailments
   - use of veterinary medicines (see para 7).

4. Organize and conduct field visits (accompanied by counterpart) to follow-up on center-based training cycles, so as to evaluate on-site performance of junior veterinary agents and extension agents, and to make written recommendations for any needed improvements.

5. Organize and conduct farmer meetings (usually at CATs) to make certain that the themes listed above (para. 3) have been adequately explained by agents and understood by farmer-adopters.

6. Assist in the management and administration of the veterinary station and/or animal holding center to which the volunteer is assigned, in matters that relate to health systems for animal traction animals. This will include rapport with PROPTA, the Veterinary Health service, the local DRDR, and the various antrac projects in the region.

7. Assist in putting into operation and managing the project veterinary medicine revolving fund.

8. Advise on forage crop production within a farmer-adopter's cropping system. Advise, aided by trials, on forage crop conservation for dry-season fodder (construction of pit silos, etc.).

9. Support project and GOT trials in animal production interventions at the farm-level.

GENERAL:

1. Be prepared to perform actual tasks, as required. Not all work will be supervision.

2. Respect GOT procedures, hierarchy and protocol.

3. Include Togolese counterpart in the implementation of all responsibilities.

QUALIFICATIONS:

1. B.S. in animal science (cattle, horses), or have a professional veterinary training.

2. At least minimal farm experience.

3. A minimum FSI French rating of S-2+, R-2+ is required.

4. A thorough PC training program in livestock health and care in semi-arid tropics.

CONSTRUCTION SPECIALIST (1)

LOCATION: The volunteer will reside principally in Kara but will be required to undertake extensive overnight travel at construction and renovation sites throughout the Kara and Savanes regions.

SUPERVISION AND REPORTING: The PCV will be assigned to the Rural Works Service (Genie Rural - G.R.) of the Kara and Savanes region. Supervision will be done by the head of the service after a plan of work is established with the assistance of the regional director of the AID funded animal traction extension program. Reporting requirements will be determined by the head of G.R.

SCOPE OF WORK:

The PCV will work with G.R. staff to construct animal handling facilities at five new animal traction support centers (Centre d'Appui Technique-CAT) in Kara and Savanes regions.

2. In addition to new construction, the PCV will work with G.R. staff to renovate five existing CATs in the Kara and Savanes regions.

3. In line with the purpose of the Togo Animal Traction Development Project (TAT), to work with and strengthen existing services, the volunteer will help establish management and administration services for commodity procurement, delivery, and distribution as well as construction supervision. The PCV will be aided in these efforts by the Project Coordinator for (TAT) and engineers from REDSO/WA.

QUALIFICATIONS:

1. A B.S. in Civil Engineering with some construction experience is preferred. An A.A./A.S. degree in construction design or basic engineering is a minimum requirement. Construction experience is desirable. Peace Corps should provide the recruit with training in basic tropical construction designs and techniques before post assignment. Cement and cement mixes, foundation, wall and roof construction, drainage and sanitary structures, carpentry, and metal work should be covered. Besides having a personal familiarity with basic masonry and carpentry practices used in Togo, the volunteer should be able to work with Togolese skilled workers in the field and with engineers in more formal settings

2. A minimum FSI French rating of S-2+, R-2+ is required.

Participation of Corps Volunteers in Togo Animal Traction

Position	Posts		
	'82	'83	'84
Extension			
Kara	Ketao-Sirka	Kagnlissi	Ketao-Sirka
	Kante	Atchangbade	Kante
	Nadobe	Bassar #1	Nadobe
	Nampoach	Bassar #2	Nampoach
Savanes	Gando	Bougou	Gando
	Toaga	Naki-Est	Toaga
			Savanes #1
Plateau	Atakpame		Atakpame
Animal Buyer	Tantiegou		Tantiegou
Trainer/Ctr Mgt	Agbassa		Agbassa
Vet Ext		Tantiegou	
		Kara	
		Savanes	
		Plateau	
Construction	Kara		
TOTAL PCVs	9	12	10

JOB DESCRIPTION

INTERIM PROJECT COORDINATOR

LOCATION:

The Interim Project Coordinator will reside in Kara, the capital of the Kara region, and site of the northern offices of PROPTA, the National Animal Traction Project. The principal work site will be the present offices of the AID-funded animal traction AIP project in Kara. The Interim Project Coordinator will have extensive responsibilities across the length and breadth of the country in carrying out first-year project implementation activities in preparation for the arrival of the regular technical assistance team, scheduled for September 1983. He/She may be on the road up to 10 days per month.

REPORTING ARRANGEMENTS:

The Interim Project Coordinator will advise and report to the Project Director who is the northern coordinator for regional animal traction activities. He/She will have direct and continuous contact with the AID Project Manager at OAR/Lome in the implementation of initial actions to be undertaken under the TAT project. He/She will eventually cede all authority and responsibility to the Project Coordinator, upon his/her arrival.

SCOPE OF WORK:

1. CLOSE-OUT OF PRESENT ANIMAL TRACTION ACCELERATED IMPACT PROGRAM (AIP)

The first responsibility of the Interim Project Coordinator will be to draw together and conclude the activities under the AID-funded AIP project. The Project Activity Completion Date of this project was extended from June 30 to December 30, 1982 to permit the completion of construction which had suffered a late start, and to provide funds for operational costs during the interim period, before AID-funds under TAT can be made available in first-quarter FY 83. His/Her responsibilities will be doubled in that the regular Project Director will be absent from 9/82 - 6/83 for long-term training in France.

- Work with the Interim Project Director (the Director of Kara region DRDR) in drawing up a list of priority expenditures to be incurred under the AIP before the PACD.
- Oversee the completion of construction at the center in Agbassa. Make final reception and settle all outstanding accounts.
- Maintain necessary office operations in Kara, including monthly progress and financial reporting, disbursement of petty cash and maintenance of vehicle fleet.
- Make out an end-of-project status report, with particular reference to goals and purpose of the project agreement, and responding to the concerns set forth in the project summary evaluation.

follow guidelines which are layed-out by standard, acceptable AID accounting procedures for local currency disbursements.

- Assist in drawing up a final list of technical specifications and probable sources for commodities which are to be procured under the project and which must be ordered within the transition phase.
- Assist in the organization of the receipt, in-country transportation and distribution or storage of project commodities, including vehicles.
- Personally take charge of making arrangements for the arrival and accomodation of four long-term members of the Technical Assistance Team. This includes selection, leasing and arranging for the preparation of housing, contracting for the local fabrication of furniture, and the receipt and installation or storage of household and personal effects.
- Participate in an evaluation of the transition phase, to be carried out with members of the Technical Assistance Team in conjunction with handing over Project Coordinator responsibilities to the long-term replacement.
- Coordinate TAT project activities with other AID country projects and with other animal traction projects funded by other donors, banking institutions and private/voluntary organizations.
- Work with the national Project Director (or his interim) in explaining the process and procedures of TAT project implementation according to AID regulations.
- Act as the primary contact point between AID and Peace Corps volunteers assigned to TAT.

QUALIFICATIONS:

The Interim Project Coordinator must be willing and enthusiastic about dealing on a day-to-day basis with a broad range of Togolese staff and counterparts, European members of development assistance programs, and American technicians, administrators and volunteers.

He/She should preferably have a bachelor's degree in Public Administration or Business Management or a related field. He/She should have a recent history of extended practical, field experience in the organization and operation of an important development assistance program in the Third World.

Ideally, he/she should have experience in rural, farm settings and have a working knowledge of farm systems, specifically those which predominate in West Africa.

The person who is selected for this position must have FSI certified speaking and reading skills at the S-3 and R-3 levels in French.

JOB DESCRIPTION

FACILITATOR

LOCATION:

The TAT Project Facilitator will literally have no permanent residence, although for the record, Kara will be considered as it. The many and varied responsibilities of the Project Facilitator will oblige him/her to be very mobile, to pass considerable time on the road, and to spend extended periods of time (up to 2 weeks) in places like Dapaon, Lome or Warengo. Field work under rudimentary conditions will be the rule.

REPORTING ARRANGEMENTS:

The Project Facilitator will report directly for his/her assignments to the TAT Interim Project Coordinator.

SCOPE OF WORK:

The Project Facilitator is to perform his/her tasks in such a way that the program set out for the transition phase is successful in laying all preparatory work for the project implementation phase which is scheduled to begin in September 1983. In order to accomplish his/her tasks, the Project Facilitator will be called upon to carry out the following assignments:

- Keep constant checks on the progress and quality of both contract and in-house (Peace Corps and GOT workers) construction under the project.
- Handle the arrangements for port (air and sea) reception, customs clearance and in-country transport or storage for all project imported commodities and the household and personal effects of members of the project Technical Assistance Team.
- Handle local procurement of commodities (office supplies, gasoline coupons, etc.) to be procured under the project, including making necessary preliminary contacts for leasing of housing, fabrication of furniture, etc.
- Handle the reception and registration of project vehicles, and help to set up a regular program of project controlled maintenance and repair (with project assigned and trained mechanics).
- Coordinate, with the responsible Associate Peace Corps Director, the settling-in to post of Peace Corps volunteers assigned to the project, including handling matters relating to motorcycle operations and maintenance, and establishing a regular schedule of logistical backstopping and material support - as related to project-related activities.
- Relate to other animal traction projects in the TAT project zone, as needed, in order to build up a spirit and practice of cooperation and mutual support. In this respect, the Project Facilitator serves as a lower-level catalyst

of antrac-type projects around the central pole of PROPTA.

- Perform (or have performed) all other various and sundry sorts of assignments that the Interim Project Coordinator may deem reasonable in order to meet the implementation plan in time for full operations by September 1983.

QUALIFICATIONS:

The Project Facilitator should have the capacity, physical and mental, to work tirelessly, doggedly and with a good spirit. He/She must be able to handle a variety of tasks, in inter-action with an assortment of many personalities, to achieve objectives which may give very little personal satisfaction.

He/She should have "African-smarts", gained from extensive field experience up-country in West Africa. He/She should be able to demonstrate from experience a history of being able to deal with middle-level government officials, merchants, landlords and transporters. He/She should have a record of close and aimable contacts with such diverse parties as Togolese management, European technicians, Peace Corps volunteers and African common and skilled laborers and farmers.

The person selected for this position must have a FSI rated speaking and reading ability in French at the 2+ level.

Animal Traction Data Specialist

1. Basic Statement of Work:

This consultant (due in Togo in April/May 1983) will spend approximately four weeks assisting AID personnel, PCVs, the APCD for ag and rural development, and DRDR extension personnel to develop a simple antrac monitoring evaluation system. The purpose of the system will be twofold. First, the system will allow assessment of the characteristics of successful antrac adopters under the AIP. This will permit the new extension effort to target other farmers with those characteristics, and to avoid farmers with the characteristics of disadopters. Second, the system will establish some benchmarks against which antrac adoption at farm level can be measured.

The importance of developing a simple system requiring very little time and effort on the part of PCVs and extension staff cannot be over-stressed. Any other system would divert valuable time and effort from antrac extension.

Evaluate Characteristics of AIP Adopters:

Farmers who adopted antrac under the AIP and the preceding Peace Corps project fall into two groups, those who continue to use antrac (adopters) and those who have given it up (disadopters). The consultant will help PCVs use their knowledge of the local situation to identify relevant characteristics of adopters and disadopters. Most or all of this information could be quickly gleaned from informal contact between PCVs or extension agents and adopters and disadopters in their zones. Certainly no survey form is needed, although PCVs would need to write notes after collecting the information, in a format worked out beforehand by all the PCVs and the consultant together. The kind of information which might be important in comparing adopters and disadopters is as follows:

1) Village;
2) Ethnic group;
3) Water availability in dry season;
4) Age of farmer;
5) His residential stability in the village; (% of his life he has lived there);
6) The number of active laborers in the family (adolescent or adult) who work in the family's fields;
7) Extent of prior ownership of or experience with cattle;

8) Can he cultivate on as much land as he wants (could he add another hectare? Where would it come from? Would he have to pay rent?)
9) What are his reasons for being either an adopter or a disadopter?
10) Does he rent his animals and equipment out for custom work?
11) Is he a member of a farmer-group? a cooperative?

After this information is gathered from a few adopters and disadopters in each PCV zone, volunteers with AID personnel will be able to draw generalizations about characteristics of adopters and disadopters, possibly decide that certain of these characteristics need more exploration (i.e., if there is a village-by-village pattern, is this due to differences in extension agent quality between village differences in land availability, or something else)? The consultant will suggest how this information can be used by PCVs and extension agents for the next farmer recruitment season.

Monitor Ongoing Activities:

The consultant will work with the PCVs to monitor the success and problems of new adopters under this project, as well as from the AIP and Peace Corps project. If any comparison with non-adopters is made (for example, having the ag statistics service do harvest measuring plots to estimate yield), the consultant must alert the PCVs and extension agents to the great sensitivity required so that neither the adopter nor non-adopter is insulted or made fun of as a result of the comparative yield trial. The consultant will also help the PCVs determine how to monitor success and problems associated with key antrac operations, including plowing, row seeding, weeding, ridging, and properly maintaining equipment and animals.

Qualifications:

The consultant must have done farm level evaluation or research in Africa. He must have basic understanding of farm management economics as applied to African farming, preferably with animal traction. An M.S. in agricultural economics is desirable. The consultant must have project level experience and must know how to work with PCVs to make them discover what they already know. FSI certified S-3, R-3 would be desirable.

2. A second trip to Togo (by either the same or another consultant of similar skills) will come at some point during the life of the project for up to two months, at the request of the TA ag economist and project coordinator. They will draw up the scope of work at that time to reflect their most important needs in expertise for data management, data processing, monitoring and evaluation.

JOB DESCRIPTION

AGRONOMIST

LOCATION:

The agronomist will reside in Kara. Principal work sites will be the demonstration and training fields to be located at ten technical support centers (Centres d'Appui Technique - CAT) in the Kara and the Savanes regions, the pasture and croplands located around the Agbassa and Tantiegou cattle buying, holding and distribution centers, and areas of animal traction extension activity in the two northern regions. Extensive travel and field work under rudimentary living conditions will be necessary.

REPORTING ARRANGEMENTS:

The agronomist will report to the northern coordinator for regional animal traction extension activities, the Project Director. He/She will be expected to interact on a regular basis with extension and production staff of the DRDR. He/She will be a member of the project Technical Assistance Team.

SCOPE OF WORK:

1. ADAPTIVE FIELD TESTING OF TECHNICAL PACKAGE ELEMENTS

While much research on animal traction technologies and their integration with cropping practices has been done in West Africa and in the same or similar agro-ecological zones, field tests are required to adopt this research to the overall Togolese farming context. The agronomist will work with regional staff to develop a phased program of observational tests of technologies on field-sized parcels at the CAT sites and on farmer controlled parcels.

- First priority for field testing will be given to greater utilization of the existing elements of the equipment package, especially the use of weeding equipment;
- another key category will include tillage practices - reduced tillage intensity, scarification, ridging, tie-ridging and post-harvest tillage;
- intercropping to include in-row segments and alternating row systems to demonstrate compatibility of draft animal mechanization and intercropping practices;
- demonstration of crushed rock phosphate and sulfur applications;
- test of forage crop establishment as an undersown relay crop to extend dry season forage availability or to establish legumes as a fallow pasture component;
- one hectare observational test of Leviaena leviocephala as an alley forage crop species.

2. CAT DEMONSTRATIONS

The agronomist will work with GOT extension personnel, and other project technical assistants, to program demonstrations at CATs throughout the growing season. The emphasis will be on cultural practices that are extension themes:

- use of the weeding triangle
- use of the peanut lifter,
- weeding with a single animal,
- cows as work animals,
- conservation of crop by-products
- manure composting.

Demonstrations will be kept separate from field test sites, deal with already tested technologies and use only the equipment a farmer has or can obtain easily.

3. TRAINING

a) The agronomist will provide technical inputs into the development of animal traction training modules, e.g., equipment, foodcrops, forage crops, intercropping, plowing, ridging, weeding, harvesting, crop by-products and hay conservation, etc.

b) The agronomist will play an active role in the progressive transfer of farmer training from regional centers to CATs to on-farm sessions.

4. MONITORING AND EVALUATION

The agronomist will work with other team members to provide guidance on farm-level data collection, analysis and interpretation in areas, such as:

- farm size, structure,
- multiple cropping patterns,
- yield determinations,
- planting dates,
- weeding practices.
- labor utilization,
- pasture, grazing land utilization
- crop storage,
- fallow cycles,
- tree crop use,
- field expansion,
- input use,
- measures of animal traction adoption.

The agronomist will also provide inputs into analysis procedure for monitoring macro-level conditions:

- cropped area expansion,
- run-off estimates, based on stream flow and rainfall records,
- decade rainfall analysis,
- collection of basic natural resource information on soils, vegetation, land capability and land use.

5. EXTENSION

The agronomist will work closely with GOT extension personnel, DRDR management, and PCV's assigned to work with DRDR chefs secteurs or chef sous-secteurs. He will assist all of the above in structuring and carrying out workplans for animal traction extension. Among the members of the TA team, he will be the immediate contact point and technical supervisor for the PCV's.

QUALIFICATION

The individual selected should be willing and enthusiastic about daily programming of work with a broad range of Togolese staff, and should have the personal skills need to work as a close advisor to both Togolese and PCVs.

The agronomist will have to have a M.S. in agriculture, agronomy, crop-science or a related field. A minimum of four years experience with African agricultural systems is required, including work with animal traction cropping practices, traditional smallholder agriculture and agricultural extension.

The person who is selected for this position must have FS certified speaking and reading skills at the S-3 and R-3 level in French

LIVESTOCK MARKETING SPECIALIST

A short-term livestock marketing expert will assist the project's long-term livestock TA to develop activities to promote private marketing channels for draft animals, as well as assist COCA and PROPTA to assess the long term demand for draft animals and the most likely and desirable sources of supply. The livestock marketing specialist will make two trips to Togo. The first, for two months, will occur near the beginning of year-2, after the PROPTA animal supply system has begun to function and the long term livestock specialist has gotten to know PROPTA's suppliers.

The second trip, of one month's duration, will occur shortly before, or concurrent with the evaluation at month 24.

SCOPE OF WORK:

1. ESTIMATE SUPPLY AND DEMAND. The expert will estimate Togolese demand for draft animals for the next several years, sources of domestic supply, and sources of imported supply. He/She will make recommendations of most desirable and economical sources of supply (i.e, adequacy of current Togolese traditional herd? Need for imports from Togo, Benin? Domestic stall feeding? Purchases from Togolese ranches?).

2. PRIVATE TRADERS' ABILITIES. The expert will assess the current capability of private livestock traders to identify and supply suitable draft animals, as well as their willingness and ability to get such animals to farmers in those regions where animal traction is expanding.

3. TRIAL ACTIVITIES. Based on the work performed in (1) and (2) above, the expert will help the long-term livestock specialist to develop several trial activities to promote provision of suitable draft animals by private agents, directly to farmers.

Activities to be considered include the following: Setting up specific times and places for farmers and traders to meet for the purpose of buying and selling draft animals; providing traders with information about important areas of demand where projects will give farmers credit to purchase animals; paying traders to deliver draft animals not to PROPTA, but to the farmer; providing credit to traders who would in turn be expected to provide draft animals on credit to farmers; allowing traders of draft animals to use the Tantiegou station for quarantine and vaccination (the traders being charged full cost for these services); and establishment of animal production contracts with farmer-herders (including stall feeding by sedentary farmers).

The livestock marketing expert will also explore ways to insure that animal insurance and animal health services can be provided to farmers who buy draft animals from private traders.

4. EVALUATION OF ACTIVITIES. The livestock marketing expert's second trip, at the end of the project's second year, will be to assess the success and impact of the trial activities discussed above and to recommend appropriate modifications, expansion, or improvements.

QUALIFICATIONS: The livestock marketing expert must have at least an M.A. or M.S. in economics or agricultural/livestock economics. He/She must have extensive experience with African livestock marketing systems, preferably in West Africa. He/She must have done in-depth field-level research among private African livestock traders and herders. He/She must also have experience in implementing marketing or livestock development projects in Africa. A knowledge of Togolese livestock systems would be a definite plus.

FSI-certified S-3, R-3 levels in French are required. A working knowledge of spoken Hausa would be quite useful.

ANTHROPOLOGIST/SOCIOLOGIST

A short-term anthropologist (3 months) will make a single trip. He/She will assist the project TA team to understand social constraints to the adoption or optimal utilization of animal traction technology. He/She will then assist the TA team to design interventions or technology adaptation to overcome these constraints.

SCOPE OF WORK:

1. CONSTRAINTS TO ADOPTION. The anthropologist will assess major social constraints to adoption of animal traction technology in the project extension zones. Among the social phenomena to be considered are: the extent to which participation in traditional mutual work groups prevents an individual from making optimum use of animal traction; social rationale, if any, for intercropping or not planting in rows; social constraints on the use of available family farm labor in animal traction.

2. SOCIAL IMPORTANCE OF CATTLE. The anthropologist will examine the extent to which the traditional social importance of owning cattle may, among some ethnic groups, impede or encourage farmers to begin using their cattle for animal traction. Is it considered a loss of prestige to use one's cattle for farm labor? Is it socially undesirable to be seen working with cattle? The anthropologist will also assess whether social reasons exist which might make it difficult for cattle owners who traditionally entrust their cattle to the Fulani to begin using their cattle for work on their own farms.

3. SOCIAL POSITION OF FARMER - ADOPTERS. To the extent possible, the anthropologist will assess whether antrac adopters in the project zone serve as role models for their neighbors, or if they are perceived as marginal and not worthy of emulation.

4. RECOMMENDATIONS FOR ACTION. Based on items 1, 2, and 3 above, the anthropologist will recommend project actions to overcome, neutralize, or get around important social constraints to adoption, and to make best use of those social phenomena which might promote adoption. For example, for those ethnic groups where traditional work groups make it difficult for a farmer to use antrac on all his land, what can the project do to encourage greater use of the farmer's antrac unit? Could he use it on his work group members' land in exchange for a greater amount of work on his own land? Could he rent it out to farmers not in his work group while he is working (by hoe) in his group?

5. INFORMATION SUGGESTIONS FOR PCVS AND EXTENSION WORKERS. The anthropologist will determine what sort of social information and traditional agricultural vocabularly is most important for PCVs and extension agents to know in order to be effective promoters of animal traction.

QUALIFICATIONS: The anthropologist must have at least an MA in anthropology or sociology. He/She must have done field-level research in economic anthropology. A knowledge of social and cultural systems of northern Togo is an absolutely essential requirement. Experience in using social science insight to overcome project implementation problems at village level would be highly desirable.

FSI certified S-3, R-3 level in French is required.

JOB DESCRIPTION

PROJECT COORDINATOR

LOCATION:

The Project Coordinator will reside in Kara. He/She will have the occasion to make periodic inspection visits to TAT project sites in the northern regions, and have regular encounters on project matters with PROPTA in Atakpame and COCA in Lome. The Project Coordinator will spend a good part of his/her time in making visits to the managerial units of other animal traction projects in Togo. Road conditions are not always optimal, housing away from Kara can be difficult, and on-the-road working conditions are arduous.

REPORTING ARRANGEMENTS:

The Project Coordinator will advise and report to the Project Director (or his interim), who is the northern coordinator for the GOT regional animal traction program (PROPTA). He/She will maintain direct, close and continuous contact with the AID Project Manager at OAR/Lome in the implementation of the TAT project. He/She will assume the responsibilities of the Interim Project Coordinator on a mutually agreed upon date.

He/She will also be responsible to the headquarters of the contract Technical Assistance Team for overseeing the execution of the terms of the T.A. contract, (presuming that all T.A. team members are contracted from the same consulting firm).

SCOPE OF WORK:

1. <u>COORDINATION OF PROJECT INPUTS</u>

The primary responsibility of the Project Coordinator will be to work as the head of the Technical Assistance Team, within the Project Management Unit (which also includes the Project Director) to help ensure the timely, appropriate and efficient delivery of AID-funded inputs. The Project Coordinator will look for opportunities to improve the implementation of the animal traction program, as outlined in this PP, so as to enhance the chance of progress made towards achievement of project purposes. In order to meet this responsibility, he/she will have to:

- Closely coordinate the technical inputs of the separate members of the the Technical Assistance Team so that while each party may have a specific field of concern, a focus is kept on central project objectives.
- Draw together the training requirements as evidenced in the various fields, and work out, in liaison with training officers of the various animal traction projects, a series of training programs which can use training modules, developed in part by the TAT Monitoring and Evaluation Unit.

- Oversee any required project procurement from U.S. sources; oversee the reception, up-country shipment, and delivery or storage of project commodities.
- Oversee the organization of a program of maintenance and repair of existing project vehicles and the reception and putting into service of additional (or replacement vehicles); oversee the operation of vehicles according to a sound logistical program.
- Oversee construction under the project, including:
  - contracting (where necessary),
  - arranging for in-house (DRDR and Peace Corps) construction,
  - periodic progress checks,
  - reception of finished sites,
  - maintenance of property.

2. BACKSTOP ARRANGEMENTS FOR TECHNICAL ASSISTANCE TEAM

This PP recommends that the four-person, long-term Technical Assistance Team for the AID TAT project be arranged through a single contractor. The Project Coordinator will serve as the principal liaison between the team and the contractor, and between the team and AID in Lome. The Project Coordinator will be considered as the Chief of Party. In this position, in addition to fulfilling certain specific obligations to the contractor in the execution of the contract with AID, the Project Coordinator will also be responsible for:

- Organizing and maintaining all reasonable arrangements for the leasing, equiping, furnishing and up-keep of suitable housing for the Technical Assistance Team.
- Organizing, in collaboration with OAR/Lome, the various rights and privileges of the Technical Assistance Team (and their families) within the administrative structure of the American Embassy community in Togo.
- Organizing, in collaboration with the Project Director and OAR/Lome, a schedule of leave and absences of T.A. personnel that ensures efficient and maximum use of their inputs.

3. PROJECT OPERATIONS

While the Project Director is ultimately responsible for both the long-term project planning and for the day-to-day implementation of the TAT program, AID project management guidelines recommend the close involvement of Technical Assistance, particularly in matters related to financial operations. The Project Coordinator will:

- Assist in the establishment of sound, regular and informative financial procedures, approved by AID. He/She will work closely with the AID Project Manager (OAR/Lome) in ensuring that adequate measures are taken (i.e. training, control of disbursements, organization of petty cash, financial reporting) to guarantee the fiscal integrity of the project.

4. INSTITUTIONALIZATION OF ANIMAL TRACTION

One of the primary objectives of TAT is to begin the process whereby access to the tools (and knowledge) of improved farm management eventually becomes an integral part of the rural farming system in Togo. The Project Coordinator, as the Chief of Party, will be called upon to:

- Co-represent (along with the Project Director and the AID Representative, or his/her designee) TAT on the National Animal Traction Coordinating Committee for the formulation of official policy on matters related to animal traction.
- Advise the TAT Project Director in project implementation.
- Advise the Director of PROPTA in the coordination of TAT project activities within the national animal traction program structure.
- Advise the Directors of the DRDR's of the Kara and the Savanes regions in the planning for and actual implementation of regional animal traction activities, particularly in coordination with other donor imputs to the same region.
- Coordinate AID TAT project inputs, with animal traction programs sponsored by other donor organizations in Togo.
- Coordinate, along with the Project Director and the AID Program Manager (OAR/Lome),
  a) the possible inputs to TAT on the part of private and voluntary organizations (such as Peace Corps) and,
  b) the possible TAT inputs to the animal traction programs of PVO's.
- Coordinate and exchange project information with animal traction-related activities and expertise outside of Togo.

QUALIFICATIONS:

The Project Coordinator must be willing and enthusiastic about dealing on a day-to-day basis with a broad range of Togolese staff and counterparts, European members of development assistance programs, and American technicians, administrators and volunteers.

He/She should have a bachelor's (and preferably a master's) degree in Public Administration or Business Management or a related field. He/She should have a recent history of extended practical, field experience in the organization and operation of an important development assistance program.

Ideally, he/she should have experience in rural, farm settings and have a working knowledge of farm systems, specifically those which predominate in West Africa.

The person who is selected for this position must have FSI certified speaking and reading skills at the S-3 and the R-3 levels in French.

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JOB DESCRIPTION

AGRICULTURAL ECONOMIST

LOCATION:

The agricultural economist will reside in Atakpame, the capital of the Plateaux region, and site of the headquarters of PROPTA, the National Animal Traction Project. The principal work site will be within PROPTA's offices, next to the SOTOCO national office, on the outskirts of Atakpame. While at least 70% of the agricultural economist's time may be spent in Atakpame and Lome, the national capital, he/she will be expected to give considerable technical assistance to the animal traction extension support activities in the two northern regions. Kara and Savanes. He/She will be expected to travel extensively throughout the country (approximately 10 days per month). Field work under rudimentary conditions will be necessary.

REPORTING ARRANGEMENTS:

The agricultural economist will report to the Director of PROPTA as the head of the PROPTA Monitoring and Evaluation Unit and with major advisory responsibilities within the Credit and Training Units. He/She will be assigned specific responsibilities within the outlines of the statement of work, which will require him/her to act as technical and policy advisor to the national Animal Traction Coordinating Committee (COCA), to the extension activities of the regional development organizations (DRDR - with a particular accent on the activities of TAT in the Kara and Savanes regions), and to the directional units of the other animal traction projects in-country. He/She will be a member of the project Technical Assistance Team.

SCOPE OF WORK:

1. MONITORING AND EVALUATION

The agricultural economist will participate in the establishment of a data collection, analysis and interpretation process. He/She will use the output of this data process to initiate and maintain a continuing evaluation of the economic feasibility of alternative production strategies using animal traction based on real farm-level conditions in Togo.

2. CREDIT

The agricultural economist will determine parameters to the financial packaging requirements for smallholder animal traction and production credit based on the analysis of debt carrying capacity and ability to repay. He/She will also monitor the performance of credit programs, evaluating repayment rates and analyzing reasons for non-payment.

3. POLICY

The agricultural economist will make major inputs into the progressive formulation of national animal traction policy and its implementation with GOT institutions and donor-assisted projects. This will entail extensive interaction with COCA, GOT ministries, other donors and other animal traction projects.

4. DRDR's

The agricultural economist will be available to the two northern DRDR's animal traction extension programs as a technical resource. He/She will provide farm management counseling and training to DRDR field staff.

5. OTHER TEAM MEMBERS

The agricultural economist will collaborate with the other AID-TAT technical assistants in developing a range of options in livestock and crop management and assessing their economic viability. As an outgrowth of the preceeding evaluations, he/she will participate in specifying equipment packages and their use, based on assessment of alternative viable livestock and cropping packages.

6. TRAINING

The agricultural economist will assist the training cell within PROPTA in developing training programs for extension agents, veterinary agents and loan officers. He/She will also be responsible for assisting individual projects in implementing the training programs.

QUALIFICATIONS:

The agricultural economist will have, at minimum a M.S. in Agricultural Economics. He/She should have specialization fields in production economics and farm management.

The agricultural economist should have a minimum of 4 years of overseas experience in developing countries, preferably in Africa. He/She should have first-hand knowledge of animal traction production systems at the farm level. He/She should have experience in designing and implementing programs of data collection, interpretation and analysis in a Third World context.

Given that a major aspect of the agricultural economist's work will involve extensive interactions with GOT institutions and other donors, he/she will have to have a minimum speaking, reading and writing ability of 3 on the FSI scale. These language skills should be verified as part of the recruitment process. French is the required working language.

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JOB DESCRIPTION

LIVESTOCK SPECIALIST

LOCATION:

The livestock specialist will reside in Dapaon, the capital of the Savanes region. The principal work sites initially will be Tantiegou, where the national animal buying center is to be constructed, Toaga, the temporary buying center and holding site, and Agbassa, the current holding site for the Kara region. The specialist will have to undertake significant amounts of travel to the technical support centers (CATs) in both the Savanes and the Kara regions to investigate on-farm animal husbandry questions and may need to travel to dry season grazing areas in Upper Volta, Ghana and Benin.

REPORTING ARRANGEMENTS:

The livestock specialist will report to the national head of PROPTA in Atakpame through the Project Director, the northern regional coordinator of animal traction extension activities, situated in Kara. He/She will be a member of the project Technical Assistance Team.

SCOPE OF WORK:

1. ANIMAL PURCHASE, HOLDING AND DISTRIBUTION

The livestock specialist will work with Togolese counterpart staff to establish standard operating procedures for the purchase, quarantine, and distribution of draft animals for all animal traction projects in Togo. This work will include the transfer of buying operations from the temporary holding pens in Toaga and Dapaon to Tantiegou as a first priority for the 1983/84 season. Standard procedures need to be developed for:

- evaluation of animal conformation and suitability for draft work;
- animal handling procedures during purchase, i.e., ear tagging, ear tatooing, deticking, purchase records, shipping records;
- feed rations for the dry and rainy seasons;
- open-grazing, confined pasture and ration feeding programs for a herd of cattle; and,
- arrangements with the animal health service for health inspections, vaccination, sleeping sickness treatments, deworming, easing of shipping stress and other special treatments.

2. FARM LEVEL ANIMAL HEALTH CARE FOLLOW-UP

The project will call on the veterinary skills of the animal health service (Division of Veterinary Services and Animal Health - DVSA) to supply regular health care to draft animals at the farm-level. Current

modes of DVSA operations encompass vaccination campaigns, inspection of marketed livestock and acute illness and injury care at the farm. Draft animals distributed to farmers will require a different type of care, one based on programmed preventative intervention to ensure animal well-being and to meet the contractural obligations of the animal insurance program. While the livestock specialist will not be involved directly in animal diagnosis and treatment, the person selected for the job will work with PROPTA officials, DVSA staff, and regional extension management personnel to develop a central livestock registry and draft animal health card systems. The registry and card systems will be used to program health care, back up insurance claim decisions and monitor the special health requirements of the draft animal population.

3. ON-FARM FEED AND NUTRITION

The adoption of animal traction requires the intensification of animal husbandry activities on the farm. A special emphasis must be put on maintaining animal weight and conditioning throughout the year, with special attention to dry season maintenance and growing season work needs for carbohydrate, protein and mineral nutrition. Project efforts in this regard will be focused initially on farmer management of locally available forage, browse, fodder and cured fodder. Special attention will be paid to better utilization and conservation of crop by-products, such as cereal crop stover, peanut hay, cowpea hay, etc. Working with the agronomist, the livestock specialist will investigate the introduction of leguminous forage and fallow forage cover crops into farm rotations.

The livestock specialist will also work with regional animal productions and extension authorities to develop work ration recommendations and to determine practical procedures for supplementary ration supply, e.g., between grain, cotton seed, and provision of mineral supplements from locally found deposits, without recourse to expensive imported salt and mineral licks.

Given the animal supply questions, particular effort should be directed to the nutritional needs of cows used for draft purposes. Attention should be paid in these investigations to maintenance, work and lactation requirements for working cows. A corollary effort would be the examination of the nutritional requirements of calves weaned during the dry season.

4. HERD MANAGEMENT

Current demand for male animals in the useful age classes for animal traction is high, both for meat and draft. The availability of imported animals is restricted, due to heavy competition from Nigeria for Upper Volta and Benin cattle herds.

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Current Togolese efforts at increasing cattle production mainly follow capital intensive methods. Little if any attention has been paid to improving extensive herd management with herd health, grazing management or selective breeding procedures.

The livestock specialist will participate in the elaboration of two types of herd management studies. The first will involve the observation of extensive herd management practiced by the Peul and other ethnic groups. Both the Animal Production Service and the Agricultural Survey and Statistics Service will be involved in the effort to design a sampling and data collection activity. This activity will be integrated within the agricultural production sample survey carried out each year on questions of herd growth rate and composition, life structure, pasture land occupation, migration routes, watering and grazing rights and practices, health, etc.

5. DEVELOPMENT OF PRIVATE MARKETING CHANNELS.

Beginning with the first short-term visit of the livestock marketing expert, the livestock specialist will begin to develop a set of trial activities to be undertaken in years two and three of the project. These activities will encourage private traders to supply suitable draft animals to farmers-adopters covered by various projects, including the AID project. These activities might include: (a) setting up specific times and places for farmers and traders to meet for the purpose of buying and selling draft animals; (b) providing traders with information about important areas of demand where projects will accord farmers credit to purchase animals; (c) paying traders to deliver draft animals not to PROPTA, but to the farmer; (d) providing credit to traders who would, in turn, be expected to provide draft animals on credit to farmers; (e) allowing traders of draft animals to use the Tantiegou station for quarantine and vaccination (the traders being charged full cost for these services); (f) and establishing animal production contracts with farmer-herders(possibly including stall feeding by sedentary farmers).

The livestock specialist will also explore ways to insure that animal insurance and animal health services can be provided to farmers who buy draft animals from private traders.

6. TRAINING

Along with the other technicians on the team, the livestock specialist will be expected to provide technical inputs into the development of training curricula and materials for animal health, production and extension personnel.

7. MONITORING AND EVALUATION

The specialist will advise M&E personnel on sampling, data collection and analysis of livestock information.

QUALIFICATIONS:

Due to the short duration of the assignment (two years), the livestock specialist needs the ability to start quickly and concentrate on early set-up and transfer of cattle buying and holding operations from Toaga to Tantiegou. The individual should be enthusiastic about daily work with a variety of counterparts.

The livestock specialist must have a M.S. degree in animal science with some training or experience in livestock marketing practices, and working as a trainer. It would also be helpful to have experience in range or pasture management. He/She should have a minimum of four years experience with African livestock and animal traction problems. West African experience is preferred.

The individual should have S-3 and R-3, FSI certified speaking and reading levels.

FINANCIAL PLAN

PROCUREMENT PLAN

AID Financed Commodities and Source/Origin:

AID funds made available under the Grant will be used for the procurement of the following commodities by source/origin:

A. Code (000) U.S. only:

1. Office equipment (part)
2. Veterinary equipment and veterinary pharmaceuticals (part)
3. Animal/farm equipment (part)
4. Training equipment (subject to equipment selection and availability)
5. Surveying equipment (subject to equipment selection and availability of metric system gradations)

B. Code (935) Either purchased locally or specifically imported:

1. Four-wheel vehicles, trail motorcycles, mobylettes and bicycles
2. Animal/farm equipment (tool kits, tarpaulins, pumps)
3. Kerosene/electric refrigerators
4. Office equipment: Manual typewriters, Duplicators, Photocopier and Electronic Scanning Machines

Specific source/origin waivers are being requested from AA/AFR in this PP for:

Four-wheel vehicles, trail motorcycles, mobylettes and bicycles, refrigerators and office equipment such as manual typewriters, duplicators, photocopiers and electronic scanning machines.

C. Indigenous Items/Shelf Items:

1. Revolving Fund (animals, traction equipment, veterinary items-partial)
2. Operating Expenses (POL, utilities, office/paper supplies and job printing)
3. Construction/Contracting Services and Construction Materials required under the project are readily available locally. Items include cement, iron reinforcing bars, aluminum roofing and some plumbing and electrical fixtures, as appropriate. Construction materials are not broken out separately. They are lumped together as part of the cost of locally obtained contract construction

services. The small magnitude of construction activity called for under the project is another reason for this treatment of the item.

Local cost shelf item procurement as authorized in HB 1, Supplement B, Chapter 18 will be utilized for procurement commodities and equipment which are normally imported and kept in stock in the form in which they are imported for sale to meet a general demand.

It is expected that local currency financing will amount to approximately $1,400,000 of which it is estimated that $400,000 will be required for shelf-item (indigenous items) procurement. However, a waiver is being requested of the authorized limitation to ten percent (10%) of Code (935) Shelf Items financed by AID, to a limitation of 20 %, as appears elsewhere in this PP.

Host-Country Commodity Inputs:

Timing of the host-country funding contributions is not crucial to contemplated procurement of AID-financed inputs.

Methods of Procurement

A. Code (000) items will be procured in accordance with AID HB 11, Chapter 3 through a host-country selected U.S.-based procurement services agent (PSA), concurred to by AID. Payment for these items will be through an AID/W issued direct letter of commitment, initiated by an OAR/Lome approved PIO/C.

   The GOT does not have at present, the capability to implement the necessary procurement actions, and there are no private concerns in Togo capable of executing procurement in accordance with AID regulations. The small projected service charges payable to the PSA precludes formal IFB selection of the PSA. Exceptions to use of the PSA might occur in those instances where the OAR/Lome, in collaboration with the JAO, may procure directly from U.S. suppliers on behalf of the host-country for selected items under GSA contracts.

B. Code (935) items to be imported specifically for the project will be procured under appropriate waiver authority by the OAR/Lome, in collaboration with the JAO, on behalf of the host-country.

C. Local shelf items, or indigenous commodities, will be procured by the host-country implementing agencies in accordance with established AID procedures using advances and/or reimbursement methods.

   Project Implementation Orders (PIO/C) will be used in all cases under which procurement is made, i.e., to establish an AID/W direct letter of commitment to the PSA and to cover OAR-issued purchase orders, or

reimbursements to the host-country. PIO/C documentation is to be drawn up by the AID project manager, in consultation with the project implementation/management unit and cleared by the AID Representative in Lome prior to submission to the Director of REDSO/WA for approval. Purchase orders for specific items covered under the PIO/C's will be issued by OAR, with the collaboration of the JAO in Lome, as necessary.

Transportation and Insurance:

A. Ocean transportation and insurance costs have been calculated at 60 percent of FAS cost for furniture and major appliances, and 50 percent of FAS cost for other large equipment pieces. Ocean transportation and insurance will be arranged by the PSA or the GSA contractor, depending on the item.

   Items procured in the U.S. will be shipped to the port of Lome in U.S. flag bottoms. U.S. flag bottoms call regularly in Lome. Lome is a modern unencumbered port with good handling and warehouse facilities, and with an excellent security record.

B. Air transportation and insurance costs, via air freight, are calculated at the rate of $5.00 per pound. Whenever feasible small items bought in the States will be grouped in large trunk-like cases and shipped as unaccompanied baggage, and charged to the project. Air shipment routes to Lome are best arranged via Paris. U.S. flag carriers can be used from the U.S. to Paris. Non-U.S. flag carriers, up to five flights per week, have a reputation for efficient and rapid delivery of goods at the Lome airport warehouse.

C. All imported items, from whatever source, will be addressed to the AID Representative, American Embassy, B.P. 852, Lome, Togo. The Government of Togo, Ministry of Rural Development, does not staff a shipping and receiving unit that is capable of efficiently expediting the receipt, clearance, temporary storage and delivery of imported commodities for donor-funded development projects. The project field implementation and management team is situated up-country, approximately 300 miles from the coastal capital of Lome, and will be unable to play a primary, initiatory role in the range of operations required to handle the reception of imported items. The Joint Administrative Office (JAO) of the American Embassy in Lome will arrange custom clearance, temporary storage and local handling, and will notify the AID project manager, within OAR, of the arrival schedule of commodities and the personal/household effects (including POV) of the technical assistance members. The AID officer will notify the project management unit (Project Coordinator and Project Director) in Kara of this information. The project management unit will promptly arrange for any extended storage needs and/or will arrange inland transportation, either with project vehicles (including those vehicles which are supplied as part of the GOT project contribution) or by other vehicles provided by the GOT, as required (insurance of commodities after arrival in Lome will be limited to those items which may be transported

by a rented vehicle, and the charges will be borne by the GOT).

Motorized vehicles, of all sorts, procured by the project, are the only manufactured commodities which are to be locally insured with AID funds over the life of the project. Insurance for four-wheel vehicles will include personal liability, collision, fire and theft. (The GOT does not insure vehicles registered in its name, and is its own insurer.) Draft animals, distributed to farmers, are also to be covered by insurance in certain eventualities, under the condition of strict observance of a plan of animal care. This program is discussed elsewhere in this paper.

Records and Accounting

The JAO will keep arrival records and any related accounting records, and provide copies for both the AID project manager and the project implementation/management team leader, the Project Coordinator. The JAO in Lome is staffed with shipping and receiving personnel who are trained in standard USG (AID) procurement and transportaton procedures and have experience in drawing up and keeping the essential records.

The JAO is seconded in its receiving responsibilities by a senior administrative assistant (FSN) in the OAR. All fiscal documentation in support of the total cost of goods and services to be procured and transported under this project will be drawn up in the OAR by the senior administrative officer for review and certification by the AID project manager.

In instances where procurement is made other than through a PSA, payment documentation will be administratively approved by the AID project manager and sent by weekly air pouch to the West Africa Accounting Center within REDSO/WA at Abidjan for approval and authorization of payment. Given that WAAC's review of invoices reveals a certifiable expenditure under the project, authorization for payment is made by WAAC and a check is ordered from the Regional Administrative and Management Center in Paris generally within fifteen working days after receipt of all documentation in Abidjan. Checks for payment of commodities and services procured in-country and in Code (935) countries will be ordered in the currency specified by the supplier, addressed to an account or address of his choice.

Reimbursement to PSA, for expenditures incurred in procurement of commodities and services in the U.S. will be approved by AID's New York certifying office and paid by dollar check issued by AID/W FM/BFD against the underlying letter of commitment.

Operations and Maintence of Commodities

No special assembly, erection or start-up services are required for any of the commodities which are scheduled to be procured under the project. No manufacturers' representatives will be required to travel to Togo to assist in the installation of equipment, or in training in the operation and maintenance of any commodities. The equipment to be procured is of a sufficiently

simple design as to be set up and operated with ease by Togolese personnel with their current level of skills or aptitudes. In many cases, commodities of the the sort which are being procured under this project, already exist in-country and personnel are familiar with their utilization.

In the case of special office equipment, such as manual typewriters, photocopiers, electric stencilers and mimeograph machines, Togolese sales and service centers are firmly established and have spare parts, operating materials and trained repair personnel to support machine functioning and maintenance. Maintenance and repair agents of these office equipment supply centers make regular visits to major northern cities within Togo to service equipment on-site. Some parts and office material supplies are found in northern bookstores and stationery shops.

Maintenance and repair of four-wheel vehicles procured under the project is assured at several levels. As part of the GOT contribution to the project, three mechanics are assigned to the project vehicle fleet which will include two station wagons, three pick-up utility vehicles (U.S. contribution) and several trucks to be used primarily for the transportation of project livestock (GOT contribution). The mechanics are outfitted with simple garage tools procured under the project to permit them to carry out first echellon maintenance and the replacement of some used parts. Mechanics in Togo are generally well-trained in technical schools, and have a wide range of abilities relevant to support of vehicles which must be driven on Togo's outback roads. Several large sales and services garages, representing major European and Japanese car and truck manufactuers, are located in Lome, with branch part-outlets situated up-country in some cases. A well-equipped garage is located in Yade, ten kilometers from Kara, and central to the project's northern operations. The garage mechanics work under the supervision of a German volunteer under a long-term arrangement which is expected to continue. The AID animal traction activity frequently had the occasion to use the garage's services satisfactorily. The garage's management has agreed to take on the project's mechanics, one at a time, to give them additional training. This training would be at no cost to the project.

The makes and models of motorcycles, mobylettes and bicycles, scheduled to be procured under this project (assuming that the appropriate waiver is granted) exist already in Togo. The network of parts and service has been built up over the years. The specific models to be procured have been chosen for their general ruggedness and reliability as well as for the regional availability of replacement parts. Peace Corps volunteers are given an intensive training course in the use and field maintenance and repair of their own motorcycle. Users of all two-wheel vehicles procured under the project are given a monthly fuel and up-keep allowance by the project which must be specifically accounted for in order to obtain replenishment. Major repairs will be handled separately.

The farm and livestock equipment to be procured under this project is of U.S. manufacture and is generally considered to be of the most durable construction that can be obtained. No difficulties in reliability of operations and maintenance capability are foreseen. Only the four livestock scales will require any particular attention in their installation and upkeep. Livestock scales of European manufacture exist in the country, and

Togolese technical personnel are familiar with their operation. The livestock specialist member of the technical assistance team is also expected to have experience in the basic operation of veterinary equipment.

EQUIPMENT LIST

The project equipment and material list included below is intended to be specific enough so that the AID project manager, assigned to OAR/Lome, in consultation with the Interim Project Coordinator, will be able to draft Project Implementation Orders for Commodities, based on the descriptions given here.

Vehicles

Station wagon, 5 passenger, 4-doors with rear hatch-style tailgate. Outfitted with radial tires. Given rural road conditions and limited passage ways in farm areas, wheel-base (turning radius) should be small. Vehicle should be outfitted with heavy duty shock absorbers and a metal protective plate under the crankcase. Vehicle should not be equipped with emission control devices, multi-barrel carburators, heater or rear-window defroster. Estimated vehicle fuel consumption should be rated no less than 20 mpg for open country driving. Vehicle should be equipped with air conditioner due to extended hot season and need for T.A. members to perform often and well after extensive travel.
Suggested sources: (Geographic Code 935 procurement is being requested for all project 4 and 2-wheel vehicles.)
Suggested sources: French manufacturers, such as Peugeot or Renault; Japanese manufacturers, such as Datsun or Toyota.

Light-weight pick-up wagon, 3 passenger, bench seat, with flat rear carrying space of approximately 6 m^3 dimensions, with an approximate load capacity of 400 kilos. Vehicle should be easy-to-turn, have manual steering, with short wheel base. Special specifications: radial tires, heavy-duty shock absorbers and a metal protective plate under the crankcase. Vehicle should not be equipped with emission control devices, multi-barrel carburators or heaters. Vehicle should be equipped with a canvas (or canvas-like) removable tarpaulin. Estimated vehicle fuel consumption should be rated at no less than 25 mpg for open country driving.
Suggested sources: (see Station wagon, above.)

Motorcycle, commonly referred to as "trail-bike", of about 100 cubic centimeter piston displacement rating, capable of withstanding rugged treatment on dirt and gravel back roads and paths. Special specifications: heavy-duty shock absorbers, kick-start, protective shield over raised muffler/exhaust system. Estimated cycle fuel consumption should be rated at 80 k/l. Cycle should have its own basic tool repair kit. Should be devoid of fancy trappings. A sturdy baggage carrier, mounted behind the seat, is desirable. Trail-bike type tires are required. Five speeds. With tire pump. Front headlight and rear running and break lights.
Suggested sources: Japanese manufacturers, such as Yamaha, Honda and Suzuki.

Mobylette, a motorized bicycle of less than 50 cc piston displacement. Single seat with a rear-mounted light-weight baggage carrier. No fancy trappings, with a rear-view mirror, buzzer mounted on handle bar, front headlight and red rear riding light. Equipped with basic tool repair kit, tire pump.
Suggested source: France.

Bicycle, of simple construction, three speeds, hand breaks, medium-weight frame and medium-weight tires (non-racing characteristics). Single seat with a light-weight baggage carrier behind. No fancy trappings, with a single battery-operated light in the front and a reflector in the rear. Equipped with a basic tool repair kit and a tire pump. Should be easy to maintain by owner of no special mechanical aptitudes. Warning bell mounted on handle bar.
Suggested sources: Japan, Taiwan, Members of the European Economic Community.

Office equipment and furniture

Photocopier, any-paper copier for use in an office, with single sheet feeder system. Equipped with accessories: standard letter-size cassette, standard legal-size cassette, ledger-size cassette, universal cassette, drum kit, and heater roller kit. Supplies should include toner (1400 gram bottle, 60 ea.) and developer (1 1.2 Kilo bottle, 10 ea.). Electrical requirements: 210-220 volts, 50 Hz, with three-pronged, properly grounded connection.
Suggested source: Sharp Electronics Corporation, Government Marketing Center, 2341 Jefferson Davis Highway, Arlington, Virginia 22202, as under agreement with the General Service Administration.

Federal Supply Service, Authorized Federal Supply Schedule, FSC Group 36 Part IV Class 3610, Contract No. GS-00S-41025 (Effective through September 30, 1982).

Electronic Scanning Machine, table top model, capable of automatic production of a facsimile of an original on an electronic regular or paper stencil or P.R.P. copy paper, with simultaneous preparation of an overhead projection transparancy, if desired; to handle originals of app. 270mm x 375mm with variable scanning rate between 150 to 650 lines per inch during 3-14 minutes for a 178mm original; self-cleaning stylus, with exhaust filter and plastic safety cover.
Electronic requirements: 210-220v/50Hz, with three pronged, properly grounded connection. Suggested sources: (see Duplicator, below)

Duplicator, plain paper, semi-automatic loading with floating feedboard, capacity of app. 500 sheets of 20 lb duplicating paper, with digital counter, automatic inking with operator override, automatic or "operator mode" selector, capable of producing up to 150 copies per minute. Electrical requirements: 210-220v/50Hz, with three-pronged, properly grounded connection. Duplicating area of app. 210mm x 340mm. Supplies should include paper stencils and ink.
Suggested source: Gestetner Corporation, c/o Government Contracts Manager, 2151 Arlington Blvd., Arlington, Virginia 22201, as under agreement with the General Service Administration, Federal Supply Service, Authorized Federal Supply Schedule FSC Group 36 Part II,A and B; FSC Class 3610; Contract No. GS-00S-23622 (see extension of last contract, valid through June 30, 1982).

Annex 13

MINIS... PLAN,
ET DE LA REFORME ADMINISTRATIVE

REPUBLIQUE TOGOLAISE
Union - Paix - Solidarité

CABINET

Lomé, le 2 SEP. 1982

GOVERNMENT OF TOGO REQUEST FOR ASSISTANCE

N° 1649 /MPRA/CAB

Le Ministre du Plan,
et de la Reforme Administrative

à Monsieur LE REPRESENTANT DE L'US.AID AU TOGO
AMBASSADE DES ETATS-UNIS AU TOGO

L O M E

Monsieur le Représentant,

Nous avons eu l'occasion de bénéficier du concours de l'organisme que vous représentez chez nous, pour le développement et la promotion de la culture attelée dans la région de la Kara et d'un commun accord, nous avons envisagé, tout récemment d'étendre cette opération à l'ensemble de la zone nord du pays ; incluant précisément les régions de la Kara et des Savanes. par ailleurs l'institution nationale qui est en train de voir le jour et qui vise, à la promotion de la culture attelée à l'échelon national, doit pouvoir bénéficier également du concours de votre organisme.

Par la présente, je voudrais vous réitérer le vif intérêt que nous manifestons à l'égard, d'une part de la promotion de la culture attelée au TOGO et d'autre part, du concours précieux que nous attendons de vous pour développer chez nous cette technique.

Veuillez agréer, monsieur le Représentant, l'assurance de ma considération distinguée.-

P. le Ministre du Plan et de la Réforme Adm.
Le Ministre du Développement Rural,

A. GASSOU

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LOME 586

Action PDO
Info
Due Date 2/02
Action Taken

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FM AMEMBASSY LOME
TO AMEMBASSY ABIDJAN IMMEDIATE 8196
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UNCLAS LOME 00586

31 JAN 83
TOR: 1459
CN: 04953
CHRGE: AID
ACTION REDSO-2
INFO DCM WAAC
RIG CHRON 6/HS

AIDAC

E.O. 12356:N/A
TAGS: TO, EAID, LDC
SUBJECT: GA ACTION ON LEAST DEVELOPED DESIGNATION
- FOR TOGO

REF: LOME 7135

FOLLOWING CABLE USUN 4144 IS REPEATED FOR YOUR INFORMATION:
QUOTE THE GENERAL ASSEMBLY APPROVED BY CONSENSUS ON 15
DECEMBER 1982 RESOLUTION A/C.2/37/L.17 "IDENTIFICATION
OF THE LEAST DEVELOPED AMONG THE DEVELOPING COUNTRIES"
ADDING DJIBOUTI, EQUATORIAL GUINEA, SAO TOME AND PRINCIPE,
SIERRA LEONE AND TOGO TO THE LIST OF LEAST DEVELOPED.
UNQUOTE. FYI: PASS THIS INFO TO SPEERS FOR TOGO ANIMAL
TRACTION PP. WALKER
BT
#0586

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LOME 586

VV FGI054EHV545 UNCLASSIFIED STATE 172146
UO RUFHPC
DE RUEHC #2146/01 1730413
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FM SECSTATE WASHDC PID APPROVAL CABLE AND RESPONSE
TO RUFHPC/AMEMBASSY LOME IMMEDIATE 4437
INFO RUEHAB/AMEMBASSY ABIDJAN IMMEDIATE 7133
BT

22 JUN 92
TOR: 1220
CN: 49848
ACTION: AID
INFO:
AMB
CHRON

UNCLAS SECTION 01 OF 03 STATE 172146

AIDAC, ABIDJAN FOR REDSO/WA

E.O. 12065: N/A
TAGS:
SUBJECT: TOGO ANIMAL TRACTION DEVELOPMENT (693-0218): PID REVIEW

1. FOLLOWING PRELIMINARY PID REVIEW, MAY 20, AND EXTENDED OPPORTUNITY FOR ALL INTERESTED PARTIES TO EXAMINE DOCUMENT, PID REVIEW COMMITTEE ON MAY 27, RECOMMENDED PID APPROVAL AND DEVELOPMENT OF PP FOR FY 92 DESIGN. ECPR LEVEL REVIEW HELD JUNE 16, 1992 CHAIRED BY REGIONAL DAA/AFR CORREL.

REVIEW COMMITTEE RECOMMENDED APPROVAL, IN PART, TO A GENERALLY COMPLETE DOCUMENT. NONETHELESS, EVOLVING NATURE AND SUBSTANCE OF AID POLICIES AND GUIDELINES, AS REFLECTED IN DIRECTIVES AND HANDBOOKS, LEAD THE REVIEW COMMITTEE TO CHARGE THE PP TEAM WITH THE INSTRUCTIONS, RECOMMENDATIONS AND COMMENTS DETAILED BELOW.

2. PROJECT ECONOMIC ANALYSIS: REVIEW COMMITTEE EMPHASIZES

THAT THE PROJECT SHOULD BE BASED UPON A SYSTEMATIC FINANCIAL AND ECONOMIC ANALYSIS. THE FINANCIAL ANALYSIS REQUIRES THAT ALL COST AND INCOME STREAMS BE ESTIMATED. ECONOMIC ANALYSIS WILL CONSIST OF QUANTITATIVE AND QUALITATIVE SECTIONS. (A) QUANTITATIVE SECTION WILL ESTIMATE INTERNAL RATE OF RETURN OR OTHER APPROPRIATE BENEFIT-COST TYPE ANALYSIS OF THE PROJECT OR OF INDIVIDUAL PROJECT ACTIVITIES WHICH IN TURN CAN BE AGGREGATED. ECONOMIC ANALYSIS SHOULD STRIVE TO INCORPORATE EFFECTS OF MAJOR DISTORTIONS, PARTICULARLY INPUT AND OUTPUT SUBSIDIES. (B) QUALITATIVE SECTION SHOULD CRITICALLY DISCUSS OTHER ECONOMIC EFFECTS OR CHARACTERISTICS OF PROJECT SUCH AS ECONOMIC LINKAGE POTENTIAL, INCOME DISTRIBUTIONS, AND FOREIGN EXCHANGE EFFECTS.

ECONOMIC ANALYSIS SHOULD CONSIDER HOW RECURRENT COSTS (POST-PROJECT) WILL BE MET, I.E., PRIVATELY BY USER FEES, OR PUBLICLY BY GOVERNMENT PROGRAMS. IF THE GOVERNMENT WILL INCUR RECURRENT COSTS, THEN A DISCUSSION SHOULD BE INCLUDED OF THE GOT'S FUTURE BUDGET CAPACITY.

3. PROJECT VIABILITY: THE REVIEW COMMITTEE ASSUMES THAT OAR/LOME WOULD NOT HAVE PROPOSED THE SUBJECT PID UNLESS THE MISSION BELIEVES, BASED IN PART ON EXPERIENCE, THAT THERE IS A SOLID PROSPECT OF BEING ABLE TO OFFER ADDITIONAL TOGOLESE FARMERS ANIMAL-TRACTION TECHNOLOGY THAT

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IS A GOOD INVESTMENT FOR THEM AND THAT THEREFORE THEY WILL, WITH SOME EXPERIENCE, DEMAND AND BE WILLING TO BUY AT FULL COST. THE CONSULTANT GAVE SOME ASSURANCE ON THIS POINT.

HOWEVER, THE STATEMENT IN THE PID THAT "FOR MANY REASONS, AN AGRONOMIC PACKAGE THAT WORKS IN ASSOCIATION WITH ANIMAL TRACTION HAS NOT BEEN DEVELOPED" PUZZLED AND CONCERNED SOME MEMBERS OF THE REVIEW COMMITTEE. THE COMMITTEE TAKES IT TO MEAN THAT AN ANIMAL-TRACTION TECHNIQUE APPROPRIATE TO A SPECIFIC AREA MUST BE WORKED OUT IN THE AREA ITSELF AND THAT THE MISSION FIRMLY EXPECTS THAT THIS CAN BE DONE EARLY IN THIS PROJECT. THE COMMITTEE IS WILLING TO ACCEPT THIS ON THE BASIS OF THE CONSULTANT'S ASSURANCES AND ON THE BASIS OF THE AVAILABILITY OF A SUBSTANTIAL AMOUNT OF EXPERIENCE WITH ANIMAL TRACTION IN THE REGION UNDER THE AIP, THE ENTENTE FUND FOOD PRODUCTION PROJECT, AND RELATED EFFORTS IN BENIN, GHANA, AND UPPER VOLTA.

THE PROJECT PACKAGE MUST BE KEPT VIABLE THROUGH THE INSERTION OF A STRONG AND COMPLETE MONITORING AND EVALUATION PLAN, CONTAINED IN THE PP, WHICH INCLUDES ELEMENTS OF FIELD TESTING AND PRACTICAL APPLICATIONS OF THE PACKAGE IN ORDER TO IDENTIFY WAYS AND MEANS BY WHICH PROJECT ELEMENTS MAY BE ADJUSTED THROUGHOUT THE COURSE OF IMPLEMENTATION. EARLY AND REPEATEDLY SCHEDULED EVALUATIONS (FOLLOWING UP ON A RIGOROUS PLAN OF MONITORING) SHOULD PROVIDE THE REQUISITE FEEDBACK TO ADJUST THE PACKAGE, INCLUDING SUPPORT SYSTEMS, TO FIT THE FARMER'S CROP AND CASH NEEDS.

OPPORTUNITY FOR SUCCESS AND POTENTIAL EXPANSION OF AN ANIMAL TRACTION PROGRAM IN TOGO SHOULD NOT BE JEOPARDIZED BY INCLUDING WITHIN THE PROJECT MANY SUB-ACTIVITIES WHICH ARE AT BEST SECONDARY TO THE BASIC PURPOSE OF THE PROJECT. THE PP TEAM SHOULD SUGGEST GOT OR OTHER FUNDING AGENCIES (FED, IBRD, UNDP, VOLAGS) AT WORK IN NORTHERN TOGO CONSIDER SUPPORT TO OTHER SUB-ACTIVITIES WHICH DO NOT FIT WITHIN THE AID PROJECT'S OBJECTIVE AND RESOURCE CONSTRAINT.

4. TECHNICAL ISSUES:

(A) ANIMALS: REVIEW COMMITTEE AGREED WITH DRAFTERS OF PID RE PREEMINENT IMPORTANCE OF DRAFT ANIMALS. A NUMBER OF RELATED POINTS WERE DISCUSSED:
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A. ADEQUATE VETERINARY SUPPLIES AND SERVICES MUST BE ASSURED.

B. DEMAND AND SUPPLY OF SUITABLE DRAFT ANIMALS IN SUFFICIENT NUMBERS MUST BE WORKED OUT WITH ALL OTHER INTERESTED PARTIES.

C. THE EVENTUAL ROLE OF PRIVATE SUPPLIERS OF ANIMALS SHOULD BE CONSIDERED AND PROVISIONS/ALLOWANCES MADE FOR SUCH, GIVEN EXPERIENCES IN BENIN.

