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TRAINING COMPONENT OF THE SUDAN SUGAR REHABILITATION PROJECT

SF/SUD/86/003

SUDAN

Technical report: Technical services for training under
the Sudan Sugar Rehabilitation Project -
Proposal for Phase II*

Prepared for the Government of the Sudan
by the United Nations Industrial Development Organization

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11/6

* The views expressed in this paper are those of the authors and do not necessarily reflect the views of the Secretariat of UNIDO. This document has not been edited.

PREFACE

One item which requires urgent attention and resolution is the actual implementation data for Phase II.

This has not yet been notified to UNIDO because of the influence of:

1. The further necessary development of the physical infrastructure (Sections 14 and 15)
2. Possible delays in this development programme from bad weather conditions and shortage of building materials
3. Possible uncertainties for priorities within the Sudanese National Development Programme.

Should any delays be foreseen then some form of bridging exercise must be undertaken to monitor progress in order to permit UNIDO the opportunity to establish a realistic timetable at implementation (Sections 9 and 10).

The early release of certain funds would also permit the Fellowship Training Programme to start during the period of low activity and also support the continuity of training materials development.

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INTRODUCTION

General

The UNIDO input to Phase I of the project which began in June 1988 was concluded at the end of March 1989. Seven experts were assigned for a total of 23 man/months, the CTA being present for the full period of 9 months.

Certain factors emerged during this phase which will have a distinct influence on the manner of execution of Phase II. These are:

- a. The very large numbers of employees in the sugar industry at the present time who have an immediate requirement for some form of training
- b. The existing training capacity places an impossible task before the Training Staff of the National Sugar Training Centre until further developments to the physical infrastructure have taken place.
- c. The need to establish Training Departments on the Sugar Estates has been realised but not acted upon to set up real support to the activities of NSTC.
- d. The seasonal nature of the industry creates a "maintenance window" for the process plant which will, in turn, influence the scheduling of various Training Programmes besides the assignment of various Experts and Consultants

Background

The completion of Phase I has created a platform for immediate developments provided the physical infrastructure is available to support the large scale input of Experts and Consultants besides the procurement of production and training equipment for the further development of specific training workshops.

The outline proposal for the development of the NSTC training facilities is attached as Annex I.

The outputs of Phase I which have created the technical platform for Phase II include:

- a. Two Staff Development Training Programmes were completed based upon the Modular Training System Concept and twelve NSTC Instructors together with three Industrial Training Officers were successful and produced training materials based on Job, Task and Skills Analysis Techniques for the development of Job Specifications and Modular Units or Learning Packages.
- b. Three complete Modular Training Programmes were established with five others at varying stages of development and validation.
- c. The validation procedure was instrumental in training 149 employees including Graduates, Technicians, Artisan Craftsmen and some Administrative Staff.
- d. A Qualitative Assessment of Training Needs was completed and an Outline Training Directory compiled for over 90 jobs to be developed during Phase II into a comprehensive Modular Training System.

- c. Top level meetings have taken place between G.O.S. Officials, SPIC Officials, Directors of the Sugar Estates, M.A.T.S. Team Representatives. N.S.T.C. Management and the UNIDO Project Staff to review the developments of the Project in an effort to integrate all training activities into a National Training Policy focussed on the national Sugar Training Centre at Sennar.

Scope of Phase II

The general objective of Phase II is to set in place a complete training infrastructure for the Sudanese Sugar Industry, i.e. administration, training and support personnel and facilities.

The Administration will cover all the training activities, both external and internal, i.e. (external meaning International or National Fellowships or Opportunities and internal being the activities conducted at N.S.T.C. or In-plant). The initial requirement for training staff is at the four Public Sector Sugar Estates and it is essential to the success of Phase II that the Estate Training Departments are quickly developed to provide the support and monitoring activities as further Instructors are trained and further Training Programmes are developed. An appropriate establishment for the Estate Training Departments is attached as Annex 2.

The training and training administration facilities are of immediate concern with the provision of suitable training accommodation at the Sugar Estates being the most difficult matter to address. Proposals have been tabled for Phase II of the Project to include the development of the Training Departments along with the development of N.S.T.C..

Basic Facts

1. The most recent data available (January 1989) indicated that there were 8715 people in full-time employment within the Sugar Industry. It is also recognised at all levels that every employee, has, in general terms, a requirement for participation in some form of training activity to improve efficiency and effectiveness of operation.
2. At present, there are twelve trained Instructors at N.S.T.C. and three trained Training Officers in post at 3 of the Sugar Estates.
3. There is space for only 42 Trainees to be involved with some form of practical workshop training activity at any one time at N.S.T.C..
4. Many items of equipment at N.S.T.C. are in need of new parts.
5. There is virtually no facility for the conduct of even the most basic forms of industrial training on the Sugar Estates.

THE STATE OF THE SUGAR INDUSTRY IN SUDAN

1.0 General

1.1 Sudan enjoys a possible advantage for sugar production due to the favourable conditions for growing sugar cane. The development of the Sugar Industry has been an important step towards economic and social change in the areas near the factories and possibly in the country as a whole. The first sugar mill in Sudan was established in 1962, and within the following 20 years the Sudanese Sugar Industry was strengthened with three additional Sugar Estate, as indicated below:

<u>Factory</u>	<u>Start up</u> <u>Year</u>	<u>Present</u> <u>Capacity (t/a)</u>
El Guneid, Gezira Province	1962	60,000
New Halfa, Kassala Province	1965	90,000
Sennar, Blue Nile Province	1977	110,000
Assalaya, White Nile Province	1979	110,000

1.2 In recent years the output of these Sugar Mills has shown a decline because of many and various reasons. The most recently available data still indicates a high underutilisation of the production capacity, i.e. For Cropping Season 1986/87 the production figures shown below were achieved:

El Guneid	28951 Tons
New Halfa	48478 Tons
Sennar	46747 Tons
Assalaya	47747 Tons

The Sugar Industry Staffing Situation and the Training Background

- 2.0 The above sugar estates are within the Public Sector and the Sugar Rehabilitation Project. At this present time there are 8,715 personnel employed in the various Professional, Technical and Administrative activities of the Sugar Mills (an extravagantly high level of over manning which contributes to poor productivity statistics).
- 2.2 These are supplemented on a seasonal basis by more than 7,000 additional limited skills or un-skilled personnel (This section of Industry is also noted to have a turn-over rate in the region of 35% per season
- 2.3 The Occupational Areas and the specific Fields of Work cover a very wide range of technical and skills competency requirements. A better clarification of the overall situation will be available once the results of a recent analysis are released*.
- 2.4 A further factor which has tended to make employment in the Sugar Industry somewhat unattractive has been the salary and incentives package offered to potential employees. This matter has also been addressed by Government and certain steps are anticipated in the near future to streamline the employment structure and career development possibilities throughout the Industry.

* A survey by the Management Development Centre, Khartoum and the Industrial Research Centre, Khartoum to rationalise the Job Descriptions of the whole industry - Survey Nov. & Dec.

2.5 The recruitment of new employees is reliant upon the existing educational systems of the country providing personnel at all levels. New recruits appear to lack related practical experience or application of subject knowledge, the exception being the products of the Vocational Training Centres. The Sugar Industry in general is not able to recruit sufficient Graduates from the various Departments of the Universities of Khartoum and Gezira, the Polytechnic of Khartoum, the Technical Institutes of Agriculture and the Vocational Training Centres and so there is a continual short-fall in necessary recruits to sustain any industrial development or economic growth. The main burden of training for the industry must therefore be within the Sugar Mills and at the National Sugar Training Centre.

3.0 The circumstances at the National Sugar Training Centre

3.1 The existing situation clearly defines the role of the National Sugar Training Centre (NSTC) as the focus of all training activities.

The National Sugar Training Centre is situated on the Sennar Sugar Estate adjacent to the Sugar Mill complex.

For various reasons the Training Centre has not been used to its full potential since it was completed. Some of these reasons are:

- a. Lack of finance
- b. Lack of proper organisation
- c. Lack of trained Instructors
- d. Limited training facilities

3.2 The present training/teaching facilities are summarised in Annex 3 and further to this there is residential accommodation for up to 160 trainees (now in poor condition and in urgent need of repair and refurbishing) plus 15 houses for local staff and 7 prefabricated bungalows of which three have been made available for UNIDO staff.

- 3.3 It is now essential to launch a systematic and broad based approach in attempting to up-grade the skills of all personnel employed in the Sugar Industry - at all levels.
- 3.4 Since one of the development plan priorities of the G.O.S. is self-sufficiency in the production of sugar and ultimately to become an exporter of surplus sugar it was noted that this could only be achieved by long term planning and the development of appropriate specialised training programmes and local facilities.
- 3.5 A contributory factor to this realisation (obviously) being the various UNIDO Missions and subsequent reports, all of which provide the platform for this Project.

4.0 Training at the Sugar Estates

- 4.1 Only the Sugar Mill at New Halfa had a designated Training Officer undertaking any form of in-house training and this was on a very limited level covering only basic craft skills.
- 4.2 The role of the MATS (Management Advisory Training Services) Teams was not very clear since each of the International Experts appeared to be utilising most of their time in assisting various counterparts to perform normal operational tasks, and so whilst this was a form of individual training it was not structured in any way since the activities had to respond to the demands of the production and administrative environments. The actual role of the MATS Training Officers was even more obscure since they did not have appointed counterparts to advise or train. Theirs was the most difficult and isolated activity since the Training Departments did not exist and their creation was viewed by Management as an undesirable further burden on the financial resources.

5.0 Production Capacity and Maintenance Techniques

- 5.1 As indicated in Section 1 each of the sugar mills is working at less than 50% rated capacity output for many and various reasons. One reason for last production being plant shut-down because of mechanical/electrical failure or the need for urgent critical repairs.
- 5.2 The process plant has gradually deteriorated in condition at each of the sugar mills and the progressively more serious damage coupled with the non-availability of new replacement parts is creating a downward spiral of general plant condition which will only be arrested during the second half of the rehabilitation of the mills.
- 5.3 There is an awareness at management levels of the need to establish a more efficient maintenance system but the need to keep the process plant in operation for as long as possible simply means that the principle of "operate until failure" is the most common approach to deciding when maintenance is necessary. Ample scope is also available for improving even the most elementary maintenance techniques since many cases of costly damage through poor maintenance techniques are in evidence
- 5.4 The sugar industry enjoys the opportunity, annually for a full shut down of the plant for at least 3 months at the end of the cropping season and it is this maintenance window which offers a complete overall facility which, if used to full advantage, would permit a change in maintenance philosophy to a planned maintenance system and plant performance monitoring.

6.0 Future Demands for Training

- 6.1 The most evident need is for basic skills upgrading training of all the personnel who operate plant or equipment or maintain and repair the same or supervise the operation or repair - i.e. all personnel to the level of Technician or Supervisor throughout the industry. This aspect was the subject of an analysis which indicated a total of 60,000 Trainee/weeks (sixty thousand Trainee Weeks) and therefore, the size of the task ahead must not be underestimated). These figures were effectively confirmed by Government Statistics.

6.2 Initial appraisal of the circumstances influencing the recruitment and development of a suitably skilled labour force for the sugar industry produced the following findings:

6.2.1 The National Education System is not able to meet the needs of the industry by providing suitably qualified graduates for recruitment at any level of employment.

6.2.2 Success in education appears to be gauged by academic attainment which is due in part to the very limited facilities and opportunities to study practically based subjects with application.

6.2.3 The Sugar industry cannot compete with private industry in terms of recruitment incentives whilst the nation as a whole is unable to compete with other more developed economies in the region to attract and retain qualified and skilled staff.

6.2.4 A large number of Research Fellowships and Higher Degree Scholarships are taken up by Sudanese Nationals but executed abroad thus limiting the potential for industrial development linked to new technological advances.

6.2.5 The one single area capable of producing suitably qualified Graduates as Potential Instructors or Supervisors is the few National Vocation Training Centres.

6.3 All evidence pointed to training being the key factor and essential interface between education and industry to produce an all round improvement in performance of the sugar industry.

7.0 Training Objectives

7.1 The above figures (para 6.1) indicates the difficulty in attempting to make any impact on the future demands for training by using the restricted facilities at N.S.T.C. and therefore, all initial basic training will need to be accomplished by In-plant Training Programmes prepared, administered and validated for certification by N.S.T.C.. This aspect creates a two tier training system with different objectives - both in the short-term and in the long-term.

7.2 Short-term Training Objectives at N.S.T.C.

Upon the completion of the Fellowship Training Programme, which is scheduled as one of the first activities of Phase II, the Instructional Staff of N.S.T.C. will each have successfully completed a programme designed to improve individual communication skills and the use of training aids together with a skills improvement component in a practical area of work thus providing N.S.T.C. with the nucleus of Instructors capable of:

- a. Developing Modular Unit Learning Packages; and
- b. Training personnel who are already skilled and competent as In-plant Instructors or Training Supervisors in limited fields of work within an occupational area.

7.3 Short-term Training Objectives for Training Departments.

Experienced and mature operators, artisans, technicians and supervisors will be selected to participate in short training programmes at N.S.T.C. on the basics of Instructional Methodology and the Project Philosophy of developing Modular Units and Learning Packages followed by In-plant coaching.

Upon completion of the training programme, the participants will then be identified as part-time Instructors or Training Supervisors with specific areas of responsibility narrowly based but to a high level of competency and with a brief to conduct short training programmes as scheduled by the Training Officer.

7.4 These short term objectives will be further satisfied by establishing a system of interchangeability between the Full-Time Instructors from N.S.T.C. and those identified as Part-Time In-plant Instructors.

7.5 It will be essential to establish a system of recruitment for the purpose of increasing the number of Instructors at N.S.T.C. besides establishing the Training Departments as shown in Annex 2.

7.6 Following the establishment of a rolling training programme an initial impact has been made on the existing demand it will be possible to address the Long-Term Training Needs through the continued development of training materials and expertise at N.S.T.C..

7.7 Long-Term Training Objectives at N.S.T.C.

With the development of the physical facilities at N.S.T.C. and the consequent further development of training materials the role of N.S.T.C. will need to change and concentrate on advanced skills upgrading training for all areas of work in the sugar industry which would also embrace training in administrative, commercial, supervisory and management skill to meet the full needs of the industry, thus establishing an identity for the Training Centre as a Centre of Excellence.

7.8 Long-Term Training Objectives for Training Departments

Through the training of further Part-Time Instructors, the Training Departments will be able to enlarge their areas of input besides fulfilling two further important functions, i.e.:

- Monitoring the performance of trainees; and
- Continuously developing programme outlines to meet specific training needs as they appear.

7.9 The Long-Term Training Objectives will have been realised once further training is recognised as a pre-requisite qualification for promotion.

THE PROJECT OUTLINE

8.0 Development Objectives

8.1 The scope of Phase II is identified as the setting in place of a complete training infrastructure (administration, personnel and facilities) which will be achieved by attaining the following Development Objectives.

8.2 At the conclusion of Phase II:

8.2.1 The National Sugar Training Centre will need to have established an administrative structure as indicated in Diagram 1.

8.2.2 The National Sugar Training Centre will have full Library and Resource Centre facilities, developed in-house, with a bank of Modular Units and Learning Packages covering the basic requirements of the Sudanese Sugar Industry.

8.2.3 The physical infrastructure will have been completed from appropriate design specifications based upon the document prepared for UNIDO "A Proposal for the Development of the N.S.T.C.".

8.2.4 Individual Sugar Estate Training Departments will be established and functioning as reflected in Annex 2.

8.2.5 The central administrative structure set up at N.S.T.C. will be able to control, monitor, retain records, follow-up and certify all the training activities which take place within the Sudanese Sugar Industry

9.0 Implementation Date

The implementation date of Phase II is subject to external influences which require resolution before the Project can "come on stream".

9.1 The main possibilities include:

9.1.1 The Project is accepted to begin as soon as the administrative details are completed

9.1.2 The implementation date may be delayed until a committed development programme for the physical infrastructure is established but as an interim measure the training component is mobilised through the early release of funding.

9.1.3 The suspension of further UNIDO input until such times as the on-site situation at N.S.T.C. and the Training Departments have been qualified to permit a later co-ordinated input of International Expertise.

10.0 Implementation Plan

Phase II of the project is planned for a period of at least two years, with, as indicated, a precise starting date yet to be established.

10.1 In order to set in place the complete training infrastructure to satisfy the needs of the newly established National Training Policy for the Sugar Industry an integrated development programme will require:

10.1.1 The provision of further training facilities at N.S.T.C. and at the Sugar Estates, i.e. suitable buildings, services, training equipment, training materials, trained Instructors, Training Officers and support staff at each location

10.1.2 The provision of suitable (and appropriate) living accommodation, services, cooking facilities (i.e. board and lodgings) for UNIDO Personnel, N.S.T.C. Instructors and Staff, and Trainees, Visitors, Delegates, Consultants and Advisors.

10.1.3 The assignment of UNIDO Experts together with suitably qualified Counterparts.

10.1.4 The recruitment of suitable qualified and experienced support staff

10.1.5 The establishing of a reliable communications system between N.S.T.C. and all other associated administrative centres (i.e. the Estate Training Departments, SPIC, UNDP and UNIDO) with a fail safe emergency routine

- 10.1.6 The provision of transportation for all normal project specific requirements but with also suitable and adequate stand-by coverage for emergency needs of all descriptions
- 10.1.7 The continued development of human resources at N.S.T.C. and the Training Departments through continuous recruitment and Staff Development Training Programmes (in-house, national or international)
- 10.1.8 A further expansion to the Training Needs Analysis Document and Outline Occupational Directory to provide the base for a comprehensive Modular Training System based on the N.S.T.C. Reference Library and Resource Centre
- 10.1.9 The establishment of a complete administrative structure for the control, administration, recording, certifying and following-up of ALL training activities within the Sugar Industry of Sudan.

11.0 UNIDO Personnel

During Phase I, the most significant indicator to the correlation of Specialists International (UNIDO) Input and the needs of the industry in general was the great diversification of necessary expertise required to meet the demands of most of the generally identified specialist inputs for Phase II. With this experience available, the original outline proposal is made more specific in order to enhance and widen the development philosophy already established during the first phase.

11.1 The areas of expertise required according to established International Standard Fields of Work may be resolved as follows by extrapolation from the original Prodoc.

11.2 Specific UNIDO Personnel Input:

Post 11.01	- Chief Technical Advisor	
Post 11.02/1	- Mechanical	- Fitting and Machining
Post 11.02/2	- Mechanical	- Plant Maintenance
Post 11.02/3	- Mechanical	- Welding and Fabrication

Post 11.02/4	- Mechanical	- Pipe Fitting
Post 11.03	- Training Methodology	
Post 11.04	- Audio Visual Aids	
Post 11.05/1	- Vehicles	- Light Vehicle Maintenance
Post 11.05/2	- Vehicles	- Tractor Maintenance
Post 11.05/3	- Vehicles	- Heavy Plant Maintenance
Post 11.05/4	- Vehicles	- Cane Harvester Maintenance
Post 11.06/1	- Management	- Management Principles
Post 11.06/2	- Management	- Business Admin.& Accounts
Post 11.06/3	- Management	- Supervisory Studies
Post 11.07/1	- Electrical	- Domestic Installation
Post 11.07/2	- Electrical	- High Voltage Systems
Post 11.07/3	- Electrical	- Electrical M/C Maintenance
Post 11.07/4	- Electrical	- Instrumentation Engineering
Post 11.08	- Sugar Technology	
Post 11.09/1	- Ag. Related	- Seed Propagation
Post 11.09/2	- Ag. Related	- Fertilisation
Post 11.09/3	- Ag. Related	- Mechanisation
Post 11.50	- Short-term Experts	
	- Consultants	

11.3 The Job Descriptions for the variously identified posts are included as Annex 4.

12.0 Training Centre Staff

The Counterpart Personnel essential for the secure establishment of Phase II together with supporting Instructors are as follows:

12.1	Director of N.S.T.C.	- Counterpart to the CTA
12.2	Mechanical Engineering Department	
12.2.1	Head of Department	- Advanced Machining
12.2.2	Senior Instructor	- Advanced Fitting
12.2.3	Instructor	- Basic Machining
12.2.4	Instructor	- Basic Fitting
12.2.5	Senior Instructors	- Welding and Fabrication
12.2.6	Instructor	- Fabrication
12.2.7	Instructor	- Pipe Fitting/Value Maintenance
12.2.8	Instructor	- Plant Maintenance
12.3	Electrical and Instrumentation Engineering	
12.3.1	Head of Department	
12.3.2	Instructor	- Electrical Installation
12.3.3	Instructor	- High Voltage/Power Generation
12.3.4	Instructor	- Electrical Machines Maintenance
12.3.5	Instructor	- Process Equipment Maintenance
12.4	Vehicle Operation and Maintenance	
12.4.1	Head of Department	- Auto Maintenance
12.4.2	Senior Instructor	- General Maintenance
12.4.3	Senior Instructor	- Operator Training
12.4.4	Senior Instructor	- Diesel Engine Maintenance
12.4.5	Instructor	- Basic Fitting
12.4.6	Instructor	- Vehicle Electrical System
12.4.7	Instructor	- Hydraulic Systems
12.4.8	Instructor	- Body Maintenance and Rep.

- 12.5 Training Department
 - 12.5.1 Head of Department - Training Methodology
 - 12.5.2 Senior Instructor - Medical Specialist
 - 12.5.3 Senior Instructor - Library/Resources Manager

- 12.6 Business Management
 - 12.6.1 Head of Department - Administration & Accounting
 - 12.6.2 Senior Instructor - Supervisory Skills
 - 12.6.3 Instructor - Office Administration
 - 12.6.4 Instructor - Secretarial Services

- 12.7 Sugar Technology
 - 12.7.1 Head of Department - Process Technology
 - 12.7.2 Senior Instructor - Process and Quality Control

- 12.8 Agriculture
 - 12.8.1 Head of Department - Seed Propagation & Care Research
 - 12.8.2 Senior Instructor - Soil Research/Fertilisation/
Irrigation
 - 12.8.3 Instructor - Mechanisation

- 12.9 Construction/Buildings
 - 12.9.1 Senior Instructor - Road/Canal Management
 - 12.9.2 Instructor - Buildings

12.10 The combined communication structure and responsibility network interface is included in idealised form as Annex 5.

13.0 Training Departments Staff

13.1 As illustrated in Annex 2, the initial requirement to establish the Training Departments is as follows;

- 13.1.1 Training Manager - Management
- 13.1.2 Training Officer - Engineering
- 13.1.3 Training Officer - Process
- 13.1.4 Training Officer - Agriculture

- 13.2 Full-time Instructors
 - 13.2.1 Instructor - Mechanical
 - 13.2.2 Instructor - Electrical
 - 13.2.3 Instructor - Vehicle
 - 13.2.4 Instructor - Process Plant Maintenance
 - 13.2.5 Instructor - Process Operation
 - 13.2.6 Instructor - Agricultural Equipment

- 13.3 Part-time Instructors
 - 13.3.1 A minimum of 25 are required for training in limited areas of skill

DEVELOPMENT OF THE PHYSICAL INFRASTRUCTURE

14.0 At the National Sugar Training Centre

- 14.1 The development and extension of the training facilities which is now to begin is the major factor influencing the implementation date for Phase II. However, a further aspect for urgent consideration and equal priority for parallel development is the office accommodation for UNIDO Experts and the residential accommodation for UNIDO Personnel, N.S.T.C. Staff and Trainees.
- 14.2 Effective implementation of Phase II will require suitable residential accommodation for a minimum of 8 UNIDO Experts at any one time with the probable requirement of twice this number on certain occasions and further, upon the completion of Phase II the Staff of N.S.T.C. must be a minimum of 35 Instructors with a similar number of support and administrative staff.
- 14.3 Office and working accommodation for the UNIDO Experts and Support Staff may be summarised as follows: (minimum requirement)
- 14.3.1 Separate office for the C.T.A. with attached space for Bilingual Secretary
 - 14.3.2 UNIDO Administrative Office controlled by Senior Administrative Officer with assistance of a Bilingual Secretary and appropriate facilities for support services such as photo-copying, reprographic services, etc...
 - 14.3.3 Appropriate office space, furnishings and facilities for at least 8 additional UNIDO Experts.
- 14.4 The continued rehabilitation of Trainee living accommodation must follow the phased development of the training facilities to ensure maximum utilisation of the N.S.T.C. resources from the start of Phase II.

15.0. At the Sugar Estate Training Departments

- 15.1** The establishing of Training Department accommodation is a further factor to influence the smooth implementation of Phase II. For instant establishment of accommodation external to the Sugar Mill, suitable pre-fabricated buildings are available in Modular Construction to permit further extension to meet any specific increase in demand.
- 15.2** The setting up of Training Departments within the scope of the Project Budget would require certain assurances with respect to the tools and equipment besides the general monitoring of all training undertaken.

PROPOSED INPUTS

16.0 Local Inputs

- 16.1** The training facilities of N.S.T.C. together with the various forms of accommodation will be refurnished, extended and supplemented in line with the stated Development of the Physical Infrastructure.
- 16.2** Adequate training facilities will be made available at the Public Sector Sugar Estates along with supporting staff and basic materials necessary to conduct In-plant training programmes in time with the National Training Policy.
- 16.3** UNIDO will also be provided with appropriate support staff and full access to the facilities at the Sugar Estates for the purpose of identifying, analysing or validating any activities for the purpose of training development.
- 16.4** Transportation facilities will be made available to UNIDO personnel with designated Drivers suitably qualified, experienced and professionally capable (to the standard required by the CTA) for all vehicles purchased by the Project Budget for priority use by UNIDO staff. Fuel and maintenance costs also being identified as the responsibility of the G.O.S..

16.5 The provision of the above to the desired level and quality being the responsibility of SPIC.

16.6 Initial Cost Estimates are as follows:

	(Ls)
16.6.1 Repair and Maintenance to Main Buildings	250,000
16.6.2 Teaching Block (including Laboratory, Library, Workshops)	2,000,000
16.6.3 Staff Housing (New)	1,500,000
16.6.4 Trainee Maintenance Accommodation (including new catering facilities)	500,000
16.7 Estimate of Annual Costs	
16.7.1 Support Staff Salaries	20,000
16.7.2 Administrative Support Materials	2,500
16.7.3 Transportation	2,500
16.7.4 Facility Maintenance	12,500

17.0 UNIDO Inputs

- 17.1 The fielding of all Experts either by direct recruitment and assignment or on a sub-contract basis with agreement through bona-fide specialist Consultancy Agencies.
- 17.2 Full support services for the procurement of training aids, laboratory equipment (and essential chemicals), machinery, machine tools and equipment as recommended by the various UNIDO Experts assigned during Phase I, plus such items identified to satisfy projected needs of Phase II by the respective Experts in consultation with the CTA.
- 17.3. Organization of Fellowship Training Programmes, Study Tours and national or in-house training programmes.
- 17.4 The provision of a continuously available Consultancy Service Back-up System able to meet any needs through the UNIDO Resources Pool.

17.5 Initial Cost estimates are as follows:

	US\$
17.5.1 Training Experts	1,480,450
17.5.2 Fellowships	610,000
17.5.3 Staff Travel	45,000
17.5.4 Equipment and Vehicles	630,000
17.5.5 Miscellaneous	70,000
17.5.6 Expendable Goods	15,000
17.5.7 13% Overhead Support Cost	370,560
17.5.8 5% Contingency	142,526
17.5.9 TOTAL	<u>3,363,535</u>

18. Budget Proposal (as per attached budget sheets)

Explanatory Notes (to the Budget Proposal)

Three alternatives are proposed.

In each case Budget Line 11 and Budget Line 16 remain constant and they represent the main feature of the proposal as indicated in Section 11.

1. Page 3 - proposal no.1 is the recommended allocation of funding, noting that it exceeds the original proposal as contained in the Prodoc.
2. Page 3 - proposal no.2 is a revision intended to illustrate a means of staying within the original budget proposal, i.e. the reduction has been achieved by a revision of the Training Component and the Equipment Component and a small adjustment to Budget Line 51. This proposal is the least attractive.
3. Page 3 - proposal no.3 is a compromise between 1 and 2 above. The lower sum on Budget Line 42 means that the Training Departments will not be established within the scope of the Project Budget.

3. COUNTRY SUDAN	4. PROJECT NUMBER AND AMENDMENT SF/SUD/86/003 - Phase II	5. SPECIFIC ACTIVITY
10. PROJECT TITLE TRAINING COMPONENT TO THE SUDAN SUGAR REHABILITATION PROJECT		

15. INTERNATIONAL EXPERTS (functional titles required except for line 11-50)	16. TOTAL		17. FIRST YEAR		18. SECOND YEAR		19.		20.	
	M/M	\$	M/M	\$	M/M	\$	M/M	\$	M/M	\$
11-01 Chief Technical Advisor	24	215.250	12	105.000	12	110.250				
02 Mechanical Maintenance	24	203.000	12	99.000	12	104.000				
03 Training Methodology	10	78.400	5	38.250	5	40.150				
04 Audio-Visual Aids	6	47.000	6	47.000						
05 Op ^r & Maint. M.V + Ag. Eqpt	24	195.400	12	95.400	12	100.000				
06 Supervisory/Management	15	121.500	9	71.500	6	50.000				
07 Instrument/Electrical Eng.	24	195.400	12	95.400	12	100.000				
08 Sugar Technology	9	72.200	6	47.000	3	25.700				
09 Ag. Related Subjects	24	195.400	12	95.400	12	100.000				
10										
11										
12										
13										
14										
15										
16										
11-50 Short term consultants	12	156.400	6	76.400	6	80.000				
11-99 Sub-total-International experts **	172	1.480.450	92	771.050	80	709.400				

21. REMARKS The calculations are based upon the ideal situation of assigning short-term Experts for the best possible utilization of special expertise. The CTA is the only individual Expert with a single assignment. The sums do not include 13% overhead support cost or 1% Reserve Fund.

** If more than 18 experts required check here and attach continuation sheet 1A. This sub-total must include all experts.

4. PROJECT NUMBER	16. TOTAL		17. FIRST YEAR		18. SECOND YEAR		19.		20.	
	M/M	\$	M/M	\$	M/M	\$	M/M	\$	M/M	\$
CPAS EXPERTS (functional titles required)										
12-01 _____										
12-02 _____										
12-03 _____										
12-99 Sub-total-CPAS experts **										
ADMINISTRATIVE SUPPORT PERSONNEL										
13-00 Clerks, secretaries, drivers										
13-50 Freelance interpreters (non-UNDP projects)										
13-99 Sub-total-administrative support personnel										
UN VOLUNTEERS (functional titles required)										
14-01 _____										
14-02 _____										
14-03 _____										
14-04 _____										
14-99 Sub-total-UN VOLUNTEERS **										
15-00 Project travel										
16-00 Other personnel costs (including UNIDO staff mission costs)		45.000		25.000		20.000				
NATIONAL EXPERTS (functional titles required)										
17-01 _____										
17-02 _____										
17-03 _____										
17-04 _____										
17-05 _____										
17-99 Sub-total-National experts **										
18-00 Surrender prior years' obligations										
19-99 TOTAL-PERSONNEL COMPONENT	172	1.525.450	92	796.050	80	729.400				

** If additional individual budget lines are required, check here and attach continuation sheet 1A. These sub-totals must include budget lines listed on page 1A.

4. PROJECT NUMBER	16. TOTAL		17. FIRST YEAR		18. SECOND YEAR		19.		20.	
	M/M	\$	M/M	\$	M/M	\$	M/M	\$	M/M	\$
SUBCONTRACTS										
21-00 Subcontracts										
28-00 Surrender prior years' obligations										
29-00 TOTAL-SUBCONTRACTS										
TRAINING										
31-00 Individual fellowships										
32-00 Study tours; UNDP group training		20.000		10.000		10.000				
33-00 In-service training										
34-00 Non-UNDP group training		590.000		330.000		260.000				
35-00 Non-UNDP meetings										
38-00 Surrender prior years' obligations										
39-99 TOTAL-TRAINING COMPONENT		610.000		340.000		270.000				
EQUIPMENT										
41-00 Expendable equipment		15.000		5.000		10.000				
42-00 Non-expendable equipment		630.000*		365.000		265.000				
43-00 Premises										
48-00 Surrender prior years' obligations										
49-99 TOTAL-EQUIPMENT COMPONENT		645.000		370.000		275.000				
MISCELLANEOUS										
51-00 Sundries		70.000		30.000		40.000				
55-00 Hospitality (non-UNDP projects)										
56-00 Support costs (CC and DC projects only)										
58-00 Surrender prior years' obligations										
59-99 TOTAL-MISCELLANEOUS COMPONENT		70.000		30.000		40.000				
99-99 PROJECT TOTAL	172	2.850.450		1.536.050		1.314.400				

* B.L. 42.00 contains an allocation of 50.000 to each of the Sugar Estates for the establishment and equipping of the required Training Departments.

4. PROJECT NUMBER	16. TOTAL		17. FIRST YEAR		18. SECOND YEAR		19.		20.	
	M/M	\$	M/M	\$	M/M	\$	M/M	\$	M/M	\$
SUBCONTRACTS										
21-00 Subcontracts										
28-00 Surrender prior years' obligations										
29-00 TOTAL-SUBCONTRACTS										
TRAINING										
31-00 Individual fellowships										
32-00 Study tours; UNDP group training		20.000		10.000		10.000				
33-00 In-service training										
34-00 Non-UNDP group training		490.000		230.000		260.000				
35-00 Non-UNDP meetings										
38-00 Surrender prior years' obligations										
39-99 TOTAL-TRAINING COMPONENT		510.000		240.000		270.000				
EQUIPMENT										
41-00 Expendable equipment		15.000		5.000		10.000				
42-00 Non-expendable equipment		430.000		265.000		165.000				
43-00 Premises										
48-00 Surrender prior years' obligations										
49-99 TOTAL-EQUIPMENT COMPONENT		445.000		270.000		175.000				
MISCELLANEOUS										
51-00 Sundries		65.000		25.000		40.000				
55-00 Hospitality (non-UNDP projects)										
58-00 Support costs (CC and DC projects only)										
58-00 Surrender prior years' obligations										
59-99 TOTAL-MISCELLANEOUS COMPONENT		65.000		25.000		40.000				
99-99 PROJECT TOTAL	172	2.500.450	92	1.306.050	80	1.194.400				

This proposal does not include provision for assisting in the establishment of the Training Departments. The reduced estimate to BL 34 and BL 51 restores proposed expenditure to original estimate prepared in Prodoc.

4. PROJECT NUMBER	16. TOTAL		17. FIRST YEAR		18. SECOND YEAR		19.		20.	
	M/M	\$	M/M	\$	M/M	\$	M/M	\$	M/M	\$
SUBCONTRACTS										
21-00 Subcontracts										
28-00 Surrender prior years' obligations			1							
29-00 TOTAL-SUBCONTRACTS										
TRAINING										
31-00 Individual fellowships										
32-00 Study tours: UNDP group training		20.000		10.000		10.000				
33-00 In-service training										
34-00 Non-UNDP group training		590.000		330.000		260.000				
35-00 Non-UNDP meetings										
38-00 Surrender prior years' obligations										
39-99 TOTAL-TRAINING COMPONENT		610.000		340.000		270.000				
EQUIPMENT										
41-00 Expendable equipment		15.000		5.000		10.000				
42-00 Non-expendable equipment		430.000		265.000		165.000				
43-00 Premises										
48-00 Surrender prior years' obligations										
49-99 TOTAL-EQUIPMENT COMPONENT		445.000		270.000		175.000				
MISCELLANEOUS										
51-00 Sundries		70.000		30.000		40.000				
55-00 Hospitality (non-UNDP projects)										
56-00 Support costs (CC and DC projects only)										
58-00 Surrender prior years' obligations										
59-99 TOTAL-MISCELLANEOUS COMPONENT		70.000		30.000		40.000				
99-99 PROJECT TOTAL	172	2.650.450	92	1.436.050	80	1.214.400				

19.0 Project Outputs

- 19.1 A draft proposal for a Phase III to the Project which will be the period following completion when the facilities at N.S.T.C. and the Training Departments will be fully dedicated to all aspects of skills upgrading in the Public Sector of the Sudanese Sugar Industry.
- 19.2 The complete rehabilitation of, and extensions to N.S.T.C. with the accommodation fully equipped, commissioned and operational.
- 19.3 Fully established Training Departments at the four Public Sector Sugar Estates.
- 19.4 Housing for the Staff of N.S.T.C..
- 19.5 Trainee board and lodging facilities suitably refurnished and with all support services to accommodate sufficient numbers of trainees to maximise the utilisation of the newly developed training facilities.
- 19.6 A comprehensive training infrastructure capable of handling all aspects of the National Training Policy.
- 19.7 A fully integrated training programme prepared in Modular Unit Format and including instruments for monitoring and assessing performance levels and recording the results on a continuous basis.
- 19.8 A staffing structure at N.S.T.C. as follows:
- | | |
|------------------------------|----|
| National Director | 1 |
| Deputy Director | 1 |
| Heads of Department | 7 |
| Senior Instructors | 11 |
| Instructors | 17 |
| Administrative Support Staff | 30 |
- 19.9 A staffing structure at each Training Department as follows:
- | | |
|-----------------------|----|
| Training Manager | 1 |
| Training Officers | 3 |
| Full-time Instructors | 6 |
| Part-time Instructors | 25 |
- 19.10 UNIDO, assisted by the CTA, will carry overall responsibility for monitoring, evaluating and reporting on the project development performance. Monitoring will be carried out by Headquarters missions to the the duty station (with a maximum period between missions of 6 months) and the progress reviewed on the basis of the CTA's reports and the reports of other UNIDO Short-term Experts.

19.11 UNIDO will be responsible for submitting the CTA's Progress Reports to SPIC and in turn, SPIC will be responsible for submitting Progress Reports at the National Director to UNIDO. These Reports would then provide the substance for the formulation of an Agenda for any UNIDO Monitoring Mission and would be the basis for initial discussions.

19.12 At the end of the first full year of UNIDO commitment to Phase II (as defined by the eventually agreed upon full implementation date) a UNIDO mission will be instituted to:

- Evaluate actual progress
- Prepare a status report
- Make recommendations for the conduct of the Project during the succeeding twelve months.

19.13 The Final Technical Report for Phase II will provide the basis for an outline proposal for the execution of a further Phase.

20.0 Project Activities

20.1 All the assigned Experts will be required to submit an individual Technical Report at the end of each mission or assignment which will also form part of the CTA's various progress reports.

20.2 The assignment schedule indicated is deemed the most appropriate for the use of existing facilities and the future phased development of the Centre and Training Departments and it is recognised that all the necessary Counterparts, Training Officers and Instructors, together with support staff will be in place as the development programme progresses.

20.3 The workshop accommodation and training facilities will need to be developed according to the development flow chart and in particular, the living accommodation for UNIDO Experts and respective Counterparts and Instructors phased accordingly.

- 20.4 The major contribution of each UNIDO Expert will be to assist the Counterparts in preparing a Modular Training Programme for the development of skills in the areas identified within the individual Job Descriptions of their speciality and also prepare the course content for a Staff Development Programme for the future training of Instructors and Training Officers in the respective Field of Work.
- 20.5 The Pilot Plant and Laboratory facilities will be developed in accordance with the detailed specification prepared for the CTA by the Director of the National Sugar Training Centre.
- 20.6 Appropriate orientation training programme for newly recruited staff will be organised by the CTA to take place at NSTC and successful completion being recognised as a pre-requisite for further Fellowship Training within the Project.
- 20.7 The Technical Report for Phase II will include a rolling development programme for a Phase III - the actual impact phase of the Project - and indicate how best this can be supported, monitored and evaluated by UNIDO. The schedule of further training activities will include budget estimates for the final development of the training facilities, at NSTC and the Training Departments, Fellowship Training and Study Tour Proposals and a guide to further local input necessary to sustain the existing development of the training activities within the Sugar Industry.
- 20.8 The UNIDO Experts Assignment chart has been scheduled according to existing physical facilities and an insight as to how they would progress once the development plan is set in progress.
- 20.9 Any dilution of the overall plan to develop the training accommodation of NSTC and the Sugar Estates would automatically have a drastic influence upon:
1. The assignment of UNIDO Personnel
 2. The scheduled purchase, delivery and commissioning of equipment
 3. The related development of Counterpart expertise
 4. The establishing of a phased development programme for the Training of Trainers and the production of Training Materials and resources.

20.10 The assignment chart is also of value for the national Director of Training to schedule his recruitment of Counterparts, additional Instructors and administrative support staff besides schedule availability of suitable living accommodation of the UNIDO Project Personnel.

21.0 Project Management

21.1 The designated Officer in the Industrial Training Branch at UNIDO Headquarters, Vienna, will be responsible through the Chief of Section for the overall Project Administration and Management by Backstopping and Supervision.

21.2 The designated Officer will be supported by a core group of UNIDO Personnel representing the various Branches and Sections of Headquarters Staff who will be the identified Officials responsible for conducting the Project Procedures coordinated by the designated Backstopping Officer.

21.3 At all times, Senior UNIDO Staff will maintain a close supervisory role with respect to the UNIDO Input and will, through regular periodic missions to Sudan, monitor progress of implementation according to the work-plan and be the sole authority designated to modify the overall implementation programme.

21.4 Senior UNIDO Officials will be given the responsibility of maintaining close supervisor of the execution of the project work schedule in terms of UNIDO Management Implementation and G.O.S. commitment through regular missions to the Duty Station.

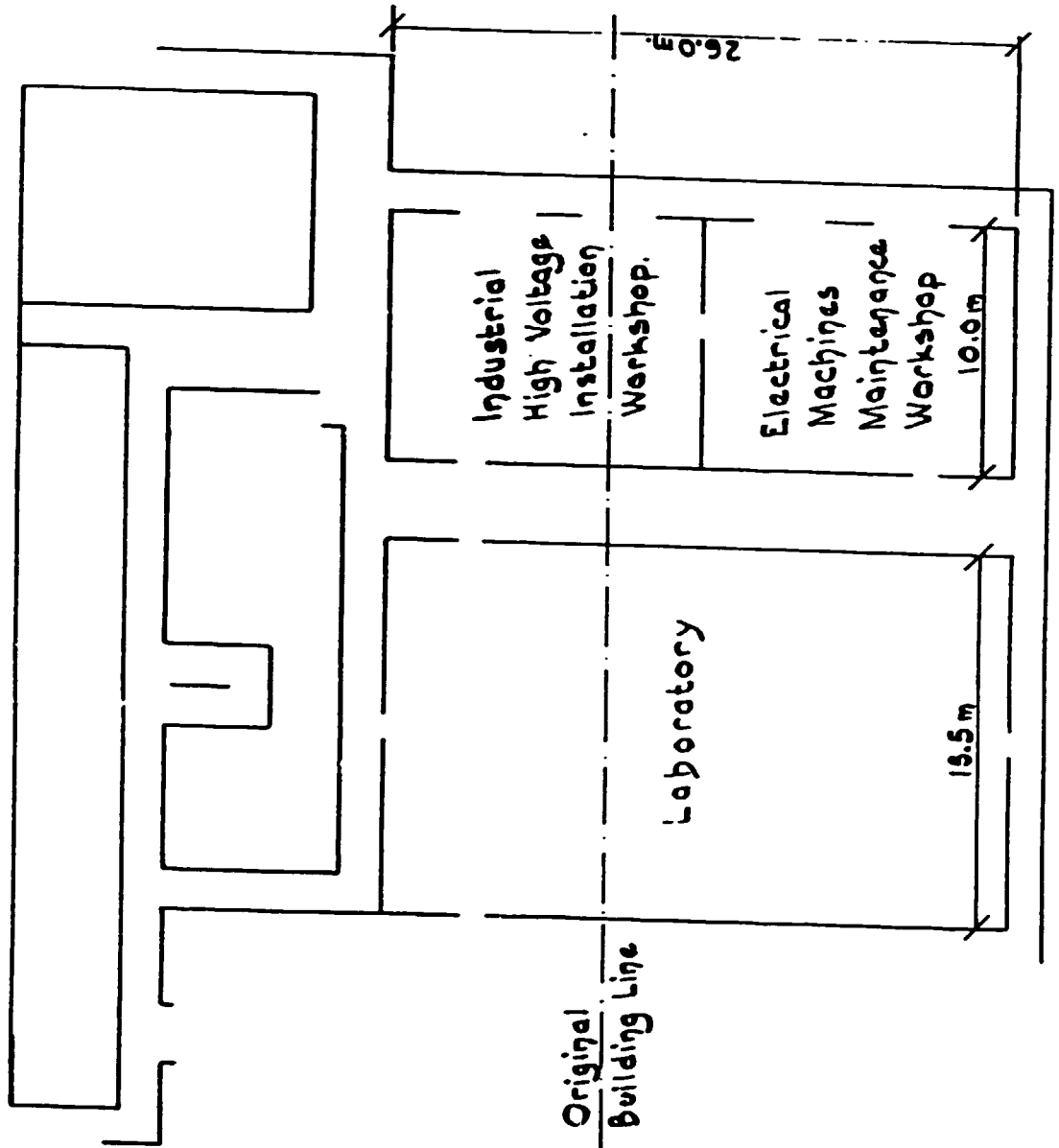
21.5 Should further field support be necessary it will be normally available on request subject to the established UNIDO administrative practices.

Phase II Schedule - Assignment and Development

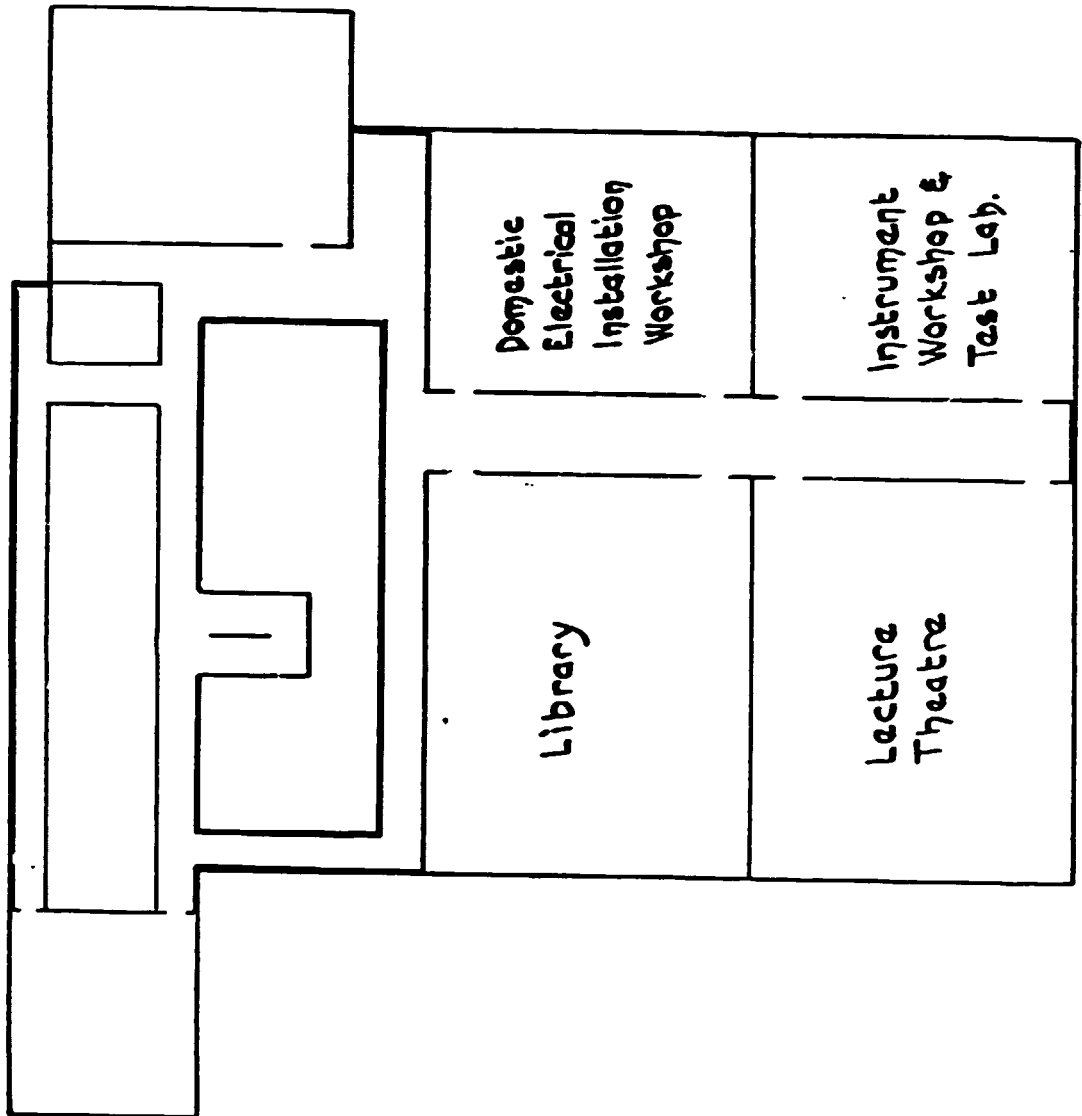
Number present		5	8	9	7	10	10	8	12	8	7	6	2	
UNIDO Expert	Post	First Year					Second Year					Accommodation Schedule		
C.T.A.	11.01	_____												EQUIPMENT
Mech. Eng. Fitting/Mach.	11.02-1	_____												1 Equipm Proposal Adv Machine Shop-Fitting
Mech. Eng. Plant Maintenance	11.02-2	_____ _____												11 Plant Maintenance Work
Mech. Eng. Weld/Fab.	11.02-3	_____ _____												9 Welding/Fabrication Shop
Mech. Eng. Pipes/Valves	11.02-4	_____ _____												16 Proposal-Pipes Fitting Valves/Pumps Workshop
Trg Method	11.03	_____												2 Prop. Training Dept.
Audio-Visuel Aids	11.04	_____ _____												5 Proposal for A.V. Resource Centre
Auto/Ag. Eqpt Light Vehicles	11.05-1	_____												3 Prop.-Light Vehicle Workshop Equipment
Auto/Ag. Eqpt Tractors	11.05-2	_____ _____												8 Proposal for Tractor Training Facility
Auto/Ag. Eqpt Heavy Plant	11.05-3	_____ _____												12 Proposal-Heavy Plant Training Workshop
Auto/Ag. Eqpt Harvesters	11.05-4	_____ _____												18 Proposal - Harvester Training Workshop
Management Exec. Man ^c	11.06-1	_____ _____												21 Management Programme Proposal
Management Business/Acc.	11.06-2	_____ _____												19 Business Studies and Accounts Progr. Prop.
Management Supervisors	11.06-3	_____ _____												13 Programme Proposal Supervisory Studies
Elect-Inst ⁿ Installation	11.07-1	_____												4 Equipment Proposal Electrical Install.
Elect-Inst ⁿ High Voltage	11.07-2	_____ _____												10 Equipment Proposal High Voltage Workshop
Elect-Inst ⁿ Elect. Machin.	11.07-3	_____ _____												17 Equipment Proposal Electrical Machines W/s
Elect-Inst ⁿ Instruments	11.07-4	_____ _____												14 Equipment Proposal Instrumentation W/s
Sugar Tech ^y	11.08	_____ _____												6 Proposal-Pilot Plant Q.C. Laboratory
Ag. Related Seed/Cane	11.09-1	_____												7 Proposal for Ag. Facilities
Ag. Related Fert-Soil Tech.	11.09-2	_____ _____												15 Proposal - Soil Technology
Ag. Related Mechanisation	11.09-3	_____ _____												20 Proposal - Agricult. Mechanisation
<p>UNIDO Schedule of assignments will require a minimum of 3 months lead time</p> <p>Accommodation Schedule Basic and Advanced Fitting/Mach Lighth. Auto-Electrical Install. Resource Centre - Laboratory Agricultural Plot Tractor Workshop. Pilot Plant Welding-High Voltage Workshop Fabrication Plant Maintenance-Harvester Instrumentation Pipe Fitting/Valves/Pumps Works Heavy Plant-Electrical Machines Harvesters-Ag. Mechanisation</p> <p>Installation Test Commissioning of Eqpt</p> <p>The recruitment of counterparts and the provision of the physical facilities will require to be scheduled on behalf of the G.O.S. and S.P.I.C. by NSTC Management</p>														

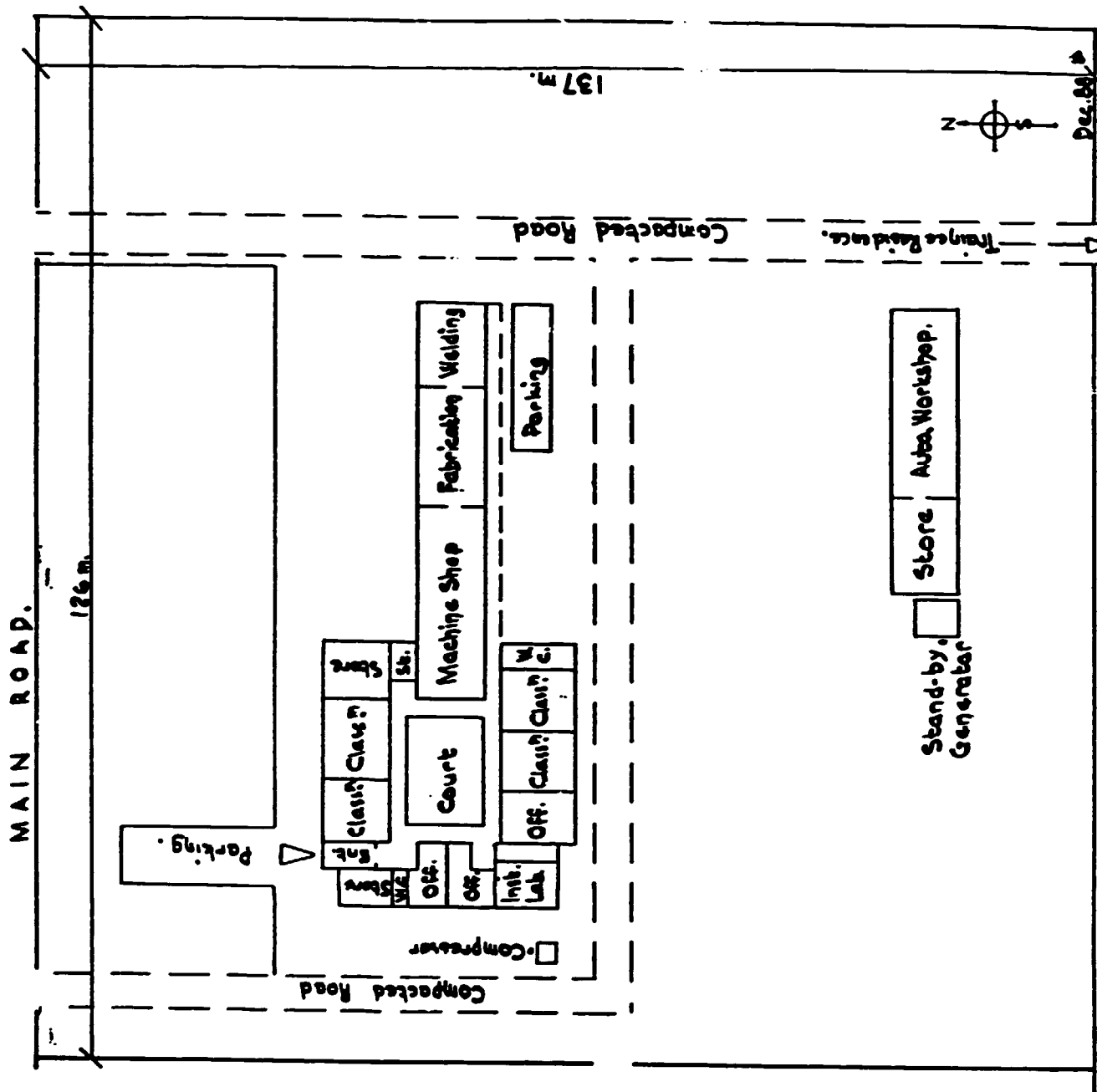
Proposal - Annex I

SUGAR TRAINING CENTRE, SENNAR
PROPOSED EXTENSION WITH SUGGESTED MODIFICATIONS
TO ORIGINAL DESIGN - GROUND FLOOR



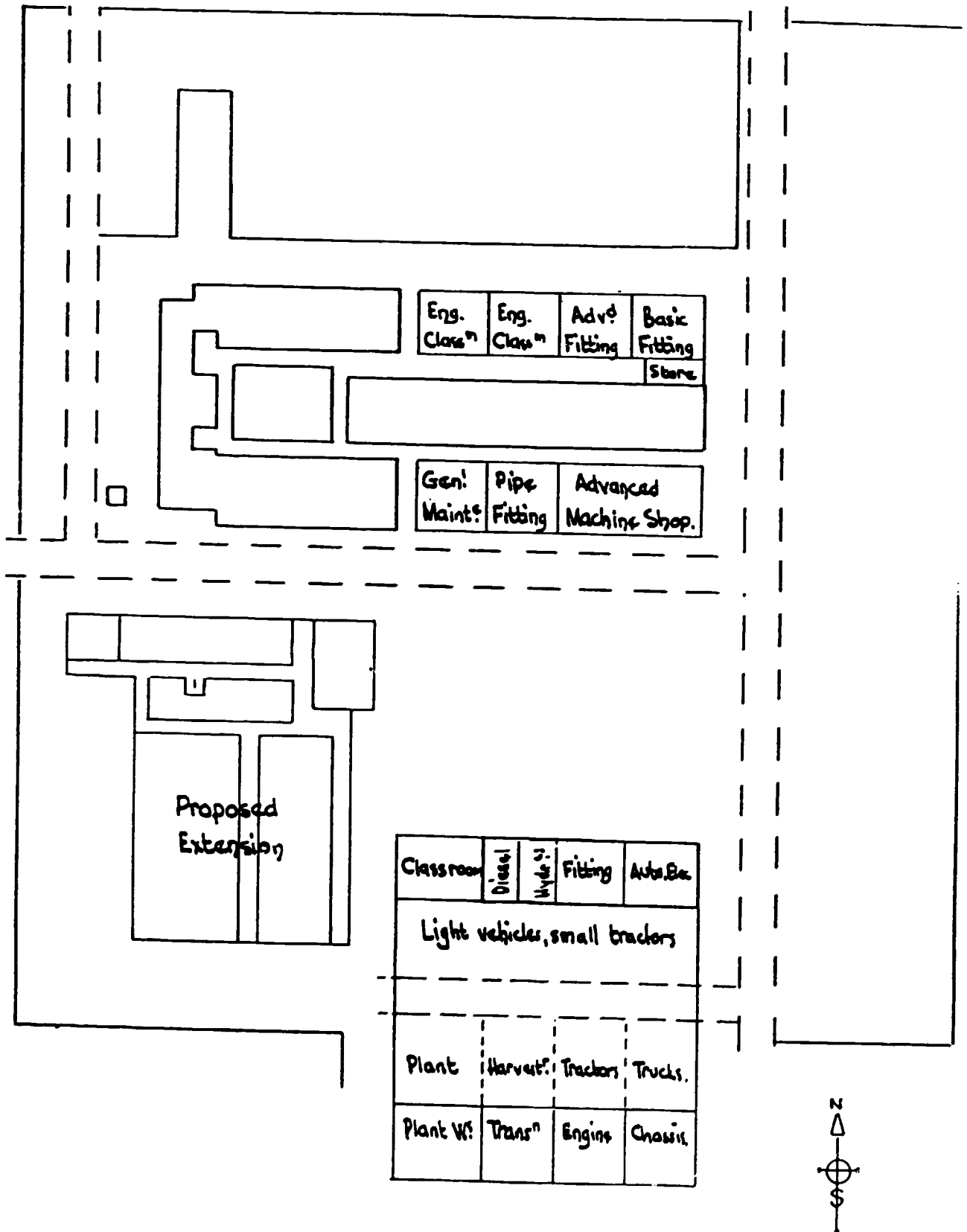
FIRST FLOOR



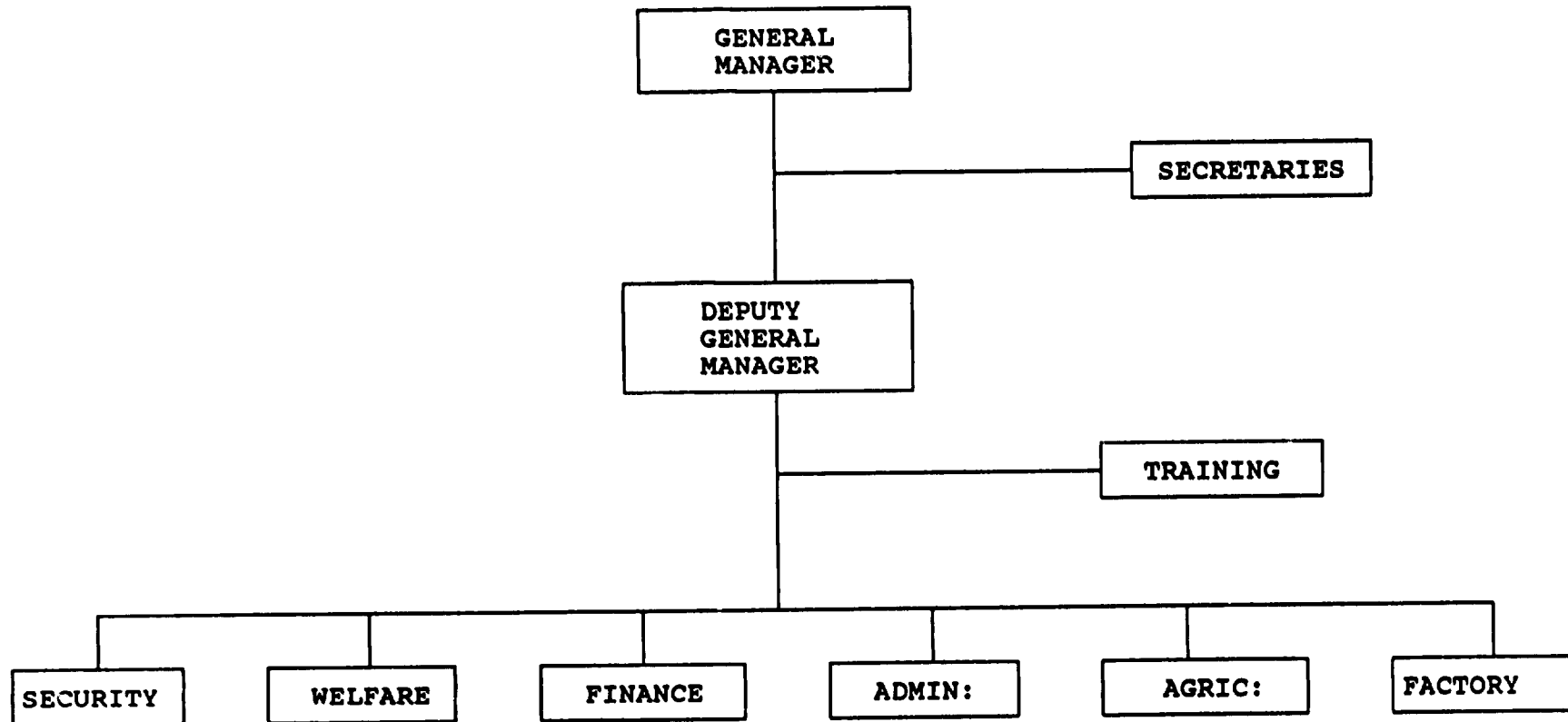


EXISTING BUILDINGS

POSSIBLE LAYOUT FOR REQUESTED ACCOMMODATION



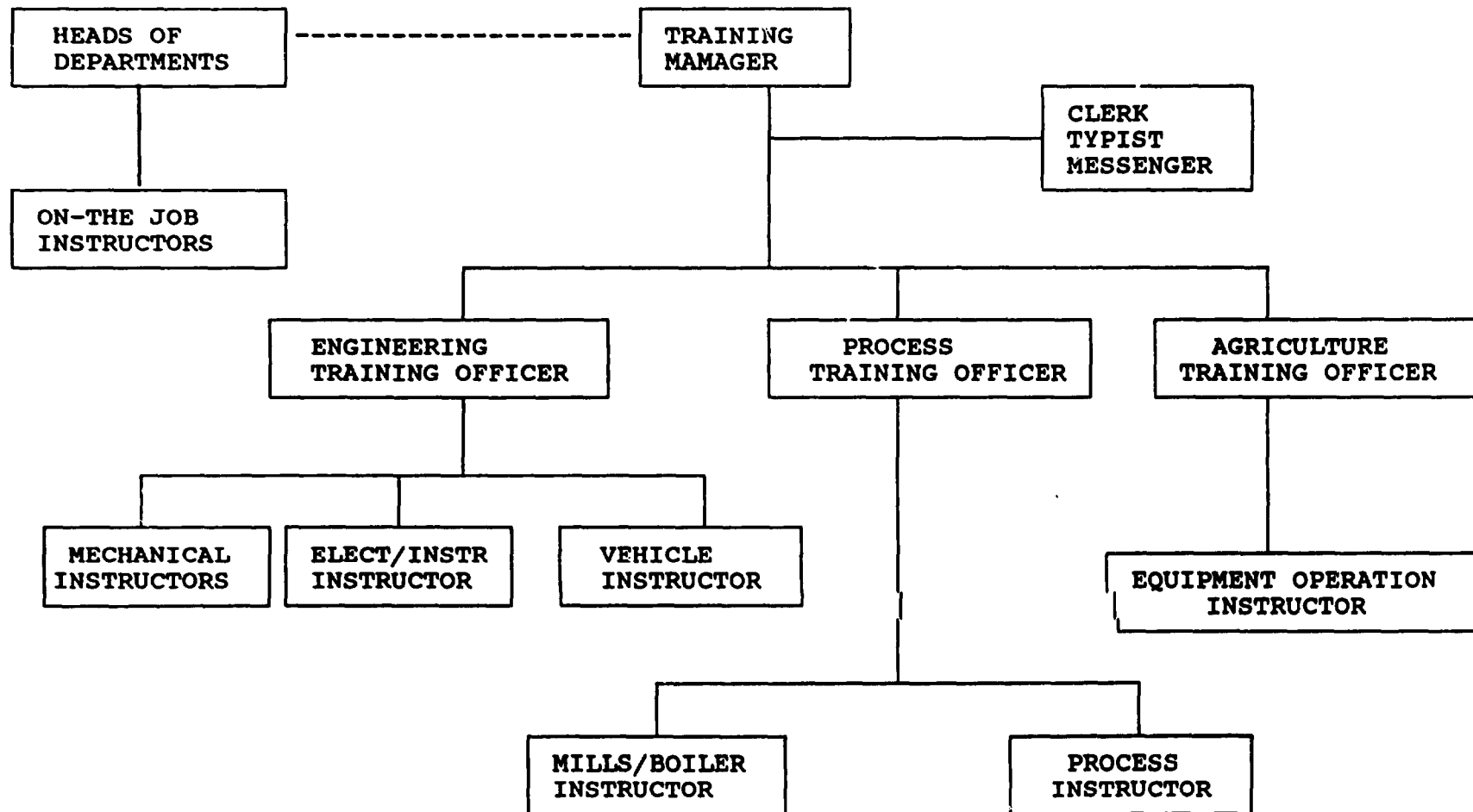
POSITION OF TRAINING DEPARTMENT IN COMPANY ORGANISATION.



POSITION OF TRAINING DEPARTMENT IN
COMPANY ORGANISATION

Proposal - Annex II

TRAINING DEPARTMENT ORGANISATION.



Proposal - Annex III

A SUMMARY OF THE PRESENT TRAINING ACCOMODATION
AND AN INDICATION OF THE ADDITIONAL REQUIREMENTS

INTRODUCTION

- A. The major cost in the rehabilitation of the existing accomodation will be encountered in the replacement of many Electrical Fixtures, Fittings and Appliances.

All the workshop areas require complete re-wiring in order to raise the safety standards to an acceptable level which would also include the complete replacement of the distribution panels and the installation of overhead bus bars.

- B. The reference to short-term requirements indicates that the accomodation is planned to deal with initial training only and do not take into account the proposed progressive Training Structure.
- C. A further item for consideration once the initial training programmes are in operation will be the possible introduction of a ONE YEAR OFF-THE-JOB APPRENTICESHIP TRAINING SCHEME which would be a major influence on the long-term objective of progressively raising the levels of competence of craftsmen and Technicians in certain key occupations.

SUGAR TRAINING CENTRE, SENNAR.

1.0. EXISTING ACCOMODATION

1.1.

OFFICE AND STOREROOMS		
	Dimensions (m)	Area m ²
General Office	8.50 x 8.0	68.0
Directors Office	4.5 x 4.5 + 3 x 3	29.25
Training Office	4 x 6 + 3 x 3	33.0
General Store	8.5 x 8.0	68.0
Parts Store	4.5 x 7.0	31.5
Sub Store	2.5 x 6.0	15.0
	TOTAL	244.75

1.2.

MECHANICAL WORKSHOPS		
	Dimensions (m)	Area (m ²)
Machine Shop	8.5 x 25.0	212.5
Fabrication Shop	8.5 x 12.5	106.25
Welding Shop	8.5 x 6.5	55.25
	TOTAL	374.00

EXISTING ACCOMODATION (CONTINUED)

1.3.

VEHICLE WORKSHOPS		
	Dimensions (m)	Area (m²)
Garage	8.5 x 11.0	93.5
Auto Electrics	8.5 x 6.0	51.0
Classroom	5.0 x 5.0	25.0
Workroom	3.5 x 5.0	17.5
Store	8.5 x 8.0	68.0
	TOTAL	255.0

1.4.

INSTRUMENTATION		
	Dimensions (m)	Area (m²)
Laboratory	6.0 x 3.0	18.0

1.5.

CLASSROOMS		
	Dimensions (m)	Area (m²)
No. 1	8.5 x 9.0	76.5
No. 2	8.5 x 10.00	85.0
No. 3	8.5 x 9.0	76.5
No. 4	8.5 x 10.00	85.0
	TOTAL	323.0

TOTAL AREA = 1214.75 SQ. M. (Excluding Kitchen and toilets)

Proposal - Annex IV

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.01./

Post Title: Chief Technical Advisor

Duration: Two years (with possible extension)

Date:

Duty Station: The National Sugar Training Centre, Sennar, Sudan
with travel throughout the Country.

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To advise the Director of Training of the NSTC on the development of a training function, specifically designing the training infrastructure required for the developing and implementing of the centre's various training programmes.
- b. To supervise the work of the other international experts on the project and in co-operation with the team (international experts and counterparts) assist in developing, in accordance with the needs, an approach, strategy, methods and techniques for developing the various programmes.
- c. To counsel the National Director in the supervision of national counterparts.
- d. To review and monitor the training of counterpart staff by the international experts to ensure that it is timely, effective and expeditiously carried out.
- e. To administer the project jointly with the National Director.
- f. Prepare progress reports and a final technical report at the end of assignment(s).

Qualifications:

1. Well qualified and experienced as a training specialist.
2. A Degree in an appropriate field (preferably an engineering discipline) with suitable further Pedagogical Training essential.
3. Suitable experience in the design and organisation of industrial training programme activities, both on-the-job and off-the-job.
4. Experience in the assessment of training needs, job, task and skills analysis, methods and techniques of training, training media, audio-visual and resource services for supporting a modular system.
5. Previous experience as a Director (or Head of Department) of a Training Institute with experience in a developing country being essential.
6. Experience in the management of training in the Sugar Industry for at least 1 year would be a great advantage.

Language:

The language of the Project is English, however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

BACKGROUND INFORMATION *

The Public Sector of the Sudanese Sugar Industry consists of four Sugar Estates and Mills which have a total rated production capacity of 370,000 Tons per annum, however, for a variety of reasons the actual output is less than 50% of this figure.

The industry is at present being assisted by a large Rehabilitation Scheme from the World Bank which has the general objective of raising production to initially satisfy the national need and then, eventually, permit the export of production surplus, to make a vital contribution to the National Economy as a Foreign Currency earner.

UNIDO has the responsibilities of assisting in the development of a National Training Infrastructure for the Sugar Industry, both the training resources and facilities, and the human resources. Phase 1 of the project, which covered a period of 9 months, has been able to establish the basis for a National Training Policy utilising a systems approach as the means for developing a fully integrated Modular Training Programme.

The National Sugar Training Centre/ (N.S.T.C.), at Sennar has been the focal point for the activities of Phase 1 and is the established authority for training development, training administration and implementation, training monitoring and validation and final certification. Management of NSTC is the responsibility of the Director of the NSTC on behalf of the Board of Directors and its Technical Committee whose members include the Chairman of the Sugar Project Implementation Committee, Representatives from various Ministries, the Sugar Industry and other National Institutions.

The outputs of Phase 1 included:-

1. A detailed assessment of the training needs.
2. A development proposal
3. Staff Development Programmes (Training of Trainers).
4. Priority recommendations for the rehabilitation of all training related facilities
5. A basis for the establishment of a National Training Policy for the Sudanese Sugar Industry.

Phase II is intended to be the implementation phase of the Project which is designed to co-ordinate the development of the physical infrastructure and human resources including the establishment of Training Departments at the four Sugar Estates.

* The background information pertains to all subsequent job descriptions which are reproduced below.

The completion of Phase 11 is identified as the time when a comprehensive training infrastructure will have been set in place and certain industrial training activities will have been undertaken but above all, the time when the real impact upon the training needs of the Sudanese Sugar Industry can begin.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.02-1/
Post Title: Mechanical Engineering Expert - Fitting and Machining
Duration: Six months
Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the training programmes in the organisation and management of mechanical maintenance procedures, in the specialist area of competence, and co-ordinate the work with that of other international Experts engaged on the Project.
- b. Prepare a curriculum, based upon the modular concept, to satisfy the identified needs of his specialised field in accordance with the approach strategy and philosophy of the project being developed at NSTC.
- c. To train Counterparts and other Instructors of NSTC and the Training Departments according to the general needs of the Sugar Industry as directed by the Chief Technical Advisor.

Qualifications:

1. A Degree or equivalent qualification in Mechanical Engineering with specialist knowledge and experience in the training of mechanical maintenance procedures.
2. Experience in the design and organisation of practice oriented industrial training.
3. Some experience in the implementation of management of maintenance procedures, training methodology and techniques.
4. Some experience in the Sugar Industry may be considered an advantage.

Language:

The language of the Project is English however, some knowledge of Arabic would be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.02-2/
Post Title: Mechanical Engineering Expert - Plant Maintenance
Duration: Six Months Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the training programmes in the organisation and management of mechanical maintenance procedures, in the specialist area of competence, and co-ordinate the work with that of other international Experts engaged on the Project.
- b. Prepare a curriculum, based upon the modular concept, to satisfy the identified needs of his specialised field in accordance with the approach strategy and philosophy of the project being developed at NSTC.
- c. To train Counterparts and other Instructors of NSTC and the Training Departments according to the general needs of the Sugar Industry as directed by the Chief Technical Advisor.

Qualifications:

1. A Degree or equivalent qualification in Mechanical Engineering with specialist knowledge and experience in the training of mechanical maintenance procedures.
2. Experience in the design and organisation of practice oriented industrial training.
3. Some experience in the implementation of management of maintenance procedures, training methodology and techniques.
4. Some experience in the Sugar Industry may be considered an advantage.

Language:

The language of the Project is English however, some knowledge of Arabic would be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.02-3/
Post Title: Mechanical Engineering Expert - Welding/Fabrication
Duration: Six Months
Date:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the training programmes in the organisation and management of mechanical maintenance procedures, in the specialist area of competence, and co-ordinate the work with that of other international Experts engaged on the Project.
- b. Prepare a curriculum, based upon the modular concept, to satisfy the identified needs of his specialised field in accordance with the approach strategy and philosophy of the project being developed at NSTC.
- c. To train Counterparts and other Instructors of NSTC and the Training Departments according to the general needs of the Sugar Industry as directed by the Chief Technical Advisor.

Qualifications:

1. A Degree or equivalent qualification in Mechanical Engineering with specialist knowledge and experience in the training of mechanical maintenance procedures.
2. Experience in the design and organisation of practice oriented industrial training.
3. Some experience in the implementation of management of maintenance procedures, training methodology and techniques.
4. Some experience in the Sugar Industry may be considered an advantage.

Language:

The language of the Project is English however, some knowledge of Arabic would be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.02-4

Post Title: Mechanical Engineering Expert - Pipe Fitting

Duration: Six months Date Required:

Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)

Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the training programmes in the organisation and management of mechanical maintenance procedures, in the specialist area of competence, and co-ordinate the work with that of other international Experts engaged on the Project.
- b. Prepare a curriculum, based upon the modular concept, to satisfy the identified needs of his specialised field in accordance with the approach strategy and philosophy of the project being developed at NSTC.
- c. To train Counterparts and other Instructors of NSTC and the Training Departments according to the general needs of the Sugar Industry as directed by the Chief Technical Advisor.

Qualifications:

1. A Degree or equivalent qualification in Mechanical Engineering with specialist knowledge and experience in the training of mechanical maintenance procedures.
2. Experience in the design and organisation of practice oriented industrial training.
3. Some experience in the implementation of management of maintenance procedures, training methodology and techniques.
4. Some experience in the Sugar Industry may be considered an advantage.

Language:

The language of the Project is English however, some knowledge of Arabic would be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.03/
Post Title: Expert in Training Methodology and Techniques
Duration: Ten months (in two five month assignments) Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

The training expert will work in close cooperation with other UNIDO experts and the national staff and he will:

- a. Focus on increasing the effectiveness of the training activity by strengthening the industrial training capability of the STC. He will provide training to national counterparts on training and implementation of a modular system of performance-oriented criterion referenced training.
- b. Plan, organize and conduct appropriate training courses for national counterparts and instructional personnel which meet expressed needs and focus on:
 - methods and procedures for designing performance oriented training programmes
 - training methods, techniques and curriculum development applicable to industrial trainers and instructors:
 - assessment and analysis of training needs.

Qualifications:

1. Degree or equivalent qualification in Education and Training Methodology.
2. Experience in the design, development and conduct of training programmes based on the modular concept of trainee oriented skills upgrading courses.
3. Experience in pedagogical techniques applied to Training of Trainers Programmes.
4. Experience in the establishing of Staff Development or Training Development Programmes and the strengthening of the industrial training function would be considered an advantage.

Language:

The language of the Project is English, however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11. 04

Post Title: Expert in Industrial Training and Audio-visual Methodologies

Duration: 6 months

Date Required:

Duty Station: The National Sugar Training Centre, Sennar, Sudan (with possible travel to other Sugar Estates)

Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

The expert will work in close cooperation with other UNIDO experts and the national staff and he will:

- a. Focus on increasing the effectiveness of the training activity by strengthening the industrial training capability of the Sugar Training Centre. He will provide training to national counterparts on training audio-visual methodologies, materials and techniques, the development and implementation of a modular system of training.

Qualifications:

1. Degree or equivalent qualification in Education and Training Methodology.
2. Experience in the design, development and conduct of training programmes based on the modular concept of trainee oriented skills upgrading courses.
3. Experience in pedagogical techniques applied to Training of Trainers Programmes.
4. Experience in the establishing of Staff Development or Training Development Programmes and the strengthening of the industrial training function would be considered an advantage.

Language:

The language of the Project is English, however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.05-1

Post Title: Operation and Maintenance of Vehicles and Agricultural Equipment - Light vehicle maintenance

Duration: Six months

Date Required:

Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)

Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the training programmes to be run by the Vehicle Operation and Maintenance Department of the Sennar Sugar Training Centre.
- b. To co-ordinate his work with the work of the other international experts on the Project and in cooperation with the team (international experts and counterparts) design and review, in accordance with the needs, an approach, strategy, methods and techniques for developing the various programmes within his specialised field.
- c. To train the counterparts that need training within his field.
- d. To promote the interests of the project generally.

Qualifications:

1. A Degree or equivalent technical qualification in automotive engineering with suitable and appropriate qualifications and experience within the chosen specialist area.
2. Experience in Training of Trainers in vehicle operation and maintenance and the design and implementation of training programmes from basic Artisan skills to Technician Level.
3. Experience in the development of Modular Unit Training Programmes.

Language:

The language of the Project is English, however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.05-2/
Post Title: Operation and maintenance of Vehicle and Agricultural Equipment - Tractor Maintenance
Duration: Six months
Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan (with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the training programmes to be run by the Vehicle Operation and Maintenance Department of the Sennar Sugar Training Centre.
- b. To co-ordinate his work with the work of the other international experts on the Project and in cooperation with the team (international experts and counterparts) design and review, in accordance with the needs, an approach, strategy, methods and techniques for developing the various programmes within his specialised field.
- c. To train the counterparts that need training within his field.
- d. To promote the interests of the project generally.

Qualifications:

1. A Degree or equivalent technical qualification in automotive engineering with suitable and appropriate qualifications and experience within the chosen specialist area.
2. Experience in Training of Trainers in vehicle operation and maintenance and the design and implementation of training programmes from basic Artisan skills to Technician Level.
3. Experience in the development of Modular Unit Training Programmes.

Language:

The language of the Project is English, however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.05-3/
Post Title: Operation and Maintenance of Vehicle and Agricultural
Equipment - Heavy Plant Maintenance
Duration: Six months
Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possibel travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrasturcture.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the training programmes to be run by the Vehicle Operation and Maintenance Department of the Sennar Sugar Training Centre.
- b. To co-ordinate his work with the work of the other international experts on the Project and in cooperation with the team (international experts and counterparts) design and review, in accordance with the needs, an approach, strategy, methods and techniques for developing the various programmes within his specialised field.
- c. To train the counterparts that need training within his field.
- d. To promote the interests of the project generally.

Qualifications:

1. A Degree or equivalent technical qualification in automotive engineering with suitable and appropriate qualifications and experience within the chosen specialist area.
2. Experience in Training of Trainers in vehicle operation and maintenance and the design and implementation of training programmes from basic Artisan skills to Technician Level.
3. Experience in the development of Modular Unit Training Programmes.

Language:

The language of the Project is English, however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.05-4/
Post Title: Operation and Maintenance of Vehicle and Agricultural
Equipment - Cane Harvesters
Duration: Six months
Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the training programmes to be run by the Vehicle Operation and Maintenance Department of the Sennar Sugar Training Centre.
- b. To co-ordinate his work with the work of the other international experts on the Project and in cooperation with the team (international experts and counterparts) design and review, in accordance with the needs, an approach, strategy, methods and techniques for developing the various programmes within his specialised field.
- c. To train the counterparts that need training within his field.
- d. To promote the interests of the project generally.

Qualifications:

1. A Degree or equivalent technical qualification in automotive engineering with suitable and appropriate qualifications and experience within the chosen specialist area.
2. Experience in Training of Trainers in vehicle operation and maintenance and the design and implementation of training programmes from basic Artisan skills to Technician Level.
3. Experience in the development of Modular Unit Training Programmes.

Language:

The language of the Project is English, however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.06-1/
Post Title: Training of Trainers/Instructors/Supervisory Training
Experts - Management Techniques
Duration: 3 months
Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

In cooperation with the Industrial Training Experts in industrial training methodologies, techniques and curriculum development and audio-visual aids:

- a. To plan and execute training courses for training staff including instructor of the NSTC and four associated sugar estates in training officers skills to a professional training officer level.
- b. To plan, assist with and advise on the training of Sudanese staff of the sugar estates

Qualifications:

1. A Degree or equivalent qualification in one of the recognised engineering or management disciplines with post graduate experience in the training of Management and Supervisory Skills.
2. Experience in the development and implementation of training of Trainers and training of Industrial Training Officers Programmes.
3. Experience in Industrial Supervisory or Management positions with particular reference to training responsibilities.

Language:

The language of the Project is English, however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.06-02/
Post Title: Training of Trainers/Instructors/Supervisory
Training Experts - Basic Administration and Accounts
Duration: Six months
Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

In cooperation with the Industrial Training Experts in industrial training methodologies, techniques and curriculum development and audio-visual aids:

- a. To plan and execute training courses for training staff including instructor of the NSTC and four associated sugar estates in training officers skills to a professional training officer level.
- b. To plan, assist with and advise on the training of Sudanese staff of the sugar estates

Qualifications:

1. A Degree or equivalent qualification in one of the recognised engineering or management disciplines with post graduate experience in the training of Management and Supervisory Skills.
2. Experience in the development and implementation of training of Trainers and training of Industrial Training Officers Programmes.
3. Experience in Industrial Supervisory or Management positions with particular reference to training responsibilities.

Language:

The language of the Project is English, however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.06-3/
Post Title: Training of Trainers/Instructors and Supervisory
Training Expert - Supervisory/Line Management Skills
Duration: Six months
Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

In cooperation with the Industrial Training Experts in industrial training methodologies, techniques and curriculum development and audio-visual aids:

- a. To plan and execute training courses for training staff including instructor of the NSTC and four associated sugar estates in training officers skills to a professional training officer level.
- b. To plan, assist with and advise on the training of Sudanese staff of the sugar estates

Qualifications:

1. A Degree or equivalent qualification in one of the recognised engineering or management disciplines with post graduate experience in the training of Management and Supervisory Skills.
2. Experience in the development and implementation of training of Trainers and training of Industrial Training Officers Programmes.
3. Experience in Industrial Supervisory or Management positions with particular reference to training responsibilities.

Language:

The language of the Project is English, however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.07-1

Post Title: Electrical and Instrumentation Training Expert -
Electrical Installation

Duration: Six months

Date Required:

Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)

Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the training programmes to be run by the Electrical and Instrumentation Engineering Department of the Sennar Sugar Training Centre at NSTC and the Sugar Estates.
- b. To co-ordinate with the work of the other international experts on the project and co-operation with the team (international experts and counterparts) design and review, in accordance with the needs, an approach strategy methods and techniques for developing the various programmes within his specialised field.
- c. To train the counterparts that need training within his field.
- d. To undertake such other work as may be required by UNIDO/CTA

Qualifications:

1. A Degree or equivalent professional qualification in electrical/instrumentation or systems engineering with emphasis on high voltage systems and electrical machines.
2. Experience in training of Trainers and Training Programme implementation at Craft and Technician Level.
3. Experience in the development of Modular unit training programmes for basic skills upgrading.

Language:

The language of the Project is English however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.07-2/
Post Title: Electrical and Instrumentation Training Expert -
High Voltage Electrical Engineering
Duration: Six months
Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the training programmes to be run by the Electrical and Instrumentation Engineering Department of the Sennar Sugar Training Centre at NSTC and the Sugar Estates.
- b. To co-ordinate with the work of the other international experts on the project and co-operation with the team (international experts and counterparts) design and review, in accordance with the needs, an approach strategy methods and techniques for developing the various programmes within his specialised field.
- c. To train the counterparts that need training within his field.
- d. To undertake such other work as may be required by UNIDO/CTA

Qualifications:

1. A Degree or equivalent professional qualification in electrical/instrumentation or systems engineering with emphasis on high voltage systems and electrical machines.
2. Experience in training of Trainers and Training Programme implementation at Craft and Technician Level.
3. Experience in the development of Modular unit training programmes for basic skills upgrading.

Language:

The language of the Project is English however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.07-3/
Post Title: Electrical and Instrumentation Training Expert -
Electrical Machines Maintenance
Duration: Six months
Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the training programmes to be run by the Electrical and Instrumentation Engineering Department of the Sennar Sugar Training Centre at NSTC and the Sugar Estates.
- b. To co-ordinate with the work of the other international experts on the project and co-operation with the team (international experts and counterparts) design and review, in accordance with the needs, an approach strategy methods and techniques for developing the various programmes within his specialised field.
- c. To train the counterparts that need training within his field.
- d. To undertake such other work as may be required by UNIDO/CTA

Qualifications:

1. A Degree or equivalent professional qualification in electrical/instrumentation or systems engineering with emphasis on high voltage systems and electrical machines.
2. Experience in training of Trainers and Training Programme implementation at Craft and Technician Level.
3. Experience in the development of Modular unit training programmes for basic skills upgrading.

Language:

The language of the Project is English however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.07-4/
Post Title: Electrical and Instrumentation Training Expert
- Instrumentation Engineering
Duration: Six months
Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the training programmes to be run by the Electrical and Instrumentation Engineering Department of the Sennar Sugar Training Centre at NSTC and the Sugar Estates.
- b. To co-ordinate with the work of the other international experts on the project and co-operation with the team (international experts and counterparts) design and review, in accordance with the needs, an approach strategy methods and techniques for developing the various programmes within his specialised field.
- c. To train the counterparts that need training within his field.
- d. To undertake such other work as may be required by UNIDO/CTA

Qualifications:

1. A Degree or equivalent professional qualification in electrical/instrumentation or systems engineering with emphasis on high voltage systems and electrical machines.
2. Experience in training of Trainers and Training Programme implementation at Craft and Technician Level.
3. Experience in the development of Modular unit training programmes for basic skills upgrading.

Language:

The language of the Project is English however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/'6/003/11.08

Post Title: Expert in Sugar Technology

Duration: In total - 9 months, (with 6 months in first year and
3 months in second year)

Dates required:

Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)

Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

The duties of the expert in sugar technology will be:

- a. To provide practice and objective oriented training in sugar technology.
- b. Prepare a technical report at the end of the assignment(s).

Qualifications:

a. Academic qualifications:

- University degree in an appropriate discipline (such as chemistry or technology).
- Preference would be given to candidates with a higher national diploma in sugar technology with extensive work experience.
- Professional qualifications:
- Extensive work experience and a broad understanding of all aspect of the production of sugar processes.
- Experience of the particular problems associated with sugar cane as the sugar source.
- Industrial experience in the organisation of objective and practice oriented training in sugar technology.

Language:

The language of the Project is English, however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/003/11.09-1/
Post Title: Expert in Agricultural Related Disciplines
- Seed and Sugar Propagation and Research
Duration: Eight months
Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the Training Programmes to be run by the Agricultural Department of NSTC in conjunction with the Agricultural Research Corporation, Guna d.
- b. To co-ordinate his work with the work of other international experts on the Project and in co-operation with the team (international Experts, Local Experts and Counterparts) design and review, in accordance with the needs, an approach, strategy, methods and techniques for developing the various programmes within his specialist field.
- c. To train Counterparts
- d. To promote the interests of the project generally and assist the C.T.A. in establishing a working relationship with other Centres of Excellence both national and international.

Qualifications:

1. A Degree or equivalent technical qualification in automotive engineering with suitable and appropriate qualifications and experience within the chosen specialist area.
2. Experience in Training of Trainers in vehicle operation and maintenance and the design and implementation of training programmes from basic Artisan skills to Technician Level.
3. Experience in the development of Modular Unit Training Programmes.

Language:

The language of the Project is English, however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference:- SF/SUD/86/003/11.09-2/
Post Title: Expert in Agricultural Related Disciplines
- Soil Technology and Fertilisation
Duration: Eight months
Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the Training Programmes to be run by the Agricultural Department of NSTC in conjunction with the Agricultural Research Corporation, Gun. d.
- b. To co-ordinate his work with the work of other international experts on the Project and in co-operation with the team (international Experts, Local Experts and Counterparts) design and review, in accordance with the needs, an approach, strategy, methods and techniques for developing the various programmes within his specialist field.
- c. To train Counterparts
- d. To promote the interests of the project generally and assist the C.T.A. in establishing a working relationship with other Centres of Excellence both national and international.

Qualifications:

1. A Degree or equivalent technical qualification in automotive engineering with suitable and appropriate qualifications and experience within the chosen specialist area.
2. Experience in Training of Trainers in vehicle operation and maintenance and the design and implementation of training programmes from basic Artisan skills to Technician Level.
3. Experience in the development of Modular Unit Training Programmes.

Language:

The language of the Project is English, however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

June 1989

JOB DESCRIPTION

Reference: SF/SUD/86/003/11.09-3/
Post Title: Expert in Agricultural Related Disciplines
- Mechanisation
Duration: Eight months
Date Required:
Duty Station: The National Sugar Training Centre, Sennar, Sudan
(with possible travel to other Sugar Estates)
Responsible to: UNIDO Chief Technical Advisor

Purpose of the Project:

To strengthen the training capability of the National Sugar Training Centre, Sennar and the Public Sector Sugar Estates by establishing a fully integrated development programme combining the training of Supervisor, Instructors and Training Officers with the phased development of the physical infrastructure.

To develop training materials based on a comprehensive system of Modular Unit or Learning Packages with built-in performance assessment procedures, all "Tailor-made" to satisfy the specific training requirements of the Sudanese Sugar Industry for both on-the-job and off-the-job training situations.

To assist in the structuring of a training administration, monitoring and evaluating system for all aspects of training within the Sugar Industry and establish an administration for the co-ordination of all aspects of a National Training Policy for the Sugar Industry of Sudan.

Duties:

- a. To assist in planning and executing the Training Programmes to be run by the Agricultural Department of NSTC in conjunction with the Agricultural Research Corporation, Gun. d.
- b. To co-ordinate his work with the work of other international experts on the Project and in co-operation with the team (international Experts, Local Experts and Counterparts) design and review, in accordance with the needs, an approach, strategy, methods and techniques for developing the various programmes within his specialist field.
- c. To train Counterparts
- d. To promote the interests of the project generally and assist the C.T.A. in establishing a working relationship with other Centres of Excellence both national and international.

Qualifications:

1. A Degree or equivalent technical qualification in automotive engineering with suitable and appropriate qualifications and experience within the chosen specialist area.
2. Experience in Training of Trainers in vehicle operation and maintenance and the design and implementation of training programmes from basic Artisan skills to Technician Level.
3. Experience in the development of Modular Unit Training Programmes.

Language:

The language of the Project is English, however, some knowledge of Arabic could be an asset.

Footnote:

The assignment is recognised as a hardship appointment and because of accommodation difficulties must be considered a single person appointment.

Proposal - Annex V

COMMUNICATION AND RESPONSIBILITY NETWORK INTERFACE

Communication and Responsibility Network Interface.

