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17963

Distr.
RESTRICTED

IO/R.123
28 November 1989

ORIGINAL: ENGLISH

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

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 - PHASE I*

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

Based on the work of John Bye, chief technical advisor

(incorporating extracts and recommendations from reports of other UNIDO experts assigned to the Project)

Backstopping officers: G. Anestis, Section of Integrated Industrial Projects and M. El Gallaf, Industrial Training Branch

* 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.

V.89 61708

ACKNOWLEDGEMENTS

Special thanks are extended to all the UNIDO experts:

Ib Marcher Olof

Bernt Jan-Olof Berglund

Edy Pauli

Dick Clanton and

Lennard Lygdman.

Further thanks for real and effective support are due to:

Mr. Fathi Suliman, Chairman of the Board of NSTC

Mr. Badr Eldin Habbani, Chairman of SPIC

Dr. Bashir El Fadil, Chairman of the Technical Committee

Mr. Awad Mahil and
Mr. Ibrahim Yousef, Members of the Technical Committee

A final and special word of thanks must be directed to two very special people as far as this project is concerned:

Dr. Bashir El Fadil and

Mr. Mohamed Ali Mohamed Osman

CONTENTS

	Page
Explanatory Notes	8
Introduction	10
Main Conclusions and Recommendations.....	19
I. THE PROJECT	25
A. Terms of Reference	25
1. Purpose of the Project	25
B. Development of a Project Philosophy	27
2. Training, Retraining and New Technology ...	27
3. Development Objectives	28
4. Immediate Objectives	29
5. The Aim	30
6. The Modular Training System	32
II. MAIN RESPONSIBILITIES	
C. General Conduct of the Project	33
7. Administration	33
8. Headquarters Missions	36
D. Advisory Role	37
9. Technical - Recruitment	37
10. Technical - Procurement	39

Page

E. Training 40

11. Staff Development 40
12. Assessment of Training Needs 41
13. The Quantitative Assessment of Training Needs 42
14. The Qualitative Assessment of Training Needs 44
15. Existing Training Capacity 45
16. UNIDO Personnel Inputs 46

III. THE NATIONAL TRAINING POLICY 48

F. Addressing the Training Needs 48

17. The National Training Infrastructure 48
18. The Identified Role of NSTC 48
19. Training Staff Requirements at NSTC and the Sugar Estates 50
20. In-plant Training 52
21. Compatibility with MATS Inputs 53

IV. PROJECT ACHIEVEMENTS 54

G. Training 54

22. Study Tour by UNIDO Experts 54
23. Study Tour by Sudanese Officials 54
24. Fellowship Training Programme 55
25. Training of Counterparts 56
26. Staff Development Training Programmes 56
27. Training Programme Development 56
28. Training Materials Output 56
29. Validation of Training Materials 57
30. Other Training Programmes at NSTC 59

		Page
H.	Overall States Summary	60
31.	The present status of the Project	60
32.	The correlation of attainment with modalities set out in Prodoc	61
33.	Significant Events	64
V.	IMPORTANT CONSIDERATIONS WITH RESPECT TO PHASE II OF THE PROJECT	66
I.	The General Environment	66
34.	The Location	66
35.	Communications	67
36.	Accommodation	68
37.	The National Sugar Training Centre	69
J.	The Technical Committee	70
38.	Origin and Activities	70
39.	The Future Role	73
	Annexes	75
	Appendices I	186
	II	217
	III	391
	IV	451

Annexes

		Page
I.	Summary of the Training/Teaching facilities at NSTC	75
II.	Study Visits by UNIDO Experts	82
III.	Supplementary Support Project	86
IV.	H.Q. Monitoring Mission Report	120
V.	Sudanese Counterpart Personnel	126
VI.	List of items purchased from Project Budget	129
VII.	List of further priority equipment needs	130
VIII.	Training Programmes established	131
IX.	Fellowship Training Programme Proposal	133
X.	Minutes of Meetings between G.O.S. - NSTC - Industry and MATS	137
XI.	Study Tour Proposal for Sudanese Officials	163
XII.	The Living Accommodation	169
XIII.	Available Reference Material	170
XIV.	The Board of Directors of NSTC and The Technical Committee	184

Appendices*

		Page
Appendix I	Agreement for Technical Services on Training under the Sudan Sugar Rehabilitation	186
Appendix II	Staff Development Programmes Documents and Reports	217
Appendix III	Quantitative Assessment of Training Needs	391
Appendix IV	Technical Report: Technical Services for Training under the Sudan Sugar Rehabilitation Project - Phase I	451

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* Contained in IO/R.../Add.1 and IO/R.../Add.2

Explanatory notes

a. Currency

At the start of the project in July 1988 the value of the Sudanese Pound was:

1 USDLR = 4.5 Sudanese Pounds
or 4.4 Sudanese Pounds - UN Rate.

On the 26th October 1988 the Sudanese Pannel was permitted to "float" by the Bank of Sudan to eventually consolidate at 1 US$ = 12.5 Sudanese Pounds but with the fixed UN rate still at 4.4.

b. Abbreviations

After the first qualification within the text the following abbreviations are used:

G.O.S	-	Government of Sudan
S.P.I.C.	-	Sugar Project Implantation Committee
N.S.T.C.	-	The National Sugar Training Centre, Sennar.
M.A.T.S.	-	Management Assistance and Training Services. (an external Consultancy to the Sudan Sugar Estates)
M.U.	-	Modular Unit - A logical and acceptable division of work or of a field of work or of an Occupational Area.
L.E.	-	Learning Element - A booklet prepared to give guidance on the best method of transmitting information with respect to the acquisition of a particular skill within a step of work.

Abstract

Post - 11.01 - Chief Technical Advisor

The initial duration of the assignment was for 6 months and the start up period began late June/early july 1988 but, for an accumulation of unforseen and sometimes difficult situations in the early stages, the actual input was extended to 9 months.

1. In brief the duties of the Job Description were to:
   (a) Advise the Director of Training of the NSTC on the development of a training function
   (b) Supervise the work of other International Experts on the Project
   (c) To council the National Director in the Supervisor of National counterparts.
   (d) To review and monitor the training of Counterparts staff by the International Experts
   (e) To administer the project jointly with the National Director.
   (f) Prepare progress reports and a final technical report at the end of assignment.

2. With reference to 1.(a) above it must be recorded that many administrative tasks concerned with UNIDO; input to the Project had to be, by nature, handled by the C.T.A. only and did at times became so protracted as to have a severely negative influence on the overall progress of the Project.

3. The job Descriptions for all the UNIDO Experts are contained in the Project Document attached as Appendix I to this Report.

INTRODUCTION

Preamble

In recent years several significant projects have been undertaken by UNIDO in the Republic of Sudan focussing attention on Industrial Manpower Development requirements. Project RP/SUD/83/002 was a National Survey in which the Sugar Industry was studied along with others and Project RP/SUD/83/004 - "An Assessment of the Training Needs and a Training Plan for the Sudan Sugar Industry" also referred to the establishing of a Sugar Institute in Sudan.

A proposal document - "Sennar Sugar Training Centre - Sudan" resulted from Project RP/SUD/84/001.

Resulting from these projects there has been a continuous development of expertise and information within UNIDO to support any activities within the Sugar Sector of which this project SF/SUD/86/003 is part. More recently this project was assisted further by a supplementary support Project XP/SUD/88/122.

The early documents highlighted certain factors which have the effect of limiting productivity, the main factors being:

Spare parts not available
Shortage of Labour force skills
Inability to recruit and retain personnel
Plant failure
Power supply failure
Raw materials supply delays
Shortage of Management Skills

It is clear that the above are all connected either directly or indirectly with the failure of the industry to establish a coherent training policy and a suitably designed training system.

It is important to state at the outset that whilst there is an enormous need for training at all levels throughout the whole Sugar Industry of Sudan, quite often the data relating actual output to rated plant capacity is presented in a form which suggests by implication that the lost production is caused solely by breakdowns of the process plant. This is not necessarily always the case. There are many other causes for plant shut-down or lost production time.

Certain Sugar Mills are able to claim figures of up to 90% or more juice extraction from the cane available, thus indicating a reasonable level of process efficiency.

The conclusion must therefore be that the disappointing production figures are the result of various circumstances, one of which may be condition of the process plant. However, it is arguable that a constant supply of cane and constant operation of the plant would test it far more severely and so indicate more accurately the true condition.

Overview of circumstances prior to the Project

The only guide to activities at NSTC prior to the project are the enrollment figures since 1981. These are:

1981 - 11 trainees
1982 - 23 trainees
1983 - 90 trainees
1984 - 75 trainees
1985 - 113 trainees
1986 - 108 trainees
1987 - 68 trainees
1988 - January to June - No trainees
During Project Input 149 trainees.

The figures can only reflect the high level of inactivity from 1981 to 1988 since investigation shows that a large proportion of those attending the Centre were for short periods - as in the case of Driver Training for example being a one week course.

The existing situation would never be able to even make a token impact upon the overall demands of the industry.

Background and justification

Overview of prevailing circumstances at the start of the project

1. The State of the Sugar Industry in Sudan

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:

Factory	Start up Year	Present Capacity (t/a)
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

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 underutilization 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

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).

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).

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*.

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.

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.

2. The circumstances at the National Sugar Training Centre

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 (Section 15)

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

At the start of the Project the staffing situation was as follows:

Director of the Centre.
Assistant Director (now on extended leave of absence).
Head of Mechanical Engineering Department.
Head of Vehicle and Agricultural Eqpt. Department.
One Senior Instructor in Mechanical Engineering and fifteen Administration and other supporting staff.

The foregoing indicates that training has, in no way, been able to keep pace with the needs for training in all areas places an almost daunting responsibility on the Director and Staff of the N.S.T.C. simply by its enormity and variation.

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.

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.

A contributory factor to this realisation (obviously) being the various UNIDO Missions and subsequent reports, all of which provided the platform for this Project.

3. Training at the Sugar Estates

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.

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.

As everywhere else, Management appeared to be too occupied with production process problems to be able to give serious consideration to Training for the Future.

4. Identification of the Constraints

The initial stages of the project were very slow to gain momentum because of early communication problems between all concerned and thus was also increased by the National Emergency created by floods and a disasterous fire which completely destroyed the document base of the Ministry of Foreign Affairs. This meant that UNIDO was unable to develop the early inputs required for the project by operating solely upon its own resources.

Other factors which could be identified as having the possibility of influencing the efficient and effective build up to the project were:

The location of the National Training Centre on the Sennar Sugar Estate. The isolation and correspondingly limited facilities created special hardships for all concerned. The actual size of the task ahead would generate its own problems in terms of

Recruitment of Staff
Expansion of Training Facilities
Increase in Accommodation Facilities
Financial Commitment

The most serious constraint was that Training Departments did not exist on the Sugar Estates and it became evident that such a commitment would only be made when NSTC had earned credibility and the results of the project could be seen as having made an identifiable contribution towards improving the performance of the newly trained personnel.

Main Conclusions and Recommendations

Introduction to Conclusions

A. An important statistic which appears to be missing form all reports is one related to productivity and it is this upon which all considerations should be based.

Hence the comparison between the 1987 output and actual mill capacity is an indication of the scope for improvement.

The table is as follows:

Sugar Estate	1987 Output	Capacity	Efficiency
El Guneid	28951 tons	60,000 tons	48.25%
New Halfa	48478 tons	90,000 tons	53.86%
Sennar	46747 tons	110,000 tons	42.49%
Assalaya	47447 tons	110,000 tons	43.13%

However, a more revealing statistic is based upon the correlation between actual output and employment figures, thus providing a true indicator in terms of efficiency - i.e. tons of sugar produced per person in full time employment - A PRODUCTIVITY INDEX.

This table is as follows:

Sugar Estate	Persons Employed	Output	Production
El Guneid	1725	28951	16.78 T/P
New Halfa	3100	48478	15.64 T/P
Sennar	1900	46747	24.60 T/P
Assalaya	1990	47447	23.84 T/P

Hence - a far more realistic picture is formed.

B. The Quantitative Assessment of Training Needs (Section 13.0) was based upon a statistical prediction of employment figures for 1989.

The predicted figure was 8580 and in late January 1989, SPIC made available the number of people in full-time employment at the end of 1988 which was 8715.

The error of prediction was 1.55%

Main Conclusions

1. The recent initiative of formally bringing together the NSTC Management/SPIC/Ministry of Industry and/MATS Team Leaders must continue in order to establish a National Training Policy particularly because of the MATS contribution to In-plant Training which is the only weak area at the whole Training Infrastructure of the Sudan Sugar Industry.

2. The Proposal for Phase II should include direct support towards the establishing of Training Departments at the various Sugar Mills.

3. Even though the starting date for Phase II is still not clear there are certain on-going activities which are essential to maintain continuity in:
    a. Further Staff Training
    b. Continuing the development of Training Material
    c. Administration of Fellowship Training
    d. Monitoring the development of the physical infrastructure to co-ordinate the recruitment and assignment of Experts.

4. In order to increase the effectiveness of the UNIDO input there are three areas which need to be addressed with the single objective of considerably improving the current situation, these are:

   a. Communciations - national and international -
   b. Experts living accommodation and medical facilities
   c. General administrative/security requirements, i.e. various visas, permits, ID cards, etc.

5. The role of the Technical Committee must be clearly defined by G.O.S. for the benefit of UNIDO so that the Legal Status may be identified.

6. The duties of certain Experts envisaged for the UNIDO input to Phase II cover several well defined occupational areas as detailed within the Projects Directory of Occupations, but more particularly the same appliers to International Standards and therefore for expediency and operational efficiency, the Posts have been sub-divided where appropriate.

7. Finally and most important of all.
   The achievements of Phase I have created an ideal springboard for the start of Phase II and therefore every effort must be made to start the actual Implementation of the Project as soon as possible.