D. TOGO'S CONSUMPTION OF RED MEAT IS AMONG THE LOWEST IN WEST AFRICA, ACCORDING TO THE FAO, AND THEREFORE HAS A SUBSTANTIAL POTENTIAL FOR GROWTH. ONCE ANIMAL TRACTION TECHNIQUES ARE ESTABLISHED, DEMAND FOR MEAT SHOULD PROVE TO BE COMPLEMENTARY WITH THEM SINCE THE OLDER ANIMALS WILL HAVE A SLAUGHTER-VALUE WHEN THEY CAN NO LONGER WORK. HOWEVER, DEMAND FOR MEAT COULD INITIALLY DIVERT ANIMALS FROM FARM WORK, BEFORE THE PROFITABILITY OF ANIMAL TRACTION

TECHNIQUES IS ESTABLISHED. THE PP SHOULD ADDRESS THE POTENTIAL PROBLEM OF DIVERSION OF DRAFT ANIMALS TO PREMATURE SLAUGHTER FOR MEAT.

E. DRAFT ANIMALS IN WEST AFRICA ARE BULLS OR BULLOCKS NOT OXEN, DESPITE THE COMMON USAGE TO THE CONTRARY.

F. A SOUND DRAFT ANIMAL INSURANCE PLAN SHOULD BE DESIGNED AND INSERTED INTO TOGO'S NATIONAL ANIMAL TRACTION PROGRAM.

G. SINGLE DRAFT ANIMALS AND THE RELATED TECHNOLOGY SHOULD BE PROMOTED WHEREVER FEASIBLE. THERE ARE MANYDISTINCT ADVANTAGES IN COST, EASE OF OPERATIONS, IMPACT ON ANIMAL SUPPLY, FEEDING, AND ENVIRONMENTAL CONCERNS FROM USING SINGLE DRAFT ANIMAL TRACTION.

H. DUAL OR GROUP OWNERSHIP OF DRAFT ANIMALS APPEARS TO BE FRAUGHT WITH PROBLEMS. THIS SHOULD BE DISCOURAGED.

I. HEALTH CONCERNS: ZOONOTIC DISEASE CONTROL/PREVENTION SHOULD BE ADDRESSED BY THE PP TEAM.

(B) ENVIRONMENTAL CONCERNS: THE EFFECT OF ANIMAL TRACTION ON THE SOIL'S PHYSICAL STRUCTURE AND ON THE WATER REGIME SHOULD BE ADDRESSED IN ADDITION TO EFFECTS ON THE AVAILABILITY OF NUTRIENTS. COMPACTION AND EROSION BY WIND AND WATER ARE CONCEIVABLE PROBLEMS. THE AGRICULTURALIST AND ENVIRONMENTALIST ON THE PP TEAM SHOULD EXAMINE THE EFFECT OF ANIMAL TRACTION ON SOIL FERTILITY. THE USE OF GREEN AND ANIMAL MANURES SHOULD BE CONSIDERED.

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(C) MIXED FARMING: THE INTRODUCTION OF WORKING ANIMALS ON THE FARM IS THE BEST ARGUMENT FOR THE INTEGRATION OF CROPPING AND LIVESTOCK. THE PP TEAM SHOULD LOOK AT THE POTENTIALS FOR MIXED FARMING, AND DEFINE MODEST SCHEMES TO ASSIST THE FARMER TO REALIZE BENEFITS FROM THIS LINKAGE.

(D) CREDIT: BOTH INSTITUTIONS AND METHODS MUST BE ADEQUATELY COVERED IN THE PP. REVIEW COMMITTEE IS CONCERNED THAT PROBLEMS LATER ON BE AVOIDED.

A. LOAN AMORTIZATION SCHEDULES MUST BE ESTABLISHED FROM THE OUTSET OF THE PROJECT. THE FINANCIAL PART OF THE PROJECT SHOULD BE DESIGNED IN SUCH AWAY AS TO ASSURE REPAYMENT OF LOANS.

B. OPTIONS FOR THE PROGRAMING OF REPAID LOANS SHOULD BE ADDRESSED BY THE PP TEAM, AND A DEFINITE PLAN WORKED OUT WHICH COULD THEN BE MODIFIED IN THE COURSE OF PROJECT IMPLEMENTATION, ACCORDING TO NEEDS.

C. THE REVIEW COMMITTEE STRONGLY DOUBTS THAT REDUCTIONS IN INTEREST RATES HAVE ANY SUBSTANTIAL IMPACT ON FARMERS' INTEREST IN ADOPTING ANIMAL TRACTION TECHNIQUES. LOWER INTEREST RATES COULD, HOWEVER, AFFECT THE VIABILITY OF INSTITUTIONS THAT EXTEND CREDIT, WHICH COULD THEREFORE RESULT IN LESS CREDIT BEING AVAILABLE AND IN REDUCTION OF THE RATE OF ADOPTION. THE SUBJECT PROJECT SHOULD NOT, THEREFORE ENCOURAGE REDUCTIONS IN INTEREST RATES, ALTHOUGH IT IS UNDERSTOOD THAT INTEREST-RATE CONTROLS MAY BE IMPOSED BY THE GOT OR OTHER DONORS. THE MISSION SHOULD TRY TO PERSUADE THE GOT AND OTHER DONORS TO AVOID THE PROBLEMS CAUSED BY SUCH CONTROLS, IF NECESSARY.

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(F) LINKAGES - COORDINATION: THE PP TEAM SHOULD ABIDE BY CURRENT AID STRATEGY GUIDELINES FOR PROJECT DESIGN AND IMPLEMENTATION IN TOGO, PARTICULARLY WITH REGARD TO:

- A. OTHER AID ACTIVITIES IN TOGO (CIC-TRAINING, YOUNG FARMERS, BLACKSMITHS ETC).

- B. AFRICAN INSTITUTIONS (INADES-TRAINING)

- C. OTHER DONORS (IBRD, FAO/UNDP, FED, FAC, VOLAGES)

5. MANAGEMENT

(A) GIVEN THE IMPORTANCE OF CONTINUALLY ASSESSING AGRONOMIC AND ECONOMIC VIABILITY OF ANIMAL TRACTION THROUGHOUT ACTIVITY IMPLEMENTATION, THE REVIEW COMMITTEE BELIEVES THAT AN AGRICULTURAL ECONOMIST SHOULD BE ADDED TO THE LIST OF TECHNICAL ASSISTANTS, AND THAT THIS POSITION WOULD ALSO ASSUME THE FUNCTIONS OF CREDIT, PROGRAM SUPERVISION EVALUATION AND MONITORING. THE T.A. TEAM COORDINATOR MUST BE LEFT TO WORKING PRINCIPALLY WIT; INSTITUTION BUILDING AND LINKAGES WITH GOT AND OTHER DONORS ACTIVITIES.

(B) REVIEW COMMITTEE DOUBTS THAT PERSONAL SERVICE CONTRACTING CAN PROVIDE THE TIMELY, QUALITY TECHNICAL

ASSISTANCE TO THE PROJECT, WITHOUT PLACING EXTRAORDINARY AND INTOLERABLE BURDENS ON THE MISSION AND THE PROJECT COORDINATOR. PP TEAM SHOULD PROVIDE:

- A. DETAILED SCOPES OF WORK FOR THE TA MEMBERS (INCLUDING PERIODS OF SERVICE)

- B. DETAILED ANALYSIS OF PROPOSED KIND OF CONTRACTING MODE REQUIRED TO FURNISH TA.

(C) THE BUDGET SHOULD INCLUDE A LINE-ITEM FOR EXTERNAL EVALUATION (S).

(D) THE PP TEAM IS ENJOINED NOT TO EXCEED THE DOLS 5 MILLION LIMIT.

(E) REDSO: PLEASE CONFIRM AVAILABILITY OF REQUIRED DESIGN SUPPORT ASSISTANCE, AS INDICATED ON PID FACESHEET. PP DESIGN EFFORT TO OCCUR IN JUNE AND JULY WITH ESTIMATED DATE OF SUBMISSION, AUGUST 2. NOTE: MOST REDSO INPUTS WILL BE PUNCTUAL, OF A TWO-WEEK DURATION, AT A POINT IN-TIME WHICH WILL BE WORKED OUT BETWEEN OAR/LOME AND REDSO.

(F) AID/W HAS PROVIDED FOR CONTRACTING OF TWO CONSULTANTS: AGRICULTURALIST AND AGRICULTURE ECONOMIST.

6. ICPR, IN ADDITION TO SUPPORTING ABOVE RECOMMENDATIONS, EXPRESSED CONCERN OVER DIVERSE PROJECT PORTFOLIO AND RELATION TO STAFF SIZE AND THAT OAR STAFFING MIGHT NOT PROVIDE DEPTH OF MANAGEMENT CAPABILITY NECESSARY FOR THIS COM-

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PLEX PROJECT. ECPR ALSO HAD RESERVATIONS ON USE OF CONTRACTORS UNFAMILIAR WITH AID PROCEDURES OR TOGO ENVIRONMENT. PP MUST SHOW THAT OAR WILL BE ABLE TO PROVIDE ADEQUATE AID PROJECT MANAGEMENT COVERAGE, AND THAT STEPS WILL BE TAKEN BY OAR OVER NEXT FEW YEARS TO REDUCE PROLIFERATION OF PORTFOLIO, AND MOVE TOWARD GREATER CONCENTRATION WHICH WILL BE MORE COMPATIBLE WITH STAFF SIZE AND CAPABILITY.

7. REVIEW COMMITTEE SPECIFIED THAT COMPLETED PP BE SUBMITTED TO AID/W FOR REVIEW AND AUTHORIZATION. THOUGH AN ATTEMPT WILL BE MADE TO AUTHORIZE IN FY 1982, OAR SHOULD BE AWARE THAT CONCERNS ARE SUCH THAT THIS CANNOT BE GUARANTEED. WE RECOGNIZE BUDGET LIMITATIONS AND PORTFOLIO ABSORPTION CAPACITY, BUT REACTION OF ECPR WAS THAT INITIAL OBLIGATION THIS PROJECT SHOULD BE IN DOLS 2.0-2.5 MILLION RANGE, RATHER THAN 1.0 MILLION DOLS PROPOSED. THIS FACTOR WILL BE CONSIDERED DURING PP REVIEW IN WASHINGTON ALONG WITH OTHER NEEDS IN TOGO AND ELSEWHERE IN BUREAU. HAIG
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SUMMARY OF RESPONSES TO PID APPROVAL CABLE

1. Economic and Financial Analysis: A cost-benefit type analysis of the animal traction farming systems is included as part of this PP (Section III.A and Annex Two). Financial considerations are also addressed. The impact of various forms of subsidies which may be employed during the course of the introduction of animal traction technology is discussed as part of the Economic Analysis. The Financial Analysis and the project Policy Analysis looks at questions of recurrent costs, the contribution of the resources of the Government of Togo to project implementation, and the practicality of eventually shifting some of the project's sub-activities into the private sector.

2. Project Viability: The so-called technical package which is recommended by the design team is thoroughly presented in the Technical Analysis (Section III.B and Annex Three). A vigorous program of project monitoring and evaluation is outlined in Section VI and Annex Twelve.

   Given the project's direct focus on the introduction and support of animal traction (policy and practice), tangential opportunities such as rural public works, dry season gardening, reforestation etc., have been deleted from AID's project funding. A general discussion of other on-going and planned rural development activities in the project area is given in Annex Five under the Institutional Analysis.

3. Technical Issues: The scope of concerns expressed by the AID/W review committee about the supply of sufficient numbers of draft animals suitable for animal traction has been addressed in various sections of this document. A continuing supply of healthy bulls and cows as one of many farm management tools is recognized as the essential element in a national program of stimulating increased agricultural production. Introducing and encouraging the spread of large livestock for farming purposes is bound to have significant effects on the physical and social environment in Togo. A serious consideration of these issues is reflected throughout the course of project design.

4. Environmental Concerns: During project design work, an environmentalist and an agronomist, both with extensive training and experience in this particular West African agroecological zone, were able to

criss-cross the project zone in order to evaluate the potential effect of proposed project interventions on the physical environment. The maintenance, or reconstitution of soil fertility, and the potential sustained productive capacity of soils in the semi-humid tropics, given the range of cultivation and livestock practices which are associated with animal traction, is the central concern of Section III, H and Annex Nine.

5. Credit: The design team cannot be expected to harmonize overnight the diverse range of credit systems that are being practiced by the several donor-sponsored animal traction activities in Togo. An optimal system has been recommended to be put into practice over the first couple years of the project. The design team believes the AID-funded project ought to assist in working out a system of medium-term credit which satisfies the requirements of promoting farmer adoption rates, reinforces the viability of lending institutions, and reflects the real cost to farmers and to the national government of the introduction of a new farm tool.

6. Management: The PP team shares the concern expressed in the PID review regarding the potential counter-productive effect on the promotion of animal traction exerted by a proliferation of responsibilities placed on the shoulders of an over-worked project implementation team. The project design team has narrowed the project focus from the broader view that was presented in the PID. Those technical support functions which have been retained have been translated into well-defined statements of work for four members of a technical assistance team (Annex Fifteen). Recognizing the scarcity of the skills, experience and working methods in the technical assistance community, the PP team has made definite suggestions for the eventual mode of contracting for the implementation team (Annex Eleven).

AID PROJECT STATUTORY CHECKLISTS

5C(1) - COUNTRY CHECKLIST

Listed below are statutory criteria applicable generally to FAA funds, and criteria applicable to individual fund sources: Development Assistance and Economic Support Fund.

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FAA Sec. 481. Has it been determined that the government of the recipient country has failed to take adequate steps to prevent narcotic drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully — No

2. FAA Sec. 620(c). If assistance is to a government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) the debt is not denied or contested by such government? — No

3. FAA Sec. 620(e)(1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities? — No

4. FAA Sec. 532(c), 620(a), 620(f), 620D; FY 1982 Appropriation Act Secs. 512 and 513. Is recipient country a Communist country? Will assistance be provided to Angola, Cambodia, Cuba, Laos, Vietnam, Syria, Libya, Iraq, or South Yemen? Will assistance be provided to Afghanistan or Mozambique without a waiver? — N/A

5. ISDCA of 1981 Secs. 724, 727 and 730. For specific restrictions on assistance to Nicaragua, see Sec. 724 of the ISDCA of 1981. For specific restrictions on assistance to El Salvador, see Secs. 727 and 730 of the ISDCA of 1981. — N/A

6. FAA Sec. 620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction by mob action of U.S. property? — No

7.	FAA Sec. 620(l). Has the country failed to enter into an agreement with OPIC?	No
8.	FAA Sec. 620(o); Fishermen's Protective Act of 1967, as amended, Sec. 5. (a) Has the country seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters?	No
	(b) If so, has any deduction required by the Fishermen's Protective Act been made?	No
9.	FAA Sec. 620(q); FY 1982 Appropriation Act Sec. 517. (a) Has the government of the recipient country been in default for more than six months on interest or principal of any AID loan to the country? (b) Has the country been in default for more than one year on interest or principal on any U.S. loan under a program for which the appropriation bill appropriates funds?	No No
10.	FAA Sec. 620(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the amount of foreign exchange or other resources which the country has spent on military equipment? (Reference may be made to the annual "Taking into	N/A

Consideration" memo: "Yes, taken into account by the Administrator at time of approval of Agency OYB." This approval by the Administrator of the Operational Year Budget can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.)

11. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?

No

12. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget? (Reference may be made to the Taking into Consideration memo.)

According to 81 USUN, 0094, Togo was current on its dues as of January 1981. No more recent information has been received on this.

13. FAA Sec. 620A; FY 1982 Appropriation Act Sec. 520. Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or group which has committed an act of international terrorism? Has the country aided or

No

abetted, by granting sanctuary from prosecution to, any individual or group which has committed a war crime?

14. FAA Sec. 666. Does the country object, on the basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. who is present in such country to carry out economic development programs under the FAA? — No

15. FAA Sec. 669, 670. Has the country, after August 3, 1977, delivered or received nuclear enrichment or reprocessing equipment, materials, or technology, without specified arrangements or safeguards? Has it transferred a nuclear explosive device to a non-nuclear weapon state, or if such a state, either received or detonated a nuclear explosive device, after August 3, 1977? (FAA Sec. 620E permits a special waiver of Sec. 669 for Pakistan.) — No

16. ISDCA of 1981 Sec. 720. Was the country represented at the Meeting of Ministers of Foreign Affairs and Heads of Delegations of the Non-Aligned Countries to the 36th General Session of the General Assembly of the U.N. of Sept. 25 and 28, 1981, and failed — No

to disassociate itself from the communique issued? If so, has the President taken it into account? (Reference may be made to the Taking into Consideration memo.)

17. ISDCA of 1981 Sec. 721. See special requirements for assistance to Haiti. — N/A

B. FUNDING SOURCE CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria.

a. FAA Sec. 116. Has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, can it be demonstrated that contemplated assistance will directly benefit the needy? — No

2. Economic Support Fund Country Criteria

a. FAA Sec. 502B. Has it been determined that the country has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, has the country made such significant improvements in its human rights record that furnishing such assistance is in the national interest? — N/A

b. ISDCA of 1981, Sec. 725(b). If ESF is to be furnished to Argentina, has the President certified that (1) the Govt. of Argentina has made significant progress in human rights; and (2) that the provision of such assistance is in the national interests of the U.S.? N/A

c. ISDCA of 1981, Sec. 726(b). If ESF assistance is to be furnished to Chile, has the President certified that (1) the Govt. of Chile has made significant progress in human rights; (2) it is in the national interest of the U.S.; and (3) the Govt. of Chile is not aiding international terrorism and has taken steps to bring to justice those indicted in connection with the murder of Orlando Letelier? N/A

5C(2) PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A. includes criteria applicable to all projects. Part B. applies to projects funded from specific sources only: B.1. applies to all projects funded with Development Assistance Funds, B.2. applies to projects funded with Development Assistance loans, and B.3. applies to projects funded from ESF.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

A. GENERAL CRITERIA FOR PROJECT

1. FY 1982 Appropriation Act Sec. 523; FAA Sec. 634A; Sec. 653(b).

   (a) Describe how authorizing and appropriations committees of Senate and House have been or will be notified concerning the project; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than $1 million over than amount)?

   Congressional Presentation: FY 83 Annex I, page 351 ("Collaborative Rural Development Project") Congressional Notification Yes

2. FAA Sec. 611(a)(1). Prior to obligation in excess of $100,000, will there be

   Yes

	(a) engineering, financial or other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?	Included in this PP.
3.	FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?	The PROPTA organization was created by Ministerial decree in December 1982. No further recipient country legislation is required.
4.	FAA Sec. 611(b); FY 1982 Appropriation Act Sec. 501. If for water or water-related land resource construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973? (See AID Handbook 3 for new guidelines.)	Yes, see Environmental Assessment.
5.	FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed $1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?	Yes, appropriate chapters in the PP address the question of utilization, upkeep and recurrent costs.

6.	FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.	No AID's peculiar and strong position in Animal Traction programs in Togo has led the GOT to request AID to take a leading role in the national program. The AID projectwill serve as a catalyst among other donors involved in animal traction.
7.	FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.	(a) cattle import to Togo from neighboring states should increas; (b) there are several opportunities for the encouragement of provate enterprise-type activities (addressed in the PP); (c) the project is closely linked to the national agricultural credit union and private savings and credit groups thru Togo Credit/Savings National Union (693-0224); (d) project helps to diversify access routes to ag inputs; (e) PROPTA is to coordinate animal traction supply and backstopping activities on a national level; (f) N/A.
8.	FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).	Limited use is being made through this project of U.S. manufactured goods. Some veterinary supplies originate in the U.S., and as the livestock industry is developed in Togo, there may exist increasing opportunities for U.S. trade.

9.	FAA Sec. 612(b), 636(h); FY 1982 Appropriation Act Sec. 507. Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.	GOT is meeting virtually all local costs related to salaries o hose employed under the project, of al ocal operating costs (utilities, gas and oil), locally obtainable construction materials.
10.	FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?	No
11.	FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?	Yes
12.	FY 1982 Appropriation Act Sec. 521. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity?	No export commodities are likely to be a result of this project. Only indirectly, with increased cereal grain production, might there result something which may reach the international market. The amount would be insignificant.
13.	FAA 118(c) and (d). Does the project comply with the environmental procedures set forth in AID Regulation 16? Does	Yes

the project or program take into consideration the problem of the destruction of tropical forests?	
14. FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (dollars or local currency generated therefrom)?	N/A

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Sec. 102(b), 111, 113, 281(a). Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and	(a) issue of involvement of local populations is addressed in PP Social Soundness Analysis.
	(b) While no specific project component will work for the creation of cooperatives, the activity complements efforts made by the GOT and other donors in this area. Specifically, AID supports a parallel activity Togo Credit/Savings National Union (693 0224).

otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?	(c) The project provides many opportunities for farmers and their families to undertake operations, supported by the activity, which can improve their lot. (d) Women's participation in improved farming systems is addressed in the PP. (e) All of the countries in the sub-region are actively pursuing animal traction-type activities.
b. FAA Sec. 103, 103A, 104, 105, 106. Does the project fit the criteria for the type of funds (functional account) being used?	ARDN Yes
c. FAA Sec. 107. Is emphasis on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?	Yes
d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)?	No, Togo is an RLDC.

e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, or is the recipient country "relatively least developed?" (M.O. 1232.1 defined a capital project as "the construction, expansion, equipping or alteration of a physical facility or facilities financed by AID dollar assistance of not less than $100,000, including related advisory, managerial and training services, and not undertaken as part of a project of predominantly technical assistance character."	No Togo was recognized as a relatively least developed country by the UN General Assembly in late 1982.
f. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?	Yes, see Economic Analysis and Technical Analysis.
g. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage	Methods of improved farm management have been an issue of interest and concern for Togolese, whether farmers or government administrators. Increased food production is a stated national goal. The GOT's educational, research and logistical resources are consistantly applied towards the resolution of issues related to increased food production.

institutional development; and supports civil education and training in skills required for effective participation in governmental processes esential to self-government.	The GOT is concerned with the long-term institutionalization of the animal traction process. Training of government cadre and private parties in all aspects of rural development is of prodominant importance to GOT plans.

2. Development Assistance Project Criteria (Loans Only)

a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, at a reasonable rate of interest.	N/A
b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?	N/A
c. ISDCA of 1981, Sec. 724 (c) and (d). If for Nicaragua, does the loan agreement require that the funds be used to the maximum extent possible for the private sector? Does the project provide for monitoring under FAA Sec. 624(g)?	N/A

3. Economic Support Fund Project Criteria

a. FAA Sec. 531(a). Will this assistance promote economic or political	N/A

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	stability? To the extent possible, does it reflect the policy directions of FAA Section 102?	
b.	FAA Sec. 531(c). Will assistance under this chapter be used for military, or paramilitary activities?	N/A
c.	FAA Sec. 534. Will ESF funds be used to finance the construction of the operation or maintenance of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such use of funds is indispensable to nonproliferation objectives?	N/A
d.	FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?	N/A

5C(3) - STANDARD ITEM CHECKLIST

Listed below are the statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds.

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

A. Procurement

1. FAA Sec. 602. Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed?

   Yes, see Procurement Section under Financial Plan

2. FAA Sec. 604(a). Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him?

   Yes, except as otherwise authorized by waivers, herein included.

3. FAA Sec. 604(d). If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company?

   N/A

4. FAA Sec. 604(e); ISDCA of 1980 Sec. 705(a). If offshore procurement of agricultural commodity or product is to be

   N/A

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	financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.)	
5.	FAA Sec. 604(g). Will construction or engineering services be procured from firms of countries otherwise eligible under Code 941, but which have attained a competitive capability in international markets in one or these areas?	Yes
6.	FAA Sec. 603. Is the shipping excluded from compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent that such vessels are available at fair and reasonable rates?	No
7.	FAA Sec. 621. If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? If the facilities of other	Yes

Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?	N/A
8. International Air Transport. Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available?	
9. FY 1982 Appropriation Act Sec. 504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States?	Yes
B. Construction	
1. FAA Sec. 601(d). If capital (e.g., construction) project, will U.S. engineering and professional services to be used?	It is not considered likely, given the nature and the dimension of the construction under the project.
2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable?	Yes

3. FAA Sec. 620(k). If for construction of productive enterprise, will agggregate value of assistance to be furnished by the U.S. not exceed $100 million (except for productive enterprises in Egypt that were described in the CP)? — No

C. Other Restrictions

1. FAA Sec. 122(b). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter? — N/A

2. FAA SEc. 301(d). If fund is established solely by U.S. contributions and administed by an internatioal organization, does Comptroller General have audit rights? — Yes

3. FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries? — Yes

4. Will arrangements preclude use of financing: — Yes

a. FAA Sec. 104(f); FY 1982 Appropriation Act Sec. 525: (1) To pay for performance of abortions as a method of family

planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization;	Yes
(3) to pay for any biomedical research which relates, in whole or part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning;	Yes
(4) to lobby for abortion?	Yes
b. FAA Sec. 620(g). To compensate owners for expropriated nationalized property?	Yes
c. FAA Sec. 660. To provide training or advice or provide any financial support for police, prisons, or other law enforcement forces, except for narcotics programs?	Yes
d. FAA Sec. 662. For CIA activities?	Yes
e. FAA Sec. 636(i). For purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained?	Yes
f. FY 1982 Appropriation Act, Sec. 503. To pay pensions, annuities, retirement pay, or	Yes

adjusted service compensation for military personnel?	
g. FY 1982 Appropriation Act, Sec. 505. To pay U.N. assessments, arrearages or dues?	Yes
h. FY 1982 Appropriation Act, Sec. 506. To carry out provisions of FAA section 209(d) (Transfer of FAA funds to multilateral organizations for lending)?	Yes
i. FY 1982 Appropriation Act, Sec. 510. To finance the export of nuclear equipment, fuel, or technology or to train foreign nationals in nuclear fields?	Yes
j. FY 1982 Appropriation Act, Sec. 511. Will assistance be provided for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights?	No
k. FY 1982 Appropriation Act, Sec. 515. To be used for publicity or propaganda purposes within U.S. not authorized by Congress?	Yes

PROJECT GRANT AGREEMENT

Dated

Between The Republic of Togo ("Grantee")

And The United States of America, acting through the Agency for International Development (USAID)

Article 1: The Agreement: The purpose of this Agreement is to set out the understandings of the parties named above ("Parties") with respect to the undertaking by the Grantee of the Project described below, and with respect to the financing of the Project described below, and with respect to the financing of the Project by the Parties.

Article 2: The Project:

2.1 Definition of the Project:

The Project as further described in Annex I, will consist of assistance to the Grantee to improve farm management tools for increased crop production and to provide the opportunity for farm families to augment their income. To achieve these objectives, the Project will support the Grantee's major rural development initiative, in concert with other donors. Annex I, attached, amplifies the above definition of the Project and the limits of the above definition of the Project, and establishes the financial commitments of both parties as set forth in Section 3.2 hereto. Elements of the amplified description stated in Annex I may be changed by written agreement of the authorized representatives of the Parties named in Section 8.3, without formal amendment of this Agreement.

2.2 Incremental Nature of Project:

a) USAID's contribution to the Project will be provided in increments, the initial one being made available in accordance with

Section 3.1 of this Agreement. Subsequant increments will be subject to availability of funds to USAID for this purpose and to the mutual agreement of the Parties, at the time of a subsequent increment, to proceed.

b) Within the overall Project Assistance Completion Date stated in this Agreement, USAID based upon consultation with the Grantee, may specify in Project Implementation Letters appropriate time periods for the utilization of funds granted by USAID under an individual increment of assistance.

Article 3: Financing:

3.1 The Grant:

To assist the Grantee to meet the costs of carrying out the Project, USAID pursuant to the Foreign Assistance Act of 1961, as amended, agrees to grant the Grantee under the terms of this Agreement not to exceed Two Million United States ("U.S.") Dollars ($2,000,000) ("Grant").

The Grant may be used to finance foreign exchange costs, as defined n Section 6.1, and local currency costs, as defined in Section 6.2, of goods and services required for the Project.

3.2 Grantee Resources for the Project:

a) The Grantee agrees to provide or cause to be provided for the Project all funds, in addition to the Grant, and all other resources required to carry out the Project effectively and in a timely manner.

b) The resources provided by Grantee for the Project will be not less than the equivalent of U.S. $765,000 including costs borne on an "in-kind" basis.

3.3 Project Assistance Completion Date:

a) The "Project Assistance Completion Date" (PACD), which is 30 months from the date of this Agreement or such other date as the Parties may agree to in writing, is the date by which the Parties

estimate that all services financed under the Grant will have been performed and all goods financed under the Grant will have been furnished for the Project as contemplated in this Agreement.

b) Except as USAID may otherwise agree in writing, USAID will not issue or approve documentation which would authorize disbursement of the Grant for services performed subsequent to the PACD or for goods furnished for the Project, as contemplated in this Agreement, subsequent to the PACD.

c) Requests for disbursement, accompanied by necessary supporting documentation prescribed in Project Implementation Letters are to be received by USAID or any bank described in Section 7.1 no later than nine (9) months following the PACD, or such other period as USAID agrees to in writing. After such period, USAID, giving notice in writing to the Grantee may at any time or times reduce the amount of the Grant by all or any part thereof for which requests for disbursement, accompanied by necessary supporting documentation prescribed in Project Implementation Letters, were not received before the expiration of said period.

Article 4: Conditions Precedent:

4.1 Disbursement Under the Grant:

Prior to the first disbursement under the Grant, or to the issuance by USAID documentation pursuant to which disbursement will be made, the Grantee will, except as the Parties may otherwise agree in writing, furnish to USAID in form and substance satisfactory to USAID:

a) An opinion of counsel acceptable to USAID that this Agreement has been duly authorized and/or ratified by, and executed on behalf of, the Grantee and that it constitutes a valid and legally binding obligation of the Grantee in accordance with all of its terms;

b) A statement of the name of the person holding or acting in the office of the Grantee specified in Section 8.3, and of any additional representatives, together with a specimen signature of each person specified in such statement.

4.2 Notification:

When USAID has determined that the conditions precedent specified in Section 4.1 have been met, it will promptly notify the Grantee in writing.

4.3 Terminal Dates for Conditions Precedent:

If the conditions specified in Section 4.1 have not been met within 90 days from the date of this Agreement, or such later date as USAID may agree to in writing, USAID, at its option, may terminate this Agreement by written notice to Grantee.

Article 5: Special Covenants:

5.1 Water Quality:

The Grantee agrees a) that pumps will be installed only on wells that discharge water that is safe according to standards of the World Health Organization, and b) that adequate measures will be taken to conserve the quality of the water.

5.2 Maintenance and Repair Systems:

The Grantee agrees to pursue active negotiations with those donors who are currently engaged in metal-working training related to animal traction projects, so as to provide firm assurances from those donors at the earliest possible date of adequate funding for a satisfactory program of training and establishing village-level metal-workers.

5.3 Draft Animal Supply:

The Grantee agrees the Projet de Promotion de la Traction Animal (PROPTA) will work with USAID to undertake trial activities to develop and encourage private marketing channels capable of delivering suitable draft animals to farmers, and it will take steps to insure that many of PROPTA's animal supply functions are taken over by the private sector as soon as possible so that PROPTA does not become the exclusive supplier of draft animals to Togolese farmers.

5.4 Animal Health:

The Grantee agrees that a) it will collaborate with the Grantee's animal health service in promoting the health of draft animals, and b) PROPTA will not have its own field-level veterinary staff.

5.5 Credit:

The Grantee agrees to make credit in the amount of $342,000 available to farmers in the project zone for the procurement of equipment and draft animals over the life of the Project.

5.6 Project Evaluation:

The Parties agree to establish an evaluation program as part of the Project. Except as the Parties otherwise agree in writing, the program will include, during the implementation of the Project and at one or more points thereafter:

a) evaluation of progress toward attainment of the objectives of the Project;

b) identification and evaluation of problem areas of constraints which may inhibit such attainment;

c) assessment of how such information may be used to help overcome such problems; and

d) evaluation, to the degree feasible, of the overall development impact of the Project.

Article 6: Procurement Source:

6.1 Foreign Exchange Costs:

Disbursement pursuant to Section 7.1 will be used exclusively to finance the costs of goods and services required for the Project having their source and origin in the United States (Code 000 of the USAID Geographic Code Book as in effect at the time orders are placed

or contracts entered into for such goods or services) ("Foreign Exchange Costs"), except as USAID may otherwise agree in writing, and except as provided in the Project Grant Standard Provisions Annex, Section C.1 (b) with respect to marine insurance. Ocean transportation costs will be financed under the Grant only on vessels under flag registry of the United States, except as USAID may otherwise agree in writing.

6.2 Local Currency Costs:

Disbursements pursuant to Section 7.2 will be used exclusively to finance the costs of goods and services required for the Project having their source and, except as USAID may otherwise agree in writing, their origin in Togo. ("Local Currency Costs"). To the extent provided for under this Agreement, "Local Currency Costs" may also include the provision of local currency resources required for the Project.

Article 7: Disbursement:

7.1 Disbursement for Foreign Exchange Costs:

a) After satisfaction of conditions precedent, the Grantee may obtain disbursements of funds under the Grant for the Foreign Exchange Costs of goods and services required for the Project in accordance with the terms of this Agreement, by such of the following methods as may be mutually agreed upon:

(1) by submitting to USAID, with necessary supporting documentation prescribed in Project Implementation Letters, a) requests for reimbursement for such goods or services, or b) requests for USAID to procure commodities or services in Grantee's behalf for the Project; or,

(2) by requesting USAID to issue Letters of Commitment for specified amounts a) to one or more U.S. banks, satisfactory to USAID, committing USAID to reimburse such bank or banks for payments made by them to contractors or suppliers, under Letters of Credit or otherwise, for such goods or services, or b) directly to one or more contractors or suppliers, committing USAID to pay such contractors or suppliers for such goods or services.

b) Banking charges incurred by Grantee in connection with Letters of Commitment and Letters of Credit will be financed under the Grant unless Grantee instructs USAID to the contrary. Such other charges as the Parties may agree to may also be financed under the Grant.

7.2 Disbursement for Local Currency Costs:

a) After satisfaction of conditions precedent, the Grantee may obtain disbursements of funds under the Grant for Local Currency Costs required for the Project in accordance with the terms of this agreement, by submitting to USAID, with necessary supporting documentation as prescribed in Project Implementation Letters, requests to finance such costs.

b) The local currency needed for such disbursements may be obtained:

(1) by acquisition by USAID with U.S. Dollars by purchase; or

(2) by USAID a) requesting the Grantee to make available the local currency for such costs, and b) thereafter making available to the Grantee, through the opening or amendment by USAID of Special Letters of Credit in favor of the Grantee or its designee, an amount of U.S. Dollars equivalent to the amount of local currency made available by the Grantee, which dollars will be utilized for procurement from the United States under appropriate procedures described in Project Implementation Letters.

The U.S. Dollar equivalent of the local currency made available hereunder will be, in the case of subsection b) (1) above, the amount of U.S. Dollars required by USAID to obtain the local currency, and in the case of subsection b) (2) above, an amount calculated at the rate of exchange specified in the applicable Special Letter of Credit Implementation Memorandum hereunder as of the date of the opening or amendment of the applicable Special Letter of Credit.

7.3 Other Forms of Disbursement:

Disbursements of the Grant may also be made through such other means as the Parties may agree to in writing.

7.4 Rate of Exchange:

Except as may be more specifically provided under Section 7.2 if funds provided under the Grant are introduced into Togo by USAID or any public or private agency for purposes of carrying out obligations of USAID hereunder, the Grantee will make such arrangements as may be necessary so that such funds may be converted into currency of Togo at the highest rate of exchange which, at the time the conversion is made, is not unlawful in Togo.

Article 8: Miscellaneous:

8.1 Investment Guaranty Project Approved:

Construction work to be financed under this Agreement is agreed to be a project approved by Togo pursuant to the Agreement between it and the United States of America on the subject of investment guaranties, and no further approval by Togo will be required to permit the United States to issue investment guaranties under that Agreement covering a contractor's investment in that Project.

8.2 Communications:

Any notice request, document, or other communication submitted by either Party to the other under this Agreement will be in writing or by telegram or cable, and will be deemed duly given or sent when delivered to such party at the following addresses:

Mail Address: Ministry of Plan and Administrative Reform
Lome, Togo

To USAID: Embassy of the U.S.A.
Lome, Togo

All such communications will be in French, unless the Parties otherwise agree in writing. Other addresses may be substituted for the above upon the giving of notice.

8.3 Representatives:

For all purposes relevant to this Agreement, the Grantee will be represented by the individual holding or acting in the office of the Minister of Plan and Administrative Reform and USAID will be represented by the individual holding or acting in the office of the USAID Representative, each of whom by written notice, may designate additional representatives for all purposes other than exercising the power under Section 2.1 to revise elements of the amplified description in Annex 1. The names of the representatives of the Grantee, with specimen signatures, will be provided to USAID, which may accept a duly authorized instrument signed by such representatives in implementation of this Agreement, until receipt of written notice of revocation of their authority.

8.4 Standard Provisions Annex:

A "Project Grant Standard Provisions Annex" (Annex 2) is attached to and forms part of this Agreement.

8.5 Language of Agreement:

This Agreement is prepared in both French and English. In the event of ambiguity or conflict between the two versions, the English Language version will control.

In WITNESS WHEREOF, the Grantee and the United States of America, each acting through its duly authorized representative, have caused this Agreement to be signed in their names and delivered as of the day and year first above written.

REPUBLIC OF TOGO

By:
Title: Ministry of Economy and Finances

UNITED STATES OF AMERICA

By:
Title: Ambassador of the United States of America

UNITED STATES OF AMERICA

By:
Title: USAID Representative

SUMMARY DESCRIPTION OF GOT AND OTHER DONOR ACTIVITIES INVOLVING ANIMAL TRACTION

A. Second Rural Development Project in Cotton Areas (a.k.a. SOTOCO II)

IDA will continue to finance the expansion of cotton production with an increased emphasis on improving food crops grown by participating farmers. Animal traction will be promoted as the primary tool in increasing the area under improved cultivation techniques. In addition to its production objectives, the project aims to build up SOTOCO's managerial and field services capacity so as to provide the future option for the possible future restructuring into (a) a specialized cotton agency, and (b) a separate regionally managed extension service. The IDA project financing totals $23.5 million, and covers a period of five years (1982 - 1987).

Summary description of activities:

(i) upgrading of key departments within SOTOCO including provision of technical assistance and vigorous recruitment and training (on the job and short-term training fellowships) of Togolese personnel. Such institutional strengthening would include upgrading of the financial department and the industrial (cotton marketing, processing and transport) department;

(ii) strengthening of SOTOCO's extension service including further emphasis on polyvalent training, whole farm planning, refinement of the recently established training and visit system, establishment of small farmer groups for extension and cooperative activities, improved input supply and primary cotton marketing activities, and decentralization of responsibilities;

(iii) multiplication and distribution of improved food crop seeds;

(iv) applied research on cotton, food crops and farming systems;

(v) encouragement of animal traction through training, animal health and credit for purchase of oxen and equipment;

(vi) promotion of bio-degradable pesticides to reduce losses of traditionally stored food crops;

(vii) provision through credit or cash of farm inputs and equipment relative to the above, including streamlining of distribution and accounting procedures;

(viii) reconstruction of some 950 km of feeder roads and periodic maintenance of some 2,100 km of existing feeder roads so as to provide basic access for extension, input supply and marketing activities;

ix) establishment of 400 village tubewells to support agricultural development in agronomically suitable areas;

x) establishment of a project monitoring and evaluation unit;

xi) support to the Ministry of Rural Development's national seed multiplication program including the creation of a small seed farm to maintain and produce breeder seed for food crops, a seed quality control unit attached to the seed farm to monitor the quality of seed produced at all multiplication stages in Togo and creation of a coordinating committee and secretariat to coordinate countrywide production.

Animal Traction

An assurance has been obtained by IDA from GOT during project negotiations that SOTCO will enter into agreements with PROPTA, CNCA and UPROMA to procure oxen, implements and the management of credit. SOTOCO's animal traction service will be upgraded through training or replacement of existing staff, and will consist of a service chief, a deputy, an accountant, and four regional supervisors plus field staff and laborers for training and destumping. A consultant animal traction specialist will also be hired to make periodic visits (about 22 months in total) during the first four years of the project to assist the unit. Two new oxen training centers will be established at Atakpame and Dapaong involving simple sheds and handling facilities, making a total of six, at each of which a spray race would be constructed for acaricide treatment. A nucleus of cattle will be maintained at each center as a basis for a four-week training course for the project's extension

agents. This will be undertaken by 36 specialized trainers who will subsequently spend four weeks in the villages with the extension agents, supervising the training of groups of participants. Because of the forest cover of much of the virgin land, it is preferable to remove tree stumps mechanically to prepare the ground for oxen cultivation. Therefore, the purchase of 23 sets of manually operated winches will be financed, each manned by two operators who will work with farmers. Farmers will be charged the full cost of equipment and animals purchased but will receive training and assistance as necessary with destumping trees, although they will contribute their labor to the destumping teams.

While the main impact will be through training of oxen belonging to existing cattle owning farmers, particularly in the north, with an overall target of 1,125 pairs, emphasis will also be placed on introducing animal traction to non-cattle owning families and in areas where cattle ownership and animal traction is less common. Therefore, 1,000 pairs of oxen are targeted for purchase on CNCA credit through PROPTA. The destumping brigades are expected to clear 3,500 hectares in the course of the project. In total, a minimum of 10,000 hectares per year are expected to be cultivated using work oxen by the end of the five-year period. Several factors provide reason to expect an impact at this level rather than the modest achievement under the first project's pilot exercise (90 pairs as against a target of 350): (i) the antrac unit will for the first time be appropriately staffed within SOTOCO and will include consultancy support; (ii) some improvements to staffing are already underway; (iii) GOT has recently placed a high policy priority on development of animal traction, which is also now reflected by SOTOCO's management; and (iv) the creation of UPROMA and PROPTA will facilitate the project units efforts.

From Staff Appraisal Report No. 3920-TO, October 21, 1982.

B. Mandouri Agricultural Development Project (African Development Fund)

This project aims at improving the economic and social living standards of the rural population in a remote area of northeast Togo, mainly through increased agricultural production. The project also aims at creating a development pole so as to encourage a more balanced development of the country's economic regions.

In order to attain these objectives, the project will seek to diversify and increase agricultural production through intensive traditional food crop cultivation, introduction of cash crops and development of upland rice cultivation. Roads will be rehabilitated, social amenities will be provided and 350 migrant families will be resettled.

Up to 2,000 hectares of land adjacent to the Oti River will be prepared for irrigated agriculture. A variety of farming systems will be introduced to permit farming families to mix irrigated and traditional dry-land agriculture. Rice is the primary irrigated crop to be grown, along with sorghum and forage crops. Traditional farming includes millet, sorghum, corn and cowpeas as food crops; cotton and groundnuts are considered cash crops, intended to enhance the farmer's monetary income.

Agricultural credits are to be granted with the institutional support of CNCA, and will be used to purchase equipment for draft animals (medium-term credit, five-year duration) and inputs such as fertilizers, pesticides and seeds (seasonal terms).

A technical support and research center will cover 15 hectares (5 irrigated; 10 dryland), and will produce seed, experiment with crops and determine the most suitable cultivation techniques. The center includes the pumping station for the irrigation network.

Resident and migrant farm families working within the project zone will be expected to supply their own draft (and dairy) cattle. Emphasis will be put on veterinary services to ensure healthy animals. Techniques of animal traction and dairying will be taught so as to improve the production capacity of farm animals. An estimated 500 pair of oxen will be required by farm families related to the project over five years.

Note: Although approved for funding by the African Development Fund in December 1980, this project has not yet been put in place. While the GOT is expectant of getting some activity going soon, there is not now a calendar of implementation.

C. Savanes Agricultural Intensification Project (FED)

The project zone covers an area of 400 km^2 situated west of Dapaong, in Togo's northernmost Savanes region, bordering on Ghana. Approximately 35,000 farm families essentially all Mobas, from 6 cantons comprise the working area of concentration.

Two constraints limit agricultural production in the zone: increasing difficulty of area farmers to practice fallowing, and consequently, a decreasing soil fertility. Project objectives to address these issues include: farmer training in new methods (animal traction, fertilizers, selected seed varieties, and diversification of crops), as well as an outreach program (formation of village organizations which are to continue the training process amongst themselves). Social actions are also part of the project:

- infrastructure: roads, warehouses;
- village water supply;
- guarantee of markets for surplus production.

The introduction of animal traction techniques is favored by the presence of livestock in the traditional farming system. Moreover, the project zone benefited from an infusion of animal traction equipment as part of a short-lived French agricultural production project in the mid-60's. Each farmer acquires his own pair of oxen; credit is furnished in the event that he has no draft animals.

Project activities began in 1981 with 300 farm families of a projected total of 2,500 family units over five years. In spite of farmers' long experience with animals, the project has noted an exceptional number of cases of oxen deaths due for the most part to maladies which are suffered when the animal is least resistant. Measures have been taken to improve animal health and nutrition.

Animal traction equipment is accorded (at 25% subsidy) to farmers under a system of medium-term credit, through CNCA (at subsidized interest rates). The equipment parts, including those for a cart, are purchased at UPROMA and brought to Tantiegou, a small agricultural station outside of Dapaong,

where an assembly plant has been built by the project. This workshop also serves to train local blacksmiths in equipment repair and maintenance.

The European Development Fund finances the project in cooperation with the GOT's regional agricultural bureau. FED contributions are expected to total approximately $2,000,000. GOT participation is budgeted to about half the amount.

D. Namiele Plain Production Project

A private Swiss firm with agro-industrial interests (Universal Engineering and Financing Corporation) has since 1979, with the financial participation of the GOT, undertaken the agricultural development of a broad plain situated just to the north of Mango, within the Savanes region. Grandiose in its original conception, it has encountered lower production figures than hoped and has reduced the scale and rhythm of some operations. Over 40,000 hectares are included in the master plan of which 2,500 hectares will eventually be irrigated. About 1,000 head of a projected total of 8,000 cattle graze on improved rangelands which to date cover 400 hectares. A dam built under project financing serves to provide water for irrigation, a water supply for area farm families, and can be tapped in order to electrify the city of Mango.

Cattle raised on the "ranch" are used for animal traction (both irrigated and dry-land traditional farming) and also serve to meet Togo's red-meat demand. A private company, UNIFECO organizes its operations quite differently than the ordinary rural development activity. Animals and equipment remain the property of the company and little is done to promote either indigenous or government structures of production and marketing or the improvement of traditional crops and methods. The presence of a considerable amount of heavy equipment is a further inhibiting factor in incorporating this project within the framework of rural development activities currently being practiced in Togo.

E. Kara Valley Productivity Project (FED)

This project has used outward migration from the overpopulated Kabiye mountain range to settle a previously largely unoccupied zone covering about 3,000 hectares in the Kara River Valley within the Kara economic region. Activities began in 1974 and have been refunded on two successive

occasions in order to cover assistance for up to 700 (of 1,000 planned) farm families including several original inhabitants of an expanded zone. The purpose of the project is to improve and sustain the productivity of relatively fertile soils in the area.

The project's socio-economic objectives are made up of the following interventions:

- attribution of land to farm families;
- construction of requisite infrastructure (rural roads, markets, wells, schools, a dispensary, warehouses and core-lodging for farm families);
- extension of agricultural methods and inputs;
- credit to allow for the acquisition of animal traction units;
- construction of a bridge over the Kara River to open additional land to farming within the Bassar prefecture.

To date, numerous accomplishments have been realized:

- almost 200 kilometers of rural roads;
- 60 wells, of which 48 are equipped with a pump;
- 40 warehouses for seed and fertilizers;
- 300 core lodging units;
- 4 primary schools, 4 grain mills, one large dispensary and a central market at the project center in Broukou;
- Dry-season garden, an artisanal-level agriculture business with honey commercialized;
- 160 hectares planted in trees (considerably less than original estimations).

Animal traction operations began in 1978. The objective of 200 units was reached in 1981. The introduction of animal traction amongst the resettled farmers, largely of the Kabiye ethnic group, required considerable patience and extension

skills, given that livestock are not traditionally kept by this group. Nevertheless, first indications are that increases in production of the order of 10% are being made by farmers using animal traction in these first few years.

Both oxen and equipment are provided to farmers at subsidized costs (with interest rates also subsidized), albeit economies have been realized in recuperating carts abandoned from another project. Oxen have been regularly supplied to the project through an agreement with the AID-funded animal traction activity, which bargains for them in Savanes region markets and trucks them south. This project's center, Broukou, is situated only 12 kilometers from the AID antrac center at Agbassa, and there has been a continuing relationship between the activities which includes sharing of veterinary and training facilities, logistical support and technical expertise.

The Director of this project is at the same time Director of the Kara region government agricultural service, and has also served as interim Director of the AID activity. FED funds provide some technical assistance: agricultural economist, civil engineer, administrator. FED's contribution to date is about $9 million; the GOT participation (calculated in its broadest sense) may reach the equivalent of $3 million.

F. Kara Food Production: Sirka and Atchangbade (Entente Fund, AID, FAC)

Both AID and FAC (French assistance) have provided a loan through the Entente Fund to develop and expand a rural development infrastructure (farmer groups, extension services, facilities), based largely on self-help initiatives leading to a gradual increase in agricultural production of basic foodstuffs in two contiguous zones totaling 39,000 hectares in the Kara region. The project is in its third year of implementation, having profited in one zone from ten years preliminary work by a missionary order.

Project facilities include:

- Establishment of development councils which comprise over 2,000 farmers in 27 villages. These councils are in charge of the distribution of ag inputs to members and non-members. All decisions pertaining to community activities (feeder roads construction, location of wells,

distribution of available arable land, determination of plot size, allocation of animal traction units, etc.) are made by these councils. The most successful farmers have been given responsibilities as demonstrators of improved ag methods and inputs.

Extension services:

(a) Distribution of farm inputs, particularly fertilizers;

(b) Farmer seed multiplication program: improved varieties are multiplied under local conditions for distribution to other area farmers;

(c) Training sessions are organized amongst farmers, around useful themes (treatment and storage of seeds, density of seed sowing, mono vs. mixed culture, manure preparation, livestock care), using model farmers as instructors.

Infrastructure: to date, 47 kilometers of rural roads, 4 span-bridges, 13 culvert-bridges and 43 wells have been built by area farmer families in conjunction with local craftsmen on the basis of self-help enterprise.

Animal traction is one of the most significant means of increasing crop production and helping to improve living standards within the project zones. A total of 42 antrac units have been distributed to farmer-adopters at subsidized terms of sale and credit. The oxen were all purchased and delivered to the principal project sites through the livestock buying program set up and constructed by the AID animal traction AIP project. The extension agents, hand-picked from amongst the area farm families, were all trained (and receive periodic retraining) at the AID-built center at Agbassa. The training program is previously worked out between the two projects, and all costs are supported by the benefiting project.

To date, two Peace Corps volunteers have been attached to this project to assist with the introduction and support of the animal traction program. This relationship is expected to continue, in the measure that the project receives an extension (in time and funding) of its activities (PACD now set at July 1983). The project also enjoys contributions from two French volunteers: one to man the garage and tend to some

blacksmith-type activities related to animal traction; the other, a women's social worker, to help to integrate women into the support assistance offered by the project.

G. Notse Rural Development Project (IFAD)

The project is based on the development of a rural area - the Plateau sub-region of Notse (east of the transdorsal international highway to the Benin border), and on the promotion of smallholder crop production. The central objective is to raise living standards of the area's inhabitants, increase food crop production and eventually provide surplus grain for sale to neighboring urban centers. Priority promotion of food crops in coordination with cotton, for which the region has good potential, offers an optimum route to the development of the area. The project is designed to reach almost 10,000 farm families (50% of the sub-region), over a five year period. Approved in late 1982 for funding under IFAD, it may begin in 1983, along with the construction of a seed multiplication center to be financed by the Belgian government. Total project costs (outside assistance) amounts to $9.6 million, exclusive of any GOT contributions.

The major element of project assistance will be:

- Consolidation of Extension Services: SOTOCO and DRDR extension agents are to be combined into a single comprehensive support service for area farmers. A training center will be built to provide training and demonstrations for established farmers, extension agents and young farmers.

- Farmer Groups: Pre-Cooperatives are to promote group activity, improve the logistics of input supply, improve storage and marketing facilities for food crops, and provide a basis for granting short and medium-term credit.

- Input Supply: Seeds, fertilizers and pesticides;

- Credit: Credit for cotton inputs will be made available in kind (as under the current SOTOCO system) to cotton growing farmers and recovered during seed cotton marketing. Loans for food crops will be granted to farmers who are organized in farmers associations. Loans will be provided through the resources of a reinforced CNCA office in Notse. Seasonal loans, and medium-term loans up to three years, are subject to an annual interest rate of 10%.

- Animal Traction: Emphasis will be placed on training and integrating oxen into farming systems where a tradition of cattle raising exists. A combination of farmer-owned oxen (40 pairs) and oxen purchased from outside the area (40 pairs) will be trained. The latter group will be made available to farmers on medium-term credit. Credit is also available for antrac implements and carts. The project's animal traction section will be located at the central training center and will be made up of simple shelters (together with a spray race for acaricide treatment). A nucleus of oxen will be maintained at the center for re-training courses for project extension agents.

- Road Development: Reconstruction and maintenance will cover 300 kilometers of feeder/market roads.

- Village Water Supply: Seventy water points will be selected, drilled and equipped with food pumps in the same manner as the AID-FED-FAC water supply project.

- Research: There are prospects for further improving food crop packages as a result of the associated seed farm and the animal traction component. Research will be part of a larger, nationally coordinated program which is executed with technical assistance from IRAT. Cotton research will be coordinated with SOTOCO and IRCT.

- Seed Production: A 400 hectare seed production farm, funded by Belgian bilateral assistance, will be set up in the Tohoun sub-sector to produce corn, peanut and cowpea seeds.

- Monitoring and Evaluation: A unit, attached to the GOT MRD Studies, Evaluation and Statistics department, and headed by a technical assistant will measure the effectiveness of project activities.

H. Project North-Togo (UNDP)

The United Nations Development Program and the GOT (through the Ministry of Plan) have combined efforts in financing a large and ambitious integrated rural development project in two zones of the Kara region alongside the Benin border, and a third zone just south of the national game park. The project area covers 600 km^2 and is to reach about 800 farm families over the course of the project activities, from

1976 to 1984 (present limiting date). It is implemented with technical assistance from the FAO and various European PVO's. Total funding is put at $12,000,000, of which the Togolese contribution has been approximately 20%.

Short-term project objectives include:

- Increase and improve agricultural production through the introduction of animal traction, tied to the use of fertilizers, changes in farming methods, and the use of selected seed varieties;

- Diversification of productive activities (dry-season gardening, cash-crops, fruit-trees, forage crops, etc.);

- Upgrade rural infrastructure through the construction and maintenance of access/market roads, bridges, wells, warehouses, schools and dispensaries);

- Conservation and restoration of soil fertility (crop rotation, fallowing, contouring, terracing, manuring, erosion control, reforestation, etc.);

- Farmer instruction, particularly of rural artisans (masons, blacksmiths, carpenters, etc.).

The above actions are intended to contribute toward several long-term objectives:

- Development, in the most rational sense, of heretofor un- (or under-) utilized land;

- Development and integration of animal husbandry within farming systems;

- Definition of a master-plan for the technical, economic and social aspects of rural development in the Kara region.

The project has put considerable effort into following the profitability of animal traction by examining the multiple economic and technical conditions which must be met. To date, with pairs of oxen in the three project zones, the project qualifies the experience as positive, with those disadvantages which have been noted to date as subject to improvement with better farmer training, off-season use of oxen, and a more adapted system of credit.

I. National Agricultural Training Institute (INFA)

INFA is the only national government institution training agricultural extension agents. It is situated at Tove, in the Plateau region, in a high rainfall zone. There are two cycles prepared for level C and D trainees.

Level C trainees (Centre d'Appentissage Agricole) have just finished their primary schooling. Their training consists of a first year of general instruction, followed by two years of specialization in either agriculture, animal husbandry or forestry. They also take courses in rural animation, extension practices and simple applied mathematics and farm economics. A minimum of five years of field work as a GOT paid extension worker is required after graduation before being permanently accepted (upon a favorable evaluation) as a civil servant.

Level B (Ecole Nationale d'Agriculture) annually enrolls about 40 students who have completed their first four years of secondary school. Three years of training are divided as such: year one - stages of the agricultural season; year two - farm management and marketing (including two months of practical work away from the institute; year three - extension practices. Approximately one half of the trainees' activities involve theory, and one half, practice. The trainees manage their own cooperative.

Upon graduation, they become staff members of the regional DRDRs, where as chef secteur or chef sous-secteur, they become supervisors to extension agents (graduates of level C), or work in parastatals (SOTOTEX, SOTOCO), or foreign research institutes (cotton and textiles, coffee and cocoa).

Proposed reforms (FED and IBRD funding) would replace C level trainees with "modern farmers" who have a high school degree. Receiving the basic B level instruction, they would also have course/field work in the more practical aspects of improved farming. Animal traction and animal husbandry would be added to the curriculum and trainees will work in a shop for farm machinery and tools, including animal traction equipment.

J. Young Farmer Training Centers

Five agricultural training centers opened in March 1981 in a first effort by the Ministry of Rural Development to train young farmers in modern methods. Each one of the five economic

zones is covered (originally, all twenty-one prefectures were scheduled to have one, but costs have obviously been a factor). Existing centers, or agricultural stations, with some new construction or modifications, are being used as the learning and work facilities. Instead of furnished living quarters, trainees are expected to arrange their own housing.

Mission Tove	Maritime
Adeta	Plateau
Cambole	Central
Ateda	Kara
Barkoissi	Savanes

Generally, young men (no women are enrolled in the program yet) who have completed four years of secondary school are invited. They are selected on a first come, first served basis, and then assigned to one of the centers, in a random fashion. Enrollment has been between 60-80 trainees per center, per year.

The one-year curriculum is made up of courses and practical work in animal husbandry, agriculture and animal traction/mechanization. Hands-on learning is stressed, with trainees building rudimentary fowl coops, piggeries and stables, and working with improved farming methods and technologies in cultivating actual field crops.

The Director is usually the only full-time instructor, and generally has an agriculture degree (agronomy or engineering). He is seconded by various part-time instructors in specialty areas (a mechanic, a tractor driver, an ox-trainer).

The centers are just getting used to an annual program of instruction and work. There are obvious, albeit modest needs in the way of equipment, infrastructure (water wells), and periodic refresher courses for the trainers.

The GOT has announced its intention to send graduates of the centers as pioneers to assist in opening heretofore isolated regions where farming potential is judged to be great, and where infrastructure is slowly being put in place. Alternatively, various projects may be asked to give special consideration to incorporating the graduates who are resident in a project area into credit/extension activities.

Abbreviations and Acronyms

AID	Agency for International Development
AIP	Accelerated Impact Program
ANTRAC	Animal Traction
ARCOMA	Atelier Regional de Construction de Materiel Agricole
BCEOM	Bureau Consultatif des Etudes Outre-Mer
BDPA	Bureau de Developpement et de la Production Agricole
BEPC	Brevet d'Etudes de Premiere Cycle
BEPCM	Brevet d'Etudes de Premiere Cycle -
CAA	Centre d'Apprentissage Agricole
CAT	Centre d'Appui Technique
CEFEB	Centre d'Etudes Financieres et Banquaires
CESAO	Centre des Etudes Socio-Economique de l'Afrique de l'ouest
CFA	West and Central African Franc
CIERO	Centre Inter-Etats de Radio de Ouagadougou
CNCA	Caisse Nationale de Credit Agricole
CNPPME	Centre National de Promotion des Petites et Moyennes Enterprises
COCA	Comite d'Etude et d'Orientation du Programme de Culture Attele
CONAUDEC	Comite National pour le Developpement des Unions Cooperatives d'Epargne et de Credit
CUNA	Credit Union National Association
DRDR	Direction Regionale de Developpement Rural
DVSA	Direction des Services Veterinaires et de la Sante Animale
EA	Environmental Assessment
ENA	Ecole Nationale d'Agriculture
EORD	Eastern - Organization Rurale de Developpement
FAC	Fonds d'Aide et de Cooperation
FAO	Food and Agriculture Organization

FED	Fonds Europeen de Developpement (European Development Fund)
FED-V	Fifth funding cycle of EDF (European Development Fund)
FM/BFD	Financial Management/Banking and Finance Division
FSI	Foreign Service Institute
FSN	Foreign Service National
GOT	Government of Togo
GSA	General Services Administartion
GTZ	German (Federal Republic of) Development Assistance Program
IBRD	International Bank for Reconstruction and Development
ICRISAT	International Crop Research in Semi-Arid Tropics
IEE	Initial Environmental Examination
IEED	International Institute for Environment and Development
IFCC	Institut Francais de Cafe et de Cacao
IMF	International Monetary Fund
IMPHOS	Institut Mondial de Phosphate
INADEZ	Institut Africain d'Etudes Economiques et Sociales
INFA	Institut National de Formation Agricole
IRAT	Institit de Recherche Agronomique Tropicale
IRCT	Institut de Recherche Cotonniere et des Textiles
IRR	Internal Rate of Return
IRT	Improved Rural Technology
JAO	Joint Administrative Office
LD	Lethal Dose
M&E	Monitoring and Evaluation
MDR	Ministere de Developpement Rural
MT	metric tons
NASA	National Aeronautique and Space Administration
OAR/Lome	Office of the AID Representative, Lome, Togo

OAU	Organisation Africaine d'Unite
ODEF	Office des Eaux et Forets
OPTA	Office de la Promotion de la Traction Animale
ORSTOM	Office de la Recherche Scientifique et Technique Outre-Mer
OTP	Office Togolaise des Phosphates
OTTA	Organisme Togolaise de la Traction Animale
PACD	Project Activity Completion Date
PC	Peace Corps
PCV	Peace Corps Volunteer
PID	Project Identification Document
PIO/C	Project Implementation Orders/Commodities
PIO/T	Project Implementation Orders/Technical Assistance
PL-480	Public Law 480
POL	Petroleum, Oil and Lubricants
POV	Privately Owned Vehicle
PP	Project Paper
PRODEBO	Promotion et Developpement d'Elevage Bovine
PROPTA	Projet de Promotion de la Traction Animale
PSA	Procurement Services Agent
PSC	Personal Services Contract
PVO	Private and Voluntary Organizations
REDSO/WA	Regional Economic Development Service Office/West Africa
RLDC	Relatively Lesser Developed Countries
RPAP	Rebuttable Presumption Against Registration
SAFGRAD	Semi-Arid Food Grain Research and Development
SEDES	Societe d'Etudes pour le Developpement Economique et Socia
SODOPRODER	Societe Togolaise pour la Promotion de Developpement Rural
SOTED	Societe Togolaise d'Etudes au Developpement

SOTEXMA	Societe Togolaise d'Exploitation de Materiel Agricole
SOTOCO	Societe Togolaise du Coton
SORAD	Societe Regionale d'Amenagement et de Developpement
SPSS	Small Program Strategy Statement
S&T	Science and Technology
ST/AGR	Science and Technology/Agriculture
ST/FNR	Science and Technology/Forestry and Natural Resources
TAT	Togo Animal Traction
UNEP	United Nations Environmental Program
UNDP	United Nations Development Program
UNIDO	United Nations Industrial Development Organization
UPROMA	Unite de Production de Materiel Agricole