

PD-AAC-752-B1

6770002 (2)

AGENCY FOR INTERNATIONAL DEVELOPMENT <b>PROJECT PAPER FACESHEET</b>		1. TRANSACTION CODE <input type="checkbox"/> A = ADD <input type="checkbox"/> C = CHANGE <input type="checkbox"/> D = DELETE	PP 143 2. DOCUMENT CODE 3
3. COUNTRY/ENTITY CHAD		4. DOCUMENT REVISION NUMBER <input type="checkbox"/>	
5. PROJECT NUMBER (7 digits) 677-0002	6. BUREAU/OFFICE A. SYMBOL AFR B. CODE 1	7. PROJECT TITLE (Maximum 40 characters) Agricultural Institutional Development	
8. ESTIMATED FY OF PROJECT COMPLETION FY 82		9. ESTIMATED DATE OF OBLIGATION A. INITIAL FY 77 B. QUARTER 4 C. FINAL FY 82 (Enter 1, 2, 3, or 4)	

A. FUNDING SOURCE	10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$1 - )					
	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. TOTAL	E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL						
(GRANT)	464	319	783	8,834	2,634	12,251
(LOAN)						
OTHER U.S.						
1. Peace Corps		26	26		106	132
2. PPG/ATP prog.		931	931		3,725	4,656
HOST COUNTRY		78	78		312	390
OTHER DONOR(S)		296	296		6,186	1,482
TOTALS	464	1,650	2,114	8,834	7,963	13,911

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY 77		H. 2ND FY 78		K. 3RD FY 79	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1)	170	0573		783		3,196		2,568	
(2)									
(3)									
(4)									
TOTALS									

A. APPROPRIATION	N. 4TH FY 80		O. 5TH FY 81		LIFE OF PROJECT		12. IN-DEPTH EVAL. SCHEDULED
	P. GRANT	Q. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN	
(1)	2,408		3,296		12,251		MM YY 09 80
(2)							
(3)							
(4)							
TOTALS							

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

2 1 = NO  
2 = YES

14. ORIGINATING OFFICE CLEARANCE SIGNATURE <i>for Richard J. Delaney March 17, 1977</i> TITLE Country Development Officer		15. DATE DOCUMENT RECEIVED IN AID/W. OR FOR AID/W DOCUMENTS. DATE OF DISTRIBUTION DATE SIGNED MM DO YY MM DO YY
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o Includes 5th year funding. See issue No 4, page 19.

AGRICULTURAL INSTITUTIONAL DEVELOPMENT

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ACRONYMS OF INSTITUTIONS APPLICABLE TO THIS PROJECT  
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AID	Agency for International Development
BOPA	Arabic Bank for Developing Countries
CAPAR	Extension Animation Training Center
CFCPA	Agricultural Schools for Training Village-Level Extension Workers at Dougui and Tikem
CFPA	Center for Agricultural Professional Training
CFTA	Agricultural High School at Sahr
CIMMYT	International Center for Corn and Wheat Improvement
CETA	Agricultural College (Junior High School) at Ba-Illi
DEFPA	Directorate for Agricultural Teaching and Training
ECA	Economic Commission for Africa
ENATE	School for Veterinary Technical Assistants
FAC	Aid and Cooperation Fund (French Aid)
FAO	Food and Agricultural Organization
FDAR	Fund for Agricultural Activities in Rural Areas
FED	European Development Fund
GOC	Government of Chad
IBRD	International Bank for Reconstruction and Development
INSE	National Institute of Educational Sciences
IRRT	International Rice Research Institute
IURZ	University Technical Institute for Livestock
MOA	Ministry of Agriculture
ONDR	National Office of Rural Development
ORT	Organization for Rehabilitation through Training
PNUD/UNDP	United Nations Development Program
SEM/HB	Sector of Modernization - Bongor (Rice Production Scheme)
SEMALK	Sector of Modernization - Lai/kélo (Rice Production Scheme)
SODELAC	Lake Chad Development Authority
SONACOT	National Authority for Agricultural Commercialization
UNDAT	United Nations Development Advisory Team
WARDA	West African Rice Development Agency

**B. Recommendations**

1. That grant funds be authorized for the Agricultural Institutional Development Project in the amount of \$12,250,700 for the life of the project.
2. That a waiver be granted on the source of procurement of vehicles and commodities.
3. That a waiver be granted of the 25% host country contribution requirement.
4. That one full-time AID agriculture technician, with knowledge and experience in general rural development, be added to the CDO staff in N'Djaména. His full-time responsibility would be to manage all facets of this project and monitor project programs. His professional background should be in agriculture economics and agronomy. He should have a French level of S3-R3.

### C. Description of the Project

This is an institutional development project, designed to enhance the capability of the Ministry of Agriculture to function more effectively in the establishment of policies and the promulgation and execution of rural development programs for small farmers. It involves five component parts- planning, rural development/extension, agricultural education, research, and agricultural statistics - which function in an interlocking series of relationships, each complementing the other, in the design, execution and evaluation of agricultural activities.

Since food production for domestic needs is recognized as an increasingly serious problem in Chad, the project goal can be characterized as the attainment of self-sufficiency in food crops production and an improved standard of living for Chad's small agricultural producers. Each of the five component parts has an integral role to play in the achievement of this goal. Planning is critical to the development of national agricultural policy, developing projects and studies, establishing priorities, and recommending resource allocations among projects. Rural development/extension has the responsibility for designing, conducting and evaluating programs of change among peasant farmers. Providing trained manpower to agricultural and rural development programs is the principal mission of agricultural education. Agronomic research is necessary for developing recommendations based on scientific findings which will ameliorate agriculture

production problems. Researchers must work closely with rural development/extension agents in the development of program packages. The Division of Agricultural Statistics has a vital role in collecting and maintaining agriculture economic data focusing on trends, needs and problems and establishing base-line data.

Current agricultural programs in Chad have emphasized cotton to the exclusion of almost everything else. Recent developments, particularly the drought in the Sahelian zone, have caused the GOC to become more conscious of the need to expand into other areas, notably - food and forage production. Chad is currently calorie-deficient in diets and must rely on external food grants and imports in overcoming it's food deficit. In order to undertake a concerted effort to resolve this problem, the components encompassed in this project must be strengthened.

In support of the mission of the Ministry of Agriculture (MOA), an effective broadened base for policy planning must be developed, organized, staffed and given the resources to accomplish its mission. Rural development/extension has a sizeable field force. However, in order to expand the scope of its activities, a massive staff training program is needed, together with increased manpower and the capability of making that manpower mobile. Research needs facilities, trained manpower and resources in order to produce the recommendations necessary to support a large-scale extension effort

in food production. Statistical data are needed on all aspects of agriculture production, marketing, yields and trends, as the basis for planning. Trained manpower, facilities and resources are seriously needed in this area. The agricultural education sector needs trained teachers, adequate facilities, and basic material support. In short, each of the major components has similar needs in order to become capable of discharging its responsibilities with dispatch and effectiveness. The institutional framework must be developed, roles and responsibilities must be delineated, trained manpower must be fitted into the defined roles and responsibilities, and these people must have adequate facilities and available support funds with which to perform their jobs.

Five units of the Ministry of Agriculture will be involved in this project as well as the University of Chad. The Ministry of Agriculture is in the process of organizing a Bureau of Studies and Programming as an adjunct to the Office of the Director General of the Ministry. This unit will perform the planning function. Within the Directorate of Agriculture, a principal subdivision of MOA, there is the Bureau of Agronomic Studies and the Division of Agricultural Statistics, which have the responsibility for research and statistical programs, respectively. Performing the rural development/extension function is the National Office of Rural Development (O.N.D.R.). Agricultural education at the high school level is the responsibility of the Directorate of Agricultural Education and Training, while at the University

level, the University of Chad is proposing to organize a Faculty of Agriculture which would have the responsibility for training university - level agricultural technicians. Each of these units would have the direct responsibility for the planned outputs under this project.

At the present time, there are several other groups in Chad, which will be assisting in the achievement of outputs. F.A.C. advisors are present in four of these units. An advisor from F.A.O. is involved in the statistics effort. U.N.D.P. and F.E.D. are assisting with the construction of agricultural school facilities, and O.R.T., with AID support, will be heavily involved in training extension workers.

The U.S. inputs necessary to develop the five components involved in this project include:

1. Technical assistance - 15 technicians for a total of 825 man-months of service:

2 agricultural economists, one agronomist and one agricultural engineer to assist with the development of the Bureau of Studies and Programming in policy formulation and project development.

1 extensionist to work with O.N.D.R. on the development of the food production program.

1 extensionist to work with D.E.F.P.A. on the development of the new agricultural school at Dougui for the training of village level workers for the Sahel.

3 professors, one in field crops, one in soils, and one in plant protection, to work on the development of the Faculty of Agriculture.

2 agronomists, one economist and one soils chemist and one laboratory technician to work on the development of the Bureau of Agronomic Studies.

1 statistical economist to assist with the development of the agricultural statistics division.

24 man-months of consulting time in agricultural development planning for the Bureau of Studies and Programming.

2. Local staff - 272 persons for a total of 11,376 man-months of service:

260 village level extension workers for O.N.D.R. to work in the food production program.

12 support level persons to work in the Agricultural Statistics Division in assisting with the activities of the unit.

3. Training - 18 participants for a total of 864 man-months of degree training in the U.S. for preparation to work in agricultural education, planning and research.
4. Training - 34 participants for a total of 792 man-months of training in francophone African institutions for preparation to work in agricultural education, planning research, and agricultural statistics.
5. Training - 450 village level extension workers to be trained in a nine-month course in the agricultural schools at

Tikem and Dougui.

6. Commodities - to equip offices, provide transportation, furnish libraries and laboratories, provide audio-visual and instructional equipment and further develop instructional farms for the components of this project to enable them to function at an adequate level as institutional units.
7. Building construction and renovation - to provide adequate facilities for the planning, research and statistics units and for the agricultural schools.
8. Other costs - to provide adequate levels of operating costs for the newly developing units, including office supplies, operating vehicles, and in-country travel.

During the life of the project, the technical assistance personnel will basically assist the Chadian officials in the formation and development of institutional capabilities in the development of policy; planning of projects; developing of program packages in food production; the development of curricula and instructional programs; the planning, conduct and evaluation of statistical studies; the coordination of activities with other units; and the training of Chadian officials at all levels. The 52 participants in training courses in other countries will be prepared for their future roles, with training programs where possible scheduled to terminate in time for a period of overlap with their U.S.

counterparts before the end of the project. The in-country training activities for extension workers are designed to enhance their technical competence and their ability to work effectively with peasant farmers in food production activities, while the additional cadre of village level extension workers will enable O.N.D.R. to reach more peasant farmers with the food production program.

Evaluation of the project will be an on-going activity, focusing on both process and product evaluation. A comprehensive evaluation is planned for the rural development/extension component, beginning with a base-line study, followed by a mid-point evaluation, and culminating in a final evaluation at the end of the project. It will involve a sample of farmers in 25,000 villages throughout the country. Evaluation of other project components will be at least on an annual basis.

By the termination of this five-year project, units will be staffed entirely by Chadians, and the following conditions will exist.

1. A reorganized and functioning Bureau of Studies and Programming which will formulate policy, be able to identify economic problems in the agriculture sector, be able to formulate development strategies and projects, be able to evaluate the technical aspects of projects and be able to maintain continuous liaison with the Ministry of Plan.

2. An expanded and functioning National Office of Rural Development, staffed by a well-trained field force of village extension workers in all sections of the country, capable of planning, implementing and evaluating food production programs with the peasant farmers.
3. A functioning Faculty of Agriculture in the University of Chad, capable of producing 20 graduates (Ingénieurs de Travaux Agricoles) per year, emphasizing an applied, field oriented three-year curriculum, designed to produce university-level agricultural technicians for agricultural development programs.
4. Functioning, adequately equipped agricultural schools at Sahr, Ba-Illi, Tikem and Dougui staffed by a faculty capable of planning, teaching and evaluating a comprehensive, practical and job-oriented curriculum for agricultural workers in Chad, and
5. Fully operational Bureau of Agronomic Studies, capable of managing agricultural research at the national level, and emphasizing a program for the development of improved seed, soil fertility and management, crop cultivation, plant protection and laboratory operations, together with the capacity to exchange research information with foreign organizations, to be responsive to changing crop production practices, to develop improved varieties and to up-date

- technical packages of practices and relay them to O.N.D.R.
6. A reorganized and functioning Division of Agricultural Statistics which will have the capability to collect, compile, process and report agricultural data and information, based on an enlarged data base and the implementation of special studies and surveys, while maintaining continuous cooperation with related organizations and agencies in investigating needs for supplementary development assistance.

#### D. Summary Findings

The CDO has determined that the project as presented is technically and financially sound. Consultation and an interchange of ideas have been made to the maximum extent with concerned ministries and subdivisions of the Chadian government and the project adequately reflects GOC inputs. The Ministry of Agriculture is in full accord with the scope and content of the project and is anxious to move to the implementation stage as soon as possible. The CDO, therefore, recommends that a grant of \$12,250,700 be authorized to finance the activities covered by the project for a period of five years.

Success of this project will result in the creation of institutions considered to be essential for all other rural development programs in Chad. Sound agricultural institutions

with trained and experienced technicians will provide the foundation for selecting, appraising, executing and monitoring future agricultural projects.

The project will require a significant level of foreign technical inputs during the initial phase until adequate Chadian manpower is trained and developed.

#### E. Issues

1. Technical issues reviewed in the PRP concerned
  - (a) the problem of limited availability of qualified candidates for training and (b) whether USAID should support a subsidized radio-purchase program. These subjects have been investigated by the PP design team with the following conclusions:

##### a. Availability of candidates for training.

According to information provided by the GOC and the opinion of experts in the Ministry of Plan, there will be ample manpower to fill the 52 scholarships to be provided by the project. To illustrate, the number of lycee graduates has been going steadily upward, from 291 in 1971-72 to 436 in 1975-76. Another source of potential candidates with experience are the technical-level lycee equivalent graduates (conducteur de travaux agricoles) which number over one hundred in the MOA.

The Director General of the MOA also concurred and gave assurance that candidates for training would be made available. He, in fact, asked if the training component of the project could be increased. As all of the participants will not be leaving at the same time, the manpower drain should not be too severe. Projected training by other donors was considered in the discussions with GOC officials. In view of the above findings, there should be no problem in recruiting the necessary candidates for training abroad.

b. USAID support for a subsidized radio-purchase program -

The communications media sector in Chad is in its infancy. There is only one radio station, located in the capital of N'Djaména. Consequently, time for agricultural broadcasts is very limited. According to O.N.D.R. officials, the few extension or farm information-type programs have only been allowed 10-15 minutes on a restricted number of days. Given the competition for broadcast time, it is unlikely that the MOA could be able to expand its program format.

A more serious problem is the existence of eight major languages throughout the country. Without more radio stations located in different parts of the country, it is impossible to reach a majority of the farming population with a useful extension broadcast.

Research studies have shown both in the U.S. and develo

ping countries that the overall effect of radio broadcasts has been to make farmers aware of new ideas. The lasting benefit of absorbing new ideas and technical knowledge is achieved only when there is sufficient follow-up by extension field agents. One of the purposes of this project is to develop such follow-up capacity, but this capacity certainly does not exist at this time.

In view of these negative factors, it is not recommended that USAID support a subsidized radio purchase program.

2. The financial issue discussed in the PRP concerns the ability and willingness of the MOA to guarantee salaries of recruiting participants. This topic was discussed at length with responsible MOA officials who gave assurance that the MOA budget would be augmented adequately to meet the increased levels of salaries and support cost. This issue is analyzed in Part III B, Financial Analysis and Plan. A comparative table has been prepared showing the increased costs by project component. The overall increase will amount to \$246,000 or about nine percent of the current MOA budget of 2.7 million.

Considering the attitude of MOA officials and their expressed willingness to increase the budget, increased salary and support costs of nine percent is not a se-

3. AID/W response to proposed assistance to a new Faculty of Agriculture was in the negative. Concern was expressed that the cost per student was too high and that the absorbtive capacity of the GOC was not adequate to employ 20 students per year.

The proposed Faculty of Agriculture is considered a most important line in the institutional chain for Chadian agriculture. Its major importance is that practically oriented higher education would be conducted in the Chadian environment. Students could be sent to other countries for such training, but the practical work required as part of such a curriculum would not be conducted under Chadian environmental conditions. This is an important consideration as a farm is contemplated as part of the new faculty.

As to the absorbtive capacity of the GOC, there should be no problem whatsoever in finding employment for all the graduates within the next ten or fifteen years. Not only is there a need to fill existing gaps in the MOA staffing pattern, but field personnel should be upgraded and expanded during and after the life of this project. As an example, there are 28 positions in O.N.D.R. which call for college-level technicians, and only three persons are qualified. The O.N.D.R. field staff consists of 109 subprefecture posts which are manned by technicians of the junior high school level.

In the teaching fields, there is a need for at least 25 college level agriculture teachers to staff the existing and contemplated schools. The research station could easily utilize fifteen or twenty college level research scientists.

Outside the project-assisted areas there is also a serious need to upgrade personnel and fill manpower gaps. This includes five other directorates and five semiautonomous agencies. Eventually there will be a demand from the private sector as irrigation and plantation agriculture expands.

For the above reasons, the Faculty of Agriculture assistance element was included in the PP.

4. As finalization of the PP is considerably later than originally planned, initial obligations are not expected to be made before the latter part of FY 1977. Actual project implementation will not be fully underway before FY 1978. Consequently, there will be a need to obligate a small amount of funds in early FY 1982 for PASA costs. The project will be completed in just slightly over five chronological years.

## Part II, Project Background and Detailed Description

### A. Background

Food production for domestic needs is recognized as an increasingly serious problem for the GOC. This was first revealed in the DAP for Chad dated January 1976, and subsequently confirmed by agricultural study teams in the preparation of the PRP. Specific DAP recommendations for agriculture institutional assistance are quoted below:

Agricultural development potential and existing infrastructure in Chad point to three main lines for USAID agricultural development strategy:

- (a) strengthening GOC institutional capacity to plan and execute agricultural projects;
- (b) directing the main thrust of USAID agricultural investments to the southern zone (south of the Chari River), which is the main agricultural zone of the country, with the aim of improving the production and marketing of subsistence crops (millet and sorghum) and developing other crops, such as peanuts and rice; and
- (c) complementary actions in the Sahelian zone, aimed at improving the production and marketing of subsistence crops (millet and peanuts), and exploring the possibilities of the Lake Chad polders.

The above does not signify a neat division between the Sahelian and southern regions in favor of the latter: the institution-building projects will have country-wide benefits, while most of the investment projects proposed below (seed multiplication, farm storage, emergency stocks, and Acacia albida propagation) will have activities in both the Sahelian and the southern regions.

The following sections indicate the activities which USAID might undertake within the above guidelines.

Agriculture institution building

Activities to strengthen GOC capacity to plan and execute agricultural projects may be undertaken in the fields discussed in the following

- (a) A unit for programming and permanent evaluation of agricultural projects: FAO project CHD/75/003 (\$122,300), which would aid the Ministry of Agriculture in creating such a unit, should be strengthened by USAID assistance in the appropriate items to assure it is not curtailed owing to budget limitations and price increases.
- (b) A unit of programming and permanent evaluation of irrigated agriculture projects: FAO project CHD/75/004 (\$126,500), which would aid the Ministry of Land Development to create such a unit, should be aided as above.
- (c) The agricultural statistics division: USAID should collaborate with FAO project CHD/75/008 (\$307,800) in reinforcing the agricultural statistics division of the Ministry of Agriculture.
- (d) The "direction de l'enseignement et de la formation professionnelle agricole" (D.E.F.P.A.): FAO project CHD/75/006 (\$161,500), which would aid the D.E.F.P.A. in the training of agricultural and livestock technicians, should be assisted by USAID funds as necessary to fulfill its objective. Furthermore, the agricultural technicians' schools at Ba-Illi, Sarh and Tikem should be assisted with (i) stipends for further training of the teaching staff in Chad and other African countries, (ii) laboratory and practice-farm equipment, and (iii) other items necessary for producing an adequate number of agricultural technicians (conducteurs, agents and encadreurs de base) of the quality required for effective contract between GOC agricultural projects and the rural population.
- (e) Assistance to the University of Chad through staff training in areas important to the schooling of Chadian agronomists which may be insufficiently emphasized by existing technical assistance, such as agricultural economic and management of integrated irrigated-agriculture projects.
- (f) Assistance to the Office National de Développement Rural (O.N.D.R.): The O.N.D.R. should be aided in upgrading all of its extension agents to satisfactory standards and training agents according to necessities

in specializations such as seed multiplication, rice growing and irrigation management, through an organized system of in-service training. Moreover, the O.N.D.R. should be assisted in installing pilot projects which would adapt to Chadian conditions recent advances in extension methodologies for reaching massive numbers of subsistence farmers, such as the Plan Puebla (Mexico) experience.

(g) Postgraduate specialization for Chadian agriculturists: following forecast needs for Master-of-Science-level agriculturists of different specializations in Chad, the USAID should participate in furnishing stipends for training such specialists, provided that effective steps are taken for their return and future employment.

Conditions affecting agriculture development in Chad at the present time are essentially the same as those reviewed in the DAP. Agricultural institution project assistance planned by the UNDP and FAO have not materialized as expected. Budgetary problems prevented the execution of projects to assist the planning unit and education sectors of the Ministry of Agriculture, and there have been delays in other project development for the agriculture sector. Consequently, it is even more imperative now that priority be given to U.S. assistance directed toward the strengthening of agricultural institutions. The DAP recommendations are all the more valid in view of the failure to implement the above UNDP assistance. As recommended in the DAP, this project is designed to (1) strengthen the institutional capability of the GOC to plan and execute agriculture projects, (2) assist southern agriculture zones in the improvement of the production and marketing of millet, sorghum and other food crops, and (3) improve the production and marketing of food crops in the northern agricultural zone. A major deterrent to a dynamic and effective

agricultural production program is the lack of an adequate infrastructure to formulate and implement sound agricultural policy. Following the severe drought period of 1972-73, Chad has been the recipient of an increasing volume of foreign assistance in addition to the regular budgetary support of the French Government. Not only has the Chadian Ministry of Agriculture not been able to formulate an effective overall agriculture development policy, it is now being confronted with new projects and technical proposals from foreign donors with which it is unable to cope. Recognizing this as a major problem for the agriculture sector, the USAID has determined that priority assistance of agricultural institutions is in order.

A proposed grant of \$12,250,700 will facilitate the support and strengthening of certain specific elements of the Ministry of Agriculture, (MOA) primarily through specialized professional assistance and training.

#### Areas of Concentration

The project goal is "the attainment of self-sufficiency in food crops production and an improved standard of living for the Chad's small agricultural producers". The project purpose to help achieve this goal is "to strengthen Chadian institutional capabilities in agricultural planning, data/information systems, agricultural extension, agricultural education, and small-farmer-oriented agronomic research at the national level".

Realization of the project purpose will come about through assistance in five areas of concentration.

Units within the MOA selected for institutional strengthening include:

- I - Bureau of Studies and Programming
- II - The National Office of Rural Development (O.N.D.R.)
- III - The Directorate of Agricultural Teaching and Training.
- IV - The Agricultural Research Division
- V - The Agriculture Statistics Division

Expansion and strengthening of the above units of the MOA are essential to successful increase in food crops. Of particular importance is the need for a central planning unit which would advise the Minister on national agricultural policy, conduct project analysis and feasibility studies, establish priorities among proposed development projects and recommend allocation of resources to priority areas. Assistance to the Division of Statistics will also facilitate the work of the Planning unit.

Assistance to the O.N.D.R. (agriculture extension) and the Research Division will create a rural development delivery system backed by applied research capability. This close linkage is mandatory if research results are to be quickly and effectively transmitted to small farmers. Critical to the success of the above institutions is trained manpower. In addition to

specialized training abroad, the support of regional agricultural schools will provide better trained agriculturists to staff new positions as the MOA is expanded. To fill the gap of senior level agriculture specialists, assistance will be provided to the University of Chad to expand its agriculture (agronomic) faculty.

The following is a general background and project description of each of the five components which comprise the Agricultural Institutional Development Project. These are more specifically identified in Figure 1 which shows the relationship of each project component to the other.

Agricultural Planning Unit (Component 1 Background)

Planning for agriculture development in Chad has been restricted for the most part to large-scale cotton production for export. Development of the cotton industry was started by the French in the mid 1920's and has continued to the present under French aegis. The orientation of agricultural policy planning is strongly influenced by a national effort to expand and improve cotton production. This has a direct influence on all agricultural institutions, particularly extension and agronomic research. The limited degree of policy planning within the MOA, which extends beyond cotton programs, is conducted by one Chadian assisted by a French advisor who has other duties. They work in a planning unit entitled "Bureau of Studies and Programming" (BEP).

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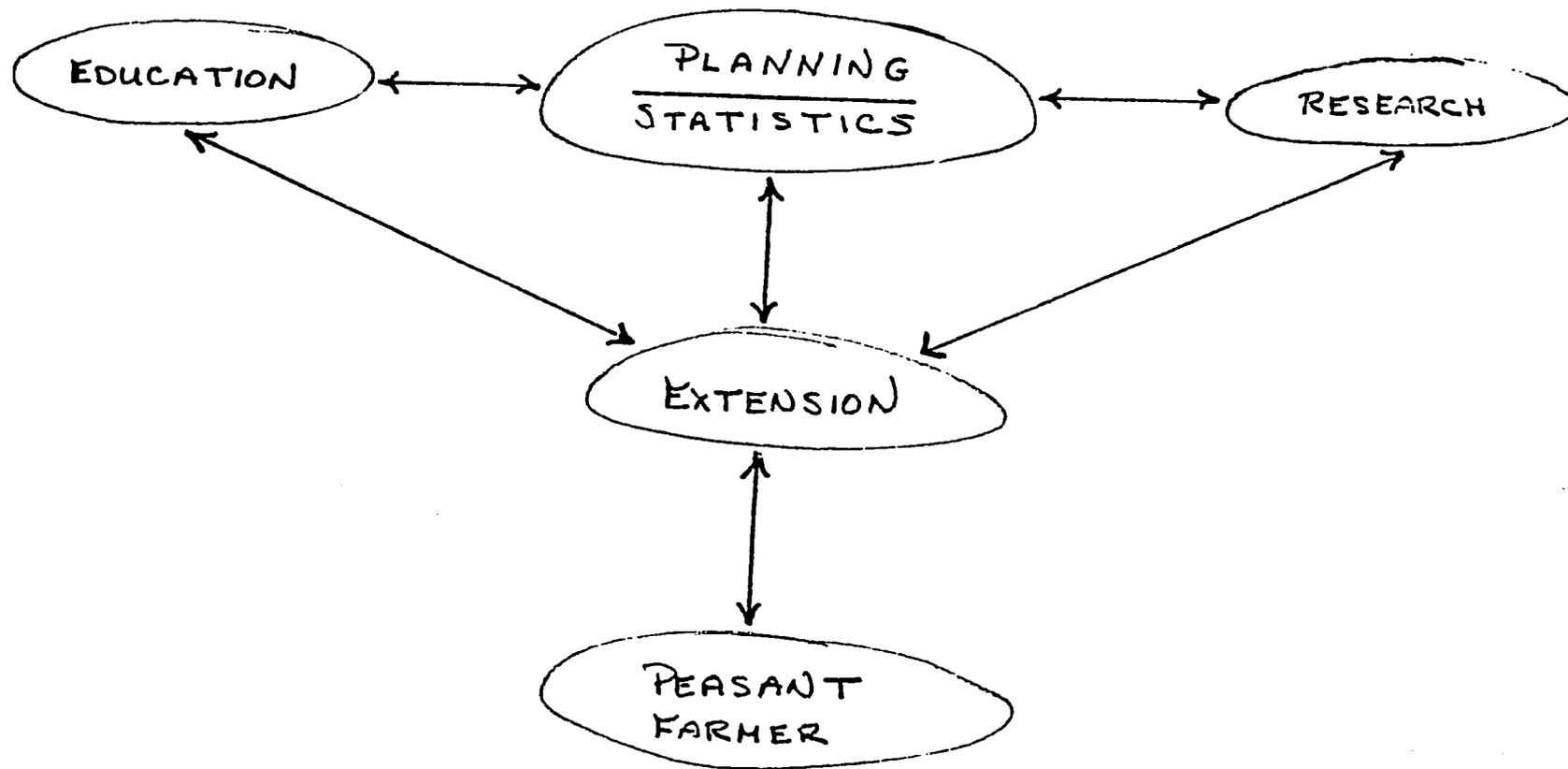
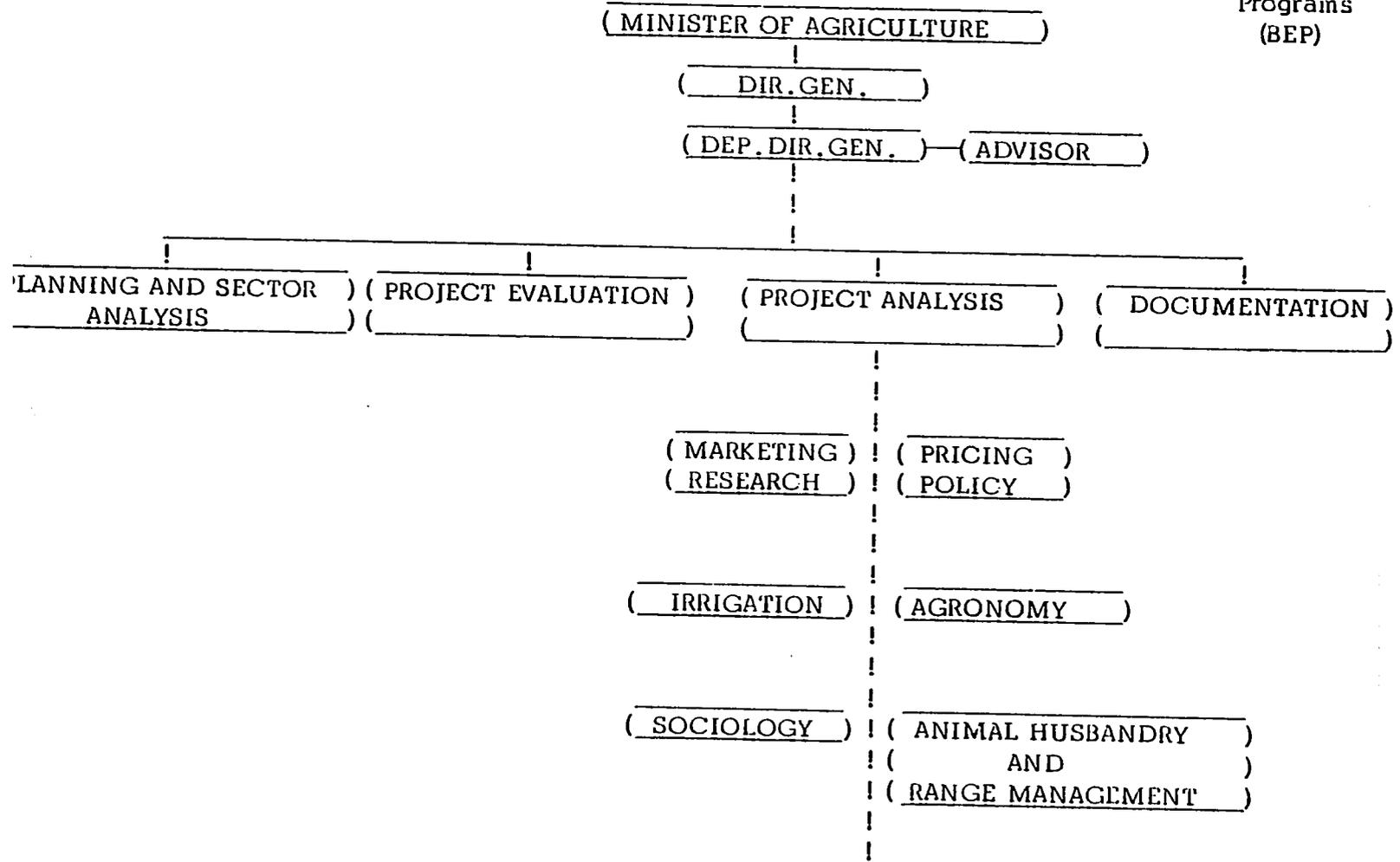


FIGURE 1. THE RELATIONSHIP AMONG THE COMPONENTS IN THE INSTITUTIONAL BUILDING PROJECT.

A limited degree of project planning was conducted by a Planning and Development Office from 1960 to 1976. There were also embryonic planning units or individuals attached to various directorates within the Ministry. On June 23, 1976, the Ministry of Land Management was merged with the MOA. At this juncture the above-mentioned central planning unit was created. This unit has not actually functioned as a central planning organization due to insufficient and untrained staff. As this project is being prepared, a decision has been made to place the BEP directly under the Deputy Director General (see Figure No.2) It will be staffed with several foreign technicians currently assigned to other divisions of the MOA and directed by a new Deputy Director General yet to be named.

As pointed out in the DAP, there are various organizations, mostly separate authorities under the indirect control of MOA, which have a planning function relating to agriculture. These include: the "Fonds de Développement et d'Action Rurale" (FDAR) which is concerned with grain storage and prices; the "Société Nationale de Commercialisation Agricole" (SONACOT) which has an export monopoly on millet; and a cereals department which is concerned with price stabilization, marketing and reserve stocks of food grains Policy planning within these organizations is supposed to be coordinated by the MOA, but in fact the BEP is unable to effect any significant integration of planning among the various agencies.

Bureau of Studies  
and  
Programs  
(BEP)



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FIGURE 2.

The Ministry of Plan has the responsibility to coordinate all development project plans including those coming from the MOA. Project reviews are conducted by five understaffed units, one of which is for agriculture. At present only one person (FAO technician) is concerned with agriculture projects, and project reviews are handled very informally between the expatriate technicians in each respective ministry.

To summarize the problem, Chad is on the threshold of greatly increased external assistance through numerous proposed projects for the agriculture sector. Coordination of existing planning efforts within the GOC is lacking, and all ministries concerned with planning are woefully understaffed. Before Chad can properly absorb the assistance needed to realize its significant agriculture potential, the agricultural policy planning sector must be reinforced and expanded.

#### Other Donor Assistance

In January 1976, the UNDP/FAO proposed a project (003) to create a unit within the Directorate of Agriculture to carry out planning, programming and evaluation of Agriculture projects. This project was to provide one agriculture economist for two years serving as a project analyst. Other technicians were to be recruited after positions were identified. The project was to provide three scholarships in the field of rural economics, agronomy and farm management. The proposed budget was \$122,300 plus \$41,000 GOC contribution, and was to cover the 5 year life of the project. However, shortage of funds

within the UNDP resulted in cancellation of the project. Consideration is still being given to provide some assistance to the agriculture planning sector and a new project is under preparation by the FAO. The project will probably provide one irrigation construction engineer to the Project Analysis Division of BEP.

Other technical assistance under consideration for the BEP from France (FAC) will be one agronomist, one veterinarian advisor and one administrative advisor to the MOA Director General. Swiss aid may fund a sociologist and an agricultural economist.

#### Linkage with other AID projects

Under project (677-11-1120-201), "Chad Range and Livestock Development" one range management expert is being assigned to the BEP to advise on animal husbandry projects.

#### B. Description of the Project (Component I)

To help in overcoming the basic problem outlined above, this component is designed to provide guidance, technical assistance and training to the BEP. As the project inputs are brought to bear on planning requirements, the BEP will be reorganized and expanded to meet anticipated increased demand for economic studies and project analysis from the MOA as well as from foreign donors. The BEP will also develop a capacity for project design which eventually will be accomplished without exterior assistance.

In close collaboration with the USAID, the MOA has agreed to initiate basic changes in the structure of the BEP which relate directly to this project design. The following is a description of the planned reorganization.

#### Reorganization of BEP

The BEP will be under the direction of the Deputy Director General of the Ministry of Agriculture and as such will have a closer link to the Minister than other directorates within the MOA. The Deputy Director General will have an assistant with authority to act on his behalf during his absence. BEP will consist of four subdivisions with a responsible Chief of Division in charge of each. These will include:

1. Planning and Sector Analysis Division
2. Project Analysis Division
3. Project Evaluation and Monitoring Division
4. Documentation Division

Each Division Chief will have precisely defined responsibilities and will report to the Deputy Director General. They will also be expected to work across division lines to assist other members of the BEP as required. Responsibilities of each division will be as follows:

Planning and Sector Analysis Division - Responsible for long-range, broad agricultural sector planning in support of national policy; will conduct in-depth studies of the agriculture produc-

tion potential of Chad and recommend budget allocations to various sectors according to priority; will prepare an overall national strategy for long-term rural development and recommend changes to meet shifts in national policy, giving due attention to national food requirements (reserves) and export crops for foreign exchange. Primary duties of specialists in this division will be the preparation of long-term, in-depth studies. They will not be expected to work on immediate agricultural economic problems or day-to-day planning problems confronted by the Ministry of Agriculture, but will render advice to other divisions as necessary. Personnel requirements for the division will be a Chadian agriculture economist specializing in sector planning, assisted by an expatriate advisor with a M.A. degree (or equivalent) in agriculture economics. The division will be supported by a statistical unit (at first with one agricultural statistician) which will be responsible for the preparation of all statistical background material needed for all divisions of BEP.

Project Analysis Division - This will be the largest division in BEP, responsible for short-term analytical assignments and the preparation of new development projects. It will conduct feasibility studies for new projects; recommend priorities for agricultural projects, based on development priorities established by the Sector Planning Division, and on available resources; coordinate agriculture projects with other national economic development programs; prepare in-depth analysis of all

proposed projects from foreign donors; respond to the day-to-day economic problems of the Minister of Agriculture such as: marketing and pricing policy decisions, export and import policies for agriculture commodities, commodity price supports, subsidies, farm credit and cooperative policy, establishment of food processing industries, commodity storage and transportation, etc.

Some of these responsibilities will evolve slowly as the national economy expands and the overall infrastructure becomes more developed, i.e., farm-to-market roads, better communications more effective extension service, production and marketing incentives for the small farmer, etc.

The division will be reinforced by technical specialists responsible for analyzing the technical feasibility of projects under review. The specialists will also provide inputs to other divisions within the BEP, particularly the Sector Analysis and Project Evaluation Division. Initially, outside experts will be required to meet immediate project development needs in the fields of:

- Irrigation Engineering
- Agronomy
- Animal Husbandry
- Range Management
- Market Research
- Pricing Policy

Depending on the needs of BEP as the agriculture economy develops, technical specialists will be added or deleted. The BEP also will be able to request assistance from other specialists in the MOA and other GOC ministries.

Project Evaluation and Monitoring Division - Responsible for continuous evaluation of project implementation and monitoring project activities. The division will be staffed by a Chadian agricultural economist with project development and analysis experience. He would be assisted by an expatriate with a MA degree (or equivalent) in agriculture economics and will require the technical services of the Project Analysis Division on an ad hoc basis. Working closely with the Project Analysis Division, the evaluator will establish bench marks for each project and assure timely examination of project progress. Lack of progress or failure to execute project activities will be brought immediately to the attention of the Deputy Director General for action. Regular meetings will be held with foreign donors to review project progress. Timely recommendations will be made to the Minister of Agriculture on project progress or, if necessary, to cancel ineffective projects. Representatives of the division will be expected to make frequent field trips to verify project progress and assure that implementation is in accordance with project plans.

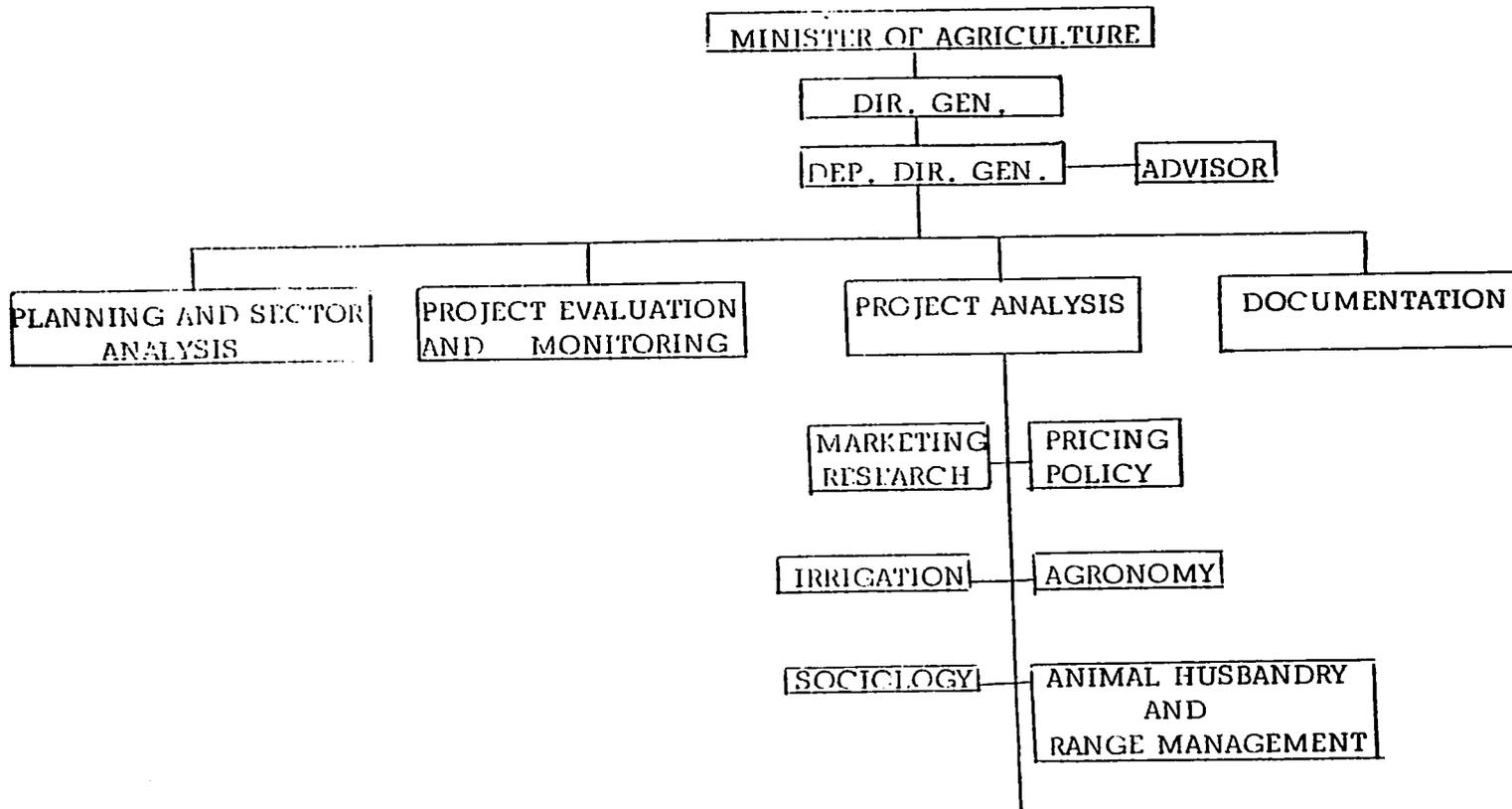
Documentation Division - A new unit for the MOA which will be responsible for the assimilation and classification of all project papers, feasibility studies, economic reports and statisti-

cal data which relates to agriculture development planning, The division will establish a small agriculture economics reference library for use by the BEP and other agencies of the GOC. It will maintain liaison with data sources in other ministries as well as other domestic and foreign sources of economic information. The division will be staffed by a Chadian Library Science specialist. He will be assisted by an expatriate who will be educated in the same discipline.

As the MOA expands and the Documentation division grows, there will be an eventual need to separate the division from the BEP to create a new and separate MOA Documentation Center. However, for the life of this project the center will be developed as a division of BEP.

#### Liaison with Ministry of Plan

In order to coordinate all agricultural planning activities with the Ministry of Plan, permanent liaison will be maintained between the BEP and the agricultural section of the Ministry of Plan. Regularly planned meetings will be established on a formal basis, in addition to informal discussions, as required, to resolve project problems.



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BUREAU OF STUDIES AND PROGRAMS (B.E.P.)

Logical Framework Summary (Planning Unit, Component I)

To achieve the project purpose which will contribute to the program goal, the following conditions will prevail by the time the project has been completed:

End of Project Status (Planning Division)

- See also  
1. 12*
- Reorganized Planning Division established and expanded, providing flow of agricultural economic information to the MOA.
  - A National Agriculture Sector Plan.
  - National agriculture policy being formulated and revised on basis of data provided by Planning Division.
  - Urgent economic problems in the agriculture sector being resolved routinely by the Planning Division.
  - National agriculture development strategy formulated and being monitored by the Planning Division.
  - Rural development and agricultural production projects being formulated with minimal assistance from expatriate technicians, at least four per year ready for implementation.
  - Proposed development projects from foreign donors being reviewed and analyzed effectively.
  - Technical aspects of projects being analyzed by Chadian agricultural specialists - such as agronomic, irrigation engineering, livestock, range management, rural credit, marketing, etc...
  - Continuous liaison being maintained between the MOA (Planning Division) and the Ministry of Plan to facilitate inputs to national economic policy.
- ./...

- Projects reviewed and analyzed and feasibility studies conducted before submission to the Ministry of Plan, at least four per year.

- Short-term economic studies prepared for MOA, at least ten per year.

Outputs, to reach the conditions described above are:

A reorganized and expanded Planning Division to meet increased development planning needs of the MOA.

*go*  
*high level*  
A trained staff of professional Chadian agricultural economists able to conduct feasibility studies, evaluate projects, prepare sector plans, do agriculture economic studies and maintain a documentation section.

A trained staff of Chadian technicians to advise the Planning Division on the technical aspects of development projects.

A new agricultural documentation section established in the Planning Division.

Inputs, required to produce the above outputs are:

Technical assistance consisting of two agricultural economists, (one for planning and one for marketing) for the five year life of the project; an agronomist (with a minor in agricultural economics) for three years and an agricultural engineer (irrigation specialist) for three years.

To supplement technical inputs for unforeseen problems thirty man-months of short-term consultants will be available during the life of the project.

- Training in the US to the MA degree level for:
  - 3 persons in agriculture economics for 4 years.
  - 1 person in agriculture marketing for 4 years.
- and in third countries (probably Yaoundé) for:
  - 1 person in agronomy for 3 years.
  - 1 person in agriculture engineering for 3 years.
  - 1 person in documentation for 2 years.
- Commodities to support the enlarged planning division as follows:
  - 2 vehicles for local technician use
  - 2 vehicles for field work
  - office equipment
  - calculators and duplicating equipment
  - air conditioners.
- A. renovated and enlarged building to house the expanded planning division, to be provided by the GOC.
- Other costs:
  - office supplies
  - local travel
  - POI and auto maintainance

Rural Development/Extension (Component II background)

A. Background

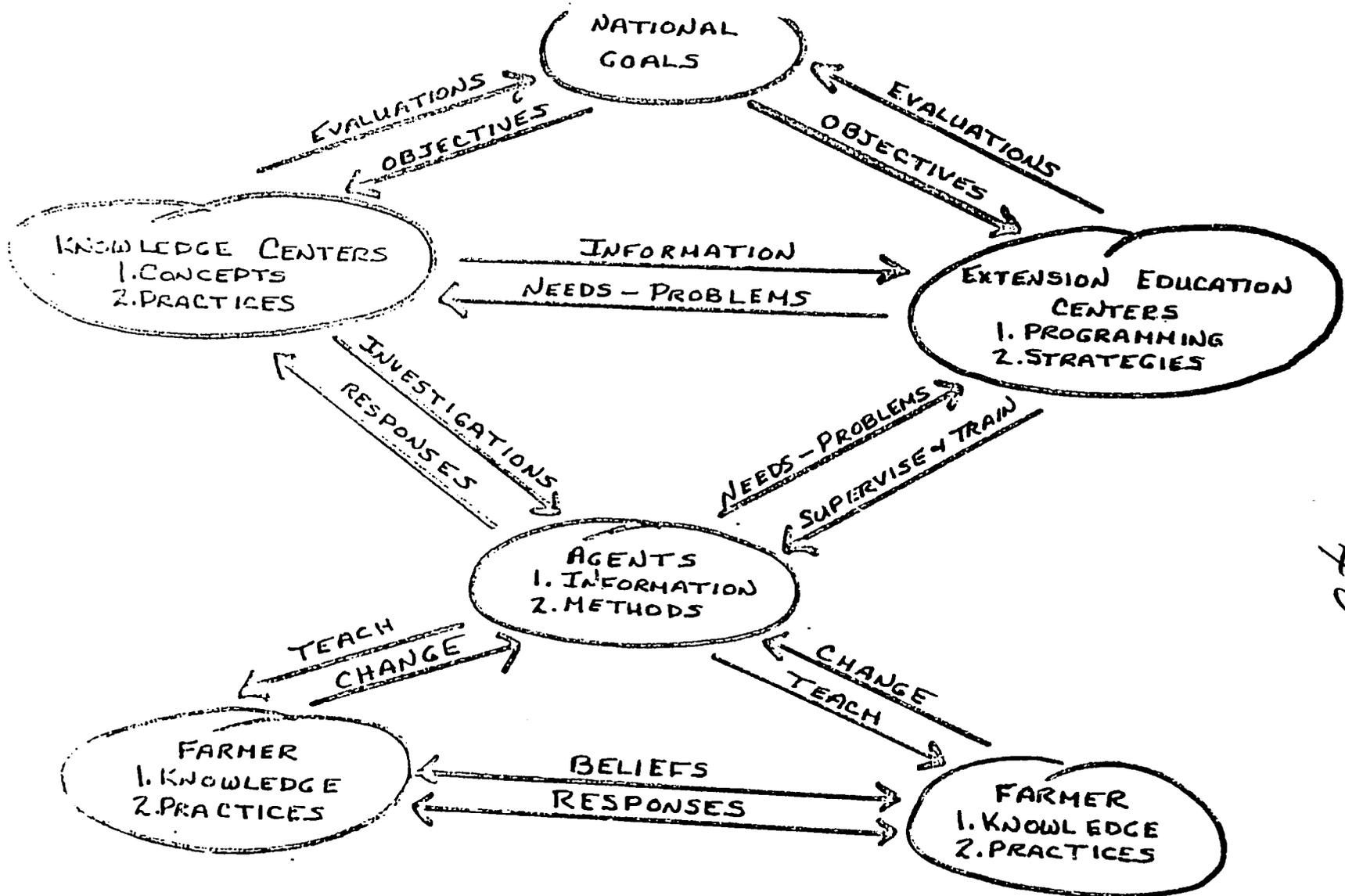
Chad has a rather extensive rural development-extension organization called ONDR (Office Nationale de Développement Rural), a semiautonomous agency of the Ministry of Agriculture,

Heretofore, the emphasis has been devoted primarily to cotton which is grown in the more heavily populated southern area of the country. There are rudiments of a staff in the Sahelian area, but for the most part the village level extension workers (surveillants) are old, untrained persons whose effectiveness is highly questionable. With over one thousand personnel scattered over the country, O.N.D.R. has a fairly heavy investment in personnel, but suffers substantially because of a lack of support funds. This is compounded by the lack of infrastructure-roads, transportation, communications throughout the country. Program direction and training have been continuing problems; therefore, a more detailed description of the organization and its activities, as well as the training activities of DEFPA for extension personnel, are presented in the annexes.

#### Problems and Needs

Using the conceptual framework outlined in Figure 3, it is possible to comment on several very fundamental problems in conducting extension work in Chad:

1. The field agent is either the "Encadreur de Base" or the "Surveillant". The Encadreur is trained in a nine months program at Tikem Agricultural School after six years of primary school education. Although reasonably adept in agricultural skills, he needs strong, vigorous leadership in mastering the technology and strategies necessary



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FIGURE 3. A SCHEMATIC DIAGRAM OF THE RELATIONSHIPS OF BASIC ELEMENTS IN THE EXTENSION PROCESS.

for success in his work, and this can only be achieved through intensive training and supervision. With the surveillant types which exist in the north and who are basically untrained, the problem is much more severe. These personnel must be replaced as soon as possible with encadreurs trained specifically for the Sahelian zone.

2. Current programs in the South have focused on cotton to the exclusion of most other program areas, notably the production of food grains and peanuts. Since Chad has had problems of achieving self-sufficiency in grains, and since diets are reported as being calories-deficient, it seems especially desirable to expand the scope of work in the South to emphasize strongly food grains.
3. Current programs in the North have been largely ineffective because of a myriad of problems: untrained agents (the surveillants previously mentioned); a dearth of practices that would solve problems; woefully inadequate resources; a thin and widely spread population; no mode of transport for extension workers; and, last but not least, drought and political problems.
4. The capacity of ONDR and DEFPA to provide meaningful training programs is severely limited. The lack of technical information and programming capability have been major limiting factors preventing agents in the field from receiving training programs of significant impact. This is

- a result of the paucity of professional staff and lack of resources, primarily transportations and funds.
5. ONDR does not have a programming unit with the capability to coordinate effectively with relevant research workers and to devise strategies and methodologies which can be used successfully in changing farmers. This requires individuals with in-depth technical competence in relevant subject matter disciplines such as crop production and/or in-depth technical competence in extension education and communications. At present, these functions are basically performed by the administrative and supervisory elements of the staff. In practice, historically, this has not been successful. Administrators and supervisors normally do not have the time or the inclination to do the detailed planning which is required. Additional staff is necessary in order to perform this function.
  6. The supervisory element of the organization, the sector and subsector Chiefs and assistants, and the Zone leadership cadre, the moniteurs, also need continuous in-service training to sharpen their capability in supervising agents and assisting in the training programs. Since the subsector and Zone elements basically have training of the high school and junior high school level, respectively, they must be heavily involved in training programs. They must master the technology required, must be knowledgeable about effective stra-

- tegies, and they must be proficient in supervising and leading field personnel.
7. There are at present about 1,200 rural families for each extension worker which in itself is not a bad ratio. However, considering the additional functions extension workers are asked to perform (collecting statistics, distributing seeds, fertilizers and insecticides, collecting loans, etc.), and their lack of formal training, a more manageable figure might be in the neighborhood of 600-800 families per extension worker.
  8. Practically no women are involved as extension workers. Women, nevertheless, perform some of the work on the farm, and, of course, perform the homemaking role in the family. It would be advisable, therefore, to employ some women as extension workers at all levels to reach the women on farms with pertinent information about farm as well as home practices.
  9. Chad is a large country, relatively sparsely populated, with very poor infrastructure and with rural villages relatively isolated. The village level extension agents (the encadreurs and the surveillants) who work in this environment also live in it. It is readily evident that this isolation factor affects the way they work. The infrequent contacts they have with the hierarchy of ONDR must be very effective, and training sessions must be precisely defined in order to have the desired impact.

## B. Description of the Project (Component II)

The basic purpose of this component is to strengthen the institutional capabilities of ONDR as the rural development extension agency. Two major objectives or "end-of-project status" capabilities are envisioned for ONDR:

1. A functioning cadre of line and supervisory extension workers will exist in: (a) the southern part of Chad to bring the peasant farmer a well-balanced effective program, emphasizing food production crops (sorghum, millet and peanuts) and community development activities, and (b) the northern part of Chad to bring to the peasant farmer in the Sahel a well-balanced, effective program, emphasizing food production (millet, vegetables) and community development activities.
2. A functioning rural development unit will exist in ONDR which will coordinate effectively with the planning, research and education Directorates in the Ministry of Agriculture in
  - a. Preparing viable technical packages for use in the field (e.g. improved millet production - recommended varieties and cultural practices, seeds, strategies for changing the farmer, training of extension field personnel).
  - b. Supervising effectively the field staff to ensure that programs are carried out.
  - c. Assessing the degree to which programs are effective in promoting change among the peasant farmers.

In order to accomplish the purpose and objectives of the project, a number of activities are planned which will involve

three basic components. ONDR, first of all, must expand the present force of village level extension workers. Second, the village level extension worker must be changed to a more generalized work orientation, emphasizing a deeper and broader subject matter orientation, and to an improved conception of how to approach the job. Third, the national level must provide the leadership, both from the standpoint of perspective and of program orientation, to redirect the efforts of the organization.

As to the first two components, expansion of staff and re-orienting the village level extension job, the two are inextricably linked, and both can only occur if the third component, the national perspective, takes a proper form. It does little good to expand the staff if new personnel are not eventually trained. The experience in the Sahel emphasizes this point very vividly. Both efforts must be oriented, and this is where guidance and leadership from the national level fit in.

#### Outputs

On a sequenced basis, the planned outputs will be:

1. Establishment of a regional agricultural extension training school "Centre d'Animation et de Perfectionnement Agricole et Rural (CAPAR)" at Moundou, with an affiliated effort at Dougui for the Sahel zone. This effort, although not a part of this project, is an integral part of the planned effort to achieve functioning cadres of village level extension workers, This proposed program, to be

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conducted by ORT (financed by AID), will involve training the field staff as "animateurs"; i.e. an extension agent who uses the "animation" or demonstration technique in reaching the farmer with the extension program. The emphasis is on showing the farmer how to improve rather than telling him. The program involves two months of discussions and on-job training for 200 trainees each year. The program will continue for five years. Although the program will also include training for other agencies as well, this effort should permeate virtually the entire ONDR field force during this period.

2. An intensified re-training program is planned for the extension personnel in the south through the CFCPA school at Tikem. The curriculum will be reoriented from cotton to food and forage production. The school will accommodate 60 students for a nine months training session and will produce 300 trained or re-trained village level workers during the five years of this project.
3. A similar curriculum will be conducted at Dougui in the Sahel area. This new CFCPA school, which will be constructed with FED funds, will be partially supported under the agricultural education phase of this project. The scheduled completion date is early 1978, so it should be ready for its first intake by March or April 1978. The mission of the school will be to produce village level extension workers for the northern part of Chad, involving 30 workers for each

of five nine-month courses. A total of 150 trained extension workers will be provided for the Sahel zone whose emphasis will be on arid and ~~semi~~ arid food production.

4. Under the aegis of the research phase of this project, semi-annual sessions of two weeks each will be held for management and supervisory extension personnel at the research stations at Deli and Dougui. An anticipated capacity of 120 persons per year is planned. These sessions will emphasize the latest in agronomic research results and recommendations emanating from the stations.
  
5. As village level staff are pulled out for training, they will be replaced by newly hired village extension workers who in turn will receive training in the CAPAR as explained in the first paragraph of this section. As the original workers return from training at Tikem or Dougui, they will again be assigned as members of the field force, and their replacements will also be kept on, augmentating the number of personnel in ONDR over time. The newer hires in turn will be sent to Tikem or Dougui at some point in time. It is anticipated that this progressive addition will result in the size of the staff being increased at the following rate:

Number of

<u>Trainees</u>			<u>New Hires</u>	
<u>Year</u>	<u>Tikem</u>	<u>Dougui</u>	<u>Number</u>	<u>Cumulative</u>
1977-78	60	30	90	90
1978-79	60	30	90	180
1979-80	60	30	50	280
1980-81	60	30	30	260
1981-82	<u>60</u>	<u>30</u>	<u>      </u>	<u>260</u>
Total	300	150	280	1020

Thus there will be a progressive increase in the staff at a rate which can be absorbed and administrated efficiently.

6. A rural development unit will be established within ONDR as an on-going component of the staff. Two Chadians and one advisor will be stationed in N'Djaména and two Chadians will be stationed at Moundou. The unit will be composed of four experienced Chadians and will have the coordinative responsibility with other directorates - working with program planning ; with research on putting together appropriate technical packages; and with education on the training and re-training of extension workers. This unit would be responsible for training and supervising field staff to see that these programs are carried out.

Inputs

Chad is an extremely poor country, and will require a significant load of assistance to the extension sector to achieve positive results in food production. The planned inputs for this project are:

1. Support of village extension worker time of 400 man/years at \$480 per man year. In addition, money is provided for general support at \$80 per man year, for transportation: \$200 in the Sahel for a horse for each new hire and \$120 for a bicycle for each new hire in the South. This support would begin with the support of 90 man years the first year, reaching a maximum of 260 man years in the fourth year of the project. For the five year period the southern zone would receive 600 man years, while the Sahel would receive 300 man years.
2. Assist in the support of a new rural development unit, staffed by four experienced Chadians under GOC support.
3. One experienced U.S. French-speaking extension agronomist for five years to function as a consultant to the new unit. This new unit will need maximum support since it will be involved in a major effort to redirect the entire national program. Two Chadians will be stationed in N'Djaména and will be responsible for the northern part of the country. The other two Chadians will be stationed at Moundou and will direct extension programs in the Sou-

thern zone. The U.S. advisor will be assigned to N' Djaména, but will be expected to assist with southern activities as well.

4. Commodities

- a. Vehicle - two Land Rovers
- b. Mobile unit - One mobile visual aid unit, complete with generator for use with training programs.

These items are intended to enhance the effort of the rural development unit in being mobile and equipped for the coordinating, planning, supervisory and training tasks they must perform.

Agricultural Education (Background Component III)

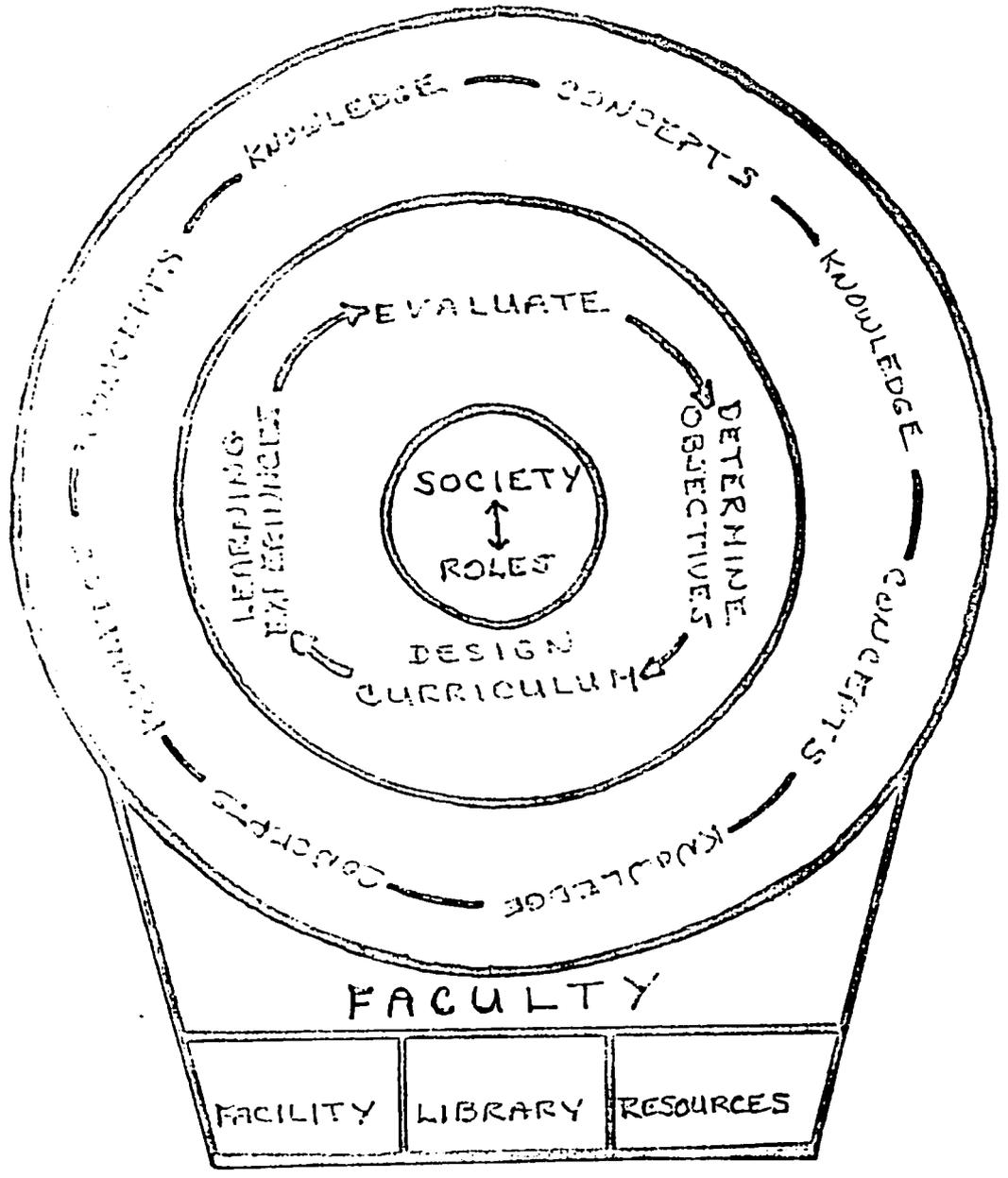
The rudiments of an agricultural education system are present in Chad. The roots of this system are French, and like many of the European systems, the emphasis is on the theoretical. Both curricula and teaching are heavily oriented in that direction. At the moment, there is also a heavy reliance on expatriates, mostly French, to perform the instructional function, with Chadians manning the administrative posts. Facilities in the present institutions are adequate in scope and size, but the two regional agriculture schools under the "Direction de l'Enseignement et de la Formation Professionnelle Agricole" institutions (DEFPA) are badly in need of renovation. There are also strong needs for farm facilities, books and equipment. A more detailed review of the institutions, faculty, curricula, etc... are presented in Annex 2.

A construct for Agricultural Education.

As the basis for making an evaluation of the needs for agricultural education, it is useful to view them from a conceptual view point. Figure 4 presents a visual representation of a construct for agricultural education. Central to the process is the role or job the products of the system are expected to perform. As an illustration, the school at Tikem has the responsibility for training encadreurs who are the field level extension workers in contact with the peasant farmer. Two questions are fundamental. What is the field agent expected to do and what must he know in order to perform the job satisfactorily? The social context in which he operates, of course, has a strong influence on these answers.

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FIGURE 4. A CURRICULUM DEVELOPMENT CONSTRAINT FOR AGRICULTURAL EDUCATION



The evaluations which produce these answers should lead to a determination of the educational objectives to be sought. The objectives, therefore, become the cornerstones upon which a curriculum is built. They indicate the kind of end-product desired, and represent a forecast of the things to be achieved.

In order to formulate curricula one must match job roles with knowledge. Intelligent behavior is based on knowledge which eventually forms into concepts. These concepts, consequently, become the basis for human intellectual behavior, concepts being ideas or mental abstractions. As an illustration, a grain plant in the growing stage turns yellow. As the human mind analyzes this problem, it reviews what it knows and believes. The knowledge and values one possesses form a conceptual structure. In an attempt to solve the problem, the human intellect uses its conceptual structure in forming an opinion of the phenomena being observed. Questions are raised. Is the problem caused by an evil spirit attacking the plant, is it an insect or a virus related problem, a nitrogen deficiency, etc.? Man being a rational animal attempts to explain such a phenomenon and this simple illustration emphasizes that educational preparation, or lack of it, has a decided effect upon the manner in which he proceeds.

Curriculum development for an educational institution can be thought of in four phases and/or questions as follows:

1. Determining objectives - what educational purposes should

the curriculum seek to attain?

2. Designing the curriculum - what kinds of knowledge - concepts should be taught and how can they be effectively organized?
3. Designing learning experiences - what kinds of learning experiences will aid the students in reaching the desired purposes?
4. Evaluation - to what extent have the students achieved the desired ends?

If these questions are answered satisfactorily, the expected outcome is job-related and should, over time, produce a trained person who can perform the expected job in good fashion. This construct fits in very usefully to the general purposes for which the Chadian institutions exist and provides a basis for extrapolation.

At the base of the construct found in Figure 4 rests the faculty which in turn rests on the facility, the library and the resources, especially equipment, which the faculty has at its disposal. The faculty is the crucial element. It is they who must focus the curriculum, develop the learning experiences, implement them in a practical way and assess the degree to which objectives are achieved. To a great extent, they model themselves after the faculties which train them. In order to break them from the theoretical mold which now permeates Ba-Illi (the junior-senior agricultural high school which produces middle level extension workers), it is necessary to provide a new kind of model for the future faculty, particularly for those who will

be in a leadership role. It becomes especially imperative to select institutions for training these people which will provide them with the practical field-action orientation of curricula, designed to prepare persons for optimum performance of the extension-type job in Chad.

### Problems and Needs

Using the construct as a conceptual tool for analysis, a number of problems in the Chadian system for agricultural education become apparent:

1. There is no university level training available in the agronomic area, although it is under consideration. Whether or not a faculty is needed has become a debatable subject. Chadian needs are not extraordinary because of the relatively small population, and some feel it may be excessively expensive to maintain a faculty. On the other hand the rudiments of a faculty exist, since there is a livestock faculty and seemingly adequate facilities which are not being fully utilized. Among Chad's greatest needs is strong leadership at the applied level in agriculture, people who understand Chadian needs, who can apply conceptual structures to solve Chadian problems effectively, and who can provide the basic intellectual leadership in solving applied problems. Keeping in mind that education can be most effective when relevancy is apparent, a strong case exists for developing an agricultural faculty here in Chad.

2. There is a dearth of trained Chadians to staff the faculties of the various agricultural schools. Administrators are needed who can head effective institutions which produce the desired types of professionals and subprofessionals required by government agencies.
3. Curricula as presently constituted in Chad tend to be rather theoretical in nature. Since these curricula are developed and taught by expatriates who themselves are not necessarily well-versed in applied agricultural subject matter in Chad, the problem is further exacerbated.
4. Thorough, well designed field experiences are a must at all levels as an enhancement to class-room instruction. A good farm properly organized and providing multifarious experiences is a fundamental necessity. Land and basic equipment are needed inputs. These particular inputs are lacking because of severe financial restrictions for support items in the MOA budget.
5. The general facilities of DEFPA are adequate in size but are generally run down. They need to be renovated and updated.
6. Libraries are poorly stocked, and in the present bibliography, there are many duplications. This is a rather basic deficiency, particularly at the junior-senior high school and university levels.

7. ( There is no school for village level extension workers in the Sahel area. Since a great amount of practical work under arid and semiarid conditions is a basic necessity for effective work in that area, and since there is almost a total lack of trained extension workers, a school for the area is imperative. The experience with the Tikem school (southern zone) has been good, particularly with the emphasis on practical field experiences. It would seem highly practical to emulate the Tikem extension program for the Sahel with emphasis on arid and semiarid agriculture.

Description of the Project (Component III)

This component of the project is designed to strengthen the overall agricultural education program in Chad. This would include the two present regional institutions and the development of three new units. The role of the institutions will be to produce trained agricultural leadership for the country, and most particularly for the expanded rural development-extension effort. This component will have a profound effect upon the rural development-extension effort, and it is inextricably linked to it.

Conditions that will exist after completion of the project.

1. A functioning faculty of agriculture within the University of Chad, capable of producing 20 "ingénieurs de travaux agricoles" (3 year college level) per year. These graduates

are expected to be specifically trained to function at a senior technical level in agricultural development programs.

2. Four lower level schools of agriculture, adequately staffed with faculties for planning, teaching and evaluating a comprehensive, practical, applied curriculum in agriculture, oriented toward educating Chadians to perform extension-rural development jobs, with emphasis on practical knowledge and skills.
3. Adequate facilities and sufficient books and equipment to support the planned, comprehensive, practical and role-oriented curricula needed to produce competent agricultural workers for Chad.

In the long run, Chad must have the capability for providing trained agricultural leadership to meet Chad's particular agricultural needs. The scientists now must be trained elsewhere because Chad is too small and too poor to provide such training, but if facilities were available, the great advantage would be the possibility of applying agricultural concepts and principles to Chadian problems. Consequently, the entire focus of the planned agricultural education program rests on a single premise, i.e. the best possible agricultural education program for Chad is that which integrates local conditions as part of the curriculum. The entire curriculum structure must be geared in that direction. This includes the three-year university course, as well as the

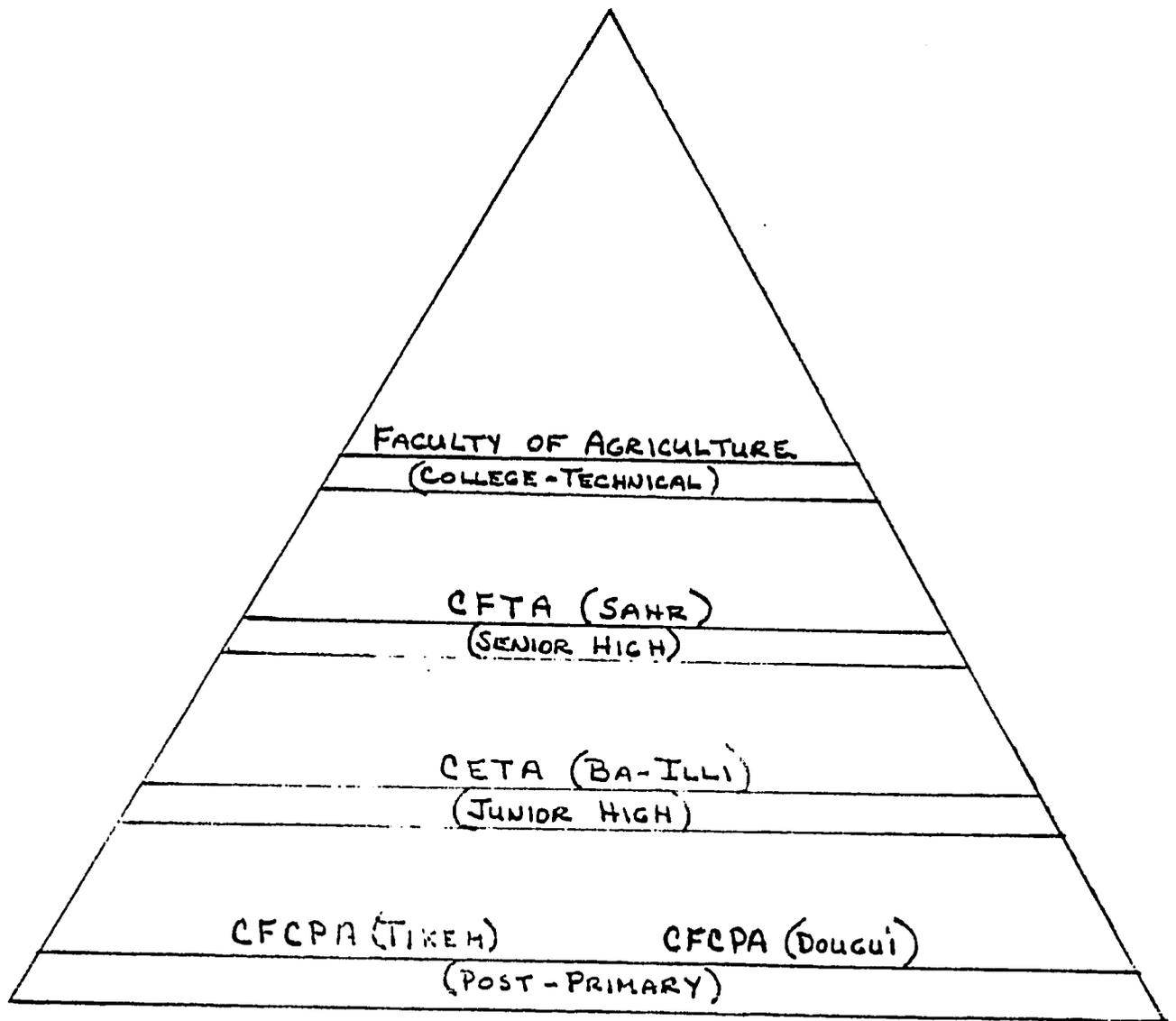
nine-month, postprimary course for village level extension workers. To lead Chadian agriculture into the 20th century, there must be a dynamic, goal-oriented organization committed to creating change among the small farmers and at the farm level.

### Outputs

1. Five Chadians trained in U.S. universities to serve as faculty for the Faculty of Agriculture at the University of Chad.
2. One Chadian trained in U.S. and francophone universities to provide administrative leadership for the agricultural schools.
3. Ten Chadians trained in U.S. and francophone universities to serve as faculty members in the agricultural school at Sahr.
4. Ten Chadians trained in francophone institutions as teachers for the agricultural schools at Ba-Illi, Tikem and Dougui.
5. New CFCPA at Dougui to train village level extension workers in the Sahel.

The Chadian agricultural education system is undergoing a significant readjustment which merits further discussion in relation to this project component. The Chadians have designed a proposed agricultural education system which is practical and realistic (see Figure 5) It is a four level structure which is in various stages of development at the present time, beginning

FIGURE 5. THE PROPOSED STRUCTURE FOR AGRICULTURAL EDUCATION IN CHAD.



with the basic educational units (the CFCPA's) at Tikem and Dougui. These have the basic purpose of training village-level extension workers. The school at Tikem, under the O.N.D.R. rural development plan, will redirect its efforts to recycling village-level extension workers for the southern zone. The students would become broader based agriculturists who can work on rural development problems in food production and community development. Its output is expected to continue at sixty trainees per year for the next five years.

The new CFCPA for the northern zone, which will be located at Dougui, will be constructed with F.E.D. funds, for which there is a commitment of \$352,000. To equip the physical plant fully and to develop a school farm, an estimated additional amount of \$119,200 will be needed. Construction is scheduled to begin in September, 1978, with a planned intake of thirty students per year who will be trained as village level extension workers for the Sahel. The curriculum will concentrate on the production of food crops for the Sahel and on livestock production.

The second level for agricultural education is the C.E.T.A. (junior high school) in Ba-Illi. This school, which will be reorganized, produces both the junior high and senior high level technicians. After reorganization, it will graduate only the junior high level, the "agents techniques de l'agriculture". The persons who achieve this level of training serve primarily as "moniteurs" or zone level chiefs for ONDR. Most often, they

serve as leaders of an extension team of about ten village level extension workers, but also serve as assistants in other agricultural offices. The Ba-Illi school is presently staffed by Chadians who are administrators and French expatriates who do much of the teaching.

At the third level will be C.F.T.A. (senior high) at Sahr where new buildings are constructed but not yet in use. It will produce the "conducteurs de travaux agricoles" who will have the educational level of a senior high school student. The Sahr graduate will serve primarily in ONDR as a subsector chief. Until such time as enough trained Chadians are available to serve as faculty members, FAC has been asked to provide teaching staff for the school.

At the fourth level, and at the top of the pyramid for Chad, will be the proposed Faculty of Agriculture, which will produce in a three-year curriculum the "ingénieur de travaux agricoles", a university level trained agricultural technician. Graduates will be expected to assume major operational leadership roles in agricultural and rural development programs in ONDR and in other government agencies.

Until such time as more trained faculty is available, it is not possible for the Chadians to staff the curriculum adequately. Basic resources will also be needed for laboratory development, farm development, library books and equipment. These inputs must be available before an instructional program can begin.

Number	Current Level of Training	Proposed Program	Subject Matter	Duration	Proposed Institution	Intended Assignment
1	I.T.A.	M.S.	Agronomy-Crops	4 years	U.S.	Professor-University
1	I.T.A.	M.S.	Agronomy-Soils	4 years	U.S.	Professor-University
1	I.T.A.	M.S.	Plant Protection	4 years	U.S.	Professor-University
1	I.T.A.	M.S.	Farm Management	4 years	U.S.	Professor-University
1	I.T.A.	M.S.	Extension	4 years	U.S.	Professor-University
1	C.T.A.	B.S.	Agricultural Engineering	4 years	U.S.	Lecturer-University
2	I.T.A.	M.S.	Extension	4 years	U.S.	Directors-Sahr & Ba-III
2	C.T.A.	B.S.	Extension	4 years	U.S.	Directors-Tikem & Dougui
2	C.T.A.	I.T.	General Agriculture	3 years	Francophone	Farm Directors-Sahr & Ba-III
2	C.T.A.	I.T.	Horticulture	3 years	Francophone	Teachers-Sahr & Ba-III
2	C.T.A.	I.T.	Livestock Production	3 years	Francophone	Teachers-Sahr & Ba-III
2	C.T.A.	I.T.	Agricultural Engineering	3 years	Francophone	Teachers-Sahr & Ba-III
2	C.T.A.	I.T.	Socio-Economics	3 years	Francophone	Teachers-Sahr & Ba-III
2	C.T.A.	Formateur	Agricultural Education	6 mos.	Francophone	Teachers-Sahr & Ba-III
2	A.T.A.	Formateur	Agricultural Education	6 mos.	Francophone	Teachers-Dougui & Tikem
2	A.T.E.	Formateur	Agricultural Education	6 mos.	Francophone	Teachers-Dougui & Tikem
2		Infirmier	Nursing	6 mos.	Francophone	Nurses-Dougui & Tikem
2		Moniteur	Mechanical & Technical	6 mos.	Francophone	Shop Foreman-Dougui & Tikem

Key

M.S. - Master of Science  
 B.S. - Bachelor of Science  
 I.T. - Ingenieur Travaux  
 I.T.A. - Ingenieur Travaux de Agricoles  
 I.T.E. - Ingenieur Travaux de Elevages  
 C.T.A. - Conducteur de Travaux Agricoles  
 A.T.A. - Agent de Techniques de l'Agriculture  
 A.T.E. - Agent de Techniques de l'Elevage  
 Formateur - trained teacher  
 Moniteur - trained supervisor  
 Infirmier - trained nurse

TABLE 1. PROPOSED SCHOLARSHIP AWARDS FOR STAFF DEVELOPMENT IN AGRICULTURAL EDUCATION

Inputs

1. Technical assistance provided by AID in support of (a) the faculty of Agriculture, University of Chad - three U.S. professors for five years and (b) the regional school at Dougui - one agriculture extension advisor for five years.
2. Training (a) in the U.S. for 10 persons to the MS level for four years; (b) for 10 persons to francophone countries for three years in applied agriculture subjects; (c) for 10 persons to francophone countries for four to six months in teacher training. See table 1 for complete detail.
3. Commodities - for the regional agriculture schools to include vehicles, library books, instructional and laboratory equipment, for the Agriculture faculty at the University of Chad, laboratory and other support equipment.
4. Buildings - Completion of the agriculture school at Dougui and renovations at other schools (Ba-Illi and Tikem).
5. School farm development support.

For details of commodity and other support costs see table 2 .

Technical assistance for the Faculty of Agriculture and the proposed new school at Dougui is of primary importance considering the low level of Chadian staff available to these institutions.

The university level is most crucial since it is at the top of the educational structure, and since the Faculty of agricul-

ture will be started from scratch. A curriculum must be developed, courses must be outlined, the farm and laboratories must be planned and equipped, a library collection must be started, etc. This will require the services of experienced agricultural professors.

At the present time, the University has IUTE, the institute through which livestock technical training is offered at the university level. There are ample facilities there for expansion, including land. It is also probable that the Faculty in the Institute could teach some of the courses. Basic science instruction is also in place with good facilities and faculty available through FAC. The missing ingredient is an experienced central core faculty to design and implement the curriculum.

A two-phased program for staffing the faculty is proposed. First, as previously indicated, six Chadians should be trained as faculty members, and their training program should begin as soon as the policy questions are settled satisfactorily. The second phase involves bringing in three experienced U.S. university faculty members to begin the development of the program, one in field crops, one in soils, and one in plant protection.

The CFCPA school at Dougui will also need assistance, primarily from the standpoint of staff. It too must be developed from the ground up with a particular emphasis toward producing

CFCPA  
Dougui

village level extension workers. An experienced extensionist will be needed as a guiding hand. Arrangements have been made with the U.S. Peace Corps to supply teachers for the school : two agronomists and one each in agricultural education and livestock.

The following is a summary of the anticipated expatriate technical assistance required for the project.

<u>Type</u>	<u>Length</u>	<u>Institution</u>	<u>Total Cost</u>
Field Crop Agronomist	53 months	University of Chad	\$353,333
Soils Agronomist	53 months	University of Chad	\$353,333
Plant Protection	53 months	University of Chad	\$353,333
Extensionist	57 months	CFCPA (Dougui)	\$380,000

The training program is divided into four phases:

1. Development of a core faculty for the Faculty of Agriculture in the University of Chad, for which six Chadians will be sent to U.S. institutions on four-year training programs, five for the M.S. in crop science, soil science, plant protection, farm management, and extension education, and one for the BS in agricultural engineering. Although the Chadians will have the added hardship of learning English, it is felt that the U.S. Land Grant University, with its applied, practical, field-oriented approach to

agricultural education, is the place to train faculty who must operate here in much the same way.

2. The development of administrative leadership for the agricultural schools for which four Chadians will be sent to the U.S. for training in extension education, two to the M.S. level and two to the B.S. level; these Chadians would form the core for leading the lycee level in Sahr, one at the college level at Ba-Illi, and two at the postprimary level in Tikem and Dougui.
3. Ten Chadians will be sent to francophone universities in Africa for training at the "ingénieur de travaux" level, (three years college level) in applied agricultural subjects. It is contemplated that these Chadians will form the core instructional faculty for C.F.T.A. at Sahr and C.E.T.A. at Ba-Illi. It is also being recommended that experienced extension workers be selected for this training experience, since they have been exposed to the realities of working with the peasant farmer, even though at the supervisory level.
4. Ten Chadians will be sent to francophone institutions in Africa for training as teachers and as technicians whose selection will be based on field experience. The courses are pedagogical in nature and emphasize the development of teaching skills which are needed in the postprimary institutions at Tikem and Dougui.

Table 2 presents the resource needs for agricultural education in Chad. Establishing a Faculty of Agriculture appears to be an expensive proposition, but this suggested budget will provide only a minimum level of basic equipment. The same holds true for the C.F.C.P.A. at Dougui, a badly needed facility for the Sahel zone. It is a bare-borne proposition, but perhaps the most crucial institution of all, since it will produce trained village extension workers for the Sahel where none has existed before.

Vehicles are included in all of the requests because they are very crucial to the type of curriculum envisioned. The best way to learn about field conditions is to examine and analyze them first hand under proper tutelage, and this requires mobility.

TABLE 2 RESOURCES NEEDS FOR AGRICULTURAL EDUCATION BY INSTITUTIONS

INSTITUTION	TYPE OF RESOURCES NEEDED	AMOUNT
FACULTY OF AGRICULTURE	Soils Laboratory Equipment	100,000
	General Purpose Laboratory Equipment	50,000
	Library Books	100,000
	Farm Development and Equipment	30,000
	Audio-Visual Equipment	5,000
	Vehicles	10,000
C.F.T.A. (Sahr)	° Library Books	30,000
	+ Laboratory Equipment	60,000
	^ Audio-Visual Equipment	5,000
	* Vehicles	25,000
C.E.T.A. (Ba-Illi)	° Renovation of Buildings	180,000
	Farm Improvement - Livestock Barn and Machinery Shed	50,000
	° Library Books	15,000
	+ Laboratory Equipment	40,000
	^ Audio-Visual Aids Equipment	5,000
	* Vehicles	25,000
C.F.C.P.A. (Tikem)	Renovation of Buildings	70,000
	Library Books	5,000
	Audio-Visual Aids Equipment	3,000
C.F.C.P.A. (Dougui)	Equipping of Buildings	61,000
	Farm Improvement	15,000
	Library Books	5,000
	Audio-Visual Aids Equipment	5,000
	Vehicle	33,200

Agricultural Research ( component IV - background)

Following independence in 1960 and the formation of a new Ministry of Agriculture, the Division of Agronomic Studies was created. The new research division was entitled "Division des Etudes Agronomiques" (DAS) and was placed under the Directorate of Agriculture, the directorate responsible for crop production.

{ Very little effective agronomic research on food crops has emanated from the DAS since its creation. Cotton research is the responsibility of IRCT - Research Institute for Cotton and Exotic Textiles.

The rudimentary structure and limited capacity of DAS was less a problem before the drought years of 1972-73. The overwhelming food and forage deficits since that time have highlighted the serious need for a modern and effective agronomic research base upon which to build a food and forage crop production program.

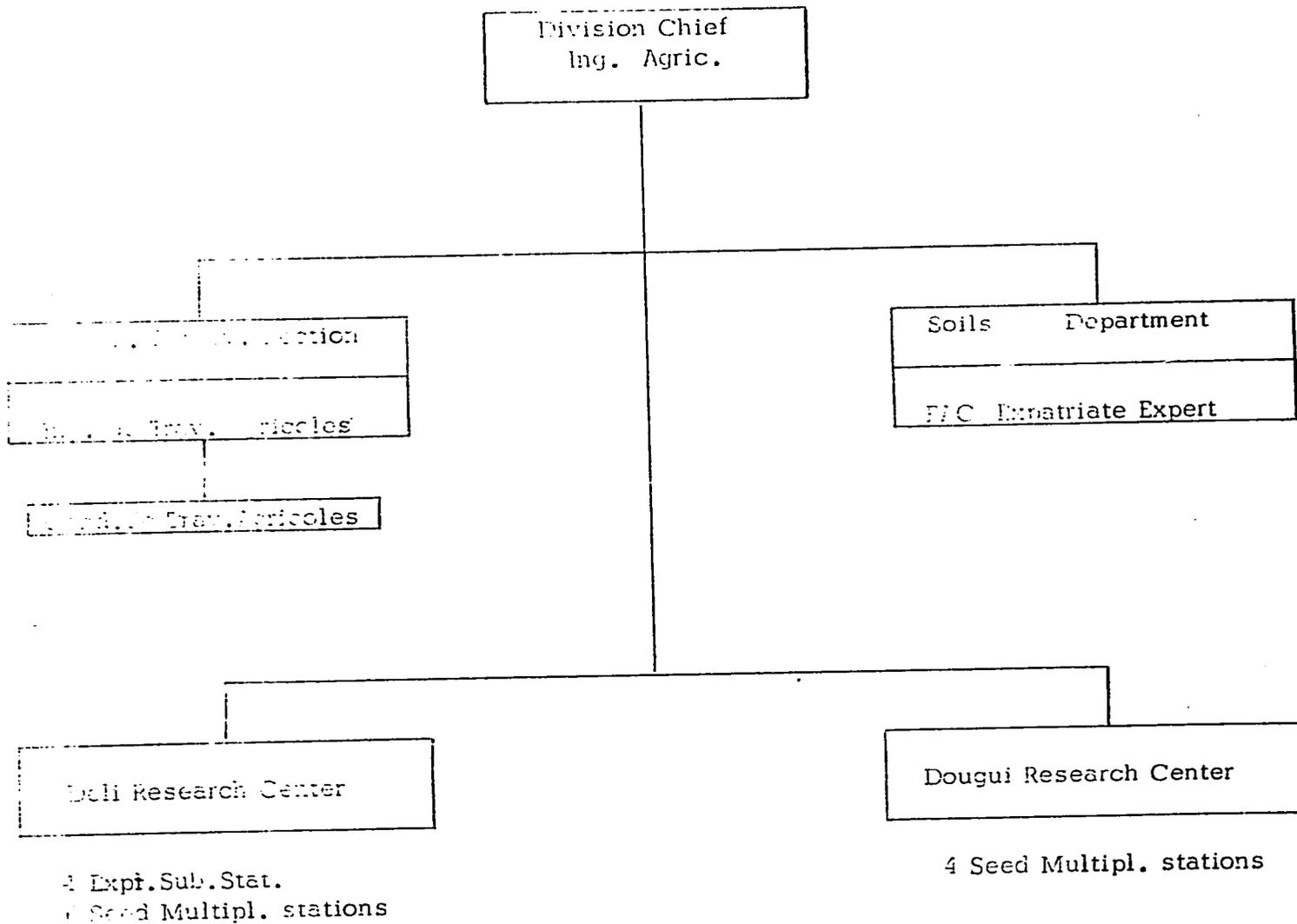
The DAS in its present condition is ill-equipped to meet the challenge now thrust upon the agriculture sector. The DAS lacks the organization, staff and plant facilities to conduct even minimum agronomic research required to support extension efforts and to provide a continuous flow of updated production recommendations to farmers through the extension service. (See figure 6)

The current DAS staff consists of:

- Division chief
- One research logistics supervisor
- One soils specialist (expatriate-FAC)
- Three support persons (driver, secretary, laboratory assistant)

Two more technicians will be joining the DAS in July, 1979, after their return from studies abroad. Their specialities are plant protection and soil chemistry. They will be filling serious personnel gaps in the DAS but personnel requirements are still considerably short of the total minimum needs of a functioning research division.

{ DAS ineffectiveness is exacerbated by a lack of office equipment,



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FIGURE 6.

no functioning laboratory and only one vehicle. This has limited divisional activities to small-scale food crop variety testing, limited seed selection and multiplication, and occasional pilot soil fertility experiments. This work has been conducted at the two research experiment stations (Dougui-northern zone and Deli-southern zone). Both stations are functioning far below their potential and are seriously understaffed. In addition to these two regional stations, there are three others of special importance in varying stages of development in southern Chad. (See figure 8.)

- Boumo - To be reestablished possibly by IBRD to serve as research center for the Sategui-Deressia Rice Production Project.
- Sarh - Still in the planning stage - to serve as research center for the sugar production area in the south.
- Bol - Also in the planning stage - to serve as research center for irrigated agriculture in the Lake Chad region when established with support from AID Lake Chad Irrigated Agriculture Project (677-0001).

#### Other Donor Assistance

France is the major supporter of DAS with an annual contribution in 1976 of \$ 120,000, almost two thirds of the total budget of \$ 196,000. It is expected that assistance at this level will continue.

The European Economic Community (FED) provided funds for the construction of the Dougui station in 1971-72. UNDP/FAO project 75/005 has provided \$ 540,000 for operational support and one agronomist. The project will continue through 1981.

#### Linkage With Other AID Projects

Under the "Crop Production Research, Seed Multiplication and Marketing" project (677-0014), assistance will be given to the stations at Dougui and Deli. Inputs will strengthen the organizational structure and research capability at each station.

Support for the DAS is also expected from the "Sahel Food Crop Protection" project (625-11-130-916) which will provide an entomologist in addition to upper and middle level training in plant protection.

#### B. Description Of The Project

Assistance to the DAS under this component will be limited to inputs designed to strengthen the research institutions at the national level as the USAID project for "Crop Production, Research, Seed Multiplication and Grain Marketing" (677-0014) will address research needs at the regional and provincial levels. The need for a reorganized national agriculture research unit within the MOA has been acknowledged by the GOC following consultations with USAID. (See figure 7.)

Basic to the effective production of research results are laboratory facilities for scientific testing of soils and plants. As no such facility is in existence at the national level, a new laboratory would obviate the necessity of sending samples to France for analysis and would greatly facilitate research work of the regional experiment stations.

Creation of a viable research capability is also a very necessary component of national extension programs. As the ONDR extension effort is expanded (reference, project description - component II), a permanent link will be established between the extension service of ONDR and the DAS. There will be close cooperation and interchange of information between these units to facilitate the flow of research recommendations, through extension agents, to small farmers.

#### Major Functions of DAS

The DAS will be responsible for the identification and definition of agronomic research needs based on crop production priorities established by the GOC. The Research Division will also develop appropriate research policies, strategies and plans as required by the MOA and other ministries. Liaison with the ONDR will be maintained through a formal documented agreement which will assure continuous exchange of information and data. The DAS will be directed by the

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[ ] Studies  
 [ ] Substrate Advisor  
 [ ] Extension Agent/Scientist

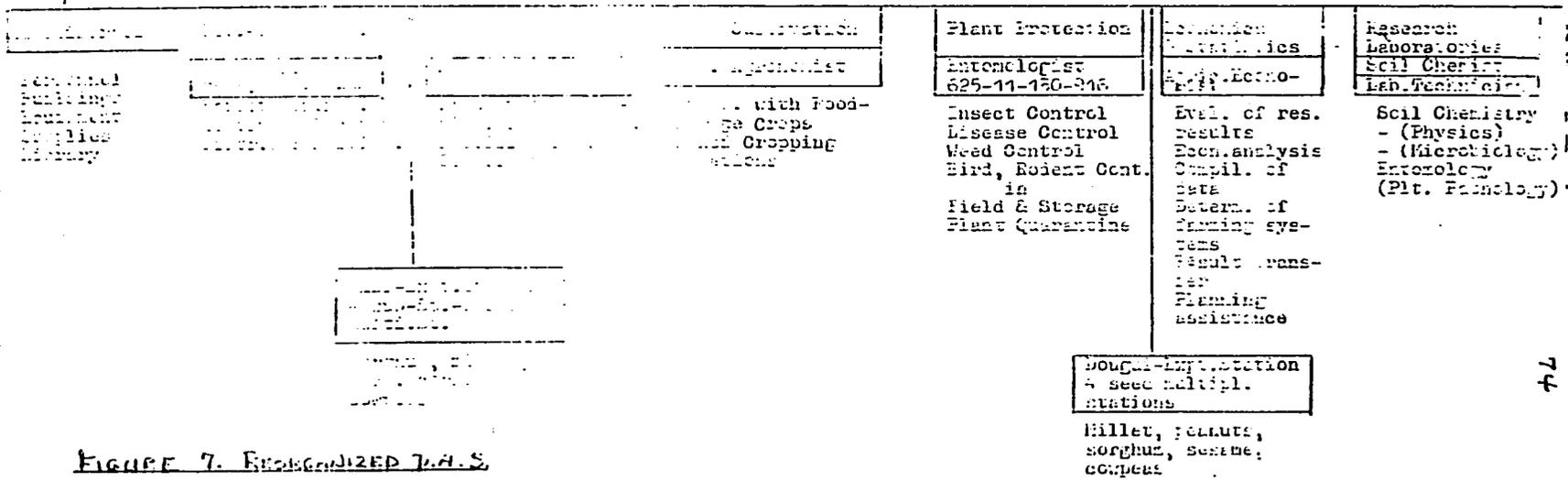


FIGURE 7. REORGANIZED RAS

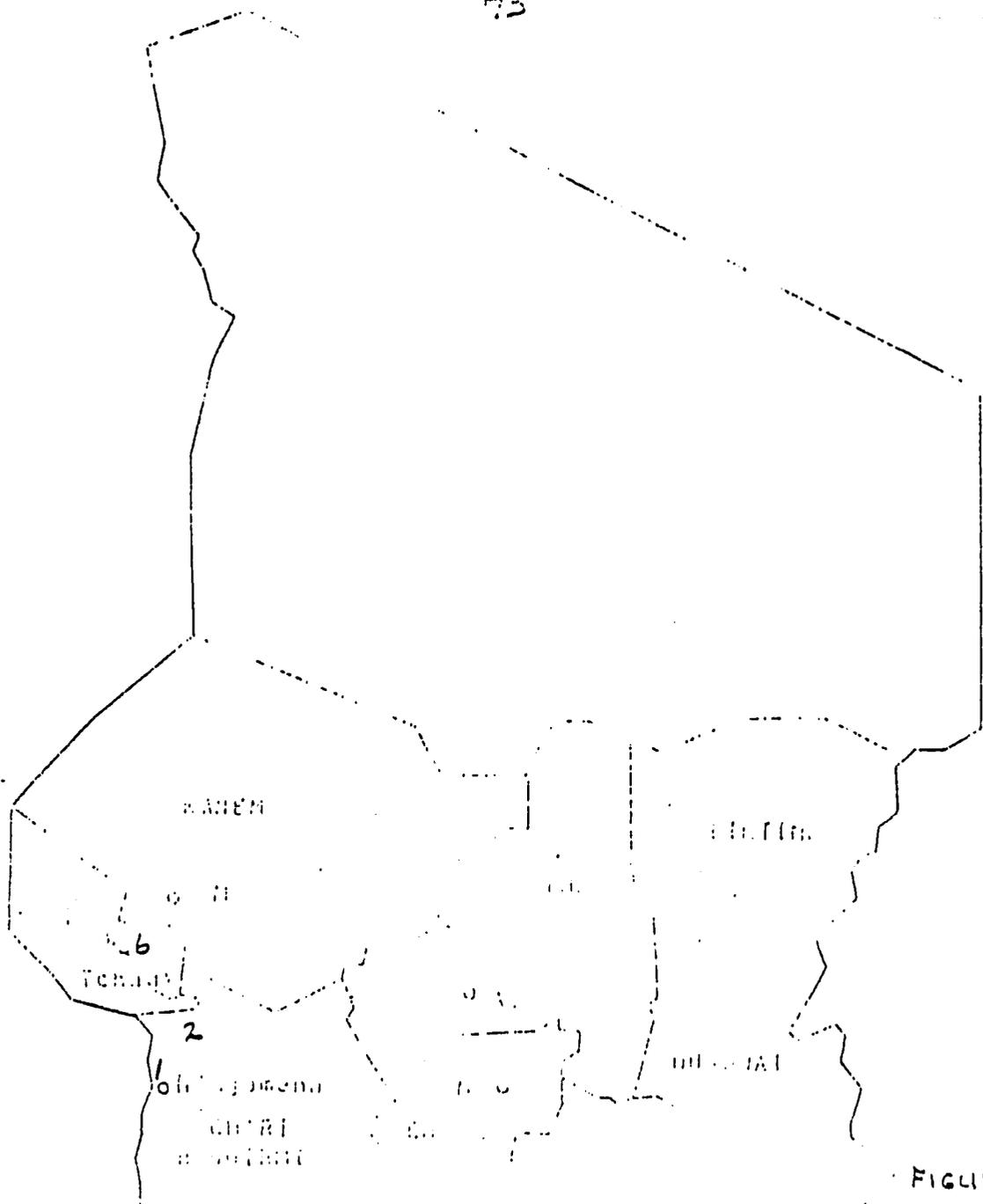


FIGURE 8.  
 AGRICULTURAL  
 EXPERIMENT STATIONS  
 IN CHAD.

- 1. AGRONOMIC STUDIES, HOA
- 2. SAHEL ZONE, DOUGUI
- 3. COTTON ZONE, DELI
- 4. RICE, BOUHO
- 5. SUGAR CANE, SAHR
- 6. IRRIGATED AGRICULTURE, BOL.

4

3

5

Chief of the Agronomic Studies Division assisted by an expatriate research agronomist and a deputy chief and an administrative officer. The DAS will be subdivided into seven sections with specific responsibilities as follows:

1. Plant and Seed Production Research Section - In charge of the introduction of new plant varieties, variety testing and selection for seed multiplication.
2. Soils Management and Fertility Section - Responsible for the determination of soils production potential, cultivation practices, fertilization tests and soil conservation measures.
3. Crop Cultivation Section - Conducts experiments on food and forage crops to determine best yield results, with mixed cropping alternatives, crop rotation systems. This section will work in close conjunction with the regional experiment stations and with ONDR.
4. Plant Protection Section - In charge of insect and disease control experimentation, weed, bird and rodent control, crop storage methods and plant quarantine regulations.
5. Economics and Statistics Section - Responsible for the evaluation of research results, compilation of yield and crop production data, determination of improved farming systems, verifying transfer of research results and assisting in research planning.
6. Research Laboratory - Center for all national level laboratory testing, emphasizing soil chemistry, entomology and plant pathology.

Overall assistance to the DAS will include technical support, manpower training, office and laboratory equipment, building construction and certain research supplies and equipment. The following is a summary of the logical framework for component IV.

End of Project Status (Agriculture Research Division)

1. Headquarters office fully operational, managing key elements of agronomic research: development of improved seed, soil fertility management, crop cultivation, plant protection and laboratory operations.

2. Food and forage crop research information being exchanged with foreign research organizations.
3. Research programs are responsive to changing crop production priorities.
4. Improved varieties being developed.
5. Technical packages for advanced farming practices being prepared.
6. Research results regularly relayed to ONDR for use in extension programs.
7. Requests for additional development assistance in preparation.
8. An expanded and reorganized Agricultural Research Division able to direct and control agricultural research activities.
9. An established basic agricultural research policy.
10. A DAS head office capable of administering the two research centers (Deli - Dougui) and substations.
11. Research plans and programs developed for the two zones of agricultural production.

#### Outputs

1. A trained staff of agricultural scientists and technicians capable of planning and executing all necessary soils, plant production and plant protection research.
2. Fully operational laboratory facilities.
3. Regularly produced and updated research results concerning the improvement of food and forage crop production. Research results transmitted to ONDR in time for the preparation of agronomic recommendations for the small farm.
4. Research needs are periodically redefined.
5. Periodic technical training given to ONDR staff at the two main experiment stations.

#### Inputs

1. Technical assistance to DAS headquarters and laboratory encompassing four expatriate scientists (research advisor - soil chemist - cultivation agronomist - agricultural economist) for five years and one laboratory technician for four years.

2. Training in the US to the MS level:

1 plant breeder (geneticist); 1 soil fertility expert;  
1 soil management specialist; 1 agricultural economist;  
all for four years.

Third Country to the BS level:

1 experimentation agronomist; 1 soils management/  
cultivation specialist; 1 seed production expert;  
1 agricultural economist; 2 laboratory technicians;  
all for three years.

3. Commodities:

five vehicles;  
furniture and equipment for six offices;  
standard equipment for soils and plant protection  
laboratory units.

4. Three buildings constructed:

1 DAS - head office building (200m<sup>2</sup>) for twelve offices;  
library and storeroom.

1 laboratory building (200m<sup>2</sup>) providing space for soil  
and plant protection research.

1 open-air (wire protected) vegetation house (100m<sup>2</sup>)  
for pot experiments.

5. Other Costs:

Office supplies, local travel, car operations and  
maintenance, printing and binding costs and laboratory  
operations and maintenance.

Agriculture Statistics (Component V background)

There is a functioning Agricultural Statistics Division (ASD) under the Directorate of Agriculture (figure 9) which is producing limited statistical information. The ASD was established in 1967 in response to a need for basic agriculture information in the southern zone of the country. Since then five field stations have been established in the major agricultural (chiefly cotton) areas of the south. The five statistics offices in the south conduct field work in about 6,000 villages. Field agents of ONDR act as enumerators in gathering

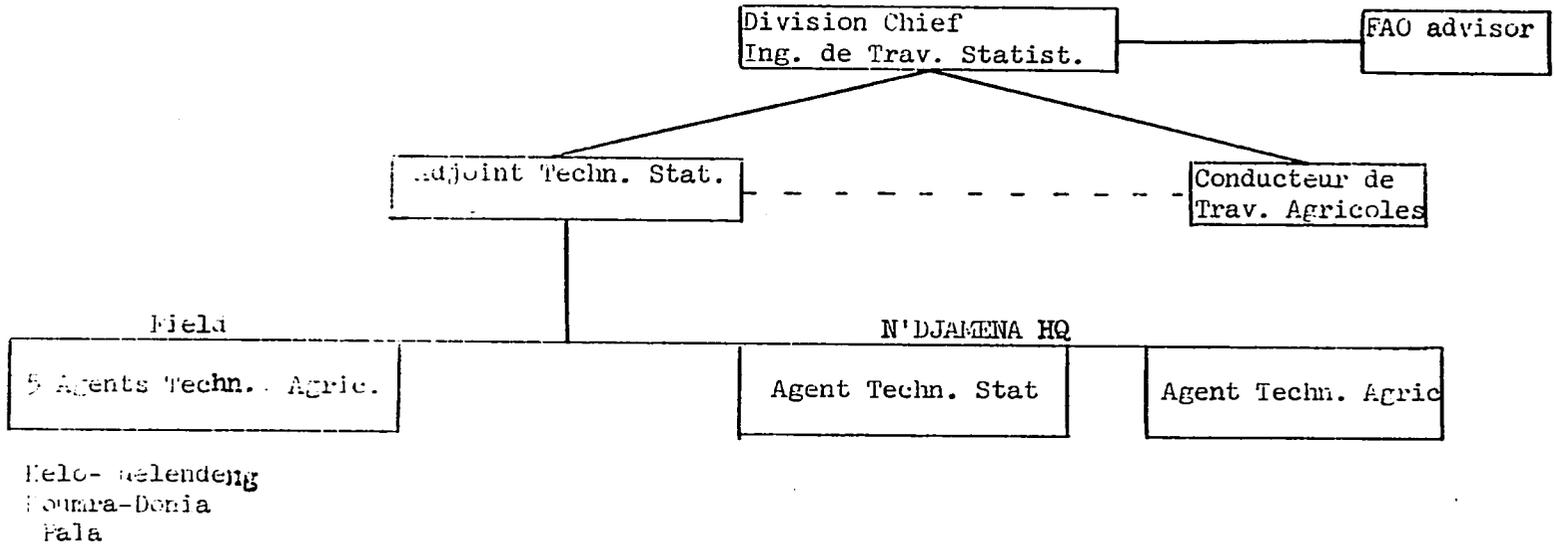


FIGURE 9.

statistical data and socio-economic information, which is compiled in a "village file" and forms the basis for an annual report prepared by the central office in N'Djamena. During the growing season, data are collected monthly, primarily on the cotton crop, and maintained in the village file.

The Ministry of Plan attempted in 1976 a statistical study of general agricultural crops in the south. This was only partially successful as the entire area was not covered and enumerators were not experienced. Other statistical reports are published on an irregular basis as requested by interested agencies. These are listed in Annex B - 8.

As there are no permanent statistical enumerators, the ASD has a formal agreement with the extension service of ONDR to supply field agents to collect statistical and socio-economic data from farm villages. When necessary, additional personnel are contracted to supplement the field staff.

#### Organization of ASD

The current staff of the ASD consists of eleven professionals, one secretary, two drivers and a messenger. The central office in N'Djamena is in a very poor state of repair and is in serious need of restoration. The ASD staff is directed by a Division Chief (assisted by an FAO advisor) and four Chadian statisticians at the high school/junior high level. They are supported by five regional agents who supervise data collection in their respective zones. In addition to the on-board staff, the following Chadian technicians are in training:

<u>No.</u>	<u>Title</u>	<u>Location</u>	<u>Training Completed</u>
1	<u>Ingenieur de travaux statistiques</u>	Abidjan	1979
1	<u>Adjoint technique de statistiques</u>	Yaounde	June, 1977
3	<u>Conducteurs de travaux agricoles</u>	Ba-Illi	1977, 1978, 1979

Following their return from training all the above will be posted at N'Djamena except for one conducteur who will be assigned to the field.

#### Major Problem

In spite of its apparently well organized structure, the ASD has serious shortcomings which adversely effect the volume and value of statistical data being generated for the GOC. Only the Division Chief has university level education. Members of his central office staff have had only limited experience and education to about the high school level. The field supervisors are likewise inexperienced and are unable to supervise adequately the numerous field agents under their jurisdiction. There are only two operational vehicles at the disposal of the headquarters office and a limited amount of outdated office equipment. Of the five regional offices (Figure 10) only three are fully functional, lack of mobility and personnel being the major problem.

As a result of preoccupation with cotton statistics, all other crops have been for the most part neglected. No accurate statistical or economic data exist on millet, sorghum, peanuts and other food crops grown in the south. In the drought-affected Sahelian zone in the north, there has been no effort to establish a permanent data-gathering system.

As a sound statistical base is necessary for realistic agriculture policy planning, the ASD in its present state becomes the weak link in the chain directly affecting the quality of work in other divisions in the MOA.

#### Other Donor Assistance

The UNDP is the major donor providing long-term assistance to the ASD. A FAO statistician has been assigned to advise the Chief of ASD under project CHD/75/008. He is expected to be at post through the end of 1978. A special agricultural survey in 1972-73 was financed by UNDAT and ECA at a cost of \$ 80,000.

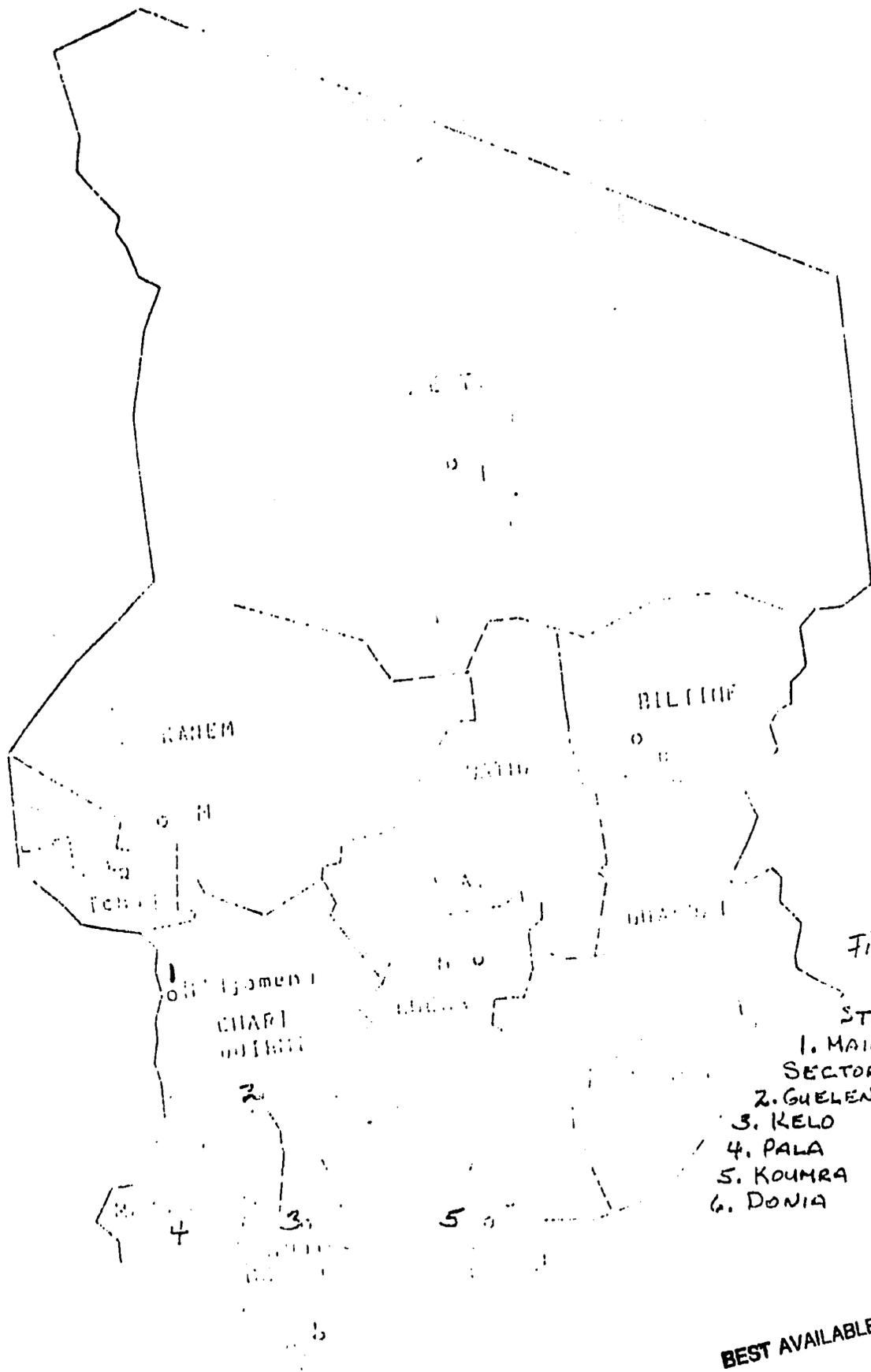


FIGURE 10.

- STATISICAL OFF.  
 1. MAIN OFFICE  
 SECTOR OFFICES.  
 2. GUELENDENG  
 3. KELO  
 4. PALA  
 5. KUMRA  
 6. DONIA

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Almost all of the studies prepared by the ASD have been financed by outside ASD sources and have been the result of specific inquiries for statistical and/or economic data which were not available.

#### Linkage With Other AID Projects

Operational expenses of ASD were covered by a USAID accelerated impact program (677-76-3-03). Total funds contributed amounted to, \$ 84,000 provided as a lump sum payment.

#### B. Description Of The Project

In support of the agricultural development priorities of Chad, the purpose of this component is to enable the ASD to provide timely and accurate statistical data from a reliable information base which will be used for sectoral planning and improvement of food and forage production. As other agriculture development projects are implemented and the MOA expands its production programs to include crops other than cotton, there will be an increasing need to supply the project planners with reliable statistics. Sound agriculture statistics are also the raw material for short- and long-range policy decisions and will be most important in formulating the new five-year plan.

Considering the weaknesses outlined above, this component of the project is designed to strengthen and expand the existing statistical data collection system. Project support will be in the form of technical assistance, participant training and the equipping of additional regional offices. This will permit the ASD to expand its activities to include the accumulation of statistics on vegetative development (planting dates, incidence of pests/diseases, dates of harvest, etc.) as well as yield estimates and other plant production information. Marketing statistics will also be expanded to include farm-gate prices, movement of produce to wholesale and retail outlets, storage information, on-farm consumption, etc.

In addition to continuing its relationship with ONDR for information gathering, the ASD will be expected to work in close conjunction with the market research specialists provided by the USAID "Crop Production, Research, Seed Multiplication and Grain Marketing" project (677-0014).

It is expected that the variety, volume and quality of statistical information will increase and improve as the data are revised and refined.

The following is a summary of the log frame for the statistics component of the project:

End-of-Project Status ( Agricultural Statistics Division)

1. Reorganized and functional ASD collecting, compiling, processing and reporting agricultural data and information. (See figure 10-A.)
2. Statistical information base enlarged to include food and forage crop as well as marketing data.
3. Special surveys and studies being conducted.
4. Continuous cooperation maintained with other agriculture-related organizations and agencies in the exchange of information.
5. Needs for supplementary development assistance being investigated and requests formulated.

Outputs

1. A trained staff of statistics specialists including one chief statistician, two assistant statisticians and two clerical technicians.
2. A reorganized and expanded ASD employing eleven professional and eight clerical/auxiliary level people at headquarters and thirteen professionals and ten nonprofessionals in the field, capable of planning, executing, evaluating and reporting all routine and special agricultural statistical survey activities.
3. Criteria established for the determination of sample areas.
4. One regional statistics office established in the south (Moundou), eight offices installed in newly selected sector areas.

Anticipated Organization of the Agr. Statistics Div. (ASD)

84-A

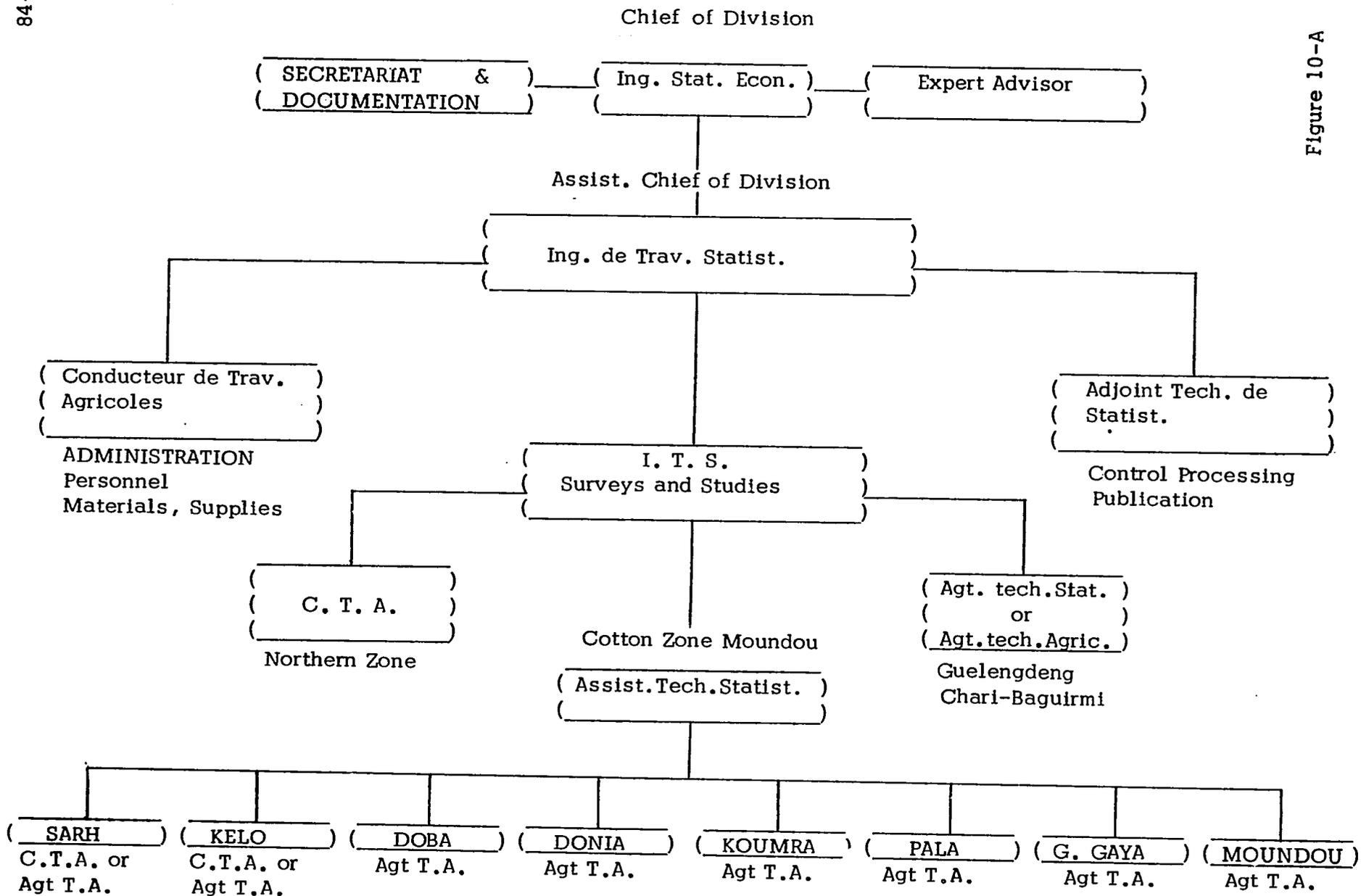


Figure 10-A

5. Routine data collection expanded through improved geographical and crop coverage; statistical data source increased from 11,000 to 25,000 farm villages.
6. Four to five special surveys and studies conducted on MOA and other agency requirements.
7. The 1980 agricultural census.
8. Data storage, retrieval and reporting system improved permitting publication of three or four extra reports and information abstracts.

#### Inputs

1. Technical assistance to ASD headquarters consisting of one advisor to the division chief.
2. Allocation of funds to pay the salaries of additional clerical/auxiliary staff - ten drivers, one secretary, one messenger.
3. Training in third countries for:
  - One participant in economics statistics - two years at Rabat
  - One participant in stat. technique - three years at Rabat or Abidjan
  - One participant in advanced stat. technique - two years at Abidjan
  - Two participants in economics stat. technique - one year at Abidjan or Yaounde.
4. Commodities:
  - Nine vehicles, furniture, airconditioners, and equipment for three offices at headquarters N'Djamena.
5. Buildings:
  - One headquarters building restored involving ten offices;
  - One regional office constructed;
  - Eight sector (field) offices constructed.
6. Other Costs:
  - Office supplies, local travel, car operations and maintenance, printing and binding costs.

### Part III: Project Analysis.

This project is consistent with both the Congressional Mandate and with the policies and priorities of the Government of Chad in the agricultural sector. As has been described in the previous section, it is designed as an integral part of the ongoing government effort in developing Chadian agricultural institutions. These institutions form the necessary infrastructure which will formulate and implement food production programs both in the southern zone and in the Sahel.

#### A. Technical Analysis

The activities of this project are institution building in nature. As such, transfer of technology is not a primary concern, except in the case of the rural development - extension component. This component is designed to ultimately affect the peasant farmer and his family who constitute 90 per cent of the population of Chad. This entire effort is aimed at establishing an institutional infrastructure which will make possible an increase in the level of food production in the country.

With respect to the rural development-extension component, the planned program calls for an effort to increase food production emphasizing the improvement of grain production practices. This will be accomplished in close linkage with the research divisions of the Ministry of Agriculture where the basic technology will be developed. Through a cooperative effort between research and

extension, technology packages will be developed for dissemination to the farmer. These will be in the form of improved varieties primarily, but on occasion there will be recommended changes in cultural practices such as planting dates, seed handling, planting practices, tillage methods, etc. The anticipated result is change by the farmer.

Through the use of new technology, an overall improvement of grain yields of 10 - 15 per cent is anticipated under normal conditions by the end of this project. Using the larger figure, Chad's current grain production level of 600,000 tons would increase by 90,000 tons. Current production levels are considered to be 60,000 tons below need so a net surplus of 30,000 tons would be produced. But when the population growth rate of 2.2 percent is taken into consideration, the projected surplus vanishes. From a technological perspective, therefore, the impact will be status quo at best, with the prospect likely of a small and diminishing deficit by the end of the project.

Looking further down the road, the same sort of picture emerges. Since population growth is geometrical, while production increases are linear, Chad's struggle in the foreseeable future will be to maintain self-sufficiency in food production.

This project, therefore, is not expected to have profound effects on employment. Approximately, the same proportion of the population is expected to remain in agriculture, and no major shifts are foreseen. Since agriculture will be holding its

own, no major dislocations are seen that will affect employment.

The new technology will basically be an extension of the old. While varieties will change and some cultural practices will vary, the basic technological pattern of grain production will not be greatly disturbed. The farmer will still be producing millet, sorghum, etc., as he was before change was introduced. The technology, then, is not expected to create problems in suitability for use and for replication and diffusion. Since there will not be a basic problem of compatibility, and since local verification trials will be accomplished by research, this should not create problems technically.

Finally, the question of host country capability for operation and maintenance must be considered. Again, since the project is institution building, the anticipated end-of-project-status is to help them achieve the capability to operate and maintain the program; otherwise, the project will not be so. Since Chadians desire the project and have the same objectives as AID, (i.e. functioning institutions), the organizational structure will be developed and trained people will be provided to man the institutions. The necessary ingredients are all present.

#### Environmental Impact Statement

This project involves no direct measurable impact on the

environment. The current state of grain production technology in Chad does not involve the use of pesticides, nor is this conditions expected to change. The research effort will focus on those varieties which do not call for pesticide usage under Chadian condition. In accordance with an AID/W determination, no environmental impact statement is required for this project.

#### Summary Conclusion

This project is evaluated as being technically sound. Adequate planning has taken place, and the project is judged as being reasonably priced. The CDO engineer has determined that the constructive elements in the project meet the requirements of FAA Section 611 (a) (1).

## B. Financial Analysis

Since this is an institutional development project, it is basically non-revenue in nature, except for the rural development-extension component which aims at increased food production by the peasant farmer (see Economic Analysis). The financial analysis for the project, therefore, will consist of an examination of the viability of the non-revenue producing components.

### Budgetary Analysis

Just over half of the proposed AID funds would go for support of technical assistance personnel. Due to the nature of the project, institution building, the principal task of the technical assistance element will be to assist in the development of the institutional structure for each of the components. This involves assistance in the clarification of unit mission and objective and establishing a functioning organization, including the definition of jobs and responsibilities. Upon the return of the participants from training in the U.S. and third countries, technical advisors will have the very important responsibility of helping the returnees to fit into an appropriate position in the organization and to function effectively in it. This will be the essential task of the technical assistance element. The heavy inputs of technical assistance

SUMMARY COST ESTIMATE AND FINANCIAL PLAN

U S E	A I D	G O C	F E D	F A C	OTHER :AID * :SOURCES :	PEACE :CORPS :	TOTAL
PERSONNEL							
TECHNICAL ASSISTANCE	5,510.0			1,027.0		120.0	6,657.0
LOCAL STAFF	478.5						478.5
ADDED SALARIES		305.2					305.2
TRAINING							
US	811.8						811.8
IN-COUNTRY	162.0				4,148.6		4,310.6
THIRD COUNTRY	385.0						385.0
COMMODITIES	1,145.2						1,145.2
OTHER COSTS	1,907.0	50.0	352.0		84.0		2,393.0
TOTAL	10,399.5	355.2	352.0	1,027.0	4,232.6	120.0	16,486.3
INFLATION	812.2	35.2	-	102.7	423.3	12.0	1,385.4
CONTINGENCY	1,039.0						1,039.0
GRAND TOTAL	12,250.7	390.4	352.0	1,129.7	4,655.9	132.0	18,910.7

\* The In-Country Training Activity on animation training is being conducted by O.R.T. on an AID Grant. The other cost item refers to a grant made by AID to the Government of Chad for an accelerated impact program in the Division of Agricultural Statistics of the Ministry of Chad.

U. S. INPUTS  
ANNUAL BUDGETS BY PROJECT COMPONENTS  
(\$ 1,000)

ITEM	FY 77	FY 78	FY 79	FY 80	FY 81	FY 82	TOTAL
<b>A. Planning</b>							
1. Personnel Services							
Technicians(U.S.) (4 long term-Univ. contract)	(12mm) (80.0)	(48mm) (320.0)	(48mm) (320.0)	(48mm) (320.0)	(36mm) (240.0)		(1280.0)
TDY Consultants		(6mm) (54.0)	(6mm) (54.0)	(6mm) (54.0)	(12mm) (108.0)		(270.0)
Sub-total:	80.0	374.0	374.0	374.0	348.0		1550.0
2. Training							
U.S. (Four for MS deg.) Third Country		(48mm) (48.4)	(48mm) (42.4)	(48mm) (42.4)	(48mm) (47.2)		(180.4)
	(36mm) (15.0)	(36mm) (15.0)	(36mm) (15.0)				(45.0)
Sub-total:	15.0	63.4	57.4	42.4	47.2		225.4
3. Commodities							
Vehicles		(23.5)	(8.0)	(12.0)	(4.0)		(47.5)
Office Equipment		(19.9)	(0.9)				(20.8)
Sub-total:		43.4	8.9	12.0	4.0		68.3
4. Other Costs							
Buildings	(50.0)						(50.0)
Operations and Supplies		(1.5)	(19.0)	(19.5)	(41.0)		(81.0)
Sub-total:	50.0	1.5	19.0	19.5	41.0		131.0
<b>TOTAL PLANNING</b>	<b>145.0</b>	<b>482.3</b>	<b>459.3</b>	<b>447.9</b>	<b>440.2</b>		<b>1.974.7</b>
<b>B. Rural Development/ Extension</b>							
1. Personnel Services							
Technician(US) (1 Long Term-PASA) Village level exten- sion workers)		(9mm) (60.0)	(12mm) (80.0)	(12mm) (80.0)	(12mm) (80.0)	(9mm) (60.0)	(360.0)
(900 man years)		(1200mm) (38.0)	(3000mm) (120.0)	(3000mm) (120.0)	(3600mm) (144.0)		(432.0)
Sub-total		108.0	200.0	200.0	224.0	60.0	792.0

2. Training							
In-country		(810mm)	(810mm)	(810mm)	(1620mm)		
(360 village level							
ext. workers)		(32.4)	(32.4)	(32.4)	(64.8)		(162.0)
Sub-total:		32.4	32.4	32.4	64.8		162.0
3. Commodities							
Vehicles and spare							
parts	(60.0)	(20.0)	(2.5)	(2.5)	(5.0)		(90.0)
Horses- 86		(6.0)	(8.0)	(3.2)			(17.2)
Bicycles - 174		(7.2)	(10.0)	(3.7)			(20.9)
Audio-visual Equip.		(20.0)					
Audio-visual Vehic.		(25.0)					
Sub-total:	60.0	68.2	20.5	9.4	5.0		163.1
4. Other Costs							
Operations &							
Supplies		(12.0)	(22.0)	(22.0)	(25.0)		(81.0)
Sub-total:		12.0	22.0	22.0	25.0		81.0
TOTAL RURAL DEVELOPMENT/ EXTENSION	60.0	220.6	274.9	263.8	318.8	60.0	1,198.1
C. Agricultural Schools							
1. Personnel Services							
Technician (US)		(9mm)	(12mm)	(12mm)	(12mm)	(9mm)	
(1 Long Term PASA)		(60.0)	(80.0)	(80.0)	(80.0)	(60.0)	(360.0)
Sub-total:		60.0	80.0	80.0	80.0	60.0	360.0
2. Training							
U.S.		(48mm)	(48mm)	(48mm)	(48mm)		
(Two for M.S. &							
Two for B.S.)		(48.4)	(42.4)	(42.4)	(47.2)		(180.4)
Third Country		(120mm)	(120mm)	(120mm)			
(Ten for Ingenieur							
Travaux Agr.)		(60.0)	(60.0)	(60.0)			(180.0)
Third Country		(30mm)	(30mm)				
(Ten for Short-term)		(12.5)	(12.5)				(25.0)
Sub-total:		120.9	114.9	102.4	47.2		385.4

3. Commodities								
Vehicles	(50.0)	(33.2)						(83.2)
Library Books	(60.0)							(60.0)
Laboratory Equip.	(40.0)	(60.0)						(100.0)
Audio-Visual Eq.	(18.0)							(18.0)
Equipping of Buildings		(61.0)						(61.0)
Sub-total:	168.0	154.2						322.2
4. Other Costs								
Building Renovations	(70.0)	(180.0)						(250.0)
Farm Development Operations & Supplies	(50.0)	(15.0)						(65.0)
		(52.5)	(52.5)	(52.5)	(105.0)			(262.5)
Sub-total:	120.0	247.5	52.5	52.5	105.0			577.5
TOTAL AGRICULTURAL SCHOOLS	288.0	582.6	247.4	234.9	232.2	60.0		1645.1
D. Faculty of Agriculture								
1. Personnel Costs								
Technicians - US (12mm) (3 long term-univ. contract)	(36mm)	(36mm)	(36mm)	(36mm)	(39mm)			
	(80.0)	(240.0)	(240.0)	(240.0)	(260.0)			(1060.0)
Sub-total:	80.0	240.0	240.0	240.0	260.0			1060.0
2. Training								
U.S. (5 for M.S. and one for B.S.)	(72mm)	(72mm)	(72mm)	(72mm)				
	(72.6)	(63.6)	(63.6)	(70.8)				(270.6)
Sub-total:	72.6	63.6	63.6	70.8				270.6
3. Commodities								
Library Books	(25.0)	(25.0)	(25.0)	(25.0)				(100.0)
Laboratory Equip.	(150.0)							(150.0)
Vehicles	(20.0)							(20.0)
Audio-visual Equip.	(5.0)							(5.0)
Sub-total:	200.0	25.0	25.0	25.0				275.0

4. Other Costs							
Farm Development	(30.0)	(12.5)	(12.5)	(12.5)			(67.5)
Operating Expenses & Supplies	(12.5)	(12.5)	(12.5)	(12.5)			(50.0)
Sub-Total:	42.5	25.0	25.0	25.0			117.5
TOTAL FACULTY OF AGRICULTURE	80.0	555.1	353.6	353.6	380.8		1,723.1
E. Agricultural Research							
1. Personnel Costs							
Technicians U.S. (5 long-term PASA)	(45mm) (300.0)	(60mm) (390.0)	(60mm) (390.0)	(60mm) (390.0)	(60mm) (390.0)	(60mm) (390.0)	(1860.0)
Sub-total:	300.0	390.0	390.0	390.0	390.0	390.0	1860.0
2. Training							
US (4 for MS degree)	(48mm) (48.4)	(48mm) (42.4)	(48mm) (42.4)	(48mm) (47.2)			(180.4)
Third Country (6 for BS degree)	(36mm) (15.0)	(72mm) (30.0)	(72mm) (30.0)	(36mm) (15.0)			(90.0)
Sub-total:	63.4	72.4	72.4	62.2			270.4
3. Commodities							
Vehicles	(7.5)	(15.0)	(15.0)				(37.5)
Office Equip.	(7.2)	(16.8)	(.4)				(24.4)
Laboratory Equip.	(50.0)	(80.0)	(25.0)	(7.5)	(7.5)		(170.0)
Sub-total:	64.7	111.8	40.4	7.5	7.5		231.9
4. Other Costs							
Buildings		(265.0)					(265.0)
Operating Services and Supplies	(13.0)	(50.0)	(55.0)	(58.0)	(105.0)		(281.0)
Project Evaluation			(20.0)		(20.0)		(40.0)
Sub-total:	13.0	315.0	75.0	58.0	105.0		566.0
TOTAL AGRICULTURAL RES.	77.7	790.2	577.8	527.9	564.7	390.0	2928.3

## F. Agricultural Statistics

1. Personnel Costs								
Technician - US	(9mm)	(12mm)	(12mm)	(12mm)	(3mm)			
(1 long term)	(60.0)	(80.0)	(80.0)	(80.0)	(20.0)			(320.0)
Local Staff	(144mm)	(144mm)	(144mm)	(120mm)				
(12 auxiliary personnel)	(12.0)	(11.5)	(11.5)	(11.5)				(46.5)
Sub-total:	72.0	91.5	91.5	91.5	20.0			366.5
2. Training								
Third Country	(24mm)	(60mm)	(24mm)					
(Six for special courses)	(10.0)	(25.0)	(10.0)					(45.0)
Sub-total:	10.0	25.0	10.0					45.0
3. Commodities								
Vehicles	(10.0)	(48.0)	(15.0)					(73.0)
Office Equip.	(7.1)	(4.6)						(11.7)
Sub-total:	17.1	52.6	15.0					84.7
4. Other Costs								
Buildings	(30.0)	(112.0)	(40.0)	(20.0)				(202.0)
Operating Services and Supplies	(14.0)	(28.0)	(32.0)	(40.0)	(72.0)			(186.0)
Project Evaluation			(23.0)		(23.0)			(46.0)
Sub-total:	44.0	140.0	95.0	60.0	95.0			434.0
TOTAL AGRICULTURAL STATISTICS	61.1	274.6	226.5	161.5	186.5	20.0		930.2
TOTAL ALL PROJECTS	711.8	2905.4	2139.5	1989.6	2123.2	530.0		10,399.5
Inflation (10% compounded)			214.0	220.4	255.8	122.0		812.2
Contingency (10%)	71.2	290.5	214.0	198.0	212.3	53.0		1039.0
GRAND TOTAL	783.0	3195.9	2567.5	2408.0	2591.3	705.0		12,250.7

LOCAL COSTS (\$ 1000)

	FY 77	FY 78	FY 79	FY 80	FY 81	TOTAL
<u>I PLANNING</u>						
SALARIES						
TRAINING						
COMMODITIES		28.5	8.9	12.0	4.0	53.4
OTHER COSTS	50.0	1.5	19.0	19.5	41.0	131.0
<b>TOTAL</b>	<b>50.0</b>	<b>30.0</b>	<b>27.9</b>	<b>31.5</b>	<b>45.0</b>	<b>184.4</b>
<u>II EXTENSION</u>						
SALARIES		48.0	120.0	120.0	44.4	332.4
TRAINING		78.0	32.4	32.4	64.8	207.6
COMMODITIES	60.0	33.2	20.5	9.4	5.0	128.1
OTHER COSTS		12.0	22.0	22.0	25.0	81.0
<b>TOTAL</b>	<b>60.0</b>	<b>171.2</b>	<b>194.9</b>	<b>183.8</b>	<b>139.2</b>	<b>749.1</b>
<u>III EDUCATION/FACULTY</u>						
AG.						
SALARIES						
TRAINING						
COMMODITIES	50.0	144.2				194.2
OTHER COSTS	70.0	279.5	52.5	52.5	105.0	559.5
<b>TOTAL</b>	<b>120.0</b>	<b>423.7</b>	<b>52.5</b>	<b>52.5</b>	<b>105.0</b>	<b>753.7</b>
<u>IV FACULTY OF AGRIC.</u>						
COMMODITIES		20.0				20.0
OTHER COSTS		42.5	25.0	25.0	25.0	117.5
<b>TOTAL</b>		<b>62.5</b>	<b>25.0</b>	<b>25.0</b>	<b>25.0</b>	<b>137.5</b>
<u>V RESEARCH</u>						
SALARIES						
TRAINING						
COMMODITIES	14.7	31.8	15.4			61.9
OTHER COSTS	13.0	315.0	55.0	58.0	105.0	546.0
<b>TOTAL</b>	<b>27.7</b>	<b>346.8</b>	<b>70.4</b>	<b>58.0</b>	<b>105.0</b>	<b>607.9</b>
<u>IV STATISTICS</u>						
SALARIES		12.8	11.5	11.5	11.5	47.3
TRAINING						
COMMODITIES	17.1	52.6	15.0	-	-	84.7
OTHER COSTS	44.0	140.0	72.0	60.0	72.0	388.0
<b>TOTAL</b>	<b>61.1</b>	<b>205.4</b>	<b>98.5</b>	<b>71.5</b>	<b>83.5</b>	<b>520.0</b>
<b>GRAND TOTAL</b>	<b>318.8</b>	<b>1239.6</b>	<b>469.2</b>	<b>422.3</b>	<b>502.7</b>	<b>2952.6</b>

are for the two newly developing Chadian organizations, the Bureau of Planning and the university faculty, and for one older component, agronomic research, where performance has been at a very substandard level. Minimal technical assistance is being provided under the other three components.

In all instances there is a heavy increment for participant training, some in the U.S. and some in francophone countries. Because of the heavier cost requirements and because of language difficulties, training in the U.S. was held down as much as possible. Only those areas where U.S. training was viewed as crucial to the institutional building component were singled out for such treatment. This resulted in an approximately equal division of training time between U.S. and francophone country institutions. There is also a heavy in-country component for village level extension worker personnel in which one U.S. advisor will be heavily involved.

Substantial allocations were planned for commodities, totalling almost one fourth of the AID inputs. Since Chad's monetary position is extremely poor, it was deemed necessary to provide commodities in order to develop capabilities to perform required institutional missions. In the case of three components, it involved allocations for construction of facilities. There were substantial needs for laboratory development, and in all instances there was a strong need for transportation. In each instance,

these were critical elements in the development of institutional capability as was the case with the agricultural school for the Sahel at Dougui or in the case of the soils laboratory for the University. Chad is a large, sparsely populated country, and the road and communications infrastructure is very poor, hence the need for transport. Virtually all of the planned transport requirements will be for European vehicles because of the lack of parts and know-how in repairing American-made vehicles.

In the summary cost estimate and financial plan, additional recurring costs to GOC upon the completion of the project are estimated. The basic costs involved will be the assumption of participants salaries when they return from training and report to a newly created position for them, the assumption of the salaries of additional extension personnel in ONDR, and additional support costs for the various units as a result of expanded functions.

The following is an analysis of recurrent costs by project component and their relationship to the MOA budget. The total 1976 budget of the MOA amounted to \$ 2,699,444, \$ 2,430,000 of which was for salary payments and the balance (10%) for overhead costs (see Table 3). The Directorate of Agriculture absorbs the bulk of the MOA budget, about 47% in 1976 (most of this covers operations of ONDR). The Livestock Directorate is

Table 3

A breakdown of the 1976 MOA budget  
showing salaries and overhead costs

MINISTRY OF AGRICULTURE BUDGET  
1976

<u>Unit</u>	<u>Salaries</u>	<u>Overhead</u>
Office of Minister	5.913.600 (\$23.654) *	240.000 (\$968)
Office of Asst. Minister (Sec. of State for Ag.)	4.833.600 (\$19.334)	240.000 (\$960)
Director General Office	2.744.400 (\$10.977)	-
Directorate of Agriculture (includes ONDR)	311.163.127 (\$1.244.653)	6.130.000 (\$24.520)
Directorate of Livestock and Animal Industry	180.210.340 (\$720.841)	16.473.600 (\$65.894)
Directorate of Agriculture Education	58.418.122 (\$233.672)	31.500.000 (\$126.000)
Government Agriculture Propaganda	-	5.000.000 (\$20.000)
Directorate of Studies and Meteorology	2.211.840 (\$8.847)	-
Directorate of National Calamities Prevention	1.969.488 (\$7.878)	-
Directorate of Rural Engineering	19.185.336 (\$76.741)	800.000 (\$3.200)
Irrigation and Rural Management	19.981.180 (\$79.925)	6.661.200 (\$26.645)
Water Bureau	3.929.936 (\$15.720)	-
* 248 CFA \$1.00	TOTAL	67.044.800
	610.590.969 (\$2.442.242)	(\$268.179)
	<b>GRAND TOTAL</b>	<b>\$2.710.421</b>

second with about 29%. The Minister's office, other Directorates and Bureaus receive the balance. Table 4 shows a budget breakdown by Directorate of the MOA which are slated to receive assistance under this project.

The largest recurring costs will be in the Research and Statistics Divisions of the Directorate of Agriculture whose costs will increase by 38%. This will be necessary as these units are being expanded from a very low staff level. The new research laboratories will require a significant staff which is nonexistent at present. The Statistics Division will expand the field staff to assure a better data-gathering base. This overall increase in personnel will be permanent with the expectation that moderate increases would continue after conclusion of the project.

The Planning Unit will reflect the largest percentage increase (over 100%) as it is a newly organized and staffed Bureau to be attached to the Director General's office. As this section of the MOA is one of the smallest units (Director General Budget), the expansion appears to be extraordinary, but in monetary terms is, in fact, quite modest at a level of about \$ 29,000.

The ONDR recurring budget is affected least with a 3% increase. This reflects the addition of a large group of lower level field agents whose training will be covered by the project. Total recurring costs for an anti-

Table 4. -. Estimated Current Budgets and Increases  
Expected from Participation by Components  
of the Project.

Unit	Estimated Current Budget	Increase in Recurrent Budget from Project	Percent Increase
Bureau of Studies and Programming (Director General's Office)	\$10,977	\$29,532 <sup>1)</sup>	
Directorate of Agriculture Education (DEFPA)	\$359,672	\$28,750	8
Faculty of Agronomy		\$27,600 <sup>2)</sup>	-
Directorate of Agriculture (Includes Research and Statistics budget)	\$360,731	138,000 <sup>3)</sup>	38
ONDR	\$908,442	22,880	3

1. New Staff and new budget

2. No current budget for Faculty of Agronomy Statistics \$54,050

3. Includes: Research \$83,950

culated 260 new field agents will be about \$ 23,000 including salaries and support costs.

These projections are based on current budgets and do not take into consideration an inflation factor or other staff and/or organizational changes which may take place during the life of the project.

#### Financial Management Competence

Based on the current estimated capability, no management changes will be needed in the five units in the MOA. Each unit seems headed by a reasonably competent Chadian, and in each instance there are already present advisors from FAC or FAO. Coupled with the proposed levels of technical assistance, there should be adequate levels of management and technical expertise to ensure that the project is successful.

#### Cost Effectiveness Analysis

It is possible to segment the proposed project expenditures into four parts : personnel, training, commodities, and other costs. If one views each of these four phases on a continuum, it is possible to make assessments about the degree of effect for each of these variables.

Looking at technical assistance and the assumption of personnel costs, one extreme is to help GOC without the technical assistance component,

while the other extreme is to provide massive, rather complete assistance. From a cost-benefit standpoint, one quickly rejects the first option for no expenditure in this regard leaves Chad in a continuing, languished state of agricultural insitutional development. At the other extreme, there might be in the short run some rather spectacular benefits, but the moment the U.S. withdraws, the institutions could well collapse. The present proposal, however, calls for fairly substantial help in some areas, where needed, with a gradual phase-out of the U.S. presence when Chadian participants return from training.

With regard to participant training, the two extreme points of view are no training on the one hand, and massive training in the U.S. on the other hand. Again a selective program of training was chosen. Training to be undertaken by the project represents a balance between U.S. and African institutions as training sites and what seems to be an adequate number of participants being trained. As mentioned previously, U.S. training is slated only in those instances where it is considered critical for the participants to have a U.S. model as the intellectual basis for institutional leadership, i.e. agriculture economic extension and highly scientific research. At the more technical levels, particularly at the university-technician level, training in francophone African institutions may well be preferable, even without economic considerations.

Commodities and other costs can be viewed within a similar perspective. To provide no support for such items is one extreme, while to provide massive support would be beyond the capacity of Chad to absorb. Neither seemed practical within the domain of this project. Chad is one of the poorest of the poor countries, and the Sahelian drought has compounded the problem. At this point in time, it seemed imperative to assist the GOC in each instance in this project with the infrastructure development of these institutions. Again a middle-ground viewpoint prevailed: provide very important and crucial items but leave out the "nice to have" commodity components. The commodity selection relates only to offices and laboratory support and mobility.

From a cost-benefit viewpoint, consequently, a middle-ground position was taken on each item, i.e. give the MOA adequate levels of assistance to enable it to continue under its own steam; support the GOC in the move forward, but reduce assistance more and more as they achieve viable institutions, managed and staffed by competent Chadians.

### C. Social Analysis

This project has been designed to interface with Chad's efforts in building institutions to generate an expanding rural development program. Because it is an institutional building project, many of the aspects of social development mentioned in Appendix 5A of Handbook 3 are not applicable.

The design of this project is based on proven fundamentals, gleaned from experiences on world-wide basis, and it is aimed very specifically at the peasant farmer. Its overall effects moreover, should be enhanced given the amelioration of the food production program as the anticipated result.

#### Socio-Cultural Feasibility

Increased contacts with farm families are expected through an expanded and intensified extension effort. The focus will be on change. From a sociological standpoint, the new technology will not represent a drastic cultural change since it will not involve fundamental changes in crops planted nor in the agricultural system. The changes, therefore, will represent extension of current technology; i.e. the substitution of one millet variety for another; a change in the depth of planting the seed; a difference in the handling of the seed before planting, etc. Basic changes in life style or basic changes in value and attitude structure, as a consequence, are not dictated by the change elements in this project.

The new technology to be introduced as a result of this project will not increase the investment costs to the farmer. Since it will be designed to fit into the current production rhythm and will involve fundamentally the substitution of one variety for another or of one cultural practice for another, costs to the farmer will not increase. Current plans call for seed of the new varieties to be produced and distributed by MOA.

Looking at the farmer's perspective, the technology to be diffused through this project should be well received. It does not threaten traditional values and practices, and it does offer hope for the improvement of the family's food and financial circumstances. It should not present great risk to the farmer either. Since local verification will be a part of the research process, assurance can be given to the farmer that the new technology package will work.

#### Spread effects.

Since the technology packages to be developed will essentially be compatible, and since no expensive or complicated practices will be intrinsic to the packages, diffusion among peasant farmers in a village should not be difficult. It will be necessary, however, to have a respected person in a village to introduce the new package in the community by demonstrating

its effectiyeness in increasing yields. Since communications systems among traditional African villages are not sophisticated, and since public communications channels are limited to the radio, there is not a great deal of commmunicative interaction and feedback among villagers. This places a greater burden on the extension worker, since he has to arrange for innovation into village units, but it is not an insurmountable task. The proper utilization of leadership/authority elements in the village can be a valuable means for achieving spread within a village.

#### Social Consequences and Benefits.

Chad is a rural country, and its farm population is uniformly peasant in nature. The social consequences of this project are immense in the sense of having widespread impact among the population. Since the projected technological impact of the project is to help Chad achieve and maintain self-sufficiency in food grains, and not to produce surpluses, economic dislocations with social consequences are not expected to occur. The project calls for a broad scale effort on a national basis in food production. Relatively equal access to all will be afforded, and no problems are anticipated with respect to displacement or migration. Employment should be helped somewhat with a growing agricultural economy as production increases and more grain appears in the marketing system. There should be no disturbances to the traditional social structure, leadership patterns, status groups, etc. Consequently, an enhanced social structure should result.

#### D. Economic Analysis

As there are no generally accepted techniques for producing operational rates of return, cost-benefit ratios or net present value estimates for a project of this type of necessity, the treatment must be qualitative. Accordingly, the project will be analyzed economically by looking into the anticipated effect of institution building activities upon the economy of Chad and as well as social and economic benefits to the farmer.

Economic effects of this project will eventually be felt by a broad segment of the population. The strengthening of agricultural institutions will in turn permit the improvement and expansion of commodity production programs in addition to foreign assisted rural development projects. Improved planning will assure better selection of priority agricultural improvement programs; reorganized research facilities and staff will provide the necessary technical and scientific inputs to solve production problems; expanded education and extension capability will hasten the transfer of improved cultural practices and farm inputs directly to the farming population.

As a result of the above changes, economic benefits are bound to occur to the rural population as well as the economy as a whole.

By the nature of the project, the economic benefits are indirect. U.S. assistance is injected at national level institutions which in turn induce positive changes in subordinate agencies. These agencies then finally pass on technical changes to the rural population.

At this level, economic benefits are produced in the form of increased food production, improved diets/health and ability to increase labor inputs. As a vast majority of the farmers are at the subsistence level, there would be an automatic economic benefit from increased yields/production. To the extent that the marketing system facilitated the sale of surplus production, the farmer would reap a monetary gain in addition to the above benefits.

As the rural economy develops, the farmer's economic gains would be compounded. His increased income would result in new farm inputs which would again augment production and result in further monetary gains. This assumes that sufficient motivation will exist to cause the farmer to desire increased production. He must have adequate market outlets for his products, a fair price to offset his farm inputs and a range of consumer goods available for him to purchase.

On the macroeconomic level, the indirect influence of this project on increased agricultural production could mean

as much as 90,000 tons per year increase in food grains. This is based on the current estimate of an annual production rate of 600,000 tons, which may be expected to increase at least 15% as a result of improved cultural practices and increased use of animal traction. The influence of new technological packages (research/extension) would eventually increase productivity even more. This would assure self-sufficiency in food grains even taking into consideration a population growth of 2.2 percent. Consequently, food grain imports would not be required, resulting in less foreign exchange expenditure.

A potential exists to significantly increase wheat production to a point of replacing the 10-12,000 ton annual wheat imports. Improved wheat production would also be an indirect benefit of the project, and would depend upon the success of new variety, research and extension packages. At an average yield of 1.5 tons per hectare, this would only require 800 hectares of new land. At the current import price for wheat, annual savings would be about \$ 3 million.

Other indirect economic benefits of this project would be reflected in the increased production of sugar which is a regular imported item. Import substitution of sugar would amount to about \$ 8 million per year.

Thus the overall economic benefits of an increased production capacity derived from better institutions would be substantial, both to the farmers and the national economy.

### Part III Implementation Planning

#### A. Administrative Arrangement

##### 1. Recipient \*

The purpose of the project is to strengthen key elements of the MOA which will create a strong institutional framework for the agriculture sector. This in turn will provide the basis for new and more effective agriculture production programs. The need for stronger institutions has long been recognized by the GOC, particularly since becoming a food deficit country. Assistance requirements for this area have been under active discussion with USAID during the past year, and the GOC is anxious to move ahead with an active project. The Director General of the MOA has agreed to assume responsibility for the necessary increased staff and supporting costs which will result from this project. Details of project assistance have been worked out jointly with the Director of each participating division.

Project assistance will be given to the following MOA administrative units:

The Bureau of Studies and Programming (BEP) which will be a completely new organization headed by the Deputy Director General. The Bureau will be responsible for top level policy planning and will be a service organization to other MOA units. Detailed organization plans have been worked out between the BEP and USAID, and MOA officials agree to support project efforts and to utilize fully the technical assistance inputs.

The Directorate of Agriculture is the largest unit within the MOA encompassing research, statistics and agriculture extension responsibilities. Details of assistance to these sub-sections have been prepared in consultation with the heads of each as well as the

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\* more detailed discussions of the units involved are found in Appendix B.

Director General's office. For instance, where reorganization is necessary (research and statistics), the MOA officials are in complete agreement as to recommended changes and staffing pattern suggested.

The Director of ONDR has agreed to the proposed inputs to the training program for field agents and will provide staff assistance to facilitate the teaching of agents.

The Directorate of Agriculture Education will not undergo any significant change as a result of project inputs. Assistance to regional agriculture schools has been reviewed with the respective school directors as well as the head of DEFFPA. Administrative arrangements will be made to accommodate the proposed increased teaching staff at the regional southern schools as well as a new staff for the proposed northern school at Dougui. Qualified participants will be made available to replace the foreign teaching staff as the project terminates.

The Rector of the University of Chad is in complete agreement with suggested project assistance to the newly proposed Faculty of Agronomy. He is anxious to expand the University to include agronomy and desires to make the new agronomic program less theoretical and more practical. This is in conformity with the professional judgement of USAID. The University of Chad will accommodate additional foreign teachers and assure the availability of participants to be trained to replace them.

Despite the restricted MOA budget, it is anticipated that the GOC will meet its commitments in assuring all administrative arrangements necessary for successful project implementation.

The principal deficiency of each of the above administrative units is sufficient numbers of trained people available to do the job. The need for technical competence and analytic talent is most

urgent and pressing if rural development is expected to take place. As one of the poorest of the developing countries, Chad lacks sufficient resources to undertake institutional development alone; hence the need for this project.

## 2. AID Administrative Arrangements

This will be a sizeable comprehensive project, involving sixteen U.S. technicians, a large number of participants, and substantial in-country personnel support for six different units of the Chadian government. Because of its scope and size, it is recommended that AID provide a full-time project manager either direct-hire or a personal service contract.

- a. For the Planning component - a university contract possibly with Michigan State or Minnesota.
- b. For Rural Development/Extension, Agriculture Education, Research and Statistics components - a PASA with the U.S. Department of Agriculture. Personnel will be recruited from State Extension Services such as Louisiana for extension and teaching advisors ; from the USDA Economic Research Service for statisticians; and from the USDA Agriculture Research Service for agronomic research advisors.
- c. For the Faculty of Agriculture - a university contract with the University of Arizona or New Mexico where experienced technicians in semi-arid agriculture may be found.  
It is imperative that the technicians have a competency in the French language to the S-3 - R-3 level.

## B. Implementation Plan

It is extremely important to get the project underway as soon as the project agreement is signed in order for two particularly critical components of the project to be undertaken as soon as possible.

(1) Participants to the U.S. for four years of degree training must leave in January, 1978 for language training so that formal studies can begin by the Fall term. This is necessary so that they can return by December 1981 in order to have a reasonable overlap with U.S. counterparts.

(2) It is important that vehicles be ordered early to be available for U.S. technicians when they arrive. These and other critical requirements are spelled out in the Project Performance Network Chart (Annex D).

Key to Components

- BEP - Planning Activities
- ONDR - Extension Activities
- DAS - Research Activities
- FA - Faculty of Agriculture
- ASD - Statistics Activities
- DEFFA - Agricultural Schools which include:
  - CETA - (Ba-Illi)
  - CFCPA - (Tikem)
  - CFCPA - (Dougui)

Year I - August 1, 1977 - July 31, 1978

1977

- May Project Paper Approved
- August Project Agreement and PIPAs signed; Institutional contract for US experts signed; Recruitment of US experts started.
- September Office equipment, laboratory equipment and six vehicles ordered for ASD and DAS; Tenders for construction of buildings requested for ASD and DAS; vehicles for ONDR and DEFPA ordered; Laboratory equipment, books and instructional equipment ordered for DEFPA; audio-visual equipment ordered for ONDR; construction begins on CFCPA at Dougui under FED supervision; Tenders requested for renovation of buildings at CFCPA (Tikem); University accepts first FA class.
- October ONDR hires 90 new village-level extension workers and purchases 60 bicycles and 30 horses for transportation for them; Three DAS, two ASD and three BEP participants depart for BS level training in third countries.
- November Construction tenders awarded for ASD, DAS and CFCPA (Tikem) buildings; DAS library started; Counterpart allocation initiated for DAS and ASD.
- December Research laboratory started. Renovations begin on ASD and CFCPA (Tikem buildings); Tenders for renovation of CETA (Ba-Illi) requested; Construction of DAS Head Office Building started.

1978

- January US advisors arrive for BEP, ASD and DAS; Five vehicles purchased locally for ASD and DAS; Sixteen participants leave for study in the US from BEP, DEFPA, FA, and DAS; Execution of DAS analysis.
- February Tender accepted for renovation at CETA (Ba-Illi); Renovations complete at CFCPA (Tikem). Three US advisors to the FA arrive; Vehicle purchased locally for the FA.
- March Four ASD participants and eight DEFPA participants leave for third country training; Vehicles purchased locally for ONDR and DEFPA; sixty ONDR trainees report to CFCPA (Tikem); Renovations begin at CETA (Ba-Illi); Construction of regional and sector offices started for ASD.

- April Five DAS participants leave for third country training ; U.S. advisors for ONDR and CFCPA (Dougui) arrive ; CFCPA (Dougui) opens and ONDR sends thirty trainees to course.
- May Agricultural sector plan started ; Restoration of ASD headquarters building completed ; Definition of research and operational requirements for DAS ; Completion of policy document by DAS.
- June Administrative and field operation programs established by ASD and DAS. Modalities of cooperation with UNDP/FAO ; FAC ; AID 677-00-14 ; 625-11-130-916 ; 677-76-3-03 and ONDR determined and documented ; Instructional materials arrive for DEFPA ; Audio-visual equipment arrives for ONDR ; Renovations completed at CETA (Ba-Illi) ; First FA class completes first year.
- July ONDR kicks off campaign on increased food production ; Construction of DAS-HQ and laboratory buildings completed ; Statistics and research field programs initiated ; Project inception report on DAS completed ; ASD sector analyses completed and policy document prepared.
- Year II - August 1, 1978 - July 31, 1979
- August Three ASD regional and sector offices completed in the south and six vehicles and office and laboratory equipment arrive ; Five DEFPA agricultural teachers and technicians return from six months training courses in third countries.
- September Three additional vehicles ordered for ASD ; ASD commences preparation for 1980 agricultural census.
- October Three ASD and three DAS participants leave for study in third country ; ONDR hires ninety new village level extension workers.
- November Sixty ONDR trainees complete recyclage course in food production at CFCPA (Tikem) ; Research laboratory fully functional ; in-service laboratory training started ; Regular laboratory research program established.
- December Thirty ONDR trainees for Sahel complete training course at CFCPA (Dougui). Processing and evaluation of research and statistical data started.

1979

- January Criteria for selection of statistical sample sectors defined by ASD.
- February Sixty ONDR trainees arrive at CFCPA (Tikem) and thirty trainees arrive at CFCPA (Dougui).
- March Eight DEFPA participants begin training in third countries ; Statistics and research programs reviewed and revised.
- April First annual evaluation of project progress completed within BEP ; First technical package of recommendations developed with ONDR rural development technicians ; First annual reports completed on ASD and DAS operations.
- May Agricultural sector Plan completed.
- June New field research programs ready for implementation ; ONDR completes first food production campaign and begins second food production campaign ; Library/Documentation participant for BEP returns ; Three ASD participants return from third country training.
- July Construction completed on three ASD field offices ; Staff in position and operating for ASD.
- Year III - August 1, 1979 - July 31, 1980
- August First technical training course in agricultural research conducted for ONDR personnel at research centers.
- September Second class of 20 students for FA ; Five DEFPA agricultural teachers and technicians return from six months courses. Preparations made by ASD for special field studies, selection of additional sample areas
- October Three vehicles arrive for ASD ; Construction starts on last three ASD sector offices ; ONDR hires forty new village level extension workers.
- November CFCPA (Tikem) and CFCPA (Dougui) complete training programs for sixty and thirty ONDR village level extension workers, respectively ; ASD statistical data storage and retrieval system revised ; Second training course for ONDR staff organized and executed by DAS at research centers.

1980

- January Participants for training in documentation return from abroad; 1980 agricultural census begun by ASD.
- March Second annual project evaluation conducted by ASD, DAS and BEP. Mid-project evaluation conducted by ONDR and DEFPA; Sixty trainees at CFCPA (Tikem) and thirty trainees at CFCPA (Dougui) arrive from ONDR for training courses; DEFPA sends four participants for training in third countries.
- April Construction of last three ASD sector offices completed; Second annual project evaluation conducted in BEP.
- May Revised DAS research and laboratory recommendations issued for new crop year; Second annual reports on statistical and research activities and performance completed.
- June Revised DAS office-field and lab operation programs issued for forthcoming growing season; ONDR completes second food production campaign and begins the third one; Three DAS, three DEFPA, two BEP and two ASD participants return from third country after BS-level training.
- July First review of agric. census data by ASD head office.
- Year IV - August 1, 1980 - July 31, 1981
- August Third DAS training course held at research centers for ONDR staff.
- September Mid-term review mission starts project evaluation; New class of 20 begins at FA.
- October ONDR hires forty new village level extension workers;
- November ONDR trainees at CFCPA's (Tikem and Dougui) complete training courses; Fourth agron. training course conducted at Deli and Dougui for ONDR personnel; Mid-term evaluation report submitted; recommendations acted upon for ASD and DAS.
- December Research and statistical data processed and evaluated.

1981

- January Agronomy and agricultural engineering participants return from studies abroad and are assigned to project analysis division of BEP.

- February Processing and evaluation of agric. census data commences.
- March Second Landrover purchased locally for BEP ; ONDR trainees begin courses at CFCPA's, sixty at Tikem and thirty at Dougui ; Research programs reviewed and updated.
- April Third annual program evaluation conducted within BEP ; Agromomic extension technical package revised by DAS and ONDR.
- May Third annual research and statistical reports completed.
- June Processing and evaluation of agricultural census data completed by ASD and report started ; ONDR completes third food production campaign and begins the fourth ; First class at FA completes studies ; Three DEFPA and three DAS students return from third country training.
- July In-service laboratory training is terminated by DAS.

Year V - August 1, 1981 - July 31, 1982

- August Fifth agron. techn. training courses conducted at experimental stations for ONDR field staff.
- September FA takes in 20 new students ; U.S. lab. technician departs ; Three DAS participants return from third country agric. training (BS).
- October ASD completes preparations for 1980 census report.
- November ONDR trainees at CFCPA's at Dougui and Tikem complete training ; Sixth course in agron. techn. training held for ONDR at research stations.
- December Four DAS participants return from U.S. training (MS); ASD advisor departs.

1982

- January Six FA and four DEFPA participants return from training in U.S.; Six FA trainees begin intensive work with counterpart U.S. advisors ; 1980 agricultural census report is published.
- March ONDR trainees begin courses in CFCPA's, thirty at Dougui and sixty at Tikem ; Annual review of research and statistics program ;

- April Last project evaluation conducted in BEP; Agronomic/ Extension technical package is updated; U.S. trained personnel occupy respective section head positions in DAS.
- May Fourth annual research and statistical reports completed.
- June Final evaluation and recommendations for future ASD and DAS operations; Four DEFFPA participants return from third country training.
- July Agricultural Economics and marketing participants return from studies in U.S. and are assigned to BEP; Final evaluation conducted at ONDR and advisor departs; Final evaluation conducted at DEFFPA and Dougui advisor departs.
- August Seventh agron. techn. training course for ONDR organized and conducted by Chadian DAS personnel.
- September Last two Agricultural Economics advisors complete tour and depart and BEP activities by project terminate; U.S. advisors to DAS complete tour and depart as assistance ends.
- November Last ONDR trainees complete courses at CFCPA's at Tikem and Dougui.

### C. Evaluation

Two types of evaluation are planned for this project; product evaluations and process evaluations. Product evaluations refer primarily to achievement of project objectives or "end-of-project status" statements as outlined in the detailed description and in the logical framework sections. Process evaluations are concerned with on-going activities, focusing on the degree to which components are being performed efficiently and are aimed at the achievement of final objectives.

Depending on the nature of the component, either annual or mid-point formal evaluations are planned to determine if the project components are moving toward the achievement of project objectives. Both GOC officials and U.S. technicians must be involved. As evaluations take place, it is especially important to determine if the objectives remain valid; if there is still unanimity between the GOC and USAID about the objectives, and the degree of progress. There should be feedback to responsible project technicians so that adjustments in activities and programs can be made where necessary. Should there be a particularly thorny problem or a questionable area, then it would be well worth considering the use of outside evaluators.

Within each of the projects, formal evaluations are planned. For the planning component, annual, formal evaluations will be scheduled, while for the other components mid-point and final evaluations will be conducted. The mid-point evaluation is expected to stress process-type assessments in relation to expected outputs so that rearrangements of responsibilities and redirections of effort can be effectuated if need be. The final evaluations, however, will be heavily product-oriented toward determining the achievement of objectives as stipulated for the end-of-project status.

As a means of establishing base-line data at the beginning of the project, the Agriculture Statistics Division will collect data on a sample of farmers from 11,000 villages. These data will include such items as size of farm, crops grown, livestock owned, yields, income and personal data about age, family members, etc. This will provide a base-line or beginning point from which to measure the effectiveness of the ONDR activities in food production which is the final end-product of the entire institutional development effort.

The collection of data from the sample farms will be done on an annual basis. Through these reviews it will be possible to evaluate periodically the activities being undertaken. At the mid-point level,

particularly, a full-blown evaluation will be intensively undertaken to determine the impact of the food production program, relating this to the activities undertaken through this project. An assessment will be made at that time as to the continued direction of the project, i.e. move ahead as planned or make adjustments in order to increase impact and effectiveness.

Using the same basic approach, a final project evaluation will be made, again collecting data about farmers and their activities, and relating the data to the levels of contact with the rural development/extension delivery system. The emphasis will be to correlate changes in practices and income to levels of contact with village level extension workers.

Since one of the components in this project is building up the capability of the Agricultural Statistics Division, this planned evaluation will be an integral part of the activities of the project, conducted by the Statistics Division with the cooperation of ONDR. The personnel in ONDR who work at the village level are involved on a cooperative basis in data collection on a regular basis. Thus there will not be a special cost to the project for the evaluation, since the mechanism and expertise for data collection and analysis will be on hand.

D. Conditions, Covenants, and Negotiating Status

There are no outstanding conditions requiring action by the GOC except a final agreement to be formulated between the Ministry of Agriculture and the Ministry of Education on the establishment of a new Faculty of Agriculture at the University of Chad. Members of the PP design team and USAID discussed this subject with the Rector of the University of Chad and later with the Director General of the Ministry of Agriculture. Both were in favor of having the new Faculty and agreed that it was necessary for the future of Chadian agriculture. Plans for the new faculty have been the subject of correspondence between the two ministries during the past four months. The only remaining action is for the Ministry of Agriculture to make a formal request to the Ministry of Education giving assurance that there is a need for all future graduates of the faculty and that they will be employed. At a meeting with the Director General of Agriculture on March 1, 1977, the design team and representatives of USAID were asked to include the Faculty of Agriculture component in the PP, as the necessary agreement with Ministry of Education would be conducted before the Project Agreement had been finalized.

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21 Jan 76

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INFO: 11033: 1/76  
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SUBJECT: COFF AGRICULTURAL INSTITUTION DEVELOPMENT  
REF: 11033: 1/76

1. SUBJECT TO COMMENTS BELOW PROPOSAL APPROVED FOR FINAL SIGNATURE AT A TOTAL LIFE OF PROJECT COST OF 2.2 MILLION DOLLARS INSTEAD OF 3.7 MILLION DOLLARS. CP WILL SHOW FY 77 COSTS OF 5.0 DOLLARS.
2. WHILE IT IS TRUE THAT THE INTENT AND OBJECTIVE OF SUPPLY/22 IS TO PROVIDE TECHNICAL ASSISTANCE TO THE GOVERNMENT OF CAMBODIA IN THE CRITICAL SHORTAGE OF CIVIL SERVICE TYPE PERSONNEL (MIDDLE AND HIGHER LEVEL) AND IN BOTH TECHNICAL AND GENERAL MANAGEMENT AREAS, THE SUBJECT SHOULD FOCUS MORE ON PROVIDING OPERATIONAL CIVIL SERVICE TYPE TECHNICAL ASSISTANCE THAT WILL SERVE AS A SUPPORTING INPUT TO THESE INSTITUTIONS IN AN ATTEMPT TO STRENGTHEN THE GENERAL ADMINISTRATION OF GOC'S INCIPIENT AGRICULTURAL INSTITUTIONS.
3. TECHNICAL ASSISTANCE SHOULD COVER FIELDS FOR TECHNICAL ASSISTANCE, PARTICIPANT TRAINING, SOME COMMODITIES FOR TECHNICAL ASSISTANCE (BUT NOT FOR LABORATORY EQUIPMENT). THAT THE SHOULD RELATED TO THE GOVERNMENT OF CAMBODIA TO SUPPORT THE GOVERNMENT OF CAMBODIA IN THE CRITICAL SHORTAGE OF CIVIL SERVICE TYPE PERSONNEL (MIDDLE AND HIGHER LEVEL) AND IN BOTH TECHNICAL AND GENERAL MANAGEMENT AREAS. THE SUBJECT SHOULD FOCUS MORE ON PROVIDING OPERATIONAL CIVIL SERVICE TYPE TECHNICAL ASSISTANCE THAT WILL SERVE AS A SUPPORTING INPUT TO THESE INSTITUTIONS IN AN ATTEMPT TO STRENGTHEN THE GENERAL ADMINISTRATION OF GOC'S INCIPIENT AGRICULTURAL INSTITUTIONS. WHILE REALIZING THAT THIS IS A LONG TERM APPROACH CONTRARY TO TOTAL REFORM, AID/22 HOWEVER BELIEVES THAT THIS MORE STABLE APPROACH WILL ALLOW THE GOV TOWARDS TO MOVE WITHIN THE FRAME OF INSTITUTIONAL STRUCTURE THEREBY FITTING CRITERIA OF TRAINING TO BE EFFECTIVELY APPLIED.
4. WHILE REALIZING THAT THIS IS A LONG TERM APPROACH CONTRARY TO TOTAL REFORM, AID/22 HOWEVER BELIEVES THAT THIS MORE STABLE APPROACH WILL ALLOW THE GOV TOWARDS TO MOVE WITHIN THE FRAME OF INSTITUTIONAL STRUCTURE THEREBY FITTING CRITERIA OF TRAINING TO BE EFFECTIVELY APPLIED.

BEST AVAILABLE COPY

~~OF SMALL NUMBER OF POTENTIAL STUDENTS/GRADUATES. IT AID/  
V BELIEF THAT WE SHOULD NOT GET INVOLVED IN ACTIVITIES  
OF THIS NATURE AT THIS TIME, BUT RATHER SHOULD CONCENTRATE  
ON IN-HOUSE TRAINING AND TRAINING THAT CAN BE PROVIDED AT  
EXISTING AMERICAN OR AFRICAN INSTITUTIONS.~~

6. REPTEL RECEIVED AID/W AFTER COPR MEETING. DUE TO DE-  
CISION REACHED AT THIS REVIEW, DO NOT BELIEVE THAT A STRONG  
CASE EXISTS FOR FUNDING SEED MULTIPLICATION PROPOSAL BEYOND  
FINANCING OF MANPOWER TRAINING. REPTEL WILL ADVISORIC  
STEPS RE SEED MULTIPLICATION PROPOSAL. SPECIFIC COMMENTS  
TO BE CONSIDERED IN PP AS FOLLOWS:

(A) THE ROLE OF U.S. TECHNICAL ASSISTANCE IS NOT CLEAR.  
I.E. IS THIS ASSISTANCE INTENDED TO TRAIN GOC OFFICIALS  
TO PERFORM SPECIFIC TASKS OR IS THE INTENT THAT THIS ASSIS-  
TANCE WILL BE PROVIDED TO HELP IN THE SELF-TRAINING OF IN-  
ADEQUATELY TRAINED GOC OFFICIALS. RATIONALE FOR REQUEST  
OF U.S. TECHNICIAN INPUT IS NOT CLEAR. IS IT APPARENT  
HOW THEY WILL DEAL WITH GOC/TINR WORK ACTIVITIES TO, IN  
FACT, STRENGTHEN THE INSTITUTIONAL WORK. IT IS NOT  
OUT THAT WE ARE WORKING IN A VACUUM IN THAT THERE IS NO  
KNOWLEDGE OF THE NUMBER OF CHAIRS AVAILABLE AND IN NEED  
OF TRAINING FOR THE FIELD IN WHICH THE TRAINING IS  
NEEDED. IN THIS CONNECTION IT NOTED THAT A SURVEY MUST  
BE TAKEN PRIOR TO THE COMPLETION OF THE  
FINALIZATION.

(B) THE ECONOMIC FEASIBILITY OF EXISTING PARALLEL LEARN-  
ING UNITS SEPARATELY WAS QUESTIONED. ALTHOUGH IT WAS  
ACKNOWLEDGED THAT THE LEVERAGE REQUIRED TO ACTIVATE THE  
INDUSTRIAL RESTRUCTURING WAS PROBABLY NOT AVAILABLE IN  
THIS PROJECT, IT WAS FELT THAT THE GOALS WOULD BE  
ATTEMPT TO ENCOURAGE A REALIGNMENT OF GOC'S AGRICULTURAL  
MANAGEMENT STRUCTURE TO INCLUDE BOTH DAY AND NITE  
AGRICULTURAL MANAGEMENT UNDER ONE ROOF.

(C) LONG TERM TRAINING - THE LEVEL OF TRAINING PROVIDED  
FOR SOME OF THE TRAINING REQUESTS REQUIRES TWO YEARS  
(M.SC) WHEREAS THE PROPOSAL (P. 4 OF THE LONG RANGE PLAN)  
PROVISION FOR ONLY ONE YEAR. CONSIDERING THE PRESENT  
FUNDING LEVEL, THE NUMBER OF PEOPLE WHO WILL BE RECEIVING  
TRAINING WILL HAVE TO BE REDUCED.

(D) RECURRING EXPENDITURES - THE AVAILABILITY OF THE GOVT  
GOVERNMENT TO MEET ITS RECURRING EXPENDITURES ON SALARIES OF  
EMPLOYEES AWAY IN TRAINING, ALLOCATION OF TRAINED MANPOWER  
DURING AND AFTER THE PROJECT WAS RAISED. THE PP TEAM  
SHOULD ESTIMATE THE INCREASE IN GOC OPERATING EXPENSE AC-  
RESULTING FROM THE SUCCESS OF THE PROJECT AND SHOULD PROJECT  
THE AVAILABILITY AND SOURCE OF FUNDING FOR SUCH TRAINING IN-  
CREASE COSTS.

(E) ROLE OF WOMEN - IT WAS NOTED THAT THE PROPOSAL  
OF THE ROLE OF WOMEN IN THE PROJECT WAS NOT CLEARLY  
SHOULD INVESTIGATE THE POSSIBLE CONTRIBUTION OF WOMEN  
PROPOSAL.

(F) CONCLUSION - IT WAS CONCLUDED THAT THE PROPOSAL  
LEVEL OF THE GOC...  
SHOULD...  
ABILITY OF GOC...  
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DONORS WITH AID IN TAKING ITS TRAINING COMPO AND OTHER  
DONORS FINANCING THE COMMODITIES FROM UNAUTHORIZED SOUR-  
CES.

(G) OBLIGATIONS/EXPENDITURES:

(A) BLOCK 8 OF THE FACESHEET SHOWS FY 77 AS THE INITIAL  
YEAR OF OBLIGATION AND FY 81 AS THE FINAL YEAR. GIVEN  
FACT OF CURRENT FIVE YEAR LIMITATION ON COMPLETION OF  
PROJECT, BELIEVE FIELD INTENDED FISCAL YEAR OF OBLIGATION  
AS FY 80 INSTEAD OF FY 81. THE TEAM SHOULD ASCERTAIN  
WHETHER THIS ASSUMPTION TRUE AND SHOULD DETERMINE WHETHER  
PROJECT CAN BE COMPLETED (COST OF GOODS AND SERVICES DE-  
LIVERED) WITHIN FIVE YEARS OF EXECUTION OF PROJECT.  
AGREEMENT AS REQUIRED IN APPENDIX B OF USAID BLOCK 8. IF  
NOT, IT WILL BE NECESSARY TO GET THE APPROVAL OF THE  
ADMINISTRATOR FOR THE EXTENDED PROJECT PERIOD. M.L. INGEL

BT  
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## Cost Factors

Technical Assistance

Long term -	\$ 80,000	per man year
Short term -	\$ 9,000	per man year

Training

U.S. degree training

Travel -	\$ 1,200	one way
Clothing Allowance -	\$ 300	
Other Costs -	\$ 10,600	per man year

Third Country (Africa) - \$ 5,000 per man year

Commodities

## Vehicles

Land Rover -	\$ 10,000
Peugeot 404 -	\$ 7,500
Super Galion -	\$ 10,000
Renault 3-5 T -	\$ 12,400
Renault R-4 L -	\$ 4,600

Other Costs

Local travel	-	\$2,500 per person
Vehicle fuel	-	\$5,000 per year
Vehicle maintenance	-	\$1,000 first year
	-	\$2,000 thereafter
Tires	-	\$ 500 per year

List of Commodities (Planning Component)

1. <u>Vehicles</u>	\$ <u>Cost</u>
Two Peugeot 304	12.000
Two Landrovers	20.000
One Peugeot Pick-up	7.500
Spare parts	8.000
2. <u>Office Equipment</u>	
Five desks, standard	3.000
One sec. desk	400
Ten file cabinets	5.000
One drafting table	1.000
Four typewriters	2.400
Ten pocket calculators	500
One mimio-graph machine	1.500
Two calculators (printing)	1.000
Five air conditioners	3.000
One micro film projector	1.000
One photo copy machine	2.000
	\$ 20.810

## List of Commodities

National Office of Rural Development  
(O.N.D.R.)Transportation

Land Rovers to be purchased for: \$ 80,000  
 U.S. Technical Assistant Extension Agronomist (1)  
 Rural Development Office (1)  
 Sector Chiefs in the Sahel

Batha (1) Kanem (1)  
 Chari Baguirmi (1) Ouaddi (1)  
 Guera (1) Salamat (1)

Vehicle - Audio-Visual Aid \$ 25,000

Land Rover equipped with portable generator, slide projector, movie projector, sound system, screens, lights, table, sleeping equipment, portable chairs, exhibit boards and portable kitchen set.

Horses 87 \$ 25,000  
 To be purchased for use of newly added extension workers in the Sahel working with farmers.

Bicycles - 174 \$ 20,900  
 To be purchased for use of newly added extension workers in the Sahel working with farmers.

Audio-Visual Aids \$ 20,000

2- Movie Projectors (16mm)  
 4- Slide Projectors  
 2- Overhead Projectors  
 2- Portable Sound Systems  
 1- Movie Camera with sound  
 5- 35 mm Camera  
 2- Portable Tape Record  
 8- Projection Screens

List of Commodities  
Agricultural Education

Transportation

Landrovers for:		\$30,000
Sahr, CFTA (1)	:	
Ba-Illi, CETA (1)	: for faculty use	
Dougui, CFCPA (1)	:	
Super Gallions		\$30,000
Sahr, CFTA (1)	:	
Ba-Illi, CETA (1)	: for students trips	
University (1)	:	
Renault 4-L		\$13,800
Sahr, CFTA (1)	:	
Ba-Illi, CETA (1)	: for farm Directors	
Dougui, CFCPA (1)	:	
Renault 3-5 T		\$12,400
Dougui, CFCPA	: for farm use	

Laboratory Equipment

University Soils Lab.	\$100,000
1 - Flamephotometer	
1 - Colormeter	
1 - PH meter with spare glass and electrodes	
1 - Solubridge with spare electrodes	
1 - Water distillation unit	
1 - Analytical balance	
3 - Semi-micro balances	
1 - Technical balance	
1 - Incubator	
3 - Air Conditioners	
20- Sets of glassware, Chemicals and individual station equipment	
1 - Transformer	
1 - Voltage regulator	

University General Laboratory	\$50,000
5 - Microscopes	
1 - Autoclave	
1 - Growth Chamber	
1 - Incubator	
2 - Technical Scales	
2 - Analytical Scales	
200- Test Tubes	
100- Petri Dishes	
5 - Plantinum Loops	
20 - Sets of glassware, chemicals and individual station equipment	
CFTA - Sahr	\$60,000
1 - Autoclave	
5 - Microscopes	
1 - Technical Scale	
1 - Analytical Scale	
30 - Student Stations - glassware, burners, laboratory equipment	
500- Test Tubes	
- Chemicals	
CETA - BA-Illi	\$40,000
1 - Autoclave	
10 - Microscopes	
1 - Technical Scale	
1 - Analytical Scale	
<u>Library Development</u>	
University	\$100,000
8,000 books	
Shelving	
CFTA - Sahr	\$30,000
2,500 books	
CETA - Ba-Illi	\$15,000
1,200 books	
CFCPA - Dougui	\$5,000
500 books	
CFCPA - Tikem	\$5,000
500 books	

Instruction Equipment

CFTA - Sahr	\$5,000
2 - Typewriters	
1 - Duplicating Machine	
1 - Photocopy Machine	
1 - Calculator	
1 - Overhead Projector	
1 - Transparency Machine	
1 - Film Projector (16mm)	
CETA - Ba-Illi	\$5,000
2 - Typewriters	
1 - Duplicating Machine	
1 - Photocopy Machine	
1 - Calculator	
1 - Overhead Projector	
1 - Transparency Machine	
1 - Film Projector (16mm)	
2 - Projection Screens	
CFCPA - Tikem	\$3,000
1 - Overhead Projector	
1 - Transparency Machine	
1 - Film Projector (16mm)	
1 - Slide Projector	
2 - Projection Screens	
CFCPA - Dougui	\$3,000
1 - Overhead Projector	
1 - Transparency Machine	
1 - Film Projector (16mm)	
1 - Slide Projector	
2 - Projection Screens	

Farm Development

University	\$30,000
1 - Open Air Wire-Mesh Green House	
1 - Small Tractor	
1 - Irrigation System	
1 - Storage Building	
- Tools	
- Land Development - Drainage	

CETA - Ba-Illi	\$50,000
1 - Ground Silo	
1 - Barn	
1 - Irrigation System	
1 - Small Tractor	
1 - Truck	
Land Clearing	
Fencing	
Drainage and Water Control	

CFCPA - Dougui	\$15,000
1 - Barn	
20 - Head of Workstock	
- Plows	
- Hand tools	

Building Equipment

CFCPA - Dougui	\$61,000
6 - sets office furniture	
1 - classroom for 30 students	
1 - laboratory for 30 students	
1 - kitchen	
1 - dining area	
8 - student rooms furnished	
1 - workshop equipped	
1 - warehouse equipped	
1 - water well pump	
1 - recreation area furnished.	

List of Laboratory Equipment and Supplies

## Agric. Research Division

## 1. Instruments and Equipment to be purchased during FY 77-82

1 flame photometer  
 1 pH meter with spare glass and calomel electrodes  
 1 solubridge with spare electrodes  
 1 oven, drying at 110 C thermostically controlled  
 2 tripple beam or similar balances  
 1 soil physical measurements apparatus  
 1 water distilation unit  
 1 Colormeter  
 1 Kjeldahl complete  
 2 Analytical balances

1 Muffle furnace  
 1 Digestion apparatus  
 1 Semi-micro balance

<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>
\$35,000	\$55,000	\$17,000	\$2,000	\$2,000

## 2. Glassware

Various flasks, funnels, cylinders, tubing, solution bottles, burettes, pipettes, etc.

<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>
\$3,000	\$6,000	\$3,000	\$1,000	\$3,000

## 3. Chemicals

<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>
\$5,000	\$8,000	\$3,000	\$1,000	\$3,000

## 4. Other essential laboratory tools, small equipment, 1 refrigerator, 4 air conditioners, rubberstoppers, rubber tubings, transformers, voltage regulators, etc.

<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>
\$7,000	\$11,000	\$2,000	\$1,000	\$2,000

List of Commodities

## Agricultural Statistics and Research Divisions

Office Furniture and Equipment to be provided for the Agric. Research (DAS) and Statistics (ASD) Divisions.

Additional requirements will be covered by other donor assistance.

DAS

Furniture for 6 offices : - one set consisting of 1 desk, 1 desk chair, 1 book case, 1 filing cabinet, 1 small table, 4 chairs.  
8 Air conditioners, 4 typewriters, 1 calculating machine, 12 pocket computers.

<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>
\$ 7,200	\$ 16,800	\$ 400	---	---

ASD

Furniture for 3 offices : - sets as detailed above 3 Air conditioners, 2 typewriters, 1 duplicating machine, 1 photocopying machine.

<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>
\$ 7,100	\$ 4,600	---	---	---

Annex B-6Organization and History of the Ministry of Agriculture (MOA)

The Ministry of Agriculture was established in the mid 1920's under a French commissioner to introduce cotton cultivation to the area. Since 1960, the year of independence, the Ministry has undergone many changes but still maintains the original European structure.

It consists of six Directorates, the largest of which is for Agriculture and includes the research, extension and statistics units. The Directorates are under a Director General who reports to the Minister. Assisting the minister is a Secretary of State for Agriculture. Each of the top two positions have a separate staff or "cabinet". The permanent technical head of the MOA is the Director General who usually keeps his post when the ministers change. The Minister, assisted by the Secretary of State for Agriculture, is the top administrator and policy maker who is directly responsible to the Chief of State.

In 1970 the Directorates of Rural Engineering, Natural Calamities, National Meteorology, Land Management and Habitat & Environment were separated from MOA and placed under the newly created Ministry of Land Management.

This organizational change proved unsuitable as it resulted in duplication of efforts and coordination problems between the two ministries, their respective sub-units and semi-independent agencies. After four unsuccessful years, in August 1976, a special GOC decree ordered the reunification of the two ministries and the formation of one administrative unit called the "Ministry for the Development of Agriculture, Animal Production and Disaster Relief".

Since the military coup of April 13, 1975, CHAD has been ruled by a Military Council which controls all ministries. The present Minister of Agriculture is Commandant ROASNAGAR, assisted by Mr. ALLAHOU TAHER, the Secretary of State for Agriculture.

In addition to the supervision of the six Directorates of the MOA, the minister serves as board chairman to six semi-autonomous agencies which are concerned with agricultural and livestock production, marketing of produce and rural development. The governing boards of these agencies are composed of the agency director and various representatives of other institutions such as Finance, Economics, Planning and Commerce.

The Directorates within the MOA consist of:

1. The Directorate of Agriculture - Responsible for Crop Production; Agricultural Research and Agricultural Statistics
2. The Livestock Directorate - Responsible for animal husbandry, cattle production, small ruminants and poultry, animal health and veterinary services, range management and livestock statistics.
3. The Rural Engineering Directorate - Responsible for building, construction & restoration, irrigation construction & programs, well drilling, land surveying and mapping.
4. The Directorate of Education and Professional Agricultural Development Responsible for teaching programs and the supervision of the secondary schools at Ba-Illi and Sarh and of the extension training center at Tikam.
5. The Disaster Relief Directorate - Responsible for the mobilization of internal and external relief resources, preparation and management of relief projects and programs, and leadership in the national committee for disaster relief.
6. National Meteorology Directorate - Responsible for climatological observations, registration and interpretation of meteorological data and weather forecasting.

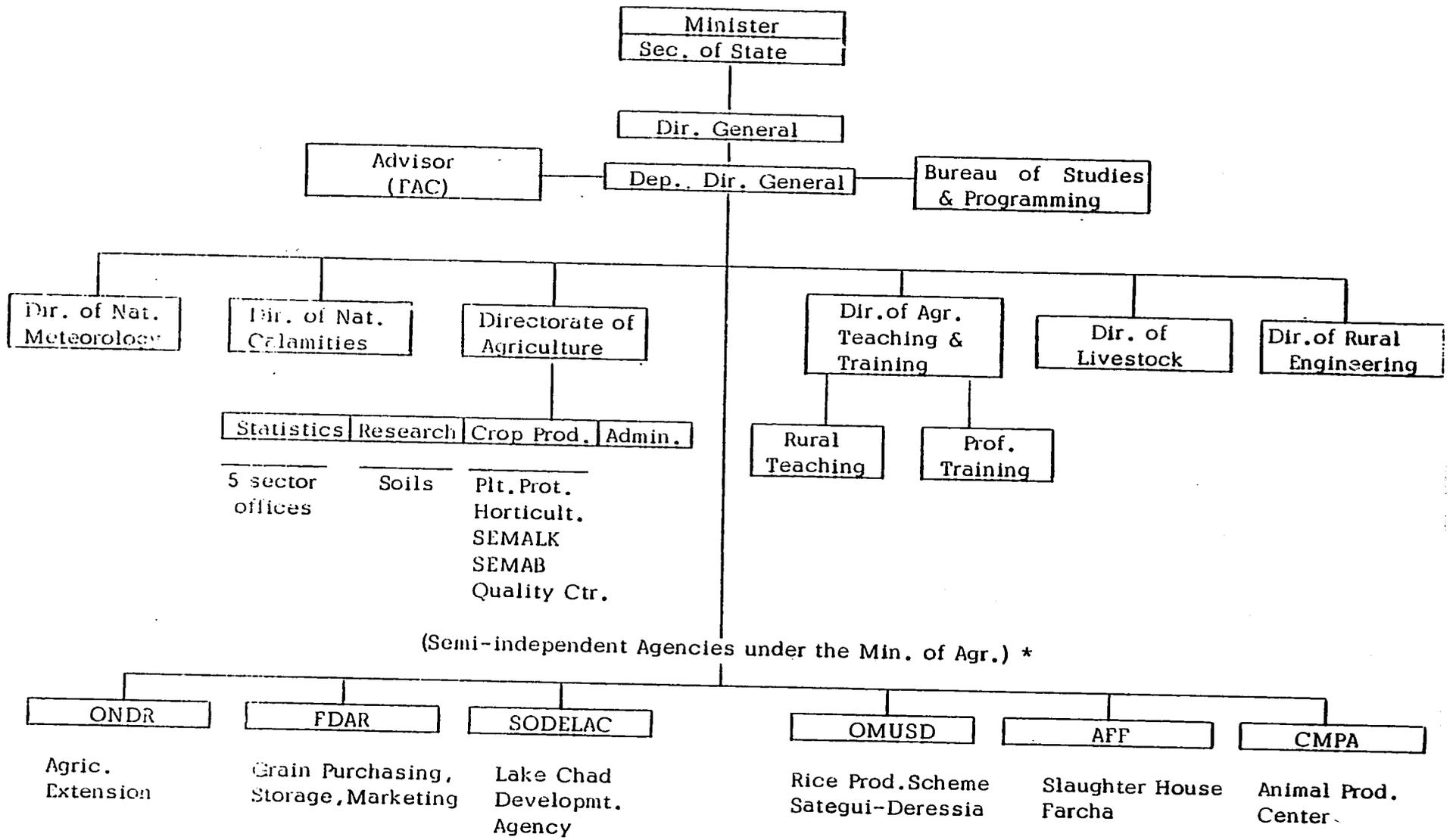
The additional six semi-independent agencies under the jurisdiction of MOA are:

- AFF (Abattoir Frigorifique FARCHA) - National Slaughterhouse Agency responsible for the slaughter of cattle and small ruminants, processing and cold storage of meat.
- CMFA (Centre de Modernisation de la Production Animale) - responsible for the improvement of animal production, primarily dairy and poultry, and the operation of a feed mill.
- FDAR (Fond de Developpement et d'Action Rurale) - responsible for the marketing of cereals and grain legumes, including purchasing, transportation, storage, processing (rice only) distribution and price stabilization.
- OMVSD (Office de Mise en Valeur de SATEGUI-DERESSIA) - responsible for the development of the rice production scheme at SATEGUI-DERESSIA.

ONDR (Office Nationale de Developpement Rurale) - the extension organization of MOA responsible for all GOC field extension activities affecting farmers. ONDR also provides agents for the gathering of statistics and the distribution of input commodities (primarily for cotton).

SODELAC (Societe de Developpement du Lac Tchad) - development and extension agency for the Lake Chad Prefecture responsible for all agricultural and livestock production and development activities in the area particularly in the polder district.

The following organization chart describes the MOA structure as of March, 1977.



**FIGURE II.**

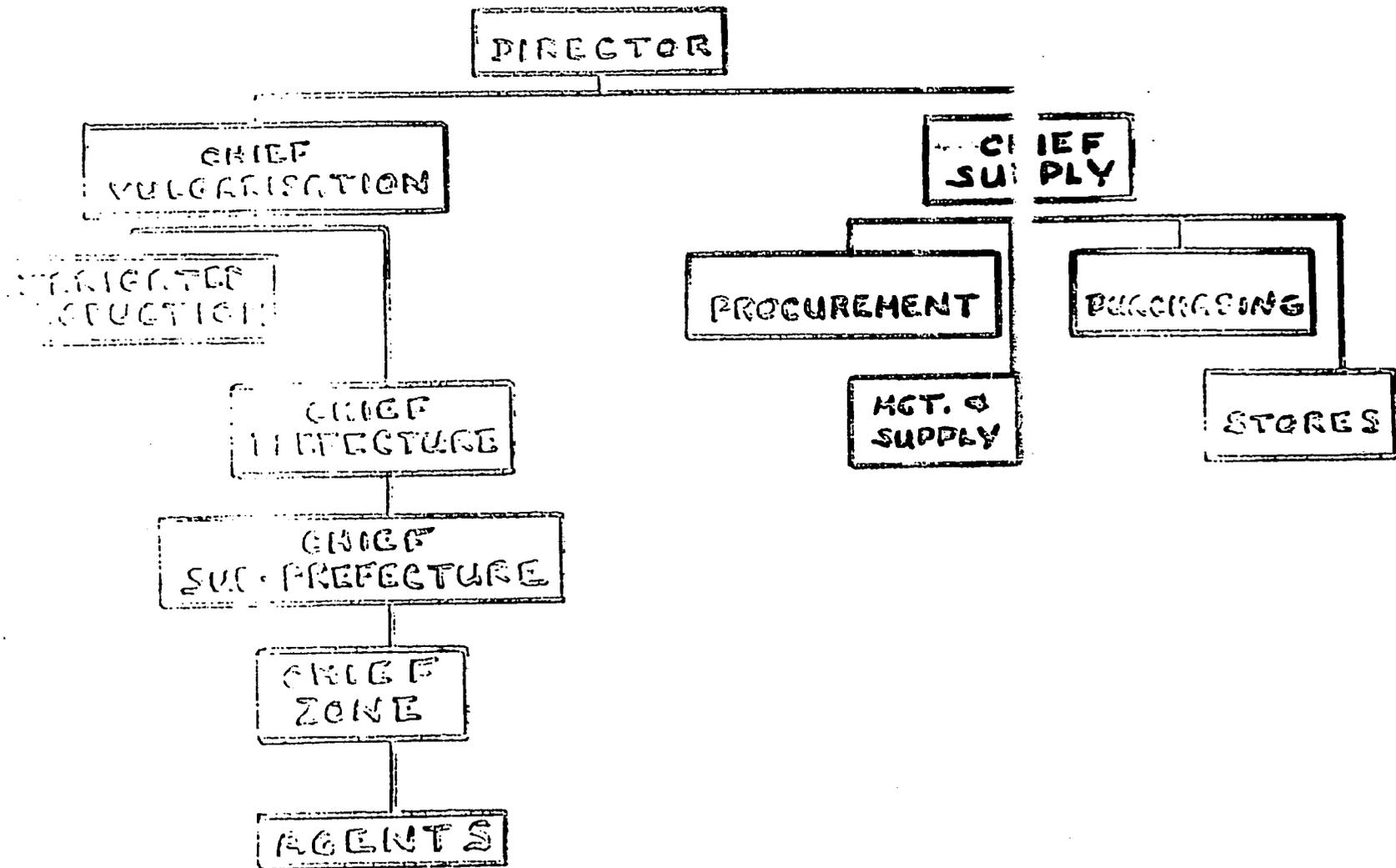
\* The Minister of Agric. sits on each board as chairman, but Agencies have personnel policies independent from the MOA.

RURAL DEVELOPMENT - EXTENSIONNATIONAL OFFICE FOR RURAL DEVELOPMENT

Rural development-extension functions are performed by the Office National de Developpement Rural, (ONDR) a semi-autonomous agency of the Ministry of Agriculture. Its principal mission is to reach the approximately 3.6 million rural Chadians with a viable program aimed at improving food production and agricultural productivity. Since 90 per cent of the population is engaged in agriculture, and the average size of farm is in the range of two hectares or less, ONDR's basic responsibility is effecting change in a peasant agricultural economy where practically all of the farmers are functionally illiterate, since less than five per cent are deemed to be functionally literate.

In terms of organization, ONDR is headed by a Director (Figure 12). Under him is a chief of vulgarisation, the name accorded the extension function in francophone countries. He has the responsibility for the field operation, including offices in each of the country's fifteen prefectures. Due to the density of the population and the nature of the agricultural economy, there is a decided difference in the number of field extension workers per prefecture (Figure 13). The country is divided roughly into two major areas: the southwest where the heaviest population concentration is found and where the principal export crop, cotton, is grown; and the Sahelian area, encompassing most of the country's land area, but sparsely populated. Livestock is the principal producer of agricultural income in the Sahelian area, much of it a shifting type, with nomadic herders moving their stock in search of forage. In all areas of the country, home food production in the form of millet, sorghum and peanuts is a basic necessity.

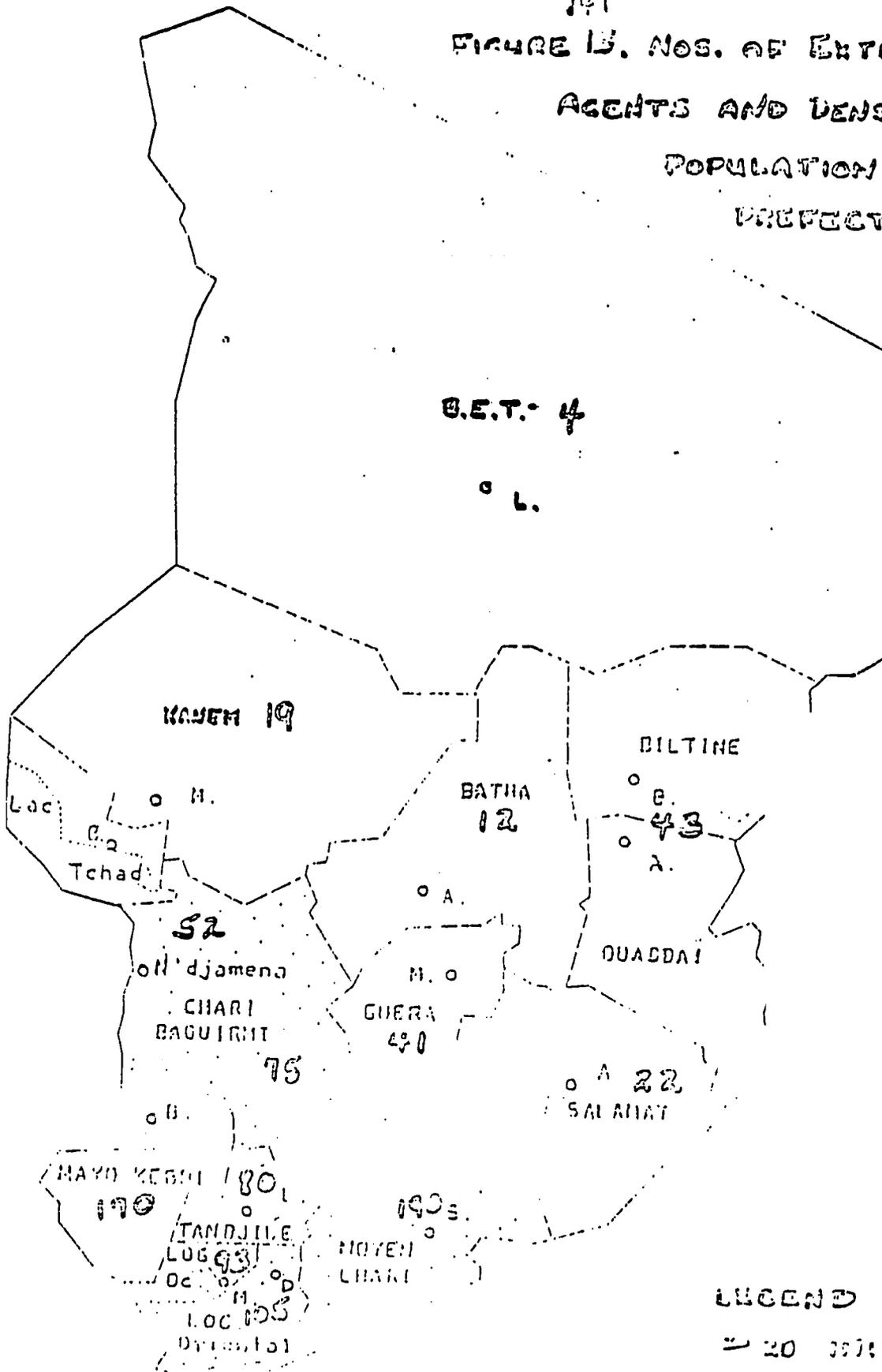
Personnel-wise, ONDR has a fairly large number of extension workers. The levels within the organization, ranging from the village all the way up to the national, are closely tied to the function and training of the staff (Figure 14). The bulk of staff at the village and zone level, where the basic contact takes place with the villager, is composed of 831 persons whose basic training in agricultural is at a rather low level of capability where skills primarily are the principal forte (Table I). These people are not capable of developing programs to any great extent. Program packages must be designed for them at a higher level and training given to the lower levels to carry out the program.



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FIGURE 12. ORGANIZATION OF ONDR (ORG. NAT. DE DEVELOPPEMENT RURAL)

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**FIGURE 13. NOS. OF EXTENSION  
 AGENTS AND DENSITY OF  
 POPULATION BY  
 PREFECTURE 1975-7**



**LEGEND**

20	10-20	5-10
10-20	5-10	
5-10		

LEVEL	TITLE	EDUCATION	DEG., DIPL. OR CERT.	U.S. EQUIVALENT	FUNCTIONS
NATIONAL	DIRECTOR CHIEF	6 YEARS OF UNIVERSITY 13 YEARS PRIOR	INGENEUR AGRONOME	MASTER'S	POLICY PROGRAMMING MANAGEMENT
NATIONAL	ASST. CHIEF	3 YEARS OF UNIVERSITY 13 YEARS PRIOR	INGENEUR DE TRAVAUX AGRICOLE	3 YEARS OF UNIVERSITY	ASSIST IN PROGRAMMING AND MANAGEMENT
PREFECTURE	CHIEF				ADMINISTRATION AND PROGRAMMING AT PREFECTURE LEVEL
PREFECTURE	ASST. CHIEF	3 YEARS IN LYCEE - AGRIC.	CONDUCTEUR DE TRAVAUX AGRICOLE	VOCATIONAL HIGH SCHOOL	ASSISTS AT PREFECTURE LEVEL
SUB-PREFECTURE	CHIEF	10 YEARS PRIOR			SUPERVISION OF TEAMS OF EXTENSION WORKERS
SUB-PREFECTURE	ASST. CHIEF	4 YEARS IN AGRIC. COLLEGE	AGENT DE TECHNIQUE AGRICOLE	VOCATIONAL JUNIOR HIGH	ASSISTS AT SUB-PREFECTURE LEVEL
ZONE	ZONE CHIEF - MONITEUR	6 YEARS - PRIOR			LEADS VILLAGE LEVEL WORKERS IN CONDUCTING EXTENSION PROGRAMS
VILLAGE	ENCADEUR DE BASE	1 YEAR IN AGRIC. SCHOOL. 6 YEARS PRIOR	ENCADEUR DE BASE	ELEMENTARY PLUS 1 YR. VOCATIONAL	WORKS WITH FARMERS
VILLAGE	SURVEILLANT	NONE	NONE	NONE	WORKS WITH FARMERS

FIGURE 14. PERSONNEL ARRAYED BY LEVEL OF OPERATION, EDUCATION AND FUNCTION IN ONDR.

In the cotton zone, extension programs have been aimed almost exclusively at cotton. The field workers have emphasized such items as seed selection, preparation of seed bed, use and care of draught animals and cleaning out and burning of old cotton plants. In the Sahelian area, on the other hand, great emphasis was placed on food crop production, principally the protection of crops against pests. Programs in the Sahelian zone were hampered greatly by two basic problems: 1) a lack of trained people - most of the extension workers were old, illiterate localites, and 2) a lack of resources, transport particularly. As a result, programs were largely ineffective.

Table I

Numbers of Field Personnel in ONDR by categories and areas of assignment, 1975-76

Category	Area of Assignment		
	Cotton	Sahelian	Total
Prefecture Chiefs	8	2	10
Prefecture Assistants	12	—	12
Sub-Prefecture Chiefs	52	57	109
Zone Chiefs-moniteur	254	24	278
Encadears de Base	392	403	403
Surveillants	—	150	150
Support Personnel	122	41	163
<b>Total:</b>	<b>840</b>	<b>238</b>	<b>1078</b>

#### Extension Training

The training of extension workers is a function of DEFFA, mentioned earlier in connection with the agricultural schools. It is one of the three functions of that division as one of the principal units in the Ministry of Agriculture. Training has taken two forms. One is concerned with the in-service training of ONDR personnel, while the other focuses on the development of farm families through the Centres de Formation Professionnelle Agricole (CFPA). The CFPA's have been supported basically by grant moneys from a number of European donors.

The training of ONDR field personnel has been principally the responsibility of a French expatriate and his counterpart. Activities have been conducted primarily with the Prefecture chiefs and assistant chiefs and with sub-prefecture chiefs. During the past year in the south, week-long sessions were held with groups of sub-prefecture chiefs in four different sessions with a total attendance of 48. The principal subjects involved review of the previous year's campaign, new orientations for the upcoming year, discussions of keys to extension work, and details about administration and budgets. The trainers also visited prefecture chiefs on their rounds, holding week-long sessions with small groups of these people. Three major themes were predominant: problems in administration and management, reviews of past campaigns, and campaigns for the ensuing year. The lower level field workers, the zone chiefs and the village extension workers, then received instructions and presumably some training from the upper echelons for the upcoming year.

In the northern areas, a session of from 7 - 10 days was held at six locations with a total attendance of 110 field workers. Involved were various levels of workers. Such topics were discussed as: peasant psychology, agricultural extension, soil conservation, development ideas, techniques of gathering information, rural economics, and problems of administration, planning, coordination and training of personnel. The reports indicated that the wide differences in the background of personnel made training very difficult.

#### Centers for Farmer Training

The CFPA program has basically involved groups of husband and wife teams who agree to live and work under tutelage in a center. Each is given a plot of ground, workstock, seeds, and a house. During the two years they develop a home and a farm unit under supervised instruction programs and share in the fruits of their labor. At the end of two years, they return to their home villages with their workstock and supply of seeds and purportedly serve as a model to other families. This program has been going on for several years now. The 1974 - 75 report of DEPA lists 35 centers in nine prefectures, all supported by foreign donors. Later data, as shown in Figure , lists 20 centers now open, and a number closed because of withdrawn support. Admittedly a very expensive method, it does have the very definite advantage of a very intensive learning experience which could result in a permanent behavioral change being introduced into the home village of the participants. Only time can measure its worthiness since it is yet too early to pinpoint with precision the spread of the lessons learned among the villagers. There is no doubt that trained, indigeneous leaders can have tremendous influence. Since the trainees were basically young, and

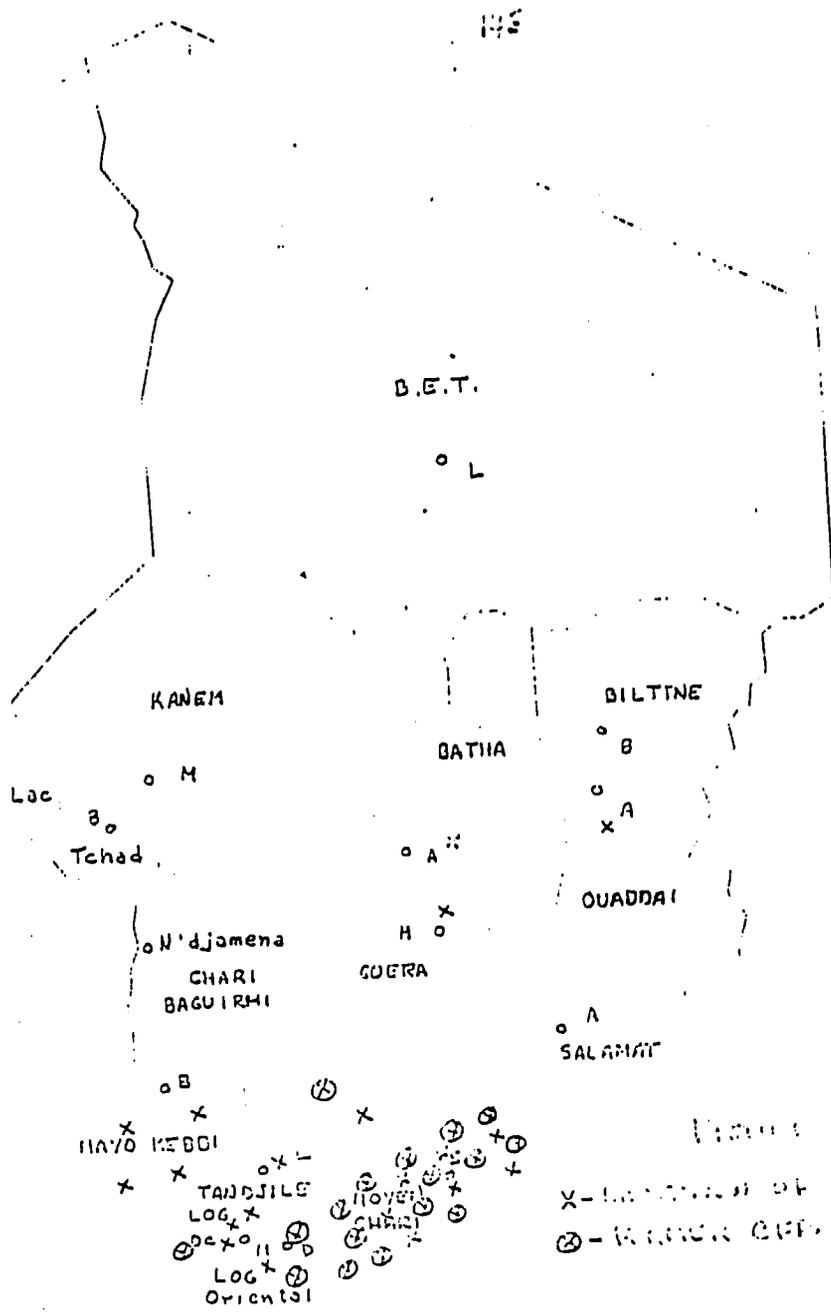


Figure 15.

X - Locations of SPANA.  
 X - French bases

since traditional leaders are normally older, it will be interesting to note the results five years from now. In the meantime, there are indications of resistance to the participants when they return to their village. One source reports they are treated as strangers after a two year absence.

In the Moundou area, a novel approach is being tried. Instead of removing the potential trainee from his environment, he remains in the village and works under close supervision of the CFPA staff. In addition, a village committee is formed to support the work, eliciting problems and suggestions from them. Periodic training sessions are held at the CFPA centers where participating farmers are brought together for several days of specialized group training and to exchange ideas.

The Swiss regional supervisor reports that it is a very difficult process to make work. It is still early to make an appraisal in his estimation, but it will bear further scrutiny.

### The Extension Process

Analyzing Chad's needs for extension work is largely at a fundamental level. Programs are in their infancy, the population is basically illiterate, and applied agriculture technology to serve Chad's needs is in an early stage of development. It is mandatory, therefore, that the essentials become a focus for evaluating the kinds of assistance necessary to improve the institutional capability of ONDR to perform its mission adequately. These fundamentals are schematically presented in Figure 15. Starting from the bottom of the scheme, the farmer needs a simple conceptual framework of modern agriculture as the basis for his actions. Such basics are needed as knowledge of what an improved variety is, what is good quality seed, proper cultural techniques, plant protection, etc. This then makes him responsive to specific improved practices, being espoused by the extension workers. The response of his neighbour also has an effect, since mutually supportive responses aid greatly in acceptance. By far the biggest single question in the peasant farmer's mind in response to the use of a different technology is risk. He knows that if a mistake is made by changing, the whole livelihood of his family is jeopardized, and could well be fatal.

The agent is the focal point in the entire process, consequently. He is the person on the firing line who encounters the farmer. The success of such meetings must prove fruitful. He must be recognized as a valid source of information, and what is more, the information must work in the farmer's situation. The new idea must be as proven and risk-free as possible to the farmer, and the more local the proof the better. The quality of the relationship and the degree of acceptance of the agent by the farmer, therefore, become basic ingredients. As a consequence, the agent must reach the farmer periodically at strategic times in the agricultural cycle to present information to him and to help him understand and use it properly. If the farmer misuses the practice, this can be a serious setback in the change process. The degree of capability the agent has in teaching the farmer effectively is therefore fundamental. On the other hand, the farmer must react, he must change his behaviour, either through changes in his conceptual image of agriculture or through overt action on his part, or both, hopefully. If change does not come about, then the entire relationship and the process should be reviewed. The key, therefore, to this relationship is a knowledgeable extension worker who knows what he is aiming at and who knows how to get there.

He must be competent in the technology he is to transmit, he must be able to do it himself, and he must know how to present this technology effectively to peasant farmers. In this early stage of the development of ONDR in Chad, it is highly doubtful that this stage has been reached. Only through intensive training and supervised experience can this stage be reached with workers at their level of education.

At the upper echelons of the extension structure, the hierarchy exists basically to develop programs and devise strategies to achieve programs. Operating at a fundamental level as in Chad, and with a field staff of very limited levels of training, the delineation of objectives, the establishment of priorities, the preparation of basic program packages (e.g. a program to increase yields of sorghum), and the devising of appropriate strategies should begin at the national level. A qualified, capable staff of professionals, both in technical subject-matter and in educational-social science strategy, is a fundamental necessity. This staff has not only the mission of developing the materials but to supervise and train the field staff in the understanding and use of the packages. This is not to say, however, that the agent-level person is completely devoid of the ability to evaluate what is happening at his level. They do contact the peasant farmer first-hand and should be able to report the reactions of farmers, the problems of implementing new technology, and the problems experienced for which answers are not known.

Consequently, needs and problems as they observe them must find their way upwards in the structure to the national level for the administration to react to them. If the structure does not perform this important communication function properly with valid and reliable information, then serious problems can result. Administrators who are not aware of reality as it exists in the field are at a very fundamental disadvantage. Too often, unfortunately, field level people report to administration only what they feel management wants to hear.

An extension-agricultural education operation which does not maintain regular, meaningful contact with the knowledge-generating centers, particularly those in applied research areas, severely limits its capabilities and usefulness. Extension exists, basically, as a knowledge transmitting agency, and it cannot transmit much, if it lacks a basic knowledge component which is continuously being revitalized by research results and new ideas. Extension, therefore, must maintain a close, coordinative link to information, and it must also continuously make knowledge generating centers aware of the needs and problems as they

exist under field conditions. It must report the problems for which no solutions exist and demand answers, and it must also report the successes and problems with last year's answers and recommendations. Two of the basic questions about ONDR in Chad rest, first of all, with the knowledge-generating capacity of the research institutions at the applied level, and secondly with the organizational linkages of ONDR to research centers.

Knowledge centers also need links to the field level, not necessarily operating through or constrained by the hierarchy of the extension organization. Certain kinds of data are needed for investigations of many kinds, not only for research activities but for planning purposes. The extension agent can serve as a collecting point for responses or data as the need arises. Statistical data about local conditions are a good case in point. It is only through bench-mark data, taken at various points in time, that change can be documented. This is a vital ingredient often missing in developing countries, either because evaluative data is missing or because data which do not show that everything is going as planned are hidden away and not used.

Knowledge and extension-education centers co-exist in mutual support. Both have the same general mission of achieving national goals and objectives. Neither exists in a vacuum. Each must contribute as an institution to the achievement of national ends. They must also, furthermore, make honest evaluations of their efforts as institutions. It is their responsibility continually to improve, so honest self-evaluation is highly essential. ONDR has done a very commendable job in this regard in its published reports. If this spirit of critical self-evaluation is maintained, then progress will certainly result.

PUBLICATIONS  
OF THE  
AGRICULTURAL STATISTICS DIVISION

1. Results of Public Opinion Poll: 1968/1969  
Sub-Prefectures of KOUMRA and MOISSALA  
Financing: GOC
2. Agricultural Investigations: 1968/1969
  - Kelo
  - Logone Oriental (East Logone)
  - Logone Occidental (West Logone)
  - Mayo-Kebbi
 Financing: GOC
3. Agricultural Investigations: 1967/1968  
SETEGUI-DERESSIA  
Financing: Carlo-Loti Company
4. Agricultural Investigation: 1970/1971  
Cotton area  
Financing: GOC
5. Agricultural Investigation: 1972  
Bol area  
Financing: Central Society for International Equipment (SCEI)
6. Investigation: 1972  
Sugar cane  
Financing: National Rural Development Office  
(ONDR)
7. Cereals Marketing: 1973/1974
  - Chari-Baguirmi
  - Moyen-Chari
  - Logone Oriental (East Logone)
  - Mayo-Kebbi
  - Logone Occidental (West Logone)
  - Tandjile
 Financing: Economic Commission for Africa (ECA)
8. Rice Culture Feasibility  
Casier A de Bongor: March 1974  
Financing: Projects Studies Constructions )PEC)

9. Structural Investigation: Ouaddai-Biltine: 1974  
Financing: International Labor Organisation (ILO).
10. First Results of Agriculture Census: 1972/1973  
Provisional Results of all Prefectures Manual returning operations  
Financing: FAO/Project RAF/71/186
11. Statistical Year Book: Chadian Agriculture and  
Livestock: 1962/1970  
Document elaborated by the agricultural statistical division.
12. Harness Cultivation: third quarter of 1975  
Financing: European Development Fund
13. Marketing of Oleaginous Plants: November 1974  
Financing: UNDAT (CEA)
14. Meteorological Statistics: First Quarter of 1976
15. Canton Agriculture and Equipment  
Mandoul SRDR  
Tandjile SRDR  
East Mayo-Kebbi SRDR  
West Mayo-Kebbi SRDR
16. Agriculture and Livestock in Chad Year Book 1976  
Financing FAO/USAID

STATISTICAL STUDIES IN PROCESS

1. Cotton Output - October 1976  
Financing: FAO
2. Investigation: Rice Output- November 1976  
Financing: OMVSD
3. Crop Marketing: Lake Kanem in May 1975  
Financing: UNDAT (CEA)

## AGRICULTURAL EDUCATION

### The Chadian System

As a basis for understanding the system of agricultural education in Chad, it is first necessary to have a general overall conception of the Chadian educational structure (Figure ). The schematic design portrays a system patterned after the traditional French structure, beginning with a primary school program of six years. At the end of primary school, a basic branching occurs in the system. For those continuing beyond primary, there are two routes, general and technical. The technical route is normally terminal at the lycee (high school) level, except that a few of the best students may be allowed to go further for practical type studies in their particular technical field. On the other hand, the general course is University preparatory in nature. At the end of the college level (junior high) period, a second branching occurs, either continue in the general stream, branch off to a technical lycee or exit from the system. The general lycee provides one with the opportunity hopefully to attend a University. Movement from one level to another is competitive in the sense that past performance is the primary determinant as to whether a student moves upward in the system, coupled with competitive examinations for admission in most instances.

Educational opportunities are quite limited. Only one-third of the eligible children are in primary school. For each 100 who enroll, it is probable that 23 will finish elementary school, 6 will go to secondary school, and one will complete the lycee level. The opportunities for a rural child to receive an education are even more limited than is the overall. Children in the south are more likely to receive an educational opportunity than those who live in the north, and boys are much more likely to receive an educational opportunity than are the girls. There are only seven general lycees in the entire country, and these are located in the larger urban centers ; consequently, access to rural children would be extremely limited. Although children walk in from the countryside in large numbers with slates under their arms to schools in the towns, the more remote villages are too far out for children to attend school.

The technical stream is generally considered to be terminal in the sense that a student who completes a lycee level technical course is considered to lack basic educational prerequisites for a University level course, except in his own chosen field of technical studies. From all indications, it is not necessarily a lack of ability as much as it is a lack of opportunity which may prevent many from attending a general lycee. The young person who enters an agricultural course at

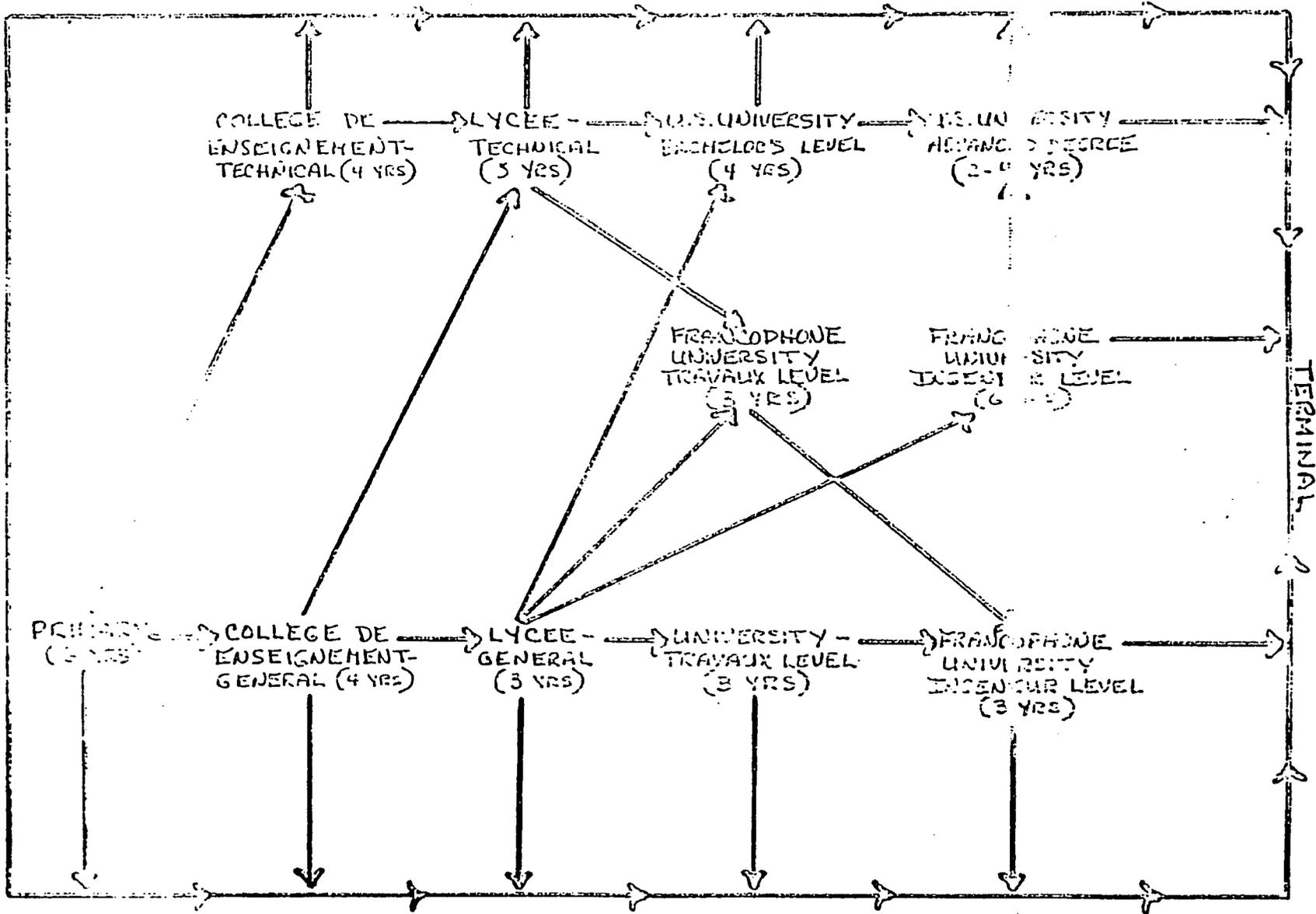


FIGURE 16. A SCHEMATIC DESIGN OF THE CHADIAN EDUCATIONAL SYSTEM AND POSSIBLE ALTERNATIVE ROUTES TO THE UNIVERSITY LEVEL IN FRANCO-PHONE COUNTRIES AND THE U.S.A.

a university direct from a general lycee in Chad is very likely to be a city youngster who has no experience in agriculture. Furthermore, he is not likely to get much practical experience in Francophone countries. Since U.S. land grant universities do not differentiate generally between vocational and academic streams in determining admission to agricultural curricula, it would be quite probable that the top-level graduates from an agricultural lycee-level institution such as Ba-Illi or the newly proposed one at Sahr would be acceptable for degree level work in the U.S. (see Figure ). There would be a definite advantage in that the students might have come from a farm and would have had some field experience in agriculture through the agricultural school. Even better still would be to seek experienced conducteurs from O.N.D.R., who have served as extension workers, for training in the U.S. Experienced international students who receive such opportunities most frequently do better in school work and in particular make better agricultural leaders and scientists. Degree training is much more relevant since problem solving becomes realistic rather than just a classroom exercise. As it now, the only university level work in Chad is in livestock and those seeking agronomic training must go elsewhere, mostly in the Francophone area countries.

In the Chadian system, formal agricultural education is found at three levels (Figure ). University level education in the form of a three year technical level livestock course is found at I.U.T.E., a division of the University of Chad. The University, however, does not have an agronomy or agricultural unit. One is in the talking stage at the moment. Nevertheless, a debate is ensuing about the contents of such a course, whether it would be composed of two years of general studies and a year of specialized work or vice versa. High school level technical training in agriculture at the college and lycee level is the responsibility of D.E.F.P.A., a division of the Ministry of Agriculture. D.E.F.P.A. also maintains a post-primary level nine months training course for field-level extension workers (Encadreurs de Base) which is located at Tikem. There is also under consideration an additional post-primary school for a nine months training program at Dougia, the site of the Sahelian experiment station. It would focus on training encadreurs for the Sahel area. The one at Tikem has primarily prepared personnel for the cotton zone. The location of these two schools and college, lycee and university institutions in Chad are plotted on Figure .

I.U.T.E., which prepares Chadians at the ingénieur de travaux d'élevage level, is one of the four divisions of the University of Chad, located in N'Djamena. The faculty is staffed by two French veterinarians, two Russian veterinarians and a U.S. range management professor, with part-time help available from staff members of Farcha, a livestock research center, located adjacent to the university facility. A small livestock operation

INSTITUTION	CURRICULUM OFFERING	DURATION	ENTRY PREREQUISITE	U.S. EQUIVALENT	EXPECTED MONTHLY SALARY - CFA	STUDENT INTAKE PER YEAR
FOREIGN	INGENIEUR DE BRANCHE OR AGRICULTURE	6 YEARS	GENERAL LYCEE (13 YEARS)	M.S. - AGRICULTURE	75-85,000 (F 300-340)	?
FOREIGN	INGENIEUR DE TRAVAUX AGRICOLES	3 YEARS	GENERAL LYCEE (13 YEARS)	3 YEARS IN AGRICULTURE AT A UNIVERSITY	52,000 (F 201)	?
UNIVERSITY OF CHAD INTE (INSTITUT UNIVERSITAIRE DES TECHNIQUES DE L'ELEVAGE)	INGENIEUR DE TRAVAUX D'ELEVAGE	3 YEARS	GENERAL LYCEE (13 YEARS)	3 YEARS IN ANIMAL SCIENCE IN A UNIVERSITY	52,000 (F 201)	10
CETA (BA ILI) (COLLEGE D'ENSEIGNEMENT TECHNIQUE AGRICOLE)	CONDUCTEUR DE TRAVAUX AGRICOLES	3 YEARS	JUNIOR SECONDARY (10 YEARS) OR CETA (4 YEARS) PRIMARY (6 YEARS)	VOCATIONAL HIGH SCHOOL IN AGRICULTURE	42,000 (F 164)	20
CETA (BA ILI) (COLLEGE D'ENSEIGNEMENT TECHNIQUE AGRICOLE)	AGENT DE TECHNIQUE AGRICOLE	4 YEARS	COLLEGE (2 YEARS) PRIMARY (6 YEARS)	VOCATIONAL JUNIOR HIGH SCHOOL IN AGRICULTURE	31,000 (F 124)	30
ECATE (N'DJAMENA) (ECOLE NATIONALE DES AGENTS TECH. DE L'ELEVAGE)	AGENT DE TECHNIQUE D'ELEVAGE	3 YEARS	COLLEGE (4 YEARS) PRIMARY (6 YEARS)	VOCATIONAL + HIGH SCHOOL IN AGRICULTURE	42,000 (F 164)	30
CFCPA (TIKEM) (CENTRE DE PERFECTIONNEMENT DES CADRES DE L'AGRICULTURE)	ENCADREUR DE BASE	9 MONTHS	PRIMARY (6 YRS.)	1 YEAR PRACTICAL TRAINING AFTER ELEM. SCHOOL	10,000 (F 20)	70

\* AT SAHIL THERE IS ALREADY COMPLETED CETA (CENTRE DE FORMATION DES TECHNICIENS AGRICOLES) WHICH WHEN OPENED WILL REPLACE CETA FOR THIS LEVEL OF TRAINING.

FIGURE 17. A PARADIGM OF AGRICULTURAL EDUCATION IN CHAD.

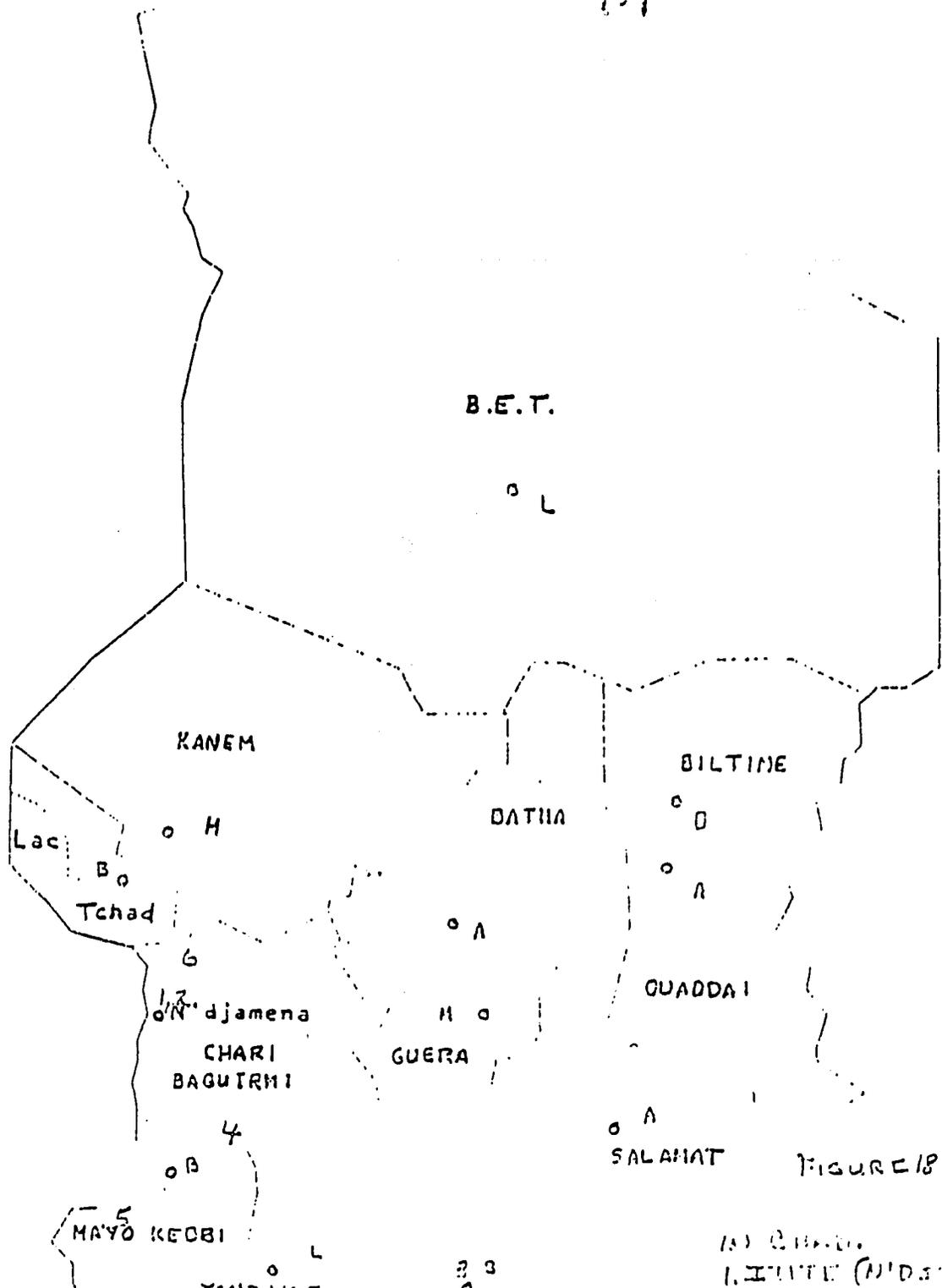


FIGURE 18. AGRICULTURE

- 1. INTI (MID-SOUTH)
- 2. LAMBE (NORTHWEST)
- 3. CETA (SAND)
- 4. CETA (BA ILLI)
- 5. CETA (TIKEM)
- 6. CETA (DOUGI)

# - OPERATIONAL BUT NOT YET OPERATIONAL  
 \* - PROPOSED

and an adequate laboratory facility is available to support the program, The curriculum covers three years, with the first year emphasizing the basic sciences, and the remaining two years, the more practical and applied subjects.

The curriculum is as follows :

First year

Chemistry, Exposition, Mathematics and Physics.

Second year

Animal Anatomy, Animal Health, Animal Physiology, Biochemistry, Ecology, Nutrition, Plant Physiology and Zootechnique.

Third year

Animal Health, Animal Husbandry, Economics, Management and Marketing, Feeding Techniques, Livestock Products and Rural Shelters and Water Works for Animals.

Reportedly, basic science instruction, particularly in mathematics and chemistry, is good. The sciences areas are staffed by French instructors. Numbers in the I.U.T.E. program at the present time are small, with only four in the third year. Normal intake is scheduled to be 10 students per year.

As mentioned earlier, technical level training, designed primarily to produce extension workers for O.N.D.R. is the responsibility of D.E.F.P.A., a direction level unit of the Ministry of Agriculture. At present there are two operational institutions, C.E.T.A. at Ba-Illi and C.F.C.P.A. at Tikem. Ba-Illi produces the college and lycee level technicians and Tikem the encadreurs de base. The lycee level is expected to be moved to the newly constructed facility at Sahr in the near future. At the moment, there is a hold-up because F.A.C., a major supporter of Ba-Illi is thinking of only supporting the new school at Sarh. The Chadians would have to take over completely the staffing of the Ba-Illi school, but they are reluctant because they report that personnel with training at the Ingénieur de Travaux or Diploma level do not want to live in a remote area such as Ba-Illi.

As mentioned in the preceeding paragraph, at the present time the College of Agriculture at Ba-Illi offers two courses, the lower high level course leading to the certificate of agent technique d'agriculture, and the more advanced, a high school level diploma, the conducteur de travaux agricoles. It has a faculty of six expatriates, all French, and

three Chadians. The Director is Chadian, and there is a staff of thirteen persons to handle business operations, farm work, maintenance and repairs, health problems and the kitchen.

During the past-year, there were 105 students enrolled in the lower level, agent technique agricole four year course, and 36 students enrolled in the three year conducteur de travaux course at the high school level. The subjects taught at Ba-Illi for both levels include the following :

#### General studies

Botany, Chemistry, Civics, French, Geography, Mathematics, Oral and Written Expression, Physical Education and Physics.

#### Animal Production

Feeding, Human Hygiene, Livestock, Veterinary Hygiene and Zoology.

#### Crop Production

Agriculture General and Special, Forestry, Horticulture, Plant Protection, Soils and Soil Conservation.

#### Rural Engineering

Construction, Geology, Machinery and Topography.

#### Socio-economic

Accounting, Economics, Agronomic Crops, Forestry, Horticultural Crops, Livestock Care, Feeding and Housing, Preparing Organic Manure, and Research, Work Stock, and Field Work with the division of the agronomic research.

At the practical work stage, the experiences include one month on the Ba-Illi farm in June and two weeks at a C.F.P.A. farmer training center in July.

In terms of admission, 474 candidates applied last year, 363 were tested, and 20 were admitted to the upper cycle, and 30 to the lower cycle. Just under 15% were from Sahelian areas. Admissions to the upper cycle are direct from general colleges (junior highs). Only 2 or 3 the top graduates from the lower course at Ba-Illi are admitted to the higher course and these students reportedly are able to hold their own, doing better in the applied courses but perhaps not as well in the basic sciences. The same holds true for Tikem graduates in the lower cycle. A few of the best are admitted to it and they do well also.

At Tikem, where Encadreurs de Base are produced, there was a staff of eight persons, six Chadians and two expatriates, in the past year. One served as director, six were teachers, and one was in charge of support activities. In terms of curriculum, over half of the time (740 hours) was spent in field work and the remaining part (650 hours) was spent in class activity. The following constitutes the subjects taught :

<u>Subjects</u>	<u>Hours of Instruction</u>
<u>- Class Work</u>	
General Knowledge	118
Extension	64
Cotton Production	96
Agriculture (general & specific)	78
Livestock	82
Work Stock and Agricultural Machinery	74
Management and Rural Economics	82
Statistics	56
	<hr/>
	650
<u>- Field Work</u>	
Cotton Production	180
Food Crops	80
Cutting Hay, Ensiling and Manuring	70
Tree and Marsh Culture	45
Peanut Production	20
Livestock Maintenance	135

Chick-Pea Production	20
Sorghum Production	20
Forage Production	10
Agricultural Machinery	50
Maintaining the Center	40
Management of the Center Cantin	40
Support Work around the Center	10

---

740

Enrollment has run as high as 70 students per year for the past few years for the nine months course, but 60 is the preferred number because of the size of the facilities.

The program at Tikem is a very practical one. It emphasizes heavily the development of the skills associated with cotton and food grain production and the use of work stock. Working in teams of four, the students go through a complete cycle on a small plot, actually doing themselves all of the required field operations. Each group member takes a turn as group leader.

This past year, about 400 were considered for admission and about 200 were considered qualified. By and large, the persons selected had had two years of field experience as a surveillant-type extension worker, a person usually on a temporary appointment who has had no formal training in agriculture. The average age would be about 25. As is quite evident, the intake at Tikem is highly selective in the sense of having a student body of mature, experienced workers who come from the rural areas and are much like the farmers they will be expected to work with. This is a highly commendable practice and it is one that should be continued.

E.N.A.T.E., which conducts the three year course leading to the certificate, agent technique d'élevage, is located in N'Djamena, adjacent to I.U.T.E. and Farcha. It produces veterinary technicians who work primarily for the Livestock Department on animal health problems. Since it is not a primary concern for this project, it suffices to note its existence without going into details.

## A P R O P O S A L

for a Curriculum leading to the Ingénieur de Travaux Agricoles

Faculty of Agriculture.

University of Chad .

Purpose

The basic purpose of the Faculty of Agriculture will be to provide Chad with university level agricultural technicians who can assume major operational leadership roles for agricultural development in Chad.

Curriculum Objectives

The fundamental objectives for the Faculty of Agriculture will be to produce Chadian agriculturists who :

1. Understand and appreciate Chad's needs in agricultural development, while developing a motivation for the significance and importance of agricultural work in achieving maximum development for the country.
2. Develop intellectual abilities and practical skills in the broad areas of agriculture, together with the ability to define problems, analyze problems, select alternatives, and develop and execute a course of action leading to the solution of problems.
3. Develop an understanding of the fact that technology is constantly changing in Chad as well as elsewhere and that an agriculturist must continually up-date his knowledge.
4. Develop an understanding of and be able to work effectively on rural development programs designed to change peasant farmers, leading to greater productivity and a better life.
5. Develop an understanding of the relationship of theory to practice ; to understand why certain practices and skills are necessary ; to be able to diagnose problems and to develop appropriate solutions, or, if beyond the level of training, to call upon appropriate specialists for assistance.

These general objectives give overall guidance to the broader aspects of the curriculum. At an operational level, however, it is necessary to be more specific in order to give appropriate guidance to specific subjects and the necessary content material within subjects. The curriculum leading to the Ingénieur de Travaux Agricoles will be designed to help students to :

- At the Level of Basic Concepts and Principles

1. Develop an understanding of the basic scientific concepts necessary for study at this level in applied agriculture by emphasizing relevant material from botany, chemistry, mathematics, physics and zoology.
2. Develop an understanding of the basic concepts from the social science necessary for applied study in rural development.
3. Develop a basic level of competency in oral and written expression for service in major leadership positions in rural development programs and agricultural agencies.

- At the Level of Fundamental Concepts and Principles in Agriculture and Rural Development

4. Develop an understanding of plant science, including plant breeding and growth and nutrient requirements.
5. Develop an understanding of soils, their derivation, structure, composition and processes.
6. Develop an understanding of plant protection, its importance to growth and productivity and the means for controlling the growth environment.
7. Develop a conception of economics and marketing in agriculture and the forces which are at work.
8. Develop a conception of the basic engineering forces at work in agriculture in relation to soil tillage and conservation, water and moisture control, the use of power, and the design and building of simple farm structures.
9. Develop a conception of the management and administration of organizations and work units in agricultural and rural development.
10. Develop an understanding of basic statistical and research techniques useful in agricultural and rural development research.

- At the Level of Applications of Concepts and Principles to Agricultural and Rural Development Programs.

11. Develop the capacity to apply basic concepts and principles in the production of the major agronomic and horticultural crops that offer potential in Chad.

12. Develop the capacity to apply basic concepts and principles to the husbandry of work stock and domestic farm animals found around the peasant farmstead in Chad.

13. Develop the capacity to apply basic concepts to the management of plant, soil and water resources under Chadian conditions.

14. Develop the capacity to view the farm as an economic unit, emphasizing cost consciousness and economic return.

15. Develop the capacity to plan, execute and evaluate rural development programs, using sound programming practices, good communications techniques, productive leadership and community development practices and good organization and management practices.

16. Develop the practical skills and techniques required for the effective operation of a farm under Chadian conditions.

### Courses of study

- First year

#### Botany

Fundamentals of plant anatomy, physiology, cytology and taxonomy for application to agricultural problems.

#### Chemistry

Atomic and molecular structure, chemical equilibria, and inorganic and organic reactions as basic fundamentals to understanding applied agricultural problems.

#### Educational Psychology

Principles of learning, motivation, development and evaluation; group dynamics.

#### Mathematics

Mathematics of commerce-interest, discount, annuities, depreciation and insurance; topics from algebra and trigonometry necessary for applied agriculture.

#### Oral and Written Expression

Expository and technical writing; Fundamentals of speech-materials,

styles and structure.

Physics

Principles of mechanics, heat, sound, light, electricity and magnetism.

Rural Sociology

Rural society - its people, structure, systems and processes ; social change-innovation, diffusion and adoption of new ideas.

Zoology

Animal kingdom, anatomy, physiology and cell biology as fundamentals to applied agricultural work.

- Second year

Agricultural Engineering

Planning and building simple farm structures ; use, maintenance and repair of equipment and vehicles ; plows and sprayers - maintenance and repair ; surveying.

Crop Production Principles

Introduction to crop science, types of crops, cultural and environmental factors and their effects upon crops.

Entomology

Introduction to insects, identification and classification, principal insects of Chadian crops and livestock and their control.

Genetics

Basic genetics principles underlying plant and animal improvement.

Plant Breeding

Basic principles of breeding crop plants with emphasis on applications to problems and crops in Chad.

Plant Pathology

Nature and causes of diseases in plants ; principal diseases of Chadian crops and their control.

Rural Economics

Economic principles applied to agricultural production, marketing consumption and policy problems.

Soils

Soil structure - properties and processes ; factors affecting crop growth - fertility, fertilizers and soil improvement.

Statistics

Sampling, statistical inference, simple analysis of variance and variance components, linear correlation and regressions.

- Third year

Extension

Developing extension programs, strategies for reaching peasant farmers effectively, evaluation of programs ; practices and problems in promoting individual change and community development.

Farm Management

Fundamental economic and business principles applied to organization and operation of a farm ; practice in managing and organizing a small farm operation.

Field Crops

Varieties, cultural practices and diagnosis of production problems in the major field crops of Chad - cotton, millet, peanuts, rice, sorghum, and sugarcane.

Horticultural Crops

Identification, propagation and cultivation of horticultural crops in Chad.

Livestock Production

The production and management of work stock and domestic animals found around the farmstead.

Management and Organization

Principles of management, organization development and maintenance, leadership and supervision of subordinates.

Plant, Soil and Range Management

Soil conserving and building crops and range crops - adaptation, production, establishment utilization and management ; weeds and their control.

Research Design

Principles of research design ; planning, conducting and interpreting field experiments ; designing, conducting and interpreting surveys.

Soil and Water Engineering

Engineering analysis and design of drainage, irrigation and erosion control systems.

Curriculum Outline

<u>Course</u>	<u>Hours Per Week</u>			
	<u>Lect.</u>	<u>Lab.</u>	<u>Lect.</u>	<u>Lab.</u>
- First year				
Botany	2	2	2	2
Chemistry	2	2	2	2
Educational Psychology	2			
Mathematics	2		2	
Oral and Written Expression	2		2	
Physics			2	
Rural Sociology			2	2
Zoology	2	2		
	<hr/> 12	<hr/> 6	<hr/> 12	<hr/> 6

	<u>Hours Per Week</u>			
	<u>Lect.</u>	<u>Lab.</u>	<u>Lect.</u>	<u>Lab.</u>
- Second year				
Agricultural Engineering			2	2
Crop Production Principles			2	2
Entomology	2	2		
Genetics	2			
Plant Breeding			2	
Plant Pathology			2	2
Rural Economics	2			
Soils	3	2	3	2
Statistics	3	2		
	<hr/>	<hr/>	<hr/>	<hr/>
	12	6	11	8
- Third year				
Extension			2	4
Farm Management	2	4		
Field Crops	3			
Horticultural Crops	2	2		
Livestock Production			2	2
Management and Organization			2	
Plant, Soil and Water Management			2	2
Research Design	2	4		
Soil and Water Engineering			2	2
	<hr/>	<hr/>	<hr/>	<hr/>
	9	10	10	10

### Learning Experiences

Since the principal focus of the curriculum is on the application of knowledge, concepts and principles to the problems and opportunities of Chadian agriculture, it is important to provide opportunities for the students to practice such behaviors under supervised conditions. Learning to use theoretical material correctly under field conditions is therefore an important consideration in curriculum planning. With these thoughts in mind, the following special learning experiences are planned sequentially within the curriculum :

- Field Work - In addition to the time spent in class and laboratory work, each student will be required to learn first-hand all of the skills and practices used in operating a farm. For this purpose, each student will be required to spend four hours each work in field work during the first two years of the course. This supervised time will be used for the student to master the skills and practices associated with all phases

of agricultural and livestock production such as plowing with work stock, driving a tractor, planting a crop, cultivation, harvesting, fertilizing, feeding livestock, irrigating a field, etc. The purposes of these assignments are for learning purposes solely. Although this will reduce somewhat the labor requirements in running the University farm, this is not its primary purpose. Students will be formally evaluated by the Faculty for performance in field work.

- Extension Practice - In the third year, and in conjunction with the course on extension, there is a four hour laboratory weekly. Under the supervision of the instructor, the students will practice extension work by actually working with nearby peasant farmers on program packages and strategies worked out in class and laboratory sessions. They will also visit ONDR offices and extension workers to evaluate activities as part of the field exercise.

- Farm Management Practice - As the laboratory session for the farm management course, groups of three or four students each will be assigned a plot of ground on the University farm. They will be required to plan a farm layout, carry it out by planting a crop, cultivate it, harvest it, market it, and prepare an economic evaluation of the enterprise in fulfillment of the requirements for the laboratory sessions in farm management.

- Research Design - In teams of several students each, assignments will be made to faculty members. Under direct supervision the students will develop a research plan, conduct the project, collect and interpret data, and report the findings. Choices will be available among agronomic, plant protection, livestock or social science-economic type projects to suit individual student needs and preferences. This will be accomplished as part of the laboratory for the course on research principles.

LOGICAL FRAMEWORK

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Sector Goal : The Broader Objective to which this Project Contributes:

1. Achievement of self-sufficiency in food production.
2. Improvement in social and economic status for the small farmer.

Measurement of Goal Achievement

1. Chad food crop production sufficient to meet domestic needs in all but extreme drought periods.
2. Chad self-sufficient in rice, peanuts and related oils and exporting initial quantities of these commodities.

Means of Verification

Official Government statistics.

Assumptions for Achieving Goal

1. Security problems will not worsen and prevent government and donor activities in Sahelian & Sudanian zones of Chad.
2. Government will continue to give priority to increasing food crop production.

Project Purpose

To strengthen Chadian institutional capabilities in agricultural planning, data/information systems, agricultural extension, agricultural education and small farmer oriented agronomic research at the national level.

End of Project Status

See individual components.

Means of Verification

See individual components.

Assumptions

See individual components.

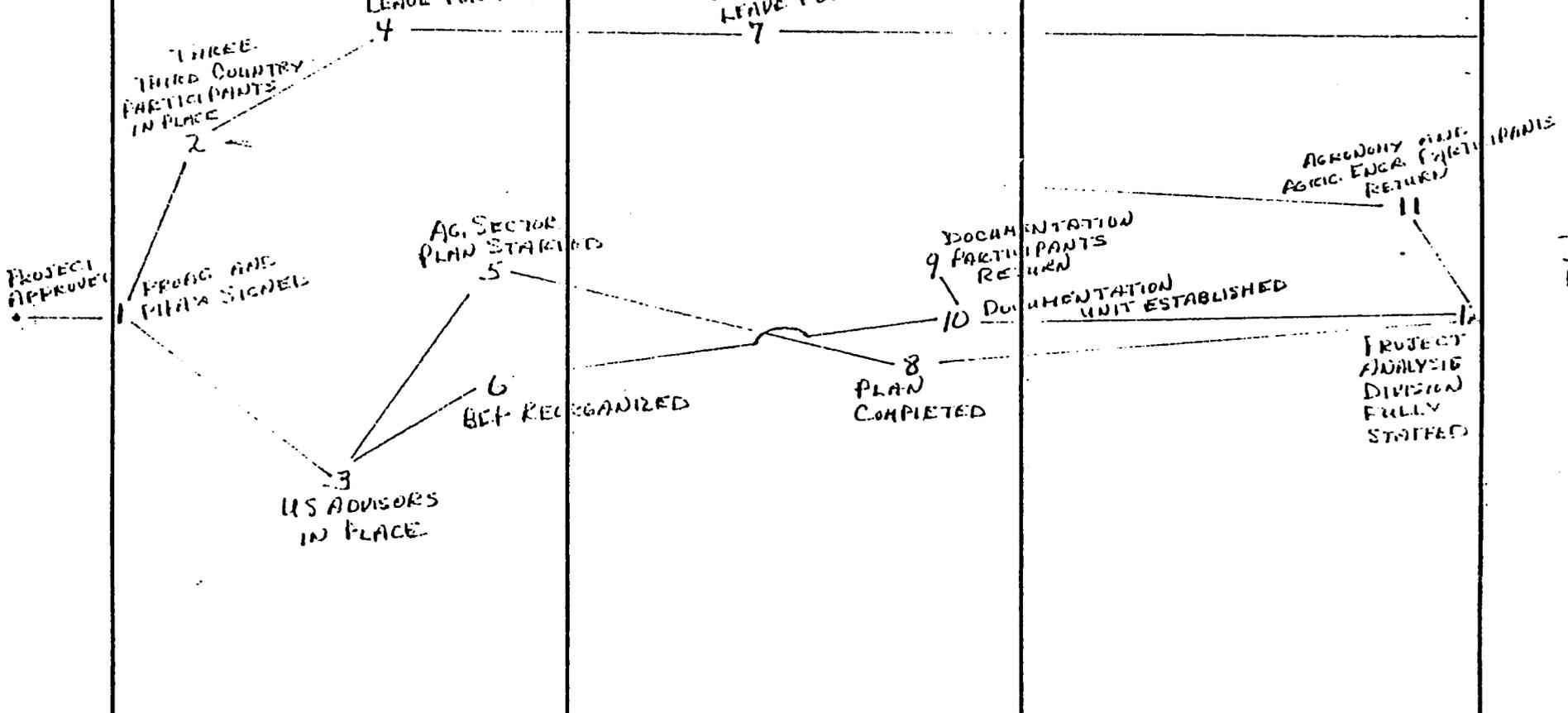
COUNTRY CHAD	PROJECT NO. 677-0002.	PROJECT TITLE AGRICULTURAL INSTITUTIONAL DEVELOPMENT - PLANNING	DATE	<input type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION # _____	APPROVED
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OR FY YEAR 1 YEAR 2 YEAR  
CY

MONTH

0 12 24 36

PRIOR ACTIONS POST ACTIONS



ANALYSIS SCHEDULE:  
PROGRESS VS FINANCIAL  
EVALUATION SCHEDULE

**CRITICAL PERFORMANCE INDICATOR (CPI) NETWORK**

COUNTRY CHAD	PROJECT NO. 677-0002	PROJECT TITLE AGRICULTURAL INSTITUTIONAL DEVELOPMENT - PLANNING	DATE	<input type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION #	APPROVED
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OR FY  
CY YEAR 4 YEAR 5

MONTH	0	12	24	36
PRIOR ACTIONS		<p>TWO PARTICIPANTS RETURN</p>		<p>TWO PARTICIPANTS RETURN - 14</p> <p>B.E.I. FULLY OPERATIONAL AND STAFFED</p>
POST ACTIONS:				

ANALYSIS SCHEDULE: PROGRESS VS FINANCIAL				
EVALUATION SCHEDULE				

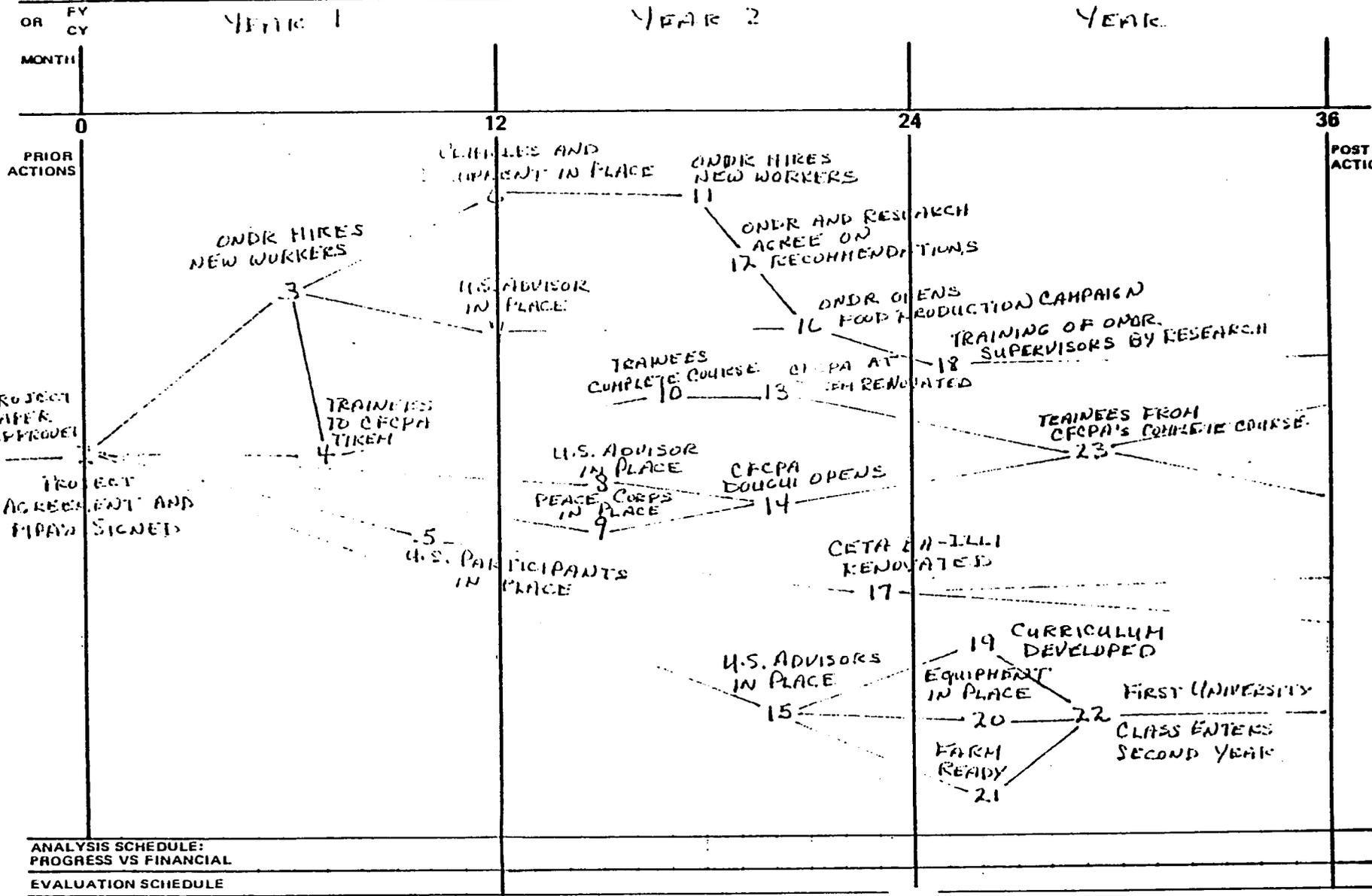
COUNTRY	PROJECT NO.	PROJECT TITLE	Planning	DATE	<input checked="" type="checkbox"/> ORIGINAL	APPROVED
CHAD	677-0002	Agricultural Institutional Development Component I		3-7-77	<input type="checkbox"/> REVISION # ___	

PROJECT PURPOSE (FROM PRP FACESHEET)

## CPI DESCRIPTION

1. Project Sgreement and PIO's signed (CDO).
2. Three participants leave for 3rd country (Francophone) training - Agronomy, Ag.Engineering and documentation (CDO).
3. U.S. advisors on site and assigned to BEP (AID/W).
4. Two participants depart for MA degree training in U.S. - Agriculture Economics (Planning), Agriculture Economics (Proj.Analysis) (CDO).
5. BEP reorganized, Agriculture Sector Plan started (GOC).
6. Two participants depart for MA degree training in U.S. - Agriculture Economics and Agriculture Marketing (CDO)
7. First Agriculture Sector Plan completed (GOC).
8. Documentation participant returns from 3rd country training (CDO).
9. Documentation unit established in BEP and staffed (GOC).
10. Agronomy and Agric. Engineering participants return and assigned to Project Analysis Div., BEP (CDO).
11. Project Analysis Div. fully staffed (GOC).
12. Two Ag.Econ. participants return from U.S., assigned as division chiefs in BEP (CDO).
13. First two Ag.Econ. participants return from U.S., assigned as division chiefs in BEP (CDO).
14. BEP fully staffed with Chadians and functioning (GOC).

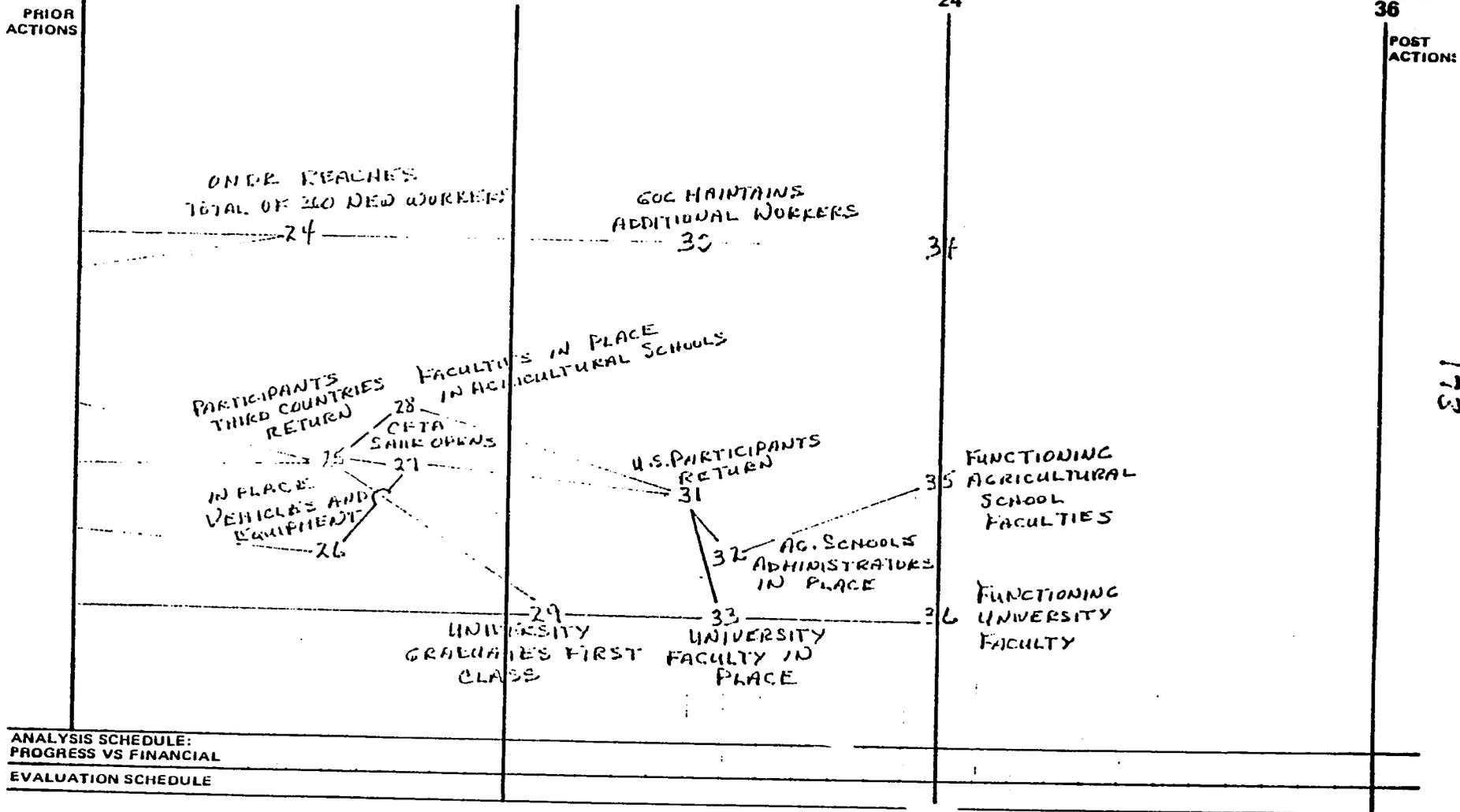
COUNTRY GHAB	PROJECT NO. 677-0002	PROJECT TITLE AGRICULTURAL INSTITUTIONAL DEVELOPMENT - EXTENSION & AGRIC. EDUCATION	DATE	<input type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION #	APPROVED
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**CRITICAL PERFORMANCE INDICATOR (CPI) NETWORK**

COUNTRY GHAN.	PROJECT NO. L77-0002	PROJECT TITLE AGRICULTURAL INSTITUTIONAL DEVELOPMENT - EXTENSION & AGRIC. EDUCATION	DATE	<input type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION # _____	APPROVED
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OR FY CY	YEAR 4	YEAR 5		
MONTH				
	0	12	24	36



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ANALYSIS SCHEDULE:  
PROGRESS VS FINANCIAL  
EVALUATION SCHEDULE

COUNTRY CHAD	PROJECT NO. 677-0002	PROJECT TITLE (Component II - Extension, Component Agricultural Institutional Development, III Ag. Educ.	DATE 3-7-77	<input checked="" type="checkbox"/> ORIGINAL REVISION # _____	APPROVED
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PROJECT PURPOSE (FROM PRP FACESHEET)

## CPI DESCRIPTION

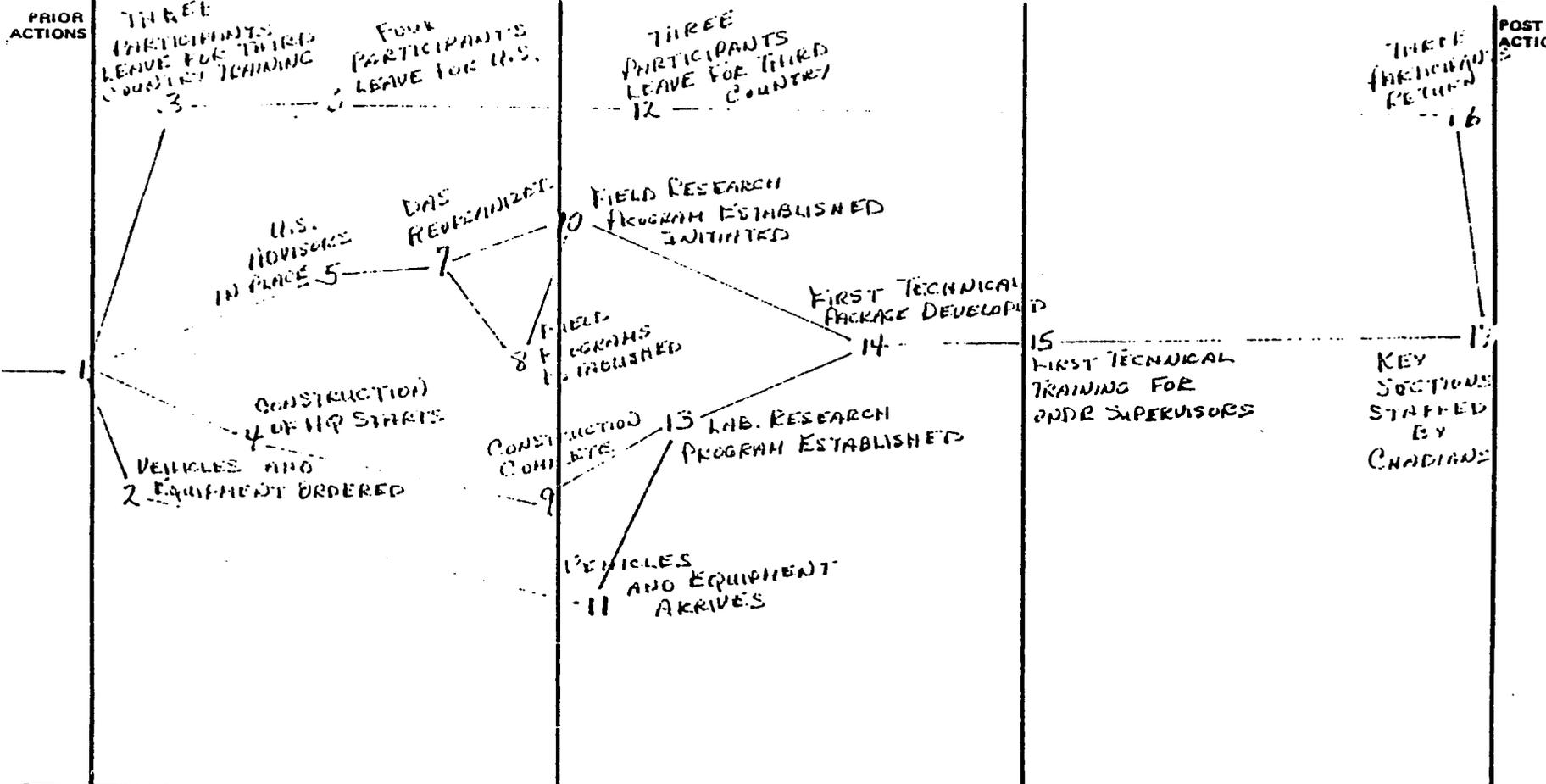
1. Project Paper Approved (AID/W).
2. Project Agreement and PIO's signed (CDO/N).
3. ONDR hires 90 new village level extension workers (ONDR).
4. ONDR sends 60 village level extension workers to CFCPA (Tikem) for retraining (ONDR/DEFPA).
5. U.S. Participants for Agricultural Schools and University begin studies in U.S. (CDO/N, DEFPA, FA).
6. ONDR vehicles and equipment in place (CDO/N, ONDR).
7. U.S. advisor to ONDR rural development effort. (CDO/N).
8. U.S. advisor to CFCPA at Dougui in place (CDO/N).
9. U.S. Peace Corpsmen at CFCPA in Dougui in place (CDO/N).
10. Trainees complete retraining at CFCPA Dougui (DEFPA).
11. ONDR hires 90 new village level extension workers (ONDR).
12. ONDR and Agricultural Research holds joint meeting on recommendations for food production campaign (ONDR, BEA).
13. CFCPA at Tikem renovated and ready to receive another ONDR batch of trainees (DEFPA, CDO/N).
14. CFCPA at Dougui opened and receiving ONDR trainees for the Sahelian zone (DEFPA, CDO/N).
15. U.S. advisors in place at the University (CDO/N).
16. ONDR opens food production campaign nationwide (ONDR).
17. Renovations to CETA at Ba-Illi complete (DEFPA).
18. Agricultural Research initiates first training course on new recommendations for ONDR supervisors (ONDR).
19. Curriculum for second and third years in Agriculture at the University complete (FA).
20. Equipment for Laboratories and farm ready for use (FA).
21. Farm at the University ready for use in instructional program (FA).
22. First University class enters second year to begin studies in applied agriculture (FA).
23. Trainees for CFCPA at Tikem and Dougui complete course (DEFPA).
24. ONDR reaches maximum number of 260 new village level extension workers (ONDR).
25. Participants from third countries have all returned (CDO/N).
26. Vehicles and equipment for CFTA (Sahr) in place (DEFPA).
27. CFTA (Sahr) opens for lycee level agricultural students.
28. Faculties at Agricultural schools all in place at CFTA (Sahr), CETA (Ba-Illi), CFCPA's (Tikem and Dougui) (DEFPA).
29. First class of Ingenieur de Travaux Agricoles graduate from University (FA).
30. GOC maintains salaries of additional village level extension workers (120) hired (GOC).
31. Participants from U.S. for agricultural schools and University return (CDO/N).
32. Administrators for the Agricultural schools all in place (DEFPA).
33. University Faculty in place and working with U.S. advisors (FA).
34. 35. 36 End of project status reached for ONDR, Agricultural Schools and University Agricultural Faculty (CDO/N).

COUNTRY CHAD.	PROJECT NO. 677-0002.	PROJECT TITLE AGRICULTURAL INSTITUTIONAL DEVELOPMENT - RESEARCH	DATE	<input type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION #	APPROVED
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DR FY YEAR 1 YEAR 2 YEAR 3  
CY

MONTH

0 12 24 36



ANALYSIS SCHEDULE:  
PROGRESS VS FINANCIAL

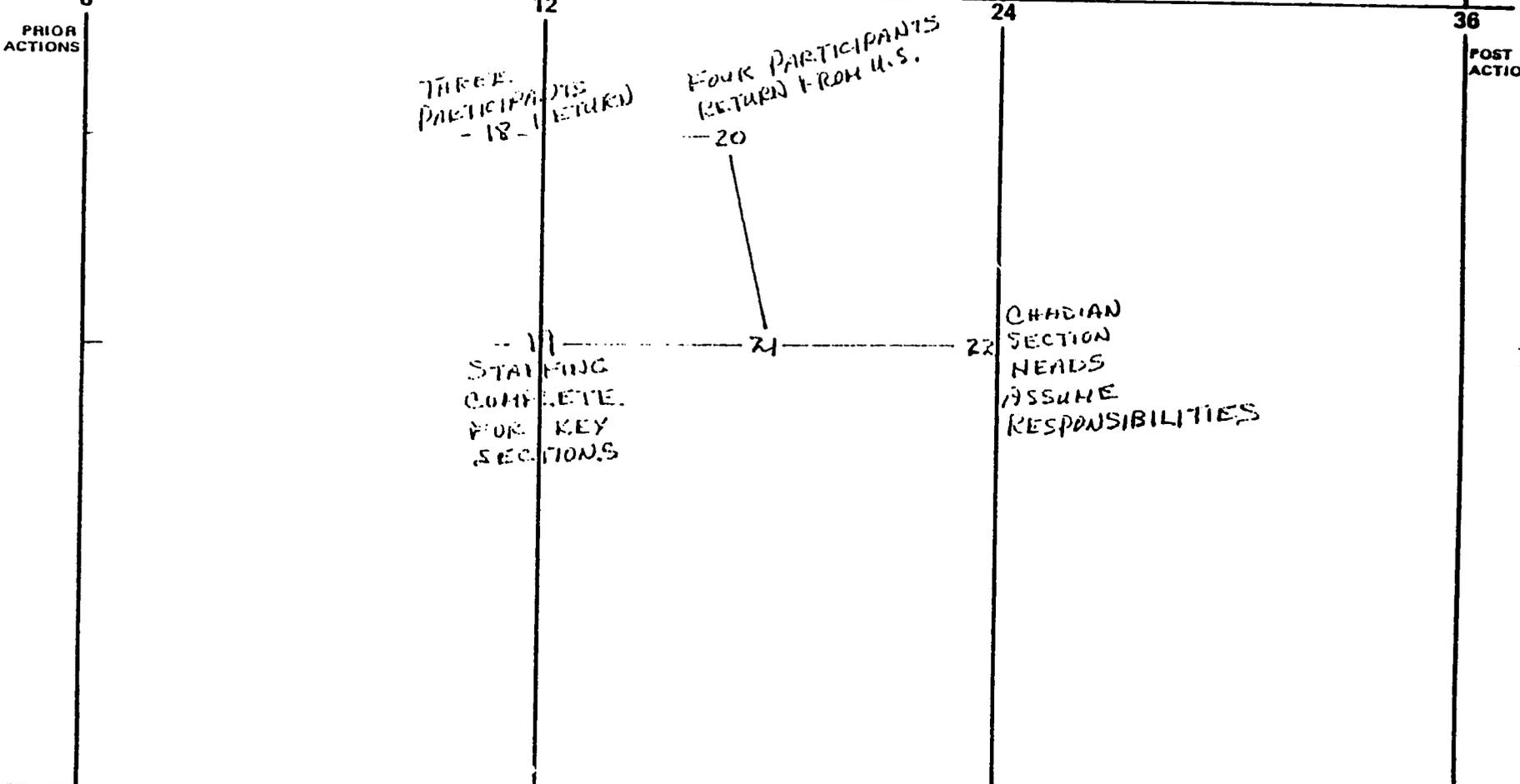
EVALUATION SCHEDULE

**CRITICAL PERFORMANCE INDICATOR (CPI) NETWORK**

152

COUNTRY Ghana	PROJECT NO. 677-0002	PROJECT TITLE AGRICULTURAL INSTITUTIONAL DEVELOPMENT - RESEARCH	DATE	<input type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION #	APPROVED
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OR FY CY	YEAR 4	YEAR 5
MONTH		



ANALYSIS SCHEDULE: PROGRESS VS FINANCIAL	
EVALUATION SCHEDULE	

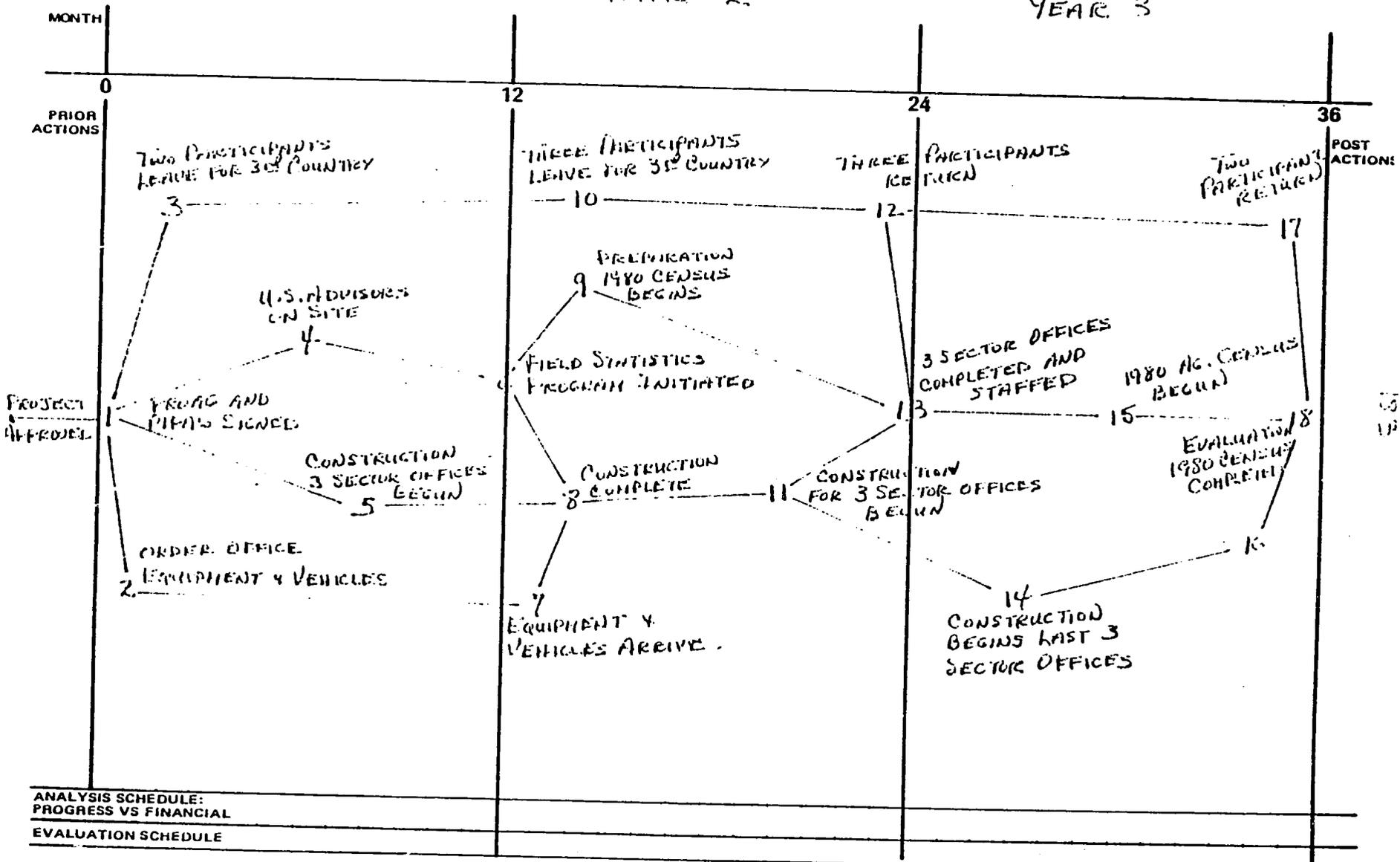
COUNTRY CHAD	PROJECT NO. 677-0002	PROJECT TITLE Research Component IV Agricultural Institutional Development	DATE 3-7-77	<input checked="" type="checkbox"/> ORIGINAL REVISION # _____	APPROVED
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PROJECT PURPOSE (FROM PRP FACESHEET)

## CPI: DESCRIPTION

1. Project Agreement and PIO's signed (CDO).
2. Lab. and office equipment and vehicles ordered (CDO).
3. Three participants depart for 3rd country training (CDO)
4. Construction started on research lab. and headquarters building (GOC).
5. U.S. advisors arrive and assigned to DAS (AID/W).
6. Four participants leave for MS degree training in the U.S. (CDO).
7. DAS reorganized into five new sections (GOC).
8. Administrative and field operation research programs formulated (GOC).
9. Construction of headquarters office building and laboratory completed (GOC).
10. Field research programs initiated (GOC).
11. Lab. and office equipment and vehicles arrive (AID/W)
12. Research laboratory assembled and reorganized (GOC).
13. Three participants leave for study in 3rd country (CDO).
14. Lab. research program established and in-service training starts (GOC).
15. First package of technical research recommendations developed (GOC).
16. First technical training course conducted for ONDR staff (GOC).
17. Three participants return from 3rd country training (CDO).

COUNTRY C.HAL.	PROJECT NO. 677-0002	PROJECT TITLE AGRICULTURAL INSTITUTIONAL DEVELOPMENT - STATISTICS	DATE	<input type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION #	APPROVED
OR FY CY	YEAR 1		YEAR 2	YEAR 3	



COUNTRY Thav.	PROJECT NO. 677-0002	PROJEC. TITLE RURAL INSTITUTIONAL DEVELOPMENT STATISTICS	DATE	<input type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION #	APPROVED
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OR FY CY      YEAR 4      YEAR 5

MONTH

0      12      24      36

PRIOR ACTIONS      POST ACTION:

1980 Ag. Census  
Published  
- 19 -

A.S.L.  
Fully Staffed  
and functional  
- 20 -

1981

ANALYSIS SCHEDULE: PROGRESS VS FINANCIAL			
EVALUATION SCHEDULE			

COUNTRY CHAD	PROJECT NO. 677-0002	PROJECT TITLE Statistics Component V Agricultural Institutional Development	DATE 3-7-77	<input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION # _____	APPROVED
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PROJECT PURPOSE (FROM PRP FACESHEET)

18. Evaluation of 1980 agric. census completed (GOC).
19. Agric. census report of 1980 published (GOC).
20. Fully Chadian staffed and functioning ASD headquarters and field office (GOC).

## CPI DESCRIPTION

1. Program Agreement and PIO's signed (CDO).
2. Office equipment and vehicles ordered (CDO).
3. Two participants leave for 3rd country training (CDO).
4. U.S. advisors on site (AID/W).
5. Construction of three regional sector offices started (GOC).
6. Field statistics programs initiated (GOC).
7. Office equipment and vehicles arrive (AID/W).
8. Construction of three sector offices completed (GOC).
9. Commence preparation for agric. census (GOC). Order three additional vehicles (CDO).
10. Participants (3) leave for 3rd country training (CDO).
11. Construction of three additional sector offices started (GOC).
12. Three participants return from 3rd country training (CDO).
13. Construction of three sector offices completed and staffed (GOC).
14. Construction starts on last three sector offices (GOC); Vehicles arrive (AID/W).
15. Agric. census started (GOC).
16. Construction of last three sector offices completed (GOC).
17. Two participants return from 3rd country training (CDO).

EC(2) - PROJECT CHECKLIST

Listed below are, first, statutory criteria applicable generally to projects with FAA funds, and then project criteria applicable to individual fund sources: Development Assistance (with a sub-category for criteria applicable only to loans); and Security Supporting Assistance funds.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? IDENTIFY. HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

A. GENERAL CRITERIA FOR PROJECT.

1. App. Unnumbered; FAA Sec. 653(b)  
 (a) Describe how Committees on Appropriations 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 that figure plus 10%)?  
 By strengthening agricultural institutions: including planning, research, extension and education, increased food and forage production is expected for small farmers.
2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?  
 Yes.
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?  
 N.A.
4. FAA Sec. 611(b); Am. Sec. 101. If for water or water-related land resource construction, has project met the standards and criteria as per Memorandum of the President dated Sept. 5, 1973 (replaces Memorandum of May 15, 1962; see Fed. Register, Vol 33, No. 174, Part III, Sept. 10, 1973)?  
 N.A.
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 the country's capability effectively to maintain and utilize the project?  
 N.A.

b. FAA Sec. 103, 103A, 104, 105, 106, 107. Is assistance being made available: [Include only applicable paragraph -- e.g., a, b, etc. -- which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source.]

- (1) [103] for agriculture, rural development or nutrition; if so, extent to which activity is specifically designed to increase productivity and income of rural poor; [103A] if for agricultural research, is full account taken of needs of small farmers; By strengthening agricultural institutions including: planning; research; extension; and education; increased food and forage production is expected for small farmers through improved and expanded production programs.
- (2) [104] for population planning or health; if so, extent to which activity extends low-cost, integrated delivery systems to provide health and family planning services, especially to rural areas and poor;
- (3) [105] for education, public administration, or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development; N.A.
- (4) [106] for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is: N.A.
- (a) technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations;
- (b) to help alleviate energy problem;
- (c) research into, and evaluation of, economic development processes and techniques;
- (d) reconstruction after natural or manmade disaster;
- (e) for special development problem, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance;
- (f) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development.

(5) [107] by grants for coordinated / private effort to develop and disseminate intermediate technologies appropriate for developing countries:

c. FAA Sec. 110(a); Sec. 200(e). Is the recipient country willing to contribute funds to the project, and in what manner has or will it provide assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least-developed" country)?

d. 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?

e. FAA Sec. 207; Sec. 113. Extent to which assistance reflects appropriate emphasis on; (1) encouraging development of democratic, economic, political, and social institutions; (2) self-help in meeting the country's food needs; (3) improving availability of trained worker-power in the country; (4) programs designed to meet the country's health needs; (5) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or (6) integrating women into the recipient country's national economy.

f. 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 institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.

Cost sharing requirement has been waived for RLDC.

Yes. Justification has been made to Congress.

Items 1,2,3 and 6 addressed specifically in project paper, 4 and 5 NA.

Assistance to agriculture extension sector and to University of Chad (Faculty of Agriculture) depends on needs, desires and capacities of Chadians. The project supports on-job training, teacher recycling and development of training skills.

g. FAA Sec. 201(b)(2)-(4) and -(9); Sec. 201(e); Sec. 211(a)(1)-(3) and -(8). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of production, commodities and self-sustaining institutions? Is it national or international in scope? Does it contribute toward social progress? Is it related to and consistent with other development activities, and will it contribute to realizable long-range objectives? And does project paper provide information and conclusion on an activity's economic and technical soundness?

h. FAA Sec. 201(b)(6); Sec. 211(a)(5), (6). Information and conclusion on possible effects of the assistance on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving or safeguarding the U.S. balance-of-payments position.

2. Development Assistance Project Criteria (Loans only)

a. FAA Sec. 201(b)(1). Information and conclusion on availability of financing from other free-world sources, including private sources within U.S.

b. FAA Sec. 201(b)(2); 201(d). Information and conclusion on (1) capacity of the country to repay the loan, including reasonableness of repayment prospects, and (2) reasonableness and legality (under laws of country and U.S.) of lending and relending terms of the loan.

c. FAA Sec. 201(e). If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds \$100,000, has country submitted to AID an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?

d. FAA Sec. 201(f). Does project paper describe how project will promote the country's economic development taking into account the country's human and material resources requirements and relationship between ultimate objectives of the project and overall economic development?

Project is designed to have an impact on rural development which is the basis for sustained economic growth. Rural development is closely linked with other development activities. PP. provides analysis of economic and technical soundness.

No negative effect on U.S. economy anticipated as a result of this project.

N.A.

e. FAA Sec. 202(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources?

f. FAA Sec. 629(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, 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?

3. Project Criteria Solely for Security Supporting Assistance

FAA Sec. 531. How will this assistance support promote economic or political stability?

N.A.

• Additional Criteria for Alliance for Progress

[Note: Alliance for Progress projects should add the following two items to a project checklist.]

N.A.

a. FAA Sec. 251(b)(1), -(8). Does assistance take into account principles of the Act of Bogota and the Charter of Punta del Este; and to what extent will the activity contribute to the economic or political integration of Latin America?

b. FAA Sec. 251(b)(8); 251(h). For loans, has there been taken into account the effort made by recipient nation to repatriate capital invested in other countries by their own citizens? Is loan consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress (now "OCEPCIES," the Permanent Executive Committee of the OAS) in its annual review of national development activities?

CONSEIL SUPERIEUR MILITAIRE

MINISTRE DU DEVELOPPEMENT AGRICOLE  
PASTORAL ET DE LA LUTTE CONTRE LES  
CALAMITES NATURELLES

SECRETARIAT D'ETAT

DIRECTION GENERALE

N'DJAMENA, le 7 MARS 1977

LE MINISTRE DU DEVELOPPEMENT AGRICOLE,  
PASTORAL ET DE LA LUTTE CONTRE LES  
CALAMITES NATURELLES

N° 219 /MDAPLCCM/DG. 00023

Monsieur le Ministre des Affaires Etrangères  
et de la Coopération.

N'DJAMENA

Monsieur le Ministre,

A la suite des études engagées sur le plan technique par les services de mon Département avec des membres de la Mission USAID, un projet de renforcement de mes services centraux a été identifié et élaboré conjointement.

Il apportera un soutien à la création de nouvelles infrastructures, équipement de laboratoire, de bureau ou de services, jointe à une participation en personnel technique et à la formation de cadres nationaux.

Ce (important) projet servira au Bureau des Etudes et Projets de ma Direction Générale, à l'ONDR, aux Services de la Recherche Agronomique, de la Statistique Agricole et de l'Engagement et de la Formation Professionnelle Agricole à commencer le niveau universitaire.

Je vous serais très obligé de bien vouloir intervenir auprès de mon Excellence Monsieur l'Ambassadeur des Etats-Unis pour solliciter et confirmer l'intérêt de l'USAID à une subvention de financement pour l'exécution d'un tel projet qui retient particulièrement mon attention. -

P. LE MINISTRE DU DEVELOPPEMENT AGRICOLE,  
PASTORAL ET DE LA LUTTE CONTRE LES CALAMI-



## Annex G

Draft of the Project Description to be used in the  
Project Agreement.

Purpose and Goal of the Project

This is an institutional building project, designed to assist the Government of Chad in its overall effort to increase food and forage production. The overall goal is to develop functional institutions at the national level which will be capable of developing, implementing and evaluating programs focused on food and forage production, contributing expertise in the areas of agricultural studies and programming, agricultural statistical data collection and interpretation, agronomic research, agricultural education and rural development/extension. The project will involve providing technical assistance, the training of Chadians, and the provision of commodity inputs and other costs to assist in the development of the institutional capabilities.

Annex H

Request for Waiver of Section 110 (a) Host Country Contribution Requirement (677-0002)

Discussion

Section 110 (a) of the Foreign Assistance Act of 1961 as amended, normally requires a 25% host country financial contribution to AID projects. Waivers from this requirement, especially for RLDC's (the poorest of the less developed countries) must be approved on a case-by-case basis.

Chad, a country with a per capita income of \$93 in 1974, is an RLDC and an NSA (category of countries most seriously affected by P.O.L. price increase). Chad has no investment budget and must depend on France and other donor assistance for investment program funding.

The institutional building project is a crucial activity in a large scale effort to increase Chad's capacity in agricultural production. It is designed to develop the capability of agricultural institutions to plan, collect and maintain appropriate data, to do agricultural research, to train agricultural manpower, and to deliver effective rural/development extension programs to peasant farmers, an interrelated and massive effort to ease Chad's calorie - deficient diets which was exacerbated by the drought in the Sahel.

AID technical and capital assistance is required if this project is to be initiated. Project cost will be used for technical assistance, local staff support, training, commodities and other costs. Chadian contributions to the project, which consist of salaries and office space, are estimated at \$355,200 or approximately 3% of the project costs. With only a slight increase in their annual contribution to the project, the GOC will be able to cover recurrent costs after AID assistance terminates.

Recommendation

For the reasons stated above, that you determine that special circumstances exist which warrant the waiver of 110 (a) host country contribution requirements for this activity and that you certify that requiring a 25% Chadian contribution to project costs could seriously impede attainment of U.S. foreign policy objectives and the objectives of the foreign assistance program.