RECOMMENDATIONS

The following recommendations do not represent any order of priority.

a. - The aim of the Project is seen to be phased development on a wide front and therefore, the education of Supervisors and Managers in the Philosophy of improvising production efficiency by a systematic maintenance programme (as opposed to the present situation of "operate to failure") is of equal importance to the improvement of Basic Artisan Craft Skills. Therefore, management must be encouraged to release their best operatives and craftsmen for training to become Part-time Training Instructors or Supervisors - In-plant.

b. - It is essential to establish an "agreed upon" recruitment procedure so that UNIDO may have full control of their own recruitment procedures, since, the system developed during Phase I appeared to have a built-in loophole.

c. - The communication procedures between Project/UNDP (Khartoum)/SPIC/or UNIDO/UNDP/Project need to be improved even if only making individuals accountable.

d. - NSTC must continue the recruitment policy with vigour in order to enlist the services of Craftsmen, Technicians, Operators, Supervisors and Managers for training as Trainers in order to keep pace with the development of the physical infrastructure.

e. - The role of the Technical Committee must be precisely defined. Since it was a logical development of Phase I, the Legal Status of the Committee must be written into any Phase II document by the G.O.S.

f. - A communications network linking the Project to UNIDO - UNDP - SPIC - Sugar Estates - Training Departments must be established as soon as possible.

g. - The good housekeeping policy at NSTC must be extended to operate on a planned maintenance schedule.

h. - The process of Training Programme Development must be an on-going supervised activity irrespective of any delay in the start of Phase II.

i. - Representation must be made for the release of appropriate funding to cover the Fellowship Training Programme if the start date for Phase II is delayed.

j. - UNIDO should take the opportunity to extend the debriefing sessions for the 5 senior Officials at the end of their Study Tour to prepare a document for the conduct of Phase II of the Project.

k. - Every effort should be made to develop the facilities at NSTC as soon as possible.

l. - Further efforts are essential to consolidate the recent developments in establishing an overall training policy of which In-plant Training is an important sector.

m. - NSTC must develop as a Training Centre and not become involved in Education.

n. - The development of the Training Departments at the Sugar Mills is an urgent priority for Phase II and the workshops could be equipped from the Project Budget on the understanding that the workshop was dedicated to TRAINING ONLY and would not be used for 'production'.

o. - The process of applying a 'system approach' to the development of training materials and programmes must be adhered to at all times.

p. - Any training activities which are executed by external Agencies must operate at the same standard of professionalism as that expected of the NSTC Instructors with the Director of the Centre having access to monitor all such training activities.

q. - The medical facilities and support must be improved.

r. - UNIDO must monitor the situation of living accommodation to ensure the availability of suitable facilities before Experts are assigned.

s. - The reference material MUST be displayed even if locked in a glass fronted cupboard and all staff allowed EASY ACCESS to any of the books and manuals.

t. - 1. There must be UNIDO presence at the Project during 1989 if the Second Phase of the Project is scheduled to start later than July 1989 as originally anticipated. This would require the early release of certain funds.
2. Certain "generally described" posts for UNIDO Experts would be more efficiently executed by several specialists rather than one person with more general expertise.

I. THE PROJECT

A. Terms of Reference.

1.0 Purpose of the Project (as stated in the Job Description)
SF/SUD/86/003/11-01/J12309

To strengthen the training capability of the Sugar Training Centre for audio-visual methodologies, materials and techniques for a modular training system for performance orientated criterion referenced craining for upgrading the technical know how and supervisory skills of training officers, trainers and instructors.

1.1 The UNIDO Personnel assigned to the Project was as follows:

Post 11.01 Chief Technical Advisor - Jack Bye
- British
Appointment 28 June 1988 to 31 March 1989

Post 11.02 Senior Training Expert - Ib Marcher
- Danish
Appointment 11 June 1988 to 17 September 1988

Post 11.02 Senior Training Expert - Lennart Lygdman
- Swedish
Appointment 1 January 1989 to 15 April 1989

Post 11.03 Industrial Training Expert - Richard L. Clanton
- American
Appointment 2 January 1989 to 16 March 1989

Post 11.05 Operation and Maintenance of Vehicles etc.. Expert
- Edmundo Pauli
- Italian
Appointment 13 November 1988 to 17 February 1989

Post 11.51 Electrical and Instrumentation Expert
- Bernt Jan-Olof Berglund
- Swedish
Appointment 13 November 1988 to 16 January 1989

Post 11.52 Sugar Technology Expert - Abd El Azim Bedewy
- Egyptian
Appointment

B. The Development of a Project Philosophy

2.0 Training, Retraining and New Technology

2.1 Study visits to the various Academic Institutions, Training Centres and Sugar Mills (details in para.22.0 and annex 2) produced the following findings, later contained in an appraisal report, that:

2.1.1 The National Education System had great difficulty in meeting the demands of the Sugar Industry for recruitment at all levels and since success in education was measured in academic terms - in part due to the limited facilities or opportunity to study practical based subjects, there was a constant need for an effective training interface between Education and Industry.

2.1.2 The Sugar Industry is also unable to compete with private industry in terms of recruitment incentives as the nation as a whole is unable to compete with the more economically developed countries of the region in recruiting and retraining new staff, thus increasing still further the gap between demand and supply and also increasing the importance of the training interface.

2.2 The main initial training function was identified as limited skill upgrading to a high level of efficiency with the general goal of training all personnel to an acceptable degree of proficiency to effectively undertake the tasks of their current job.

2.3 This could then be supplemented by extended training or retraining as career development structures are defined. The ultimate being that further training would be viewed as a pre-requisite to promotion and career advancement.

2.4 The introduction of new technology to the industry is still in its infancy with the recent installation of desk top computers and word processing systems. In this instance also, further training or retraining to a higher level of skills competency on a narrow base will provide an early solution to the problem of familiarity with the systems being introduced.
This training will, in the first instance, have to be the responsibility of external Agencies.

3. The Development Objectives

3.1 The development objectives are to increase Sugar Production with reduced production costs by improving efficiency through training.

3.2 It should be noted that Phase I has been able to address the immediate Objectives and once Phase II proper begins, all these Objectives will need to have been met to permit a smooth transition.

3.3 The completion of Phase II should mark the end of the implementation of all the various facets of construction of training facilities, construction of appropriate accommodation for local and expatriate staff, Specification Analysis (i.e. Job, Task and Skills Analysis required as a foundation for a complete Modular System of Training) and further recruitment of Training Officers, Instructors and Support Staff.

3.4 The precise objectives for Phase II are contained in the Draft Project Proposal. These would be considered the **MEDIUM TERM OBJECTIVES.**

3.5 The conclusion of Phase II would than be seen as an appropriate position to address the Long Term Objectives (The output of Phase II will need to include an outline proposal for a Phase III - the actual impact phase for the Sugar Industry of Sudan).

4. The Immediate Objectives

The Immediate Objectives of the project were to:

1. Rehabilitate and strengthen the National Sugar Training Centre (NSTC) Sennar with the appropriate training and accommodation facilities.

2. Establish an integrated training capacity and mechanism at NTSC and the four Public Sugar Estates by providing the inputs, including the training infrastructure and training and support staff needed, to make training a viable activity, on a continuing basis, for effective job performance oriented, modular training, to be conducted at the NSTC and the facilities of the Sugar Industry.

3. Provide induction and up-grading training, supplementary to the national system of Sudan, in order to develop appropriate skills and expertise to meet the needs of:

   a. Training Officers, Trainers and Instructors
   b. Engineering Personnel
   c. Technicians and Operatives
   d. Administrative and financial personnel
   e. Field Staff.

The emphasis of the training to be provided through the NSTC and on-the-job training on the Estates will be on making full use of the national Education System and then developing particular skills to meet the precise requirements of the Sugar Industry at the various levels in the many different disciplines.

5.0 **The Aim**

The overall aim of Phase 1 of the Project is to establish a training infrastructure capable of meeting the needs of the Sugar Industry (both in the short and long term) by setting in place a system for training and/or re-training the existing workforce - at all levels - and training all newly recruited employees in order to increase their efficiency and productivity with the ultimate objective of correspondingly increasing the efficiency and output of Sugar Mills.

5.1 This aim will only be accomplished in the first instance by education and training directed towards improving maintenance procedures of every description and improving the skills of the process operator and supplier of Sugar Cane. So halting the gradual decline in operational efficiency.

5.1.1 The situation must then be completely reversed to move from the existing pattern of "operate to failure" in all areas to planned maintenance and preventative maintenance procedures coupled with a similar planned strategy to improve.
There is not a single short term solution to achieving this aim because of the size of the task and therefore an appropriate strategy must be adopted.

5.2 A system of progressively phased development on a wide front is to be adapted.

The focus for initial impact must be in the two most critical areas identified in the preliminary analysis of training needs, these are:

5.2.1 Training:

(a) For the improvement of Basic Artisan Skills in all areas of engineering for the purpose of upgrading all plant and equipment.
(b) For the efficient manning of the process plant.
(c) For the increase in performance and productivity in all aspects of agriculture.

5.2.2 Education

For all Management and Supervisory personnel in the philosophy of Improved Production Efficiency through Systematic Preventative Maintenance Procedures and planned production.

5.2.3 The training requirement will be best met by using a group of Full-time Instructors at the National Sugar Training Centre as the core of the Training Infrastructure. These Full-time Instructors will be supported by a large number of part-time Instructors whose training function will be carried out in-plant or on site covering only a limited area of their own specialist skill.

The interface between the two separate training activities will be the Training Managers and Training Officers.

All the Instructors must have a dual role:

(a) The full-time Instructors will also be available to conduct special short courses or training programmes in-plant/ on site beside their unusual training duties at the National Sugar Training Centre and

(b) The part-time Instructors may be called upon to make an input on specific programmes at the Centre besides carrying out their duties as - part-time Instructors part-time Training Supervisors or Sugar Mill, Estate or Field Workers

6. The Modular Training System

A Modular System of Training is at present being set in place so that the various complimentary Modular Units can be designed to suit any particular situation and offering a choice of combinations of self contained Modular Units to produce a "tailor-made" training programme or complete course as required.

The basis of the whole system is the use of pre-prepared Job Descriptions as a means of establishing Job Specifications identified in terms of the necessary Modular Units and so qualifying the actual training needs.

The Modular Concept allows for an initial impact on a wide front by using Basic Artisan Craft Skills Modules designed at the National Sugar Training Centre, Sennar as a means of establishing a platform for longer term development.

The approach applies equally well to all the Occupational Areas associated with the Sugar Industry, Viz.

Administration and Plant Management,
Agriculture,
General Purpose Employment,
Plant and Equipment Operation,
Vocational Trade Skills.

The first requirement is for some of the more mature, better educated and experienced personnel to attend the various programmes offered by the Centre to be specially trained in a particular area of their job so that they then became the responsible part-time Instructors for that activity in the plant.

The Modular System of Training is also suitable for Management Education and Training.

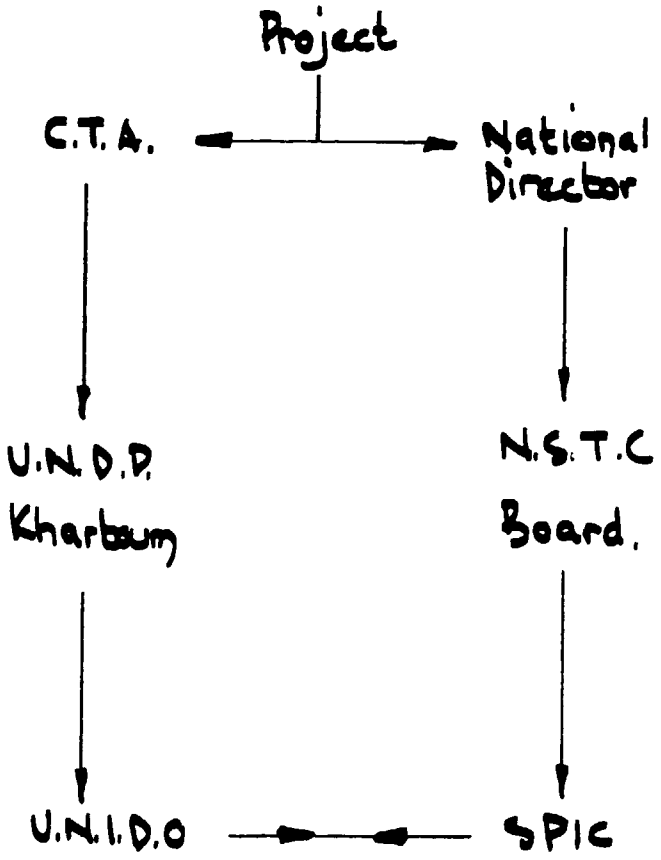
II. MAIN RESFONSIBILITIES

C. General Conduct of the Project.

7.0. Administration

7.1 The project Administration Communication Links are illustrated below.

The reverse communication links also applied.

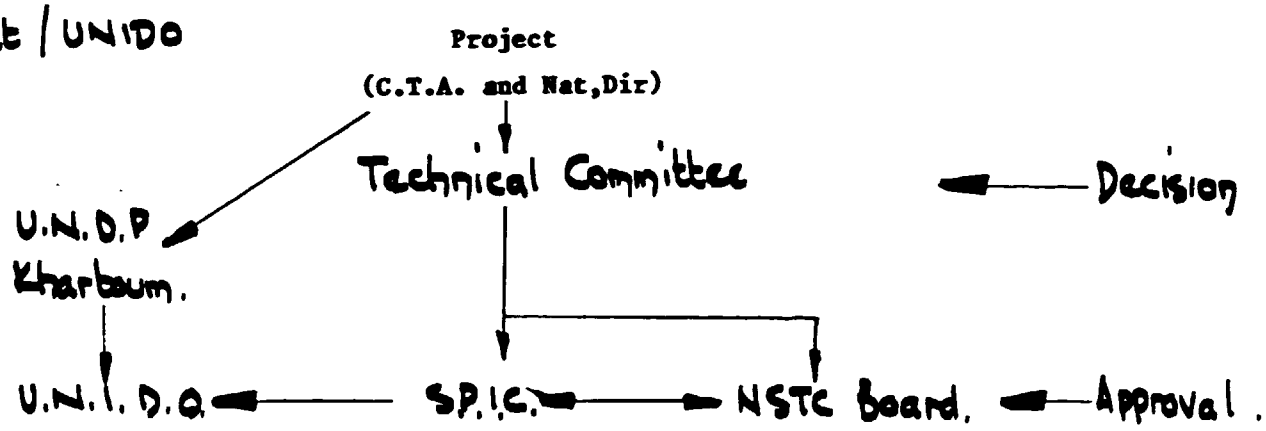


7.2 However the Board made a great stride towards refining communication and cutting out the time lag created by the frequency of Board Meetings by establishing a sub-committee with the title of the Technical Committee - to which the CTA was as Advisor. The great impetus to the development of project activities from that point being mainly due to the constant support and tireless efforts of the Technical Committee.

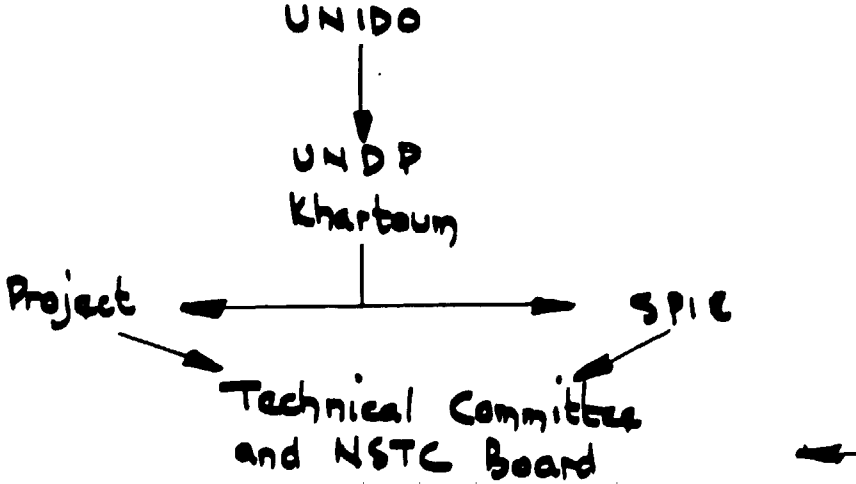
7.3 The High Level UNIDO Mission in November 1988 proposed a further refining to assist with a better back stopping activity by UNDP in Khartoum.

The revised communication links then became:

Project / UNIDO



UNIDO / Project



7.4 The top layer of the Training Infrastructure has therefore been set in place and has already proved to be a most effective system.

7.5 Several administrative difficulties occurred particulary during the early stages of the input. The vast majority of them were eventually overcome. However, it has to be acknowledged that some of the difficulties and constraints had a slowing down effect on development activities and probably also influenced the level of input and quality of output of certain items which are the subject of this Technical Report.

7.6 Notable areas of difficulty include:

7.6.1 Transportation

7.6.2 Communications - non existant between Duty Station and Khartoum.
- Often difficult and sometimes impossible between Khartoum and Vienna.
- up to 10 days delay in receipt of telex messages.

7.6.3 The untimely resignation of the original S.T.E.

7.6.4 The unco-ordinated fielding of short-term Experts.

7.6.5 Financial difficulties in terms of DSA payment for all UNIDO Project Personnel.

7.6.6 Very late recruitment of a Bilingual secretary.

7.6.7 The recurrent delays in obtaining various permits, particularly the required Travel Permit and further renewals of it. (until the very last week of the Project.)

8.0 H.Q. Missions

8.1. Two distincly different types of minitoring mission took place during the project. In the first instance a mission of Sudanese Government Officials and the UNIDO CTA and STE held consultations with UNIDO staff at Headquarters Vienna and secondly, UNIDO staff visited Sudan to monitor the implementation of the project on two subsequent occasions.

8.2. The mission from Sudan to UNIDO Headquarters which took place on 15 and 16 September 1988 was the result of various communications concerned with the slow start to the Project from various administrative and physical problems.

8.2.1 It should be noted that the agreements reached during the consultations was an indicaton of the good-will which existed between SPIC and UNIDO and the general concern for the successful implementation of Phase I of the Project.

8.2.2 All matters addressed at this time were resolved by mutual concent allowing the project to accelerate once again, towards the attainment of the objectives.

8.3 The high level mission from UNIDO Headquarters between 13 and 19 November 1988, headed by Deputy Director General H. Wiesebach was again the result of certain communications between SPIC and UNIDO upon matters concerned with the slow start to the project and the mission was able to establish a Memorandum of Understanding between SPIC and UNIDO which led to an extension of 3 months to the envisaged project input supported by a Supplementary Support Project (XP/SUD/88/122) - See Annex 3.

8.4. The monitoring mission between 24 February and 2nd March was somewhat disturbed by local conditions which prevented the UNIDO Head of Mission from travelling to Sudan. The mission continued under the direction of a further senior UNIDO staff member who was present in Sudan at that time. The mission report is attached as Annex 4.

D. Advisory Role

9.0 **Technical - Recruitment**

9.1 A nucleus of staff were employed at the National Sugar Training Centre (N.S.T.C) to assign as Counterpart as would be required.

Two recruitment exercises took place during the duration of the Project.

The Instructor staff was increased from 6 to 15.

9.2 The management of NSTC, plus members of the Technical Committee, CTA and UNIDO Personnel interviewed more than 120 candidates resulting from two National Adverts in the press. These resulted in the appointment of 6 further Staff Members.

This figure is low because of the policy adopted of only appointing potential Instructors who met specific criteria and not simply appointing those who performed best at interview.

9.3 All the counterparts had the opportunity to participate in one of the Staff Development Programmes which took place at NSTC and this resulted in 12 suitably qualifying themselves for further participation in the proposed Overseas Fellowship Training Programmes.

9.4 Three Training Officers from the Sugar Mills at Guneid, New Halfa and Assalaya similarly qualifying by participation in one of the staff Development Programmes.

9.5 With reference to the Project Document 7.1 it is evident that there are now 15 suitable trained Counterparts and Training Officers to be in line with one specific requirements and its now necessary to pursue still further the recruitment of more Instructors to be able to keep pace with the proposed development of physical facilities.

9.6 A list of Counterparts personnel is attacked as Annex 5 together with other relevant details.

10.0 Technical - Procurement

10.1 The procurement of items necessary to begin development and administer the Project were quickly initiated, concentrating upon the purchase of spare parts and equipment to begin a resource centre for the production of Training Materials.

A full series of ILO Learning Elements were also purchased for the Centre Library.

A list of items purchased is included as Annex 6.

10.2 The procurement of items of equipment to begin the rehabilitation of the facilities and equipment is still proceeding following the submission of the reports from the short-term Experts.

The recommendations of the Experts were presented as a list in order of priority requirements so that items most necessary may be purchased from the remaining funds of Phase I and then purchasing of the remaining items can be left for the start of Phase II. (All stock items purchased from the Project Budget were recorded in a Stock Book which was formally transferred to NSTC at the end of Phase I - A copy of this is held by the Programme Officer in UNDP, Khartoum for the particular purpose of checking Insurance Claims for missing items).

The recommendations are attached as Annex 7.

E. Training

11.0 Staff Development

11.1 Following the first recruitment drive in October 1988, the first staff Development Training Programme was run between 15 November and 1 December (inclusive). Eight participate from NSTC, 3 from Sugar Estates and 2 from the Private Sector Training Centre at Kenana.

11.2 The net result of their particular Programme was that six Instructors and two Training Officers were suitable prepared in Job, Task and Skills Analysis - Curriculum Development and Modular Unit Design to have met the requirements of candidature for Overseas Fellowship Training.

11.3 The Programme Plan and Programme Report are added as Appendix II together with the first complete Training Programmes developed by the C.T.A. for use as models for all future Training Programme design. These are:

11.3.1 A complete analysis for Designing a Programme to train an Estate Electrical Installation Engineer - Grade 1.

11.3.2 A complete Training Programme for Pipefitting - (an area in the Sugar Industry which, if not correctly carried out can considerably increase inefficiency of production from many points of view) as part of a programme for a Grade 1 Fitter

11.3.3 A Training Programme Basic Auto-Maintenance with one package still being validated at NSTC before the programme may be considered to be complete.

11.3.4 An initial package on the Introduction to Manual Arc Welding for Graduate Engineers.

11.4 Following the second recruitment drive in late December 1988 additional Instructors were recruited (7 in all) and a further staff development Training Programme mounted and also included 1 Training Officer from a Sugar Estate, 1 Training Officer from the Cement- Industry and 2 Instructors from the Kenana Training Centre.

11.51 The outline plan for this programme is also included in Appendix II.

11.6 The net result of both Training Programmes being that ultimately 15 Instructors and Training Officers have qualified for overseas Fellowship Training.

11.7 The Learning Packages prepared during the first Staff Development Training Programme were then initially validated by the various Instructors (assisted by the available Experts).

11.7.1 Several groups of Trainees attended courses at NSTC to provide a means for validation of :

a. The Training Documents Produced (having now been edited these are in the process of being reproduced as the first examples of "Tailor-made" training material).

b. The Training Facilities (thus allowing the Experts to establish a priority order of needs).

c. The performance of the Instructors - as a basis for recommendations for Fellowship Training.

11.7.2 A list of the Training Programmes established is attached as Annex 8. It must be noted however, that it was not anticipated to undertake any training for Sugar Estate Employees during Phase I of the Project and therefore any benefits to the participants must be considered a bonus evolving from the particular mode of Staff Development Training used to suit the particular needs of the Project.

11.7.3 Some of the Programme Plans and Reports prepared by the NSTC Instructors are also attached with Appendix II.

11.8 The Fellowship Training Programme Proposal is attached as Annex 9.

11.8.1 It should be noted that the Training Programme Proposal must fulfill two distinct requirements to improve the overall efficiency and effectiveness of the Training Activities to be undertaken at NSTC ie.

a. The improvement of communication skills and training techniques by Pedagogical Training and

b. The improvement of Technical Skills and knowledge through selective personal skill upgrading for each Instructor.

12.0 Assessment of Training Needs.

12.1 As previously indicated in the section 'The Sugar Industry Staffing Situation and the Training Background' there is an enormous almost daunting need for training at all levels and all areas. Even a critical view of apparent skill or capability or performance of individuals related to the basic requirements of the tasks being performed (Whilst having an awareness of tools and equipment etc, available) gives an immediate impression of the real requirements.

12.2 Following up on these observations by simple questioning of all concerned, particularly at Supervisory and Management Levels, it was obvious that any form of assessment would require a two stage approach:

12.3 A Quantitive Assessment in order to be able to identify the numbers of people requiring some form of training.*

12.4 A Qualitative Assessment of training Needs in order to be able to identity the ACTUAL TRAINING NEEDS.

13.0 The Quantitative Assessment of Training Needs.

13.1 The importance of the evaluation of the data researched was firstly to establish in real terms the numbers requiring training in the various Occupational Areas and Fields of work in the Sugar Estates served by NSTC.

13.2 Relate these figures to the existing facilities at NSTC in terms of accomodation, training resources and Instructors (skill Areas and Numbers Required.)

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* Information sources were various UNIDO Technical Reports relating to Industrial Development in Sudan (in general), to the sugar Industry of Sudan (in particular). Tate and Lyle complete report on the Sudanese Sugar Industry and various MATS quarterly and annual reports.

13.3 From the comparison, prepare an idealised outline proposal for improvement and addition or extension to the existing facilities to any period of time chosen attempt to satisfy the IMMEDIATE Training Needs of the Public Sector of the Sugar Industry.

13.4 The C.T.A. was able to prepare drawing of the outline proposal which have been, in principal fully accepted by the G.O.S. and passed on to a Consultant Architect for further development specific designing and costing.

13.5 The report on the Quantitative Assessment is attached as part of Appendix III.

13.6 IT IS IMPORTANT TO STATE THAT THE FIGURES USED IN THE ASSESSMENT WERE EXTRAPOLATED AND VERIFIED FROM VARIOUS DIFFERENT SOURCES IN ORDER TO PREDICT THE NUMBER OF PEOPLE WHO WOULD REQUIRE SOME FORM OF TRAINING.

WHEN COMPARED WITH THOSE IN ACTUAL EMPLOYMENT AT THE BEGINNING OF 1989 AN ACCEPTABLE DEGREE OF CORRELATION WAS ACHIEVED, AS FOLLOWS.

FULL TIME EMPLOYMENT FIGURES.

ASSALAYA ESTATE - predicted 1995, actual 1990 = + .25%

NEW HALFA ESTATE- predicted 3143, actual 3100 = + 1.06%

SENNAR ESTATE - predicted 1990, actual 1900 = + 4.74%

GUNEID ESTATE - predicted 1452, actual 1900 = - 15.8%

13.61 The major variation in predicted and actual figures must be due to a skew distribution created by the particular employment situation at Guneid with respect to Casual Labour/ Tennant Farmers/ Full time Employees, since Tennant Farmers are not used on the other three Estates.

13.62 Should this situation remain constant then it would simply require a slightly longer period to satisfy the training need, of this particular Estate. BY COMPARING THE TOTAL EMPLOYMENT FIGURES FOR THE WHOLE INDUSTRY I.E. PREDICTED AS 8580 TO ACTUAL OF 8715 THE PHENOMINAL ACCURACY OF - 1.55% ERROR WAS ACHIEVED

14.0 The Qualitative Assessment of Training Needs.

14.1 Obviously the actual identification of particular. training needs for all the areas in the Sugar Industry is a time consuming task and could not be accomplished within the time frame set for Phase I of the project.

14.2 THE PRINCIPLES AND PROCEDURES HAVE BEEN SET IN PLACE, HOWEVER, TO PERMIT THE TRAINED COUNTERPARTS. TRAINERS AND TRAINING OFFICERS TO CONTINUE THE PROCESS.

14.3 The procedure set in place is to convert Job Descriptions to Job Specifications by applying the principles of Job Analysis, Task Analysis and Skills Analysis together with their knowledge of the Project Philosophy and its basis of Modular Units and Learning Packages.

14.4 HENCE A JOB DESCRIPTION IS CONVERTED TO A JOB SPECIFICATION BY IDENTIFYING THE MODULAR UNITS NECESSARY TO ATTAIN THE LEVELS OF SKILL TO BE ABLE TO SUCCESSFULLY UNDERTAKE THE FUNCTIONS LISTED IN THE JOB DESCRIPTION.

14.5 This procedure is referred to in para 11.3.1 with the completed example as part of Appendix II.

14.6 There are now 12 members of NSTC Training Staff and one Training Officer on each of three of the Sugar Estates who have been trained and are fully competent to continue the process as required.

14.7 The survey of Job Descriptions (previously referred to) carried out in November and December, still only available in Arabic, will soon be available as a basic for the full Qualitative Analysis, however the need for translation to English will be an additional burden if the work is to be aligned with an International Directory of Occupations.

14.8 The C.T.A. has also prepared an outline Training Directory based on information made available from various MATS Reports. (Appendix III).

15.0 Existing Training Capacity

15.1 The existing training accommodation referred to in Annex I is the restrictive factor since residential accommodation for up to 160 trainers could be made available within the normal process of rehabilitation but the actual training facilities and resources automatically limit the training places to 40/42 as an absolute maximum, i.e.

Machine Shop/Fitting = 18
Welding/Fabrication = 6 to 8
Instrumentation = 8
Vehicle Mechanics = 8

15.2 It should be noted with concern that there is no facility (accommodation or equipment) for such important areas within Electrical Engineering as:

Electrical Installation - Domestic
High voltage Installation and Control
Electrical Machines Maintenance.

15.3 There is also an urgent need to develop facilities for the many specialist aspects of Business Management, Business of Office Administration, Accounting, Production Control, Quality Control and Supervisory Skill Training since it is in these areas where the initial impact of advancing technology will have to be met.

16.0 UNIDO Personnel Inputs

16.1 The general pattern of recruitment of the various UNIDO personnel created by varying circumstances did not permit 100% effective utilisation of the expertise and experience available.

16.2 The delays in fielding the various Experts was the result of a system which developed in such a manner that UNIDO were not able to fully control their own recruitment procedures.

16.2.1 What should have been a simple procedure of UNIDO submitting the C.V. of suitable and available candidates for the selection by SPIC as short-term Experts and following selection, then recruitment procedures could be initiated a further step was added (although there is no reference to this in the Project Document) of the nominated Candidates CV being then submitted for World Bank approval before recruitment could begin.

16.2.2 It is also somehow difficult to appreciate how this extra step could have been used on certain occasions modify or add to existing recommendations.

16.3 A more effective procedure must be established to ensure the timely arrival of future short-term Experts or Consultants according to schedule.

16.4 A Modification was made to the original work-plan by assigning a short-term Experts in Electrical and Instruments Engineering (a most critical area) rather than an Expert in A.V. Methodologies and Techniques. whose input will be more effective in Phase II when a Training at Trainers Department has been established.

16.5 A list of UNIDO Personnel assigned to the Project is included in Section 1.0 together with other relevant details.

16.6 Each Expert submitted a brief Interim Report and a Technical Report to the CTA which contained information on:

16.6.1 Urgently needed equipment

16.6.2 Proposed development of the physical facilities

16.6.3 Guidance on priorities in Training Requirements and Training Programme Development.

16.6.4 Recommended action for Phase II

16.7 The Final Reports of the various Experts are included as Appendix IV.

III THE NATIONAL TRAINIING POLICY

F Addressing the training Needs.

17.0 The National Training Infrastructure

17.1 With reference to section 7 (para 7.4) it is evident that the top layer of the National Training Infastructure has been set in place and is operational.

17.2 With reference to section 12 and section 13 it is equally evident that the lower operational layer of the National Training Infrastructure is set in place and measurable achievements may be readily identified.

17.3 The middle strata of the National Training Infrastructure - IN - PLANT TRAINING is lagging behind at this time and is therefore preventing the creation of a fully coherent, co-ordinated and integrated National Training System for the Sugar Industry.

17.4 At the point when In-Plant Training facilities, resources and policy becomes aligned with the aspirations of the G.O.S., S.P.I.C. and the Board of Director of NSTC and also becomes Co-ordinated with the continuous development of NSTC, THE NATIONAL TRAINING INFRASTRUCTURE WILL HAVE BEEN ESTABLISHED.

18.0 The Identified Role of the National Sugar Training Centre.

18.1 The NSTC has to be established as the administrative focal point and co-ordinating authority for all forms of Management Development and Skill up-grading activities for the Sugar Industry from external sources, either National (within Sudan) or International (Overseas) since it is essential to develop the Institutional Expertise for the efficient administration necessary to support this important aspect of rehabilitation particularly in terms of:

18.2.1 Monitoring the execution of the external training activities for the purpose of creating a reference file of specialised training sources most suited to the needs of the Sugar Industry of Sudan.

18.2.2 Monitoring the performance of participants upon returning to the industry following training.

18.2.3 Maintaining suitable records of the activities.

18.3 The foregoing being the essential elements to co-ordinate the activities to provide a Structured Development Programme.

18.4 The further co-ordinating task is to close the loop of the internal training sysytem by encouraging and assisting in the development of the Training Departments on the Sugar Estates. Such co-ordination is essential to:

18.4.1 Establish a Development and Training Policy to attempt to satisfy priority needs at all times.

18.4.2 Continuously monitor performance after training.

18.4.3 Maintain suitable records.

18.5 <u>The NSTC must be identified fully as a Training Institution and in no way be seen to become involved in Education</u> since there are many well established Educational Institutions (Universities and Polytechnics)in Sudan with well developed specialist facilities to meet all the educational requirements of the industry.

18.6 The role of NSTC is therefore clearly defined as an administrative authority for all training and as a Centre of Excellence for all forms of skills upgrading.

18.7 The most evident area upon which NSTC must concentrate on its skill upgrading in limited areas combined with initial Instructor Training in order to produce a cadre of Part-time Instructors and Training Supervisors for supporting the In-Plant Training activities at the Sugar Estates.

19.0 Staff Training requirements at NSTC and the Sugar Estates.

19.1 Two aspects must be addressed concerned with Staff Training requirements and availability of potential instructors.

19.2 Following several serious efforts to recruit suitably qualified people to join the Instructor Staff of NSTC the number recruited is still considerably less than that required to meet the development proposal contained in the Prodoc for Phase I, and whilst the process of interviews and vetting is to be commended for retaining high standards and expectations it also becomes clear that further Instructors will be increasingly more difficult to recruit, therefore, a minor change of policy would be recommended to solve the problem i.e. by slightly lowering the standard of qualifications and experience for potential Instructors but then compensating by more intensive training the original targets could be achieved. It is only by this approach that more than the required number may be recruited and trained to allow for wastage.

19.3 The availability of In-plant Instructors and Trainee Supervisors is of concern since it appears that certain, undefined, additional incentives will be necessary to encourage suitably skilled Craftsmen and Technicians to assume extra responsibilities. This must be seen as a matter of Management Policy for the various Sugar Estates and as a matter beyond the control of NSTC Management but is also crucial to the substance of the National Training Policy.

19.4 A realistic figure for Instructional Staff at NSTC is 32 as the Training Centre begins to be developed, to be supplemented by at least 10 full-time and 25 part-time Training Staff on each of the Sugar Estates.

19.5 The staffing of the Training Departments will need urgent attention to identify the following personnel:

19.5.1	Training Manager	
19.5.2	Training Officers	- 3 required
19.5.3	Full-time Instructors	- 6 required
19.5.4	Part-time Instructors and On-the-Job Supervisors	- 25 required

19.6 A requirement of the Training Infrastructure must be a degree of built-in flexibility to allow for an interchange of Instructors between the Sugar Mills and NSTC.

20.0 In-plant training.

20.1 Throughout the period of Phase I of the Project the establishing of Training Departments of the four Sugar Mills has not been taken seriously - they do not exist in physical terms.

20.2 It should be noted immediately that whilst specific references are made in the Prodoc as to how the Project would develop to encompass Training Department at the Sugar Mills there was no mechanism in place for the UNIDO input to the project to exert any influence upon the individual Managements of the Sugar Estates to make this a priority.

20.3 At all times the importance of training was generally acknowledged but at that point the matter was often laid to rest because of the more urgent need of attention directed towards day to day management decisions.

20.4 Eventually a breakthrough occured through the constant support to the project of the Chairman of SPIC and the Director of Public Industries who supported the efforts of the Technical Committee the Director of the Centre and the CTA at all times so that once the UNIDO Input to NSTC could be seen as an accountable commitment producing satisfactory results, the rehabilitation of the centre attained sufficient credibility to warrant the support of the Industry at large.

20.5 This credibility extended to other industries who did, in fact, send Instructors or Senior Operatives to attend the Training Programmes being run at NSTC for the purpose of validation in terms of their own requirements.

20.6 The results of this new gain in strength resulted in two meetings:

20.6.1 8 February 1989, a One Day Seminar aimed at - integrating the respective training activities and responsibilities of the MATS input and the UNIDO input and,:

20.6.2 12 March 1989 a Workshop which resulted from the seminar and must at all times be viewed as the maximum possible achievement for the Project.

20.6.2 The recorded minutes of the two events are attached as Annex 10.

20.7 THIS SECTION SHOULD BE USED AS AN INDICATOR TO THE HIGH NOTE UPON WHICH THE UNIDO INPUT TO THE PROJECT WAS CONCLUDED.

20.8 An important item to emerge was the matter of purchasing training equipment from the NSTC Rehabilitation Project Budget. This was left over for further consideration by SPIC and NSTC Board.

21.0 Compatibility with MATS Inputs

21.1 The two meetings referred to above (20.6.1 and 20.6.2) have been a forum to exchange ideas, discuss priorities and formulate a good understanding on all matters concerned with the development of the training infrastructure.

21.2 The understanding reached at this stage will quickly overcome the present feeling of each Sugar Mill having the main priority for assistance in training. The end result will be an agreed national priority for various training activities upon which the MATS Teams will be able to plan ahead and establish a Training Calender.

IV. PROJECT ACHIEVEMENTS

G. Training

22.0 **Study Tour by UNIDO Experts**

22.1 A study tour programmes was undertaken by the Experts of various Education or Training Institutions and the Public Sector Sugar Estates. The itinerary is attached as Annex 2 along with a brief report on various impressions obtained on each visit.

22.2 One over-riding impression from the visits being that there is a predominance of chalk and talk instruction even in the most basic practical activities (and subjects) and far too little "hands-on-experience" is available.

23.0 **Study Tour by Sudanese Officials**

A study Tour Proposal for five senior officers of the Sugar Industry of Sudan has been prepared and is attached as Annex.

23.1 An important feature at the study Tour.
will be the de-briefing sessions in UNIDO Headquarters, Vienna since the composition of the Study Tour Party is:

The Director For Training NSTC.

The Director for Public Industries. M.O.I. - G.O.S.

The Chairman of the Technical Committee.
(Board of Directors - NSTC)

The Director General of a Sugar Estate.

The Deputy Director General of a Sugar Estste.

23.2 The de-briefing sessions would be enhanced considerably should the Chairman of SPIC be invited also.

24.0 **Fellowship Training Programme.**

24.1 As previously stated, specific criteria were set as qualifiers for overseas fellowship training.

24.1.1 Successful participation in one of the Staff Development Programmes being an essential qualification together with the production of at least one Modular Unit.

24.1.2 A further requirements being that the newly prepared Modular Unit would be used for validation purpose on a Training Programme and also for evaluation of the Instructors Performance by the Subject Expert, in order to identify the best possible personnel skill upgrading programme for each individual Instructor.

24.2 One major factor come to light during the staff Development exercise namely that there was a definite need for improvements in all aspects of Instructors Skills.

The general performance was a sure sign that all the Instructors had suffered under a regime of chalk and talk during their own so called training and were determined to inflict the same punishment on the Trainees under their control.

24.3 It was possible to modify this misguided attitude in all cases with the notable exception of one. However, it did not go un-noticed that towards the end of Phase I, the often tried and tested (AND NOTABLY FAILED) method of "training by the use of chalk boards and hand out" was again becoming fashionable, at N.S.T.C.

24.4 The conclusion drawn from this situation indicates that the most cost effective approach would be for:

24.4.1 An in-house instructors Training Programme administered and executed from an external source - for example - and preferably - the I.L.O. Turin International Centre.

24.4.2 Overseas training for personal skill upgrading in one specific area of the discipline at each instructor.

24.5 A Fellowship Training Proposal is included as Annex 9.

25.0 **Training of Counterparts**

25.1 The training of counterparts took place at two levels in the form of individual coaching and general assistance in specific areas of skills upgrading besides the formal Staff Development Training Programmes.

25.2 The informal coaching provided the most valid references for each of the Experts to recommend the most appropriate form of fellowship training (as reflected in Section 24.0).

26.0 **Staff Development Training Programmes.**

26.1 Two staff Development Training Programmes were completed during the Project.

26.2 From 15th November to 1st December 1988 which was attended by all the training staff then working at the Centre - 8 in total - plus 3 Training Officers and 2 Instructors from Kenana Training Centre.

26.2.1 The Programme Proposal and the Programme Report are included in Appendix 2 and:

26.3 From 11th February to 2 March which was attended by all the newly recruited Instructors of the NSTC - 4 in total - plus 1 Training Officer and 2 Instructor from the Cement Industry.

26.3.1 The second programme was based on the detailed proposal of the first programme and a syllabus prepared, however no formal report was presented by the Programme Manager to record Participate, Projects Progress, Presentation Methododology etc.

26.3.2 Further reference is made in section J.

27.0 **Training Programme Development**

27.1 Using the methodology and presentation format established during the Staff Development Training Programmes each of the Training Divisions at NSTC embarked upon their own development programmes which included:

27.1.1 Development of Training Materials

27.1.2 General improvement to workshop facilities

27.1.3 Actual practice on aspects of the materials developed with the guidance of the Experts

27.1.4 Maintenance and up-grading of items of equipment and teaching/instructional aids

27.2 The Programmes developed are listed in Annex .

28.0 Training Materials Output.

28.1 The Individual Project of the Participants of the first Staff Development Programme were the preparation of a specific Modular Unit. These M.U.'s were suitable integrated into progressive units within a complete Learning Package.

28.2 The full details are to be found in sub-section 6 of the programme Report contained in Appendix II.

28.3 The initial development being a suitable format for the presentation of training documents. (Included in Programme Report).

28.4 Samples of the Presentation of Full Training Programmes developed by the CTA as reference material are attached as examples. These items have been referred to earlier in section 11.3.

28.5 Based upon these examples and the work of the Staff Development Programme the Instructor Staff at NSTC prepared a series of:

28.5.1 Programme Proposals.

28.5.2 The Modular Unit Content for the Programmes.

28.5.3 Programme Report.

28.6 Samples of these outputs are also contained in Appendix 2 and are most significant since they indicate precisely how the Training Infrastructure at the operational level has been developed from zero.

28.7 IT IS MOST IMPORTANT THAT THIS SYSTEMATIC APPROACH IS RETAINED AS FURTHER TRAINING PROGRAMMES ARE DEVELOPED TO RETAIN THE DISCIPLINE OF ANALYSING TRAINING NEEDS AND CONSTRUCTING A PROGKAMME TO BEST SATISFY THEM.

28.8 The Training Materials developed by the Participants is, at present being validated by being presented in training situations at NSTC and the response analysed.

29.0 **Validation of Training Materials.**

29.1 The various Training Programmes executed by the Instructors at NSTC are listed below, but again, it is of importance to emphasise that the Training Programmes were launched to fulfill the needs of the project. It is recognised that many of the Trainees have benefited considerably by attendance as indicated in the reception of the programmes. This was a bonus.

29.2 The Training Programme Details are:

29.2.1 Alignment of Drive Systems - IN - PLANT - One week - Started 17 September.

29.2.2 Practical courses in Skills Awareness for Graduates - 3 Modules x 3 weeks each - Started - 3 December.

29.2.3 Basic courses for Instrument Technicians - 3 Modules x 4 weeks each - Started - 10 December.

29.2.4 Basic Practical Skills for Vehicle Maintenance Fitters - 4 Modules x 3 weeks each - Started 10 December.

29.2.5 Alignment of Drive Systems - IN-PLANT - one week - Started 28 January 1989.

29.2.6 Basic Instructors Maintenance and Repair Second Programme - started 4 February.

29.2.7 Basic Practical Courses for Auto Technicians - 4 Modules x 3 weeks - started 4 February.

29.2.8 Driver Training Courses - Light Vehicles two weeks - started 4 February.

29.2.9 Skills Awareness for Graduates.
Second Programme - started 4 March.

29.2.10 TO THIS POINT IT HAS NOT BEEN CONSIDERED ESSENTIAL TO MAXIMISE ON FACILITIES BUT RATHER TO RUN THE CONTROL GROUPS WITH REDUCED NUMBERS FOR EASE OF MANAGEMENT, MONITORING AND EVALUATION BUT IT IS MOST IMPORTANT TO RECORD THAT EXACTLY 140 TRAINING PLACES HAVE BEEN TAKEN UP ON THE ABOVE PROGRAMMES (Ref. National Director Report on Training).

29.3 Further Training Programmes are scheduled to begin as the current UNIDO commitment to Phase I is ending. These are:

29.3.1 Basic Artisan Engineering Skills Training. - 3 Modules x 4 weeks.

29.3.2 Practical Course on Skills Awareness for Maintenance Supervisors - 2 Modules x 4 weeks.

29.3.3 Basic Practical Skills Development for Electricians - 3 Modules x 4 Weeks.

30.0 Other Training Programmes at NSTC

30.1 What might have been a significant development at NSTC because of the recruitment of external expertise to run a specialist programme turned out to be an exercise which still requires considerable further attention to even begin to meet the minumum professional standards automatically expected by the CTA from NSTC Staff and Instructors.

30.2 It appears that when one is required to run a training programme on 'COMPUTERS' then the demand is high simply because of an apparent respectability or implication of advanced technology in the title.

30.3 It has to be recorded - with respect - that a similar situation must be avoided in future since:

30.3.1 The participants were in the main proposed for the course because they would benefit from it - BUT NOBODY KNEW WHAT THE COURSE CONTENT WAS TO BE.

30.3.2 The nominated participants represented a vast spread of ability, occupation, experience and qualifications.

30.3.3 The Company who were to present the course - the I.B.M. Agents for Sudan - sent a one page statement to the Director of NSTC on the course content - this was naturally sent without any information on the participants or any Courses Structure, Subject Structure, Methodology or even a timetable.

30.3.4 "At the 11th hour" the C.T.A and Director of NSTC considered it advisable to travel the considerable distance to the IBM Agent in Khartoum to make the point that 'because of the nature of the Fee being charged then a professional approach must be adapted'.

30.3.5 Certain marginal improvement were made and NSTC eventually received a print-out list of participants and then sometime later (a lot later) a print-out pass and fail grading list.

30.4 One possible method of recovering the cost of the course would be for NSTC to run a course on "Training Methodology " for the staff of the I B M Agents.

30.5 Certain classroom facilities are made available to the Sennar Sugar Company one day each week for the MATS Training Advisor to conduct some form of teaching activity but at the time of preparing this report the CTA is not aware that the Centre Management has been briefed on the form at teaching being carried out the subject(s), the participants, objectives etc.
For the purpose of maintaining accurate records for the benefit of the participants and the industry as a whole, certain secrets will have to be given up to the Centre Director.

H. Overall Status Summary

31.0 The Present Status of the Project

31.1 it is pleasing to be able to report that the overall status of the Project has been summarised by various G.O.S Representatives, including the Minister of Industry and the District Commissioner - " Very Satisfactory" and added "Compliments to the Sudanese Officals for the contribution" The future of the Training centre is now secure and will be used as a model for future industrial Development.

31.2 Whilst these subjective expressions are an indication of how the NSTC has attained CREDIBILITY during the UNIDO input to Phase I it is also of consequence to analysis, more objectively, the accountable progress made.

31.3 The support now available to NSTC is a sure sign that the centre has created its own identity coupled with some degree of respectability. This then represents the real and offical SPRINGBOARD upon which to launch Phase II.

32.0 <u>The correlation of attainment with modalities set out in Prodoc</u>

32.1 <u>All references within this sub-section are related to the UNIDO Project Document Annex A sections 5 and 7</u>

32.2 Section 5 - Activities and Modalities of Implantation for Phase .

32.2.1 (5.1) Two vehicles were eventually purchased and delivered, being made available to the Project on 3 October 1988 it must not go unmentioned that the SIDFA - then out of office had the extra-ordinary cheek and incredibly bad manners to assume authority to have free use of the vehicles, using illegal number plates. The CTA ended that situation within seconds of arriving in Khartoum.

32.2.2 (5.2) The CTA and STE were assigned at the beginning of July 1988 - the original STE resigned at the end of August and was replaced early January 1988.

32.2.3 (5.3) There was no natural confirmation of Counterparts since their appointment WAS NOT PROVISIONAL.

One of the Counterparts to the STE was the Deputy Director, however this statement alone is not a satisfactory reflection on the situation from the point of view of UNIDO.

32.2.4. (5.4) The CTA and STE did visit various Estates accompanied by the appointed Counterparts.

Further visits were made to other Institutions and training Establishments.

Prelimary work on the assessment of Training Needs began.

The recruitment of Counterparts and Training Officers represented a minor problem for ethical reasons.

32.2.5 (5.5) A detailed workplan was compiled by the CTA and included in the first "Progress Report".

An outline proposal was prepared for the rehabilitation of the Training Centre. Various remarks, and written statements by the CTA were not considered appropriate by G.O.S. Representatives regarding board and lodging facilities for trainees and so the statements were withdrawn indicating that future proposals would be left with the better qualified authority.

The efforts of the CTA to encourage the establishing of Training Departments for the Public Sector Sugar Estates were originally ignored.

An outline specification for rehabilitation and extensions to existing facilities was submitted together with a "Justification Document"

32.2.6. (5.6) The CTA (without the assistanceof an STE or any short-term consultant) prepared, organised and run a full Training Programme on Job Analysis, Training Needs Assessment and Analysis.

Detailed courses for Skill Upgrading, Introduction to Basic Artisan Skills and Management,Supervision and Technical Inputs for plant and agricultural operations were prepared as part of the project requirement for the Training Programme.

32.2.7 (5.7) A Quantitative Assessment of training needs was conducted and the proposals emanating from this were submitted for and received approval by the Technical Committee and SPIC. The outline approved contained guidelines for the priority recruitment of new staff for Phase II. No extension or modifications to the office or accomodation facilities were undertaken and it should also be noted that this particular responsibility was removed from the CTA during discussions at the September Meeting in Vienna.

An orientation programme was prepared. An overseas Fellowship Programme was proposed. The specification of equipment for a pilot plant Laboratory, training and demonstration equipment was prepared:

32.2.8 (5.8) Two orientation training programmes were run, the first for 17 days and the second for 23 days. Final selection of counterparts and candidates for overseas training was completed from those available and the Fellowship Programme Prepared.

32.2.9 (5.9) A Final Report has been prepared. The technical report has been compiled according to the requirements of the prodoc.

Any actual training which took place was counted as a bonus because of the particular Phase I strategy adopted.

Support personnel caused a problem at times with the shortage of drivers as one aspect and the phenomenal delay in recruiting a suitably qualified Bi-lingual secretary as another.

The Study Tour was scheduled and a full proposal submitted.

Cost estimates are prepared

The final report is available for clearance by UNIDO for submission to SPIC.

32.3 Section 7 - Outputs.

32.3.1 The terms of reference with workplan for the rehabilitation and extension of training, office (NOT ACCOMMODATION) and training departments of the four public sugar estates has been prepared.

- There are twelve counterparts trained in the analysis of training needs.
- A study has been made of the training needs and this has been analysed.
- Several programmes with course content specified are in place.
- There were not 24 counterparts and trainers available for training - in total 18 were recruited and all attended one of the courses available on management of the training function together with training methodologies and techniques.
- A proposal for an overseas fellowship training programme has been prepared for the 15 most successful participants of the afore mentioned courses.
- A Study Tour Programme for five concerned officials to selected Overseas Training Institutions has been formally submitted to UNIDO for execution.
- Detailed Terms of Reference with work plan for output, activities and inputs for Phase II has been prepared
- THIS DOCUMENT IS THE TECHNICAL REPORT TO COVER THE IMPLEMENTATATION OF PHASE I AND DETAILED TERMS OF REFERENCE FOR PHASE II.

33.0 Significant Events.

33.1 Many significant events occurred during the execution of the Project and these are listed.

33.1 Some of the Major events which influenced various aspects of developmnet were:

33.2.1 The resignation of the S.T.E. (31st August 1988)

33.2.2 The establishing of the Technical Committee (3 September 1988).

33.2.3 Consultations in Vienna (15-16 September 1988) but more significantly the communications which led to it.

33.2.4 Open market devalution of the Sudanese Pound. (26 October 1988)

33.2.5 High Level UNIDO Mission to Sudan (23-29 November 1988).

33.2.6 Discussions with Consultant Architect on outline proposal for the development of the physical infrastruture of NSTC (11 December 1988).

33.2.7 The inspection tour of NSTC by the District Commissioner (29 January 1988)

33.2.8 The excellent visit to NSTC ny the Minister of Industry (11 February 1988).

33.2.9 Two Seminars/Workshops involving MATS representatives (8 February and 12 March 1989).

33.2.10 UNIDO Evaluation Mission (24 February - 2 March 1989).

V IMPORTANT CONSIDERATIONS WITH RESPECT TO PHASE II.

I. The General Environment

34.0 The Location

34.1 For some obscure reason a large Training Centre was built on the Sennar Estate subsequently to be designated the National Sugar Training Centre. Whilst the inherited facilities are suitable for development to eventually meet the training demands of the Sugar Industry it must be equally evident that the isolation and lack of even the most simple facilities being available creates problems.

34.1.1 WHEN PARTICIPATING IN RECRUITMENT INTERVIEWS TO ENLIST NEW INSTRUCTORS IT DID NOT PASS UN-NOTICED THAT THE NSTC MANAGEMENT WERE QUICK TO POINT OUT, TO ALL, THAT NSTC WAS SITUATED IN A HARDSHIP AREA.

34.1.2 There are several reasons for making this indisputable statement, all of which applied certain constraints upon the various UNIDO officials who were assigned to the Project. The response of each individual was different and should be seen simply as the physical and mental ability of the individuals concerned to be able to absorb the numerous hardships created by the isolation, the total lack of any form of communications, the standard of accommodation, the total absence of any form of relaxation or recreation facilities, etc. and the imposition of a severely restricted diet created by actual or superficial inavailability of the most basic commodities (such as bread, etc.) which had the automatic effect of at least doubling the actual market price, when available.

34.1.3 The isolation from even the most basic and then even, unsatisfactory medical or hospital facilities placed a continuous strain on all concerned purely from the worry (which was genuine) of being taken ill or being involved in some form of accident, no matter how trivial, which might require injections, minor surgery etc.

35.0 Communications

35.1 A matter which will be addressed separately but has a real influence upon the operational feasibility of Phase II of the Project.

35.2 The Administrative Affairs of the Project were conducted within a time-lag situation of 14 days - EVEN FOR A TELEX MESSAGE - since there was NO TELEPHONE (LET ALONE TELEX) and an infrequently operational radio at the Sennar Sugar Mill.

35.3 It is pleasing to record that the short-wave radio ordered by NSTC through project funds was delivered in March 1989. The radio was a pre-turned set, fixed to the SPIC wavebands - obviously a great asset for communicating between the Centre, SPIC Office in Khartoum and the Sugar Mills, when commissioned.

35.4 It is not pleasing to record that the CTA was unable to purchase another short wave Radio from UNIDO or Project Funds to establish a most important link between the Project and UNDP, Khartoum (correspondence on this matter is available) such a link would appear to be indispensable for Administrative Communications and Support.

35.5 The delay in HQ to Project mail and private mail was not conducive to efficient operation of the project from the point of view a fast turnround of information.

35.5.1 What was no surprise to the C.T.A was that one Expert was able to pick up all his mail from home plus various responses to requests for information concerned with his input to the project when debriefing at UNDP Khartoum at the end of this assignment.

36.0 Accommodation

36.1 The matter of living accommodation has been of considerable concern because of its total inadequacy in every respect. It is not satisfactory for high level UNIDO Staff, Experts and Consultants to be expected TO MAKE THE BEST OF THE ACCOMMODATION MADE AVAILABLE.

36.2 IT MUST BE RECOGNISED BY OFFICIALS OF BOTH UNIDO AND GOS THAT THE PROBLEMS OF VERY POOR AND INSUFFICIENT LIVING ACCOMMODATION WILL INEVITABLY BECOME A MAJOR NEGATIVE INFLUENCE ON THE EXECUTION OF PHASE II OF THE PROJECT.

36.2.1 The level of maintenance, upkeep and general condition of the prefabricated bungalows was very poor, the condition of the furniture was an absolute disgrace and no provision was made for cooking, one was not even in a position to boil water until the CTA and original STE purchased electric hotplates. It has to be experienced to be appreciated how it feels to arrive at ones new accommodation in a very isolated place to discover that it is far below previously experienced poor standards and realise that there is no means of cooking either for the months ahead. A collective report by all the Experts assigned to the Project is attached as Annex 12. This was purposely compiled to be included in this report rather than be fragmented throughout individual reports.

36.2.2 During the first 6 months of the project only two prefabricted bungalows were made available for UNIDO Experts. A third was made available for UNIDO personnel in January 1989 through a somewhat unexpected complication i.e. one Expert arrived with his wife.

36.2.3 It is impossible to imagine that sufficient accommodation can be made available for the UNIDO Experts and Consultants or H.Q. Staff during Phase II. The number of people will range from a minimum of 8 up to 15 or 16 at various times.

36.3 THE FACTOR OF INSUFFICIENT, SUITABLE LIVING ACCOMMODATION PLACES A GREAT CONSTRAINT ON THE UNIDO RECRUITMENT PROCEDURES SINCE IN FAIRNESS TO ALL CONCERNED THE TERMS OF REFERENCE FOR ALL POSTS MUST INDICATE THE HARDSHIP FACTOR THROUGH:

ISOLATION
POOR COMMUNICATIONS
NO AMENITIES
POOR LIVING CONDITIONS. ETC

BUT ABOVE ALL, THEY MUST BE SINGLE PERSON APPOINTMENTS WITH THE UNDERSTANDING THAT TWO, THREE OR FOUR MUST SHARE ONE HOUSE AND THE POSSIBILITY OF ANYONE ENJOYING THE PRESENCE OF A WIFE (AS WAS THE CASE FOR THE SECOND STE) IS OUT OF THE QUESTION.

37.0 N.S.T.C.

37.1 The Survey of the physical facilities is attached as Annex 1 and has been referred to earlier.

37.2 The outline proposal for future development is also referred to in sub-section 12.0

37.3 The priority list of equipment required to approach most urgent needs, as proposed by the various short-term Experts is attached as Annex 7. This priority procurement list has been edited and modified to become aligned with the overall development programme rather than that for individual Departments.

37.4 A feature which must be recorded is the large amount of new workshop equipment and tools which have been retained during the long and virtually inactive life of the Centre locked in the respective stores.

37.4.1 Whilst this feature is most commendable and a fine testomony to the integrity of the former management of the Centre represented an excellent start for the rehabilitation of the project it also indicates a negative attitude and a waste of available resources.

37.5 Similar circumstances existed with respect to the Audio Visual Equipment and a survey indicated the small amount of spare parts required to be able to re-commission every item of equipment.

37.5.1 Additional spare parts were ordered to be able to ensure continued operation of the equipment for a number of years to come.

37.6 The most extra-ordinary discovery was made on 17th January 1989 when the CTA asked to view the contents of two locked metal cupboards referred to as the library. The impact of the first glimpse of the contents being most astonishing since it was as if one had stumbled across an enormous treasure trove.

37.6.1 The list of reference books, text books, Operator Manuals, Repair and Maintenence Manuals, Training Documents, etc. is attached as Annex 13.

37.6.2 It transpired that some of the NSTC Instructors were aware of the contents but certainly did not appreciate the real value for assisting in developing various M.U's and Training Programmes.

37.6.3 For reasons not evident to or appreciated in any way by the CTA, the cupboards were promptly locked and a complex deterent system developed to prevent the material being used.

J. Technical Committee.

38.0 Origin and Activities.

38.1 The Technical Committee was formed on the 3rd September 1988 to be an Executive sub-committee of the NSTC Board of Directors.

The Board of Directors and Technical Committee Members are listed as Annex 14.

38.2 The Technical Committee was formed as a result of the CTA presenting a summary of the project activities up to that time and highlighted the difficulties and constraints which appeared to be creating delays on all sides.

38.3 The purpose of the Technical Committee was to cut out any delays whenever possible by acting as ADVISORS and also a COMMUNICATION LINK for the Director of NSTC and the UNIDO CTA to be able to present decisions concerned with the execution of the Project to SPIC.

38.3.1 THE ADVISORY role was to assist the Director and CTA in arriving at valid decisions on all important issues concerned with the project.

38.3.2 Thus with the Director being automatically a member of the Technical Committee and the CTA Co-opted as Advisor (without vote) all decisions were those of Committee Majority. All decisions made required a meeting attend once quarum of four with a costing vote for the Chairman.

38.3.3 The second duty that of a COMMUNICATION LINK was to then transmit the Committee Recommendations to the Chairman of SPIC for approval and then subsequently monitor the processing of the recommendations and supervise the implementation of such recommendations by the Director and CTA.

38.4 The wisdom of the Board of Directors of NSTC is unquestionable since the origination at the Technical Committee provided support and momentum for the execution of the project and also secured maximum support for the CTA at all levels.

38.5 The Technical Committee met on at least 20 occasions from origination to the end of Phase I of the project and made a significant contribution to the overall achievements of the project by genuine interest, support, helpfulness and valuable guidance throughout.

38.6 The general activities of the Technical committee comprised of removing a large number of 'roadblocks' which were preventing normal progress matching the efforts and energies expended on the Project. Several of the more significant contributions of the Technical committee were:

38.6.1 Preparing the Terms of Reference for the Chairman of SPIC and the Director of NSTC as a basis's for discussion at UNIDO, Headquarters, Vienna on 14th and 15th September 1988.

38.6.2 Arranging National Adverts and Interview Schedule for the recruitment of Instructors at NSTC.

38.6.3 Conducted the interviews on the 4th and 5th of October 1988.

38.6.4 Conducted the vetting at CVs prepared by UNIDO candidates for the various short-term Expert Appointment.

38.6.5 Recommended selection of priorities for appointment.

38.6.6 Monitored processing and communications, with respect to the recommendations and held firm by refusing to allow additions or modifications to the committee decisions by any individual. This process was observed by UNIDO Headquarters staff on Mission in Sudan.

38.6.7 Prepared the Terms of Reference for the Sudanese input to the forthcoming UNIDO Mission to Sudan.

38.6.8 Had full representation at several meetings with the High Level UNIDO Mission between 23rd to 26th November 1989.

38.6.9 Verified and supported the CTA's Quantitative Assessment of Training Needs.

38.6.10 Launched a second recruitment drive - including a National Advert - for further Instructors of NSTC.

38.6.11 Conducted interviews for recruitment of further Instructors and potential Instructors for NSTC, on 4th and 5th February 1989.

38.6.12 Accompanied the Minister for Industry on his visit to NSTC.

39.0 Future Role

39.1 The importance of the initial role held by the Technical Committee must never be overlooked since the tireless efforts of the various members to make themselves available at short notice for meetings at the request of the Director of NSTC and the CTA was the major factor in the revitalising of the project by overcoming the many small (but cumulatively large) obstacles to progress.

39.2 The role of the Technical Committee was at its most evident during the UNIDO high Level Mission to Sudan (23rd to 29th November) when the members prepared for and actually conducted negotiations with the UNIDO Mission (led by Deputy Director General Wiesebach) on behalf of the G.O.S.

39.3 This position was recognised by the Head of Mission in his proposal for the conduct of the project and was included in the Memorandum of Understanding reached at that time.

39.4 The foregoing is an indicator as to how the Technical Committee became an integral part of the Project administration and its monitoring role on behalf of the G.O.S. became indespensible.

39.5 The one major item which needs to be addressed further is the actual status of the Technical Committee in Legal Terms and how best it may continue to SUPPORT THE PROJECT IN THE BEST INTERESTS OF GOS AND UNIDO.

39.6 Since the Legal Agreement was signed between SPIC and UNIDO then direct responsibilities and lines of communication were automatically established. In this case, however, the Agreement and Prodoc did not even attempt to define the position, status, role and responsibilities of the National Sugar Training Centre, Sennar within the Agreement.

39.7 It must be acknowledged that this gap eventually created a problem area with respect to the Technical Committee position in being able to make definitive decisions for what was considered to be the most effective course for project development which were, even then, subject to internal interference, adjustment and modification. (Particularly in one instance of recruitment procedures on behalf of GOS).

39.8 It is therefore of paramount importance that any proposal for Phase II of the Project must define the role of the Technical Committee since it is obvious to all that UNIDO would inevitably face difficulties on this issue which appeared to take place outside the framework of the Prodoc (even though in fact it DID NOT) and that communications with respect to the Project were only acceptable to UNIDO from SPIC, irrespective of the author.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION.

Annex I

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.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION.

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

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION.

EXISTING ACCOMODATION (CONTINUED)

1.3.

VEHICLE WORKSHOPS		
	Dimensions (m)	**Area (m^2)**
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 (m^2)**
Laboratory	6.0 x 3.0	18.0

1.5.

CLASSROOMS		
	Dimensions (m)	**Area (m^2)**
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

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION.

EXISTING ACCOMODATION (CONTINUED)

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

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION.

A. **MECHANICAL Engineering Workshop.**
Comments by the C.T.A. Mr. J. Bye.

a. The layout of the workshops, machine tools and other epuipment is shcwn in attached diagram which also includes a status indicator.

b. The major deficiency preventing full utilisation of all the facilities is the shortage of welding gas - i.e. Oxygen and Acetylene plus a minor inconvenience in the same workshop of incompatibility of various welding equipment fittings, should any gas ever become available.

c. There is a reasonable supply of tools and equipment, some items still new and unused but naturally there is also a shortage of certain items which only have a limited life (drills, lathe tools, milling machine end milling cutters etc.).

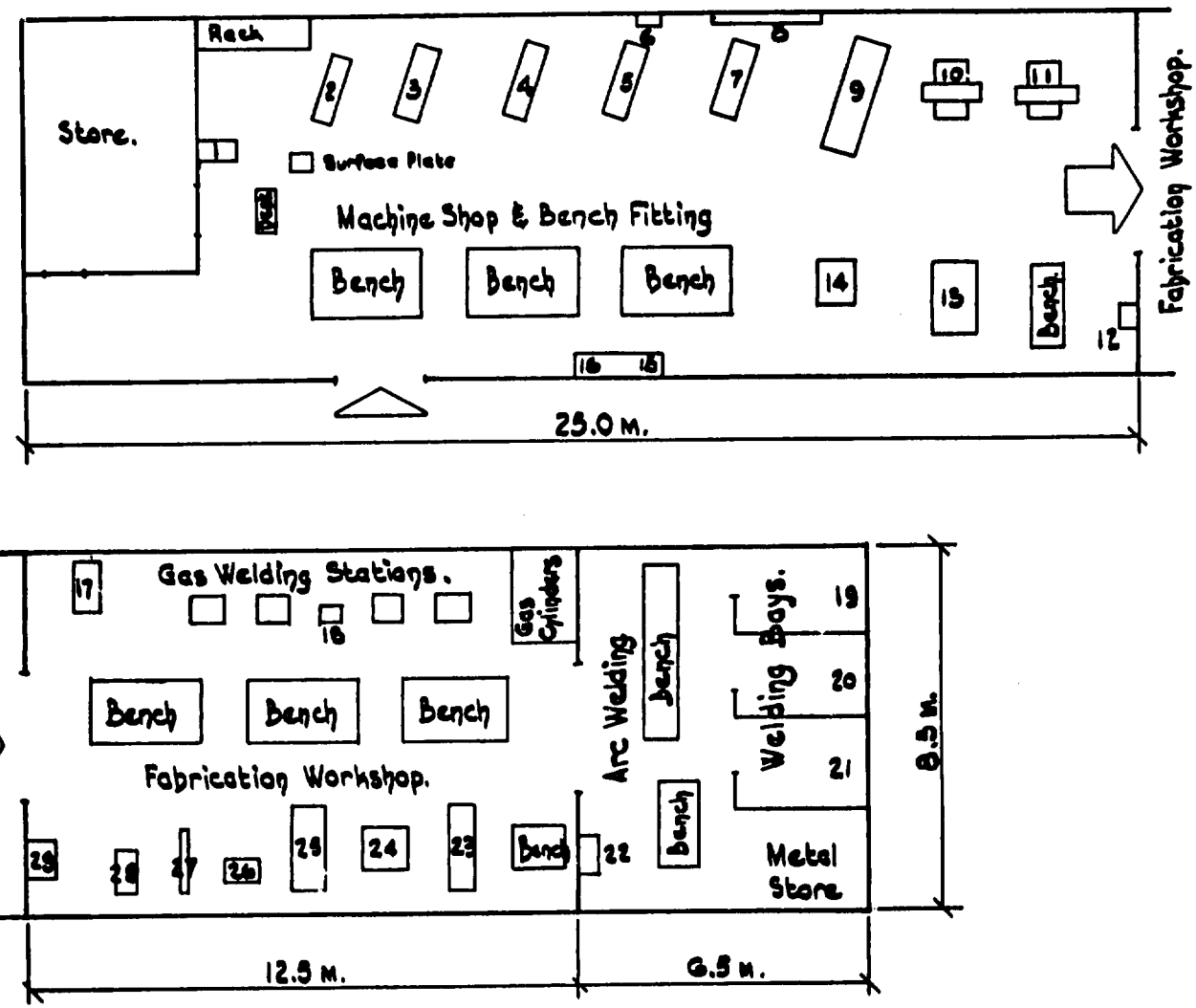
The compilation of a priority list of purchases required to have the greatest impact at this time is to be prepared by the S.T.E as soon as possible after assignment.

d. There is a total absence of safety equipment and first-aid facilities.

e. The most expensive single item for attention in the rehabilitation will be the installation of a new set of power supply distribution boards and the complete rewiring of the whole area.

Layou_ of Mechanical Workshops - Sugar ·i. ining Centre, Sennar.
'Identification of equipment and general operational status *

No	MACHINE	?	
1	Power Hacksaw	OK	
2	Centre Lathe	OK	*
3	Centre Lathe	OK	*
4	Centre Lathe	OK	*
5	Centre Lathe	US	*
6	Off-hand Grinding Mc	OK	
7	Centre Lathe	OK	*
8	Distribution Panel	-	
9	Centre Lathe	OK	
10	Plain Milling Machine-Hzl	OK	*
11	Plain Milling Machine-Hzl	OK	*
12	Off-hand Grinding Mc	US	
13	Shaping Machine	OK	
14	Pillar Drilling Machine	OK	
15	Bench Drilling Machine	OK	*
16	Bench Drilling Machine	US	
17	Pillar Drilling Machine	OK	
18	Off-hand Grinding Mc	US	
19	Arc Welding Set	OK	
20	Arc Welding Set	OK	
21	Arc Welding Set	OK	
22	Off-hand Grinding Mc	OK	
23	Plate Rollers	OK	
24	Pipe Bending Machine	OK	
25	Sheet Metal Folding Mc	OK	
26	Simple Shears	OK	
27	Hydraulic Press	OK	
28	Power Hacksaw	OK	
29	Off-hand Grinding Mc	OK	



* Operational status indicates condition of machine only.
i.e. Accessories may be missing - limiting usefulness and range of application. Dec. 88.

Scale - 1:100

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION.

B. **Instrumentation and Electrical Workshop.**

Comments prepared by Bernt Jan-Olof Berglund,
Expert Post 11.51.

a. There is no facilities for Electrical Installation ,
Heavy Current Installation,
Electric Machines Maintenance.

b. The workshop is very small (4 metres x 8 metres) with bench space for only 8 trainees.

The lighting is not suitable for the designated use of the facilities.

c. Limited storage space.

d. Equipment - NO DESCRIPTION OR LIST APPEARS IN THE REPORT

Usefulness - acceptable

Shortage - A whole range of hand tools and equipment must be purchased in order to bring the facilities upto even an acceptable level.

e. Immediate requirement - Combined Test Equipment to cover the calibration of pressure gauges and electrical multi-meters.

f. The list of equipment required to uprate the facilities was prepared by the Head of Department and has been included in the Experts End-of Mission Report without verification.

The Head of Department is now left to his own devices to rationalise the list.

Annex II

Study Visits by Experts.

1. The various Sugar Mills and particular Departments were visited by the UNIDO Experts as a basis for the decision making procedures, discussions with the CTA and National Director and Ultimately recommendations for future.

2. In all cases it is recorded that the various Experts used expressions of dismay of the general condition of the production efficiency by all concerned.

3. Various Surveys were undertaken by the respective Experts to try and establish a priority programme of most effective programmes.

4. It was readily identified that the procedure of Crisis Management has to be solved before short term proposals can be established.

5. This initial conclusion sets the whole scene upon which the training needs must be assessed and the eventual training policy established.

6. Since there are virtually no training facilities available of the Sugar Mills it is most evident that the initial need is for Management education in the Benefits of Training. At various levels it is evident that there is an awareness of the possible benefits which may be accrued from Training but no-one is prepared to commit and make the initial investment.

7. The significant visits to other Education and Training Institutions is as follows.

7.1 Khartoum University (20 July 1988)
Department of Mechanical Engineering.
The facilities were very much run down with many of the old pieces of equipment, apparatus and machines no longer in working order and so if was quite obvious that the quality of the Graduates is reflected in the overall situation and circumstances.
Since it is impossible to undertake very little (if any at all) such activities as:
Elementary Laboratory Experiments.
Full Scale Lab Tests or Demonstrations.
Project Work or Research Activities which are practically oriented then the qualifications obtained must only be a measure of the theoretical knowledge retained.

Throughout all discussions it was quite obvious that these circumstances created many difficulties for the Academic Staff of the Department.

7.2 Khartoum University (20 July 1988)
Department of Electrical and Electronic Engineering. The facilities here were also run down and not particularly well maintained however despite this, they compared very favourable with the Mechanical Departments since it had been more recently equipped.
One was left to wounder how the vast facilities particularly the Electrical Machines Laboratory, could be utilised and from where the Undergraduates could be recruited.

7.3 The Management Development Centre, (21 July 1988)
A Centre with excellent facilities in every respect and a recognised quality in the work undertaken or produced.
The obvious high quality of the Staff, the A V and Reprographics back-up facilities indicate that the M.D.C. is a first class Institution and should be used whenever possible to the great advantages of the Project in either a Consultative or Programme Development capacity.

7.4 The Khartoum Polytechnic - main campus - Department of Mechanical and Production Eng. The Department tends to be oriented more towards a practical type of engineering training/ education. Various new items of equipment had been installed and were in working condition (EXCEPT A C.N.C. MILLING MACHINE, WHICH LOOKED VERY FORLORN). Other items of equipment were being assembled and installed in preparation for new academic year ahead.
Several Students were completing practical tests in the Engineering Workshops but it must be recorded that the quality of the work (and of other test pieces available for inspection) was appalling, indicating a very low level of Instruction and consequently an indescribably poor level of acceptability.

It has to be noted that a large amount of the new equipment being installed at ground floor or basement level at the time of the visit was either severely damaged or destroyed completely during the tragic floods during August 1988.

7.5 Wad Medoni Vocational Training Centre. This centre had recently been the recipient of an I.O.L. Procurement and Rehabilitation Project and therefore a reasonable display of modern and operational equipment and machines was available. It had to be noted that this also appeared to have caused an almost indiscriminate scrapping and wrecking of some of the original items which surely would have been a perfect source for spare parts, teaching materials, training models and acids etc should someone have exhibited some form of initiative.

The general facilities were satisfactory to meet the objectives of the centre and the Instructors showed a degree of commitments to their work (However, the Director of the Centre was not available to host the formal Delegation).

A sorry footnote to the visit was that whilst the CTA was aware of earlier ILO activities of the vocational Training Centre and the basis of the Modular System of Training previously established - AND WHICH SHOULD HAVE BEEN COMPATIBLE WITH THAT BEING DEVELOPED AT NSTC UNDER THE GUIDANCE OF THE CTA - whilst a type of Modular System was supposed to be in place the original documents had been lost and therefore a much diluted and very poor system (for want of a more precise word) was in operation.

8. Further specific remarks are available from the Reports of the various Experts.

Visits to other Institutions by Experts and counterparts included the following location:

8.1 Gizera Agricultural Training Centre
8.2 Catapillar Training Centre (SUTRAC)
8.3 John Deere Training Centre (SUTRAC)
8.4 Masaad Tractor Training Centre.
8.5 Tambour Tractor Training Centre.
8.6 Vocational Training Centre - Khartoum One.
8.7 Vocational Training Centre - Khartoum Two.
8.8 Kamena Sugar Training Centre.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Annex III

Regular Programme

Project Document

Title: Supplementary Support Project to the Project SF/SUD/86/003 - Training Component of the Sudan Sugar Rehabilitation Project

Number: .../SUD/88/..

Country: Republic of the Sudan

Total UNIDO Budget:
(excl. support costs): US $ 31,600

Estimated starting date:

Planned Duration: 4.5 months

Backstopping Section/Branch: IO/SIIP in co-operation with IO/SD/TRNG and IO/T/AGRO

(PE code: J19200)

Government Implementing Agency

Ministry of Industry, Sugar Project Implementation Committee (SPIC)

Official Government Request/ Agreement

Memorandum of understanding between the Government of Sudan represented by SPIC and the UNIDO High Level Mission headed by Mr. H. Wiesebach, DDG, PPD dated 26 November 1988, attached in Annex I.

I. BACKGROUND AND JUSTIFICATION

The State of the Sugar Industry in Sudan

Sudan enjoys a comparative advantage in sugar production due to its favorable conditions for growing sugar cane. The introduction of sugar industry has been an important step towards economic and social change in the areas round the factories and 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 four additional establishments, as indicated below:

Factory	Start-up year	Present Capacity (t/a)
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
Kenana, White Nile Province	1980	330,000
		700,000

In recent years the output in the public sector mills (El Guneid, New Halfa, Sennar and Assalaya) has been disappointing. Production at Kenana, the private sector company, was approximately 295,000 t in 1985/86, and estimates for the fiscal year 1986/87 indicated an output of about 310,000 t. In the case of the four public sugar mills these figures were 192,000 tons and 158,000 tons for 1984/1985 and 1985/1986, respectively. The most recent data still indicates a very high underutilized production capacity in the public sector.

The State of Sugar Industry Training

The four sugar estates in the public sector covered by the Rehabilitation Project employ over 7,400 professional, technical and administrative staff, and over 15,000 unskilled personnel on a seasonal basis. This makes the sugar industry as one of the leading economic sectors in the Sudan. These positions, established over a number of years, cover a wide range of technical and professional skill requirements. Due, however, to the increasing unattractiveness of the package of salary and incentives, the turnover has been high, and financial constraints have impeded manpower development.

The estates depend on the education system of the country for their supply of personnel at different levels. The Vocational Training Centers provide basic training for artisans, the Polytechnics for technician level, and the Agricultural and Engineering Colleges, for Senior engineering and management personnel. The institutions primarily involved are: the four Vocational Training Centers; the Technical Institutes of Agriculture at Wad Medani and Damazien; the Mechanical Engineering College at Atbara; the Polytechnics at Khartoum and Gezira; and the University of Khartoum which provides a specialized two-year post-graduate diploma course in Sugar Technology. In addition, the academic secondary schools, the technical secondary schools and the University of Khartoum provide the output at the general academic levels. The output from these at technical and skilled levels is not however adequate to cover the full needs of the industry.

In addition to the above, the Sennar Training Center, which is located within the Sennar Sugar Estate, was established to provide training within the industry itself for th required number of artisan level entrants. The Center, however, has been practically dormant for a variety of reasons. The main deficiencies could be considered as inadequate infrastructure including building facilities, lack of finance, lack of proper organization of and manning by skilled trainers; and inadequate provision of hostel rooms, teaching facilities and equipment as well as other accommodation and utilities. In addition to the trainers, the administrative and support staffing of the Center is also very limited.

The present facilities of the Center consist of board and lodging for 160 trainees, 6 classrooms, four workshops with some equipment, 15 houses for the local staff, 7 pre-fabricated houses for international personnel to be made available with appropriate facilities upon arrival of experts In addition to the training director, there are 5 potential instructors who currently, assisted by other educational institutions, are preparing vocational training as well as training for administrative personnel. There are also 15 local staff.

As a result, training, both external and in-house, has ceased to keep pace with the evolving needs of the industry, which includes moving to other jobs. There is a dire shortage of trained staff at all technical, vocational and operational levels in all the estates. At higher technical levels, the employees have been left with only the entry-level professional education they had received, with practically no systematic attempt at upgrading skills as required for middle and senior management positions.

One of the long-term goals and development plan priorities of the Government of the Sudan has been the self-sufficiency, and if possible an export surplus in sugar.

To correct the poor performance of the public sector sugar mills, the GOS launched a sugar rehabilitation scheme. The Government of the Sudan felt that training should play a major role in the rehabilitation of the public sector, and a continuing role in the increase of production with reduced production cost and in the development of the whole industry through improved efficiency by providing the skilled manpower.

UNIDO involvement in the sector

It has been noted that this can be achieved only through a long-term training programme with an emphasis on practical skills and technical management training of Sudanese personnel at all levels, using local facilities. In this connection an assessment of training needs of the sugar industry was commissioned by the GOS in association with UNIDO. This study confirmed the need for the establishment of a Sugar Training Center to be located centrally at the Sennar Sugar Estate with the objective of achieving self-reliance as far as possible in training as also proposed under the technical Report and draft project proposal prepared by UNIDO under the technical assistance project RP/SUD/83/004 and RP/SUD/84/001, respectively.

In order however to reach a level of self-reliance for producing the qualified manpower needed in the sugar sector there is the need to establish and strengthen the training capacities of the individual sugar plants/estates. Implicit in this was the idea that future assistance should not focus solely on the strengthening of the training capacity of the Sennar Sugar Training Center, but also establish training units at each estate as part of the overall training scheme and training infrastructure, particularly for on-the-job training to train operators and workers.

To this end the Government of the Sudan requested UNIDO assistance in implementing the training component of a WB/IDA credit of the rehabilitation of the Sugar Industry and an Agreement for a 3 year project with a total budget of $3 million was signed between the Sugar Project Implementation Committee (SPIC) and UNIDO. Phase I of this project, SF/SUD/86/003 - Training Component of the Sugar Rehabilitation Project began field activities in June 1988. Phase I was to be completed within 6 months but due to several unforeseen difficulties this cannot be accomplished.

The project being a large-scale project financed by the World Bank calls for particular efforts in achieving a successful implementation. Several attempts have been made to resolve obstacles in implementation such as direct discussions with the Sudanese counterparts in Vienna in September 1988

(project XP/SUD/88/100) and latest through a mission to the Sudan, consisting of Mr. H. F. Wiesebach, Mr. Ahmed and Mr. Anestis. The Memorandum of Understanding signed between the mission and SPIC is attached in Annex I. This Memorandum (article 2f and 3e) calls for supplementary support activities to be funded by UNIDO in order to accomplish all Phase I activities without increasing the budgetary burden on the Sudan Government and keeping within the revised timeframe for Phase I: June 1988 to March 1989. It was therefore decided to prepare the present project to finance 2 short term experts originally foreseen under SF/SUD/86/003. Thus the present project must be seen in conjunction with the description of that project.

II. THE PROJECT

(a) Project Objectives

1. To enable the Sennar Sugar Training Center to carry out training programmes in the field of electrical and instrumentation engineering for the sugar industry within their overall training programme in Phase II of the project SF/SUD/86/003 - Training Component of the Sudan Sugar Rehabilitation Project.

2. To facilitate the detailed formulation of outputs, activities, inputs and workplan for Phase II of the project SF/SUD/86/003.

(b) Outputs

Output 1

1. A technical report including the following:

1.1 A training needs analysis in the occupational areas of electrical and instrumentation engineering particularly applied to the sugar industry.

1.2 A corresponding proposal for accommodation and equipment in the SSTC within the context of Phase I of the project SF/SUD/86/003.

1.3 The basic elements of a curriculum for electrical and instrumentation engineering to be developed and finalized by the National Counterpart and instructors at the Training Center, STC, and the mills.

Output 2

2.1 An interim evaluation report of the project SF/SUD/86/003, Phase I, two months before its termination date, that will include recommendations concerning the plan for implementing phase II of the project.

2.2 A final evaluation report including a technical summary of the results of the implementation of Phase I as a preparatory statement for developing phase II strategies for the project SF/SUD/86/003.

(c) Activities

The activities for the present project will be carefully co-ordinated with the activities of project SF/SUD/86/003 Phase I, the work programme of which is attached to Annex I as Appendix IV.

Activities for output 1

- Training needs analyses
- Staff development training: job analysis
  task analysis
  skill analysis
  curriculum development
  training programme design

- visits to sugar mills and training centers in the country with counterparts

- establish a design recommendation for classroom and laboratory facilities in consultation with the consultant (locally available) architect.
- prepare a list of training equipment and specifications for electrical engineering and instrumentation
- prepare a proposal for basic elements of a curriculum for electrical and instrumentation engineering
- prepare a technical report upon completion of his assignment.

Activities for output 2

- accompany the HQs monitoring/supervision missions to Sudan according to the agreement for the project SF/SUD/86/003.
- assess all the existing facilities for the Sugar Training Center.

- Evaluate the outputs of Phase I of the project SF/SUD/86/003 compared to the objectives and the overall implementation of Phase I.
- summarize the achievements of the overall Phase I input of the project SF/SUD/86/003 in an interim report.
- appraise the final report and technical reports of the project SF/SUD/86/003 - Phase I for the activities and modalities for Phase II, seen as the basis for formulation of, full fledged project document for SF/SUD/86/003 - Phase II.

(d) Inputs

(i) Government inputs

Two national counterparts at the Sugar Training Center who will work in close co-operation with the expert in electrical engineering and instrumentation; Physical facilities, office, secretarial assistance, transportation and living accommodation for both experts.

(ii) UNIDO inputs

	m/m	US $
11-51 Electrical and Instrumentation Engineering Training Expert	2.0	18,800
11-52 Expert in training development in sugar technology in two split missions	0.8	9,200
42-00 Non-expendable equipment (Training materials used by 11-51)		1,000
59-00 Misc. (processing of reports, petrol for internal travel, etc.		2,600
99-99 TOTAL	2.8	31,600

III. REPORTING AND EVALUATION REQUIREMENTS, EXPECTED FOLLOW-UP

The findings and recommendations of both this project and the project SF/SUD/86/003 will be evaluated jointly with the Sugar Implementation Committee and UNIDO staff within the objectives and

content of both this project and the project SF/SUD/86/003 in accordance with UNIDO procedures. As follow-up action is envisaged the implementation of Phase II of the project SF/SUD/86/003.

Annexes:

Annex 1	Budget Sheets
Annex 2	Work plan
Annex 3	Job Descriptions
Annex I	Memorandum of Understanding of 26 November 1988

IV. CLEARANCES AND APPROVAL SIGNATURES

Prepared by: G. Anestis
IO/SIIP
Date: 26.11.1988

In co-operation with: J. Jensen
PPD/AREA/LDC
Date: 8.12.88

A. Karamanoglu
Date: 23/12/88

Cleared by: W. Kamel
Chief
IO/SIIP
Date: 12.12.88

H. Khouadja
Head
PPD/AREA/LDC
Date: 28.12.88

I. Lorenzo
Head
IO/SD/TRNG
Date: 23/12/88

J. Lequien
Head
IO/I/AGRO
Date: 28/12/88.

A. A. Vassiliev
Deputy Director-General
DIO
Date: 28/12/88.

UNIDO

PROJECT BUDGET/REVISION

ANNEX 1/1

3. COUNTRY	4. PROJECT NUMBER AND AMENDMENT	5. SPECIFIC ACTIVITY
Sudan	.../SUD/88/...	J19201

10. PROJECT TITLE

Supplementary Support Project to the Project SF/SUD/86/003

15. INTERNATIONAL EXPERTS (functional titles required except for line 11-80)	16. TOTAL		17. 1989		18.		19.		20.	
	m/m	$	m/m	$	m/m	$	m/m	$	m/m	$
11-01										
02										
03										
04										
05										
06										
07										
08										
09										
10										
11										
12										
13										
14										
15										
16										
11-80 Short term consultants	2.8	28,000	2.8	28,000						
11-99 Sub-total—International experts*	2.8	28,000	2.8	28,000						

21. REMARKS

* If more than 16 experts are required check here ☐ and attach continuation sheet 1A. This sub-total *must* include all experts.

ANNEX 1/2

UNIDO

PROJECT BUDGET/REVISION

4. PROJECT NUMBER .../SUD/88/...	16. TOTAL		17. 1989		18.		19.		20.	
	M/M	$	M/M	$	M/M	$	M/M	$	M/M	$
OPAS EXPERTS (functional titles required)										
12-01										
12-02										
12-03										
12-99 Sub-total-OPAS 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)										
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	2.8	28,000	2.8	28,000						

** 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.

UNIDO

PROJECT BUDGET/REVISION

4. PROJECT NUMBER .../SUD/88/...	16. TOTAL		17. 1989		18.		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										
33-00 In-service training										
34-00 Non-UNDP group training										
35-00 Non-UNDP meetings										
38-00 Surrender prior years' obligations										
39-99 TOTAL-TRAINING COMPONENT										
EQUIPMENT										
41-00 Expendable equipment										
42-00 Non-expendable equipment		1,000		1,000						
43-00 Premises										
48-00 Surrender prior years' obligations										
49-99 TOTAL-EQUIPMENT COMPONENT										
MISCELLANEOUS										
51-00 Sundries										
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		2,600		2,600						
99-99 PROJECT TOTAL	2.8	31,600	2.8	31,600						

ANNEX 2

	A+1 m	A+2 m	A+3 m	A+4 m	A+5 m	A+6 ml
11-51 Instrument. & Electr. Engineering Expert	xxxxxx	xxxxxxx	xxxxx			
11-52 Evaluation/Supervision Mission				xxx		xxx

A ..... Starting Date of the project

m ..... months

Annex 3 (11 - 51 and 11 - 52)

JOB DESCRIPTION
.../SUD/88/.../11-51

Post title	Electrical and Instrumentation Engineering Training Expert
Duration	Two months in Phase I
Date required	November 1988
Duty Station	Sugar Training Center (STC), Sennar, Sudan, with travel to other Sugar Estates
Responsible to:	UNIDO Chief Technical Adviser of the project SF/SUD/86/003.
Duties	(a) To assist in planning the training programmes to be run by the Electrical and Instrumentation Engineering Department of the Sennar Sugar Training Center. (b) To coordinate with the work of the other international experts on the project SF/SUD/86/003 and 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 specialized field. (c) To train the counterparts that need training within his field. (d) To undertake such other work as may be required by CTA (SF/SUD/86/003) in the initial design and development of the electrical and instrument engineering department of the STC. (e) Prepare progress reports and a final technical report at the end of the assignment(s).

Applications and communications regarding this Job Description should be sent to:

Project Personnel Recruitment Section, Industrial Operations Division

UNIDO, VIENNA INTERNATIONAL CENTRE, P. O. Box 300, Vienna Austria

Qualifications

(a) Professional education at graduate level, in electrical/instrumentation engineering. An additional familiarity with mechanical engineering would be of advantage.

(b) Experience in objective and practice oriented industrial training at a senior level essential.

(c) Experience of the sugar industry would be an advantage.

(d) The successful candidate should possess the qualities of a good manager and experience in management would be an additional advantage.

(e) Training methodology and techniques.

Language

English, a working knowledge of Arabic will be an advantage.

Background information

The former Public Sector of the Sugar Industry in Sudan consists of factories and sugar cane estates with a joint rated output of 374,000 tons per annum.

The industry is currently being developed under a World Bank Rehabilitation Scheme.

UNIDO has the responsibility for assisting with the development of needed training facilities on behalf of the Sudan Government to support the Rehabilitation Programme.

The Sugar Training Center (STC) has recently been incorporated to be responsible for the development of a comprehensive training service for the Sudan Sugar Industry.

It is a strategy formulating body responsible to the Sugar Project Implementation Committee (SPIC) representing the Government of Sudan and the Sugar Industry. Management of the Centre is the responsibility of the Sudanese National Director.

A detailed assessment and analysis of training needs has been made by UNIDO. International funding for the project has been agreed to as part of the overall Sudan Sugar Rehabilitation Programme.

Funding is under the control of the World Bank and includes substantial contributions from other sources such as the Arab Fund.

As the climatic and natural conditions ar favorable for expanding its Sugar Industry, the Sudan is aiming at becoming self-sufficient for internal consumption of sugar.

Later it intends to become an exporter of sugar, particularly to the oil-producing Arab countries. Therefore, in its Development Plan priority has been given to the development of this sector. The essential characteristics of the STC programme will be:

(a) A training of trainers programme for:

- training officers
- technical trainers/instructors (full-time)
- instructors (part-time)

(b) A programme for engineers, senior technicians and supervisory personnel.

(c) Practical training programme for vocational personnel and operators.

JOB DESCRIPTION
.../SUD/88/.../11-52

Post title	Expert in training development in sugar technology (for the project SF/SUD/86/003)
Duration	0.8 m/m in two split missions
Date required	During first half of February 1989 approx. 1 - 15.2.89(first mission) At the end of March 1989 (second mission)
Duty Station	Sugar Training Center STC, Sennar, Sudan, with travel to other training and sugar estates.
Purpose of the project	To provide short-term advisory services and to monitor the development of the implementation of Phase I of the project SF/SUD/86/003 - Training component of the Sudan Sugar Rehabilitation Project and to assist the Government and UNIDO to decide on the mode of actions to be taken to formulate the project document for Phase II. The overall purpose of the project SF/SUD/86/003 is to strengthen the training capability of the Sugar Training Center for audio-visual methodologies, materials and techniques for a modular training system for performance oriented criterion referenced training for upgrading the technical know-how and supervisory skills of training officers, trainers and instructors.
Duties	The expert, after his briefing at UNIDO Headquarters (one day), will spend initially one day in Khartoum for further briefing and gathering initial information at SPIC Headquarters and IDA. Then he will spend about 15 days in the field, Sugar Training Center, in Sennar. There he will work in close co-operation with the other UNIDO experts attached to the project, the counterpart staff and the HQ staff and in general he will: Assess the precise status of the project with respect to the activities and modalities of the implementation of Phase I according to both the project document for the project SF/SUD/86/003 and the revised Work Programme which is included as Appendix IV in Annex I. In particular the expert will specifically be expected to: 1. Assess the performance and achievements of Phase I of the project against its expected outputs. This assessment will include the following project elements: problems addressed; specified outputs and work plan and their usefulness to the implementation phase, namely Phase II of SF/SUD/86/003.

Applications and communications regarding this Job Description should be sent to:

Project Personnel Recruitment Section, Industrial Operations Division

UNIDO, VIENNA INTERNATIONAL CENTRE, P. O. Box 300, Vienna Austria

2. Examine the extent to which the results/outputs produced by Phase I of the project have contributed towards the building up of the training capability of the Sennar Sugar Training Center to effectively discharge its functions for Phase I and to enhance its central role in providing to the manpower of the sugar estates in question the necessary training, which constitutes an essential element of the sugar rehabilitation project.

The assessment will be in two parts i.e. seven weeks before the appointed termination date and at the termination.

The more substantive part of his work is expected to be carried out during his first mission. This will allow the resident project team to incorporate his proposals into the final report.

Prior to his departure from his first mission, the consultant will discuss the first drafts of his reports with the parties concerned and at UNIDO HQ. Subsequently, the consultant will submit a final report setting out his analysis and assessment of the above issues with a view to determining the extent to which the project results have and will contribute towards the formulation of the detailed terms of reference for Phase II. His report will also include recommendations and justification to the parties concerned on further action to be taken, to ensure the successful implementation of Phase II and achieve the identified objectives.

This report will also serve as a basis for the final review discussions with the CTA, the national counterpart and the HQ staff during the second mission at the termination of Phase I.

Qualifications

University degree in an appropriate discipline such as chemistry or food technology/food engineering with emphasis in the sugar industry. Moreover he should have an extensive experience in the training of trainers, training in supervisory skills, training in production management methods. A background related to the development and establishment of industrial training centers would be a considerable advantage. The application of the above in the sugar process industry with sugar cane as raw material would be a requirement.

Language

English, a working knowledge of Arabic will be an advantage.

Background Information

The former Public Sector of the Sugar Industry in Sudan consists of factories and sugar cane estates with a joint rated output of 374,000 tons per annum.

The industry is currently being developed under a World Bank Rehabilitation Scheme.

UNIDO has the responsibility for assisting with the development of needed training facilities on behalf of the Sudan Government to support the Rehabilitation Programme.

The Sugar Training Center (STC) has recently been incorporated to be responsible for the development of a comprehensive training service for the Sudan Sugar Industry.

It is a strategy formulating body responsible to the Sugar Project Implementation Committee (SPIC) representing the Government of Sudan and the Sugar Industry. Management of the Center is the responsibility of the Sudanese National Director.

A detailed assessment and analysis of training needs has been made by UNIDO. International funding for the project has been agreed to as part of the overall Sudan Sugar Rehabilitation Programme.

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Later it intends to become an exporter of sugar, particularly to the oil-producing Arab countries. Therefore, in its Development Plan priority has been given to the development of this sector. The essential characteristics of the STC programme will be:

(a) A training of trainers programme for:

- training officers
- technical trainers/instructors (full-time)
- instructors (part-time)

(b) A programme for engineers, senior technicians and supervisory personnel.

(c) Practical training programme for vocational personnel and operators.

Annex I

(Memorandum of Understanding, 26.11.1988, with Appendices)

Memorandum of Understanding on the conduct of the Project SF/SUD/86/003-- Training Component of the Sudan Sugar Rehabilitation Project--during the rest of extended Phase I (25 Nov. to 30 March 1989).

1. High Level UNIDO Mission headed by Mr. H. Wiesebach, Deputy Director General, UNIDO, and consisting of Mr. Ahmed Kamal Director of Personnel and M.G. Anestis, Project Backstopping Officer, visited the Sudan 22 to 26 November 1988 to discuss the status and prospects of the above mentioned project with:

   Ministry of Industry,
   Sugar Project Implementation Committee (SPIC)
   The Management of the Sugar Training Centre, Sennar
   The World Bank , Resident Mission to Sudan

   During these discussions the following understanding was reached part of which was was embodied in a cable sent jointly by Mr. Habbani, Chairman of SPIC and Mr. Wiesebach to the Director General of UNIDO on 24 November 1988. A copy of the cable is attached as Appendix I.

2. ITEMS OF DISCUSSIONS:

   a. Budget revision based on the principle that the original budget established in the Agreement between SPIC and UNIDO on the above mentioned Project not to be exceeded. This is reflected in the attached Budget Sheet (Appendix II)

   b. Extension of deadline for Phase I: Participants felt that in order to achieve the objectives of Phase I as outlined in the Agreement Annex A page 3 it would be necessary to extend this phase until the end of March 1989. The cost of this extension is shown in the Revised Budget, incorporating a Supplementary support Project to be financed by UNIDO,(see attached Draft Project Document with a budget of $31,507) Appendix III.

   c. Administrative performance for successful conduct for rest of Phase I. It was agreed that is was necessary to implement the various features of the Project, such as clearing of Experts, hiring of secretarial support Speedy delivery of equipment in a speedy and efficient manner in order to achieve its

objectives within the above mentioned deadline

d. Transition to Phase II-- It was also recognised that in addition to establishing the details for the conduct of Phase II in the report to be presented at the end of April 1989, SPIC would have to give high priority to create, as soon as possible certain pre-conditions for an early start at Phase II-- especially those concerning the Physical facilities in SSTC, in order to remain within the two year period established by the World Bank for Phase II.

e. UNIDO will give high priority to the monitoring and backstopping of the project, including the arrangments for two supervisory missions before the end of Phase I. UNDP will likewise give priority in its industrial programming work to supporting this project.

f. Supplementary support activities--UNIDO is ready to examine whether additional resources such as the granting of Fellowships or of short Term Advisory Services could be undertaken to supplement the activities forseen under the Agreement.

3. Under the headings mentioned above the following details were agreed upon as per the attached Budget Sheet revised on 24 November 1989.

a. It is not necessary to recruit an Expert for Sugar Technology during Phase I.

b. An extension of the CTA's contract until the end of March 1989.

c. Senior Technical Expert 11.02 (STE) availability for three months, including briefing and debriefing at UNIDO Headquarters, Vienna. STE will arrive in Khartoum during first week of January 1989.

d. An extension of 1.25 man months for the Expert for the Operation and Maintenance of Agricultural Equipment --Post 11.05

e. The Expert for Electrical and Instrumentation Engineering-- Post 11:51 and Supervisory Mission Expert Post 11.53 will be covered by the Supplementary support Project. (Appendix III) The Post 11.51 will be extended by .5 m.m.

f. Within the given deadline the CTA and STE will prepare the Draft

Report which will then be available for editing and printing by the end of April. The outputs of the Project to be achieved by the end of March 1989 as listed in Annex A, pages 9 and 10 of the Agreement (para 7.1) have been re-confirmed . Details of the conduct of the project are contained in the attached Work Programme (Appendix IV), This reflects a realistic option achieving the PhaseI objectives allowing a minimum of flexibility in the time scheduled. This has the following advantages:

1. It allows time to involve key staff at the mills and thus effectively establish the links between the Sennar Centre and the mills as foreseen in the Agreement. Particularly from the point of view of providing an assessment of the training needs.
2. More time will be available to undertake the necessary development of infrastructural facilities , e.g., contracting of Centre buildings, installation etc.
3. More time to effectively assess and select the right caliber of national trainers and counterparts for the additional international Experts for Phase II.

g. Following Experts for Posts 11.02 and 11.03 were cleared by both SPIC , and the World Bank and UNIDO then requested to start immediately the recruitment procedures:

for 11:02 1) Brian Dwyer
2) Lygdman Lennart

for 11:03 1) Richard Lee Clanton
2) Lygdman Lennart
3) Jerry Cook

h. As the STE will be assigned for 3 m/m there is no need for Administrative assistance , instead UNIDO will finance the support project as mentioned above (b)

i. The Programme Office in the UNDP Office in Khartoum dealing with industrial matters will act as focal point for all project activities, involving UNIDO Headquarters and will give priority attention to them.

j; SPIC undertakes to engage a Bilingual Secretary for the International Experts Team of the Project, within the next four weeks.

4. As regards the communication and decision making procedures for the project, it was agreed that the focal point be as follows:--

a) Joint recommendations by CTA and National Director to be presented to Technical Committee.

b. The recommendations of the Technical Committee will be transmitted to SPIC and UNIDO (via UNDP)

c. Formal communication to UNIDO being the responsiblity, of the Chairman of SPIC (with copies to concerned parties).

d. Official response from UNIDO will be directed to SPIC and the team at SSTC via UNDP.

e. Decisions regarding the operation of the Project at STC will be taken by the Director of the Centre and CTA.

f. The Director of the Centre and the CTA will provide their Progress Reports to SPIC, UNIDO (copied to UNDP) and World Bank.

5. a. The start of Phase II will depend upon the provisions of a physical infrastructure at the Centre in the order of at least 2,000 sq. metres; with provision for further extensions during phase II. This will require the immediate attention of SPIC

b. UNIDO will use the supervisory missions of Phase I to monitor the progress in this respect.

c. Such progress will be reviewed jointly by SPIC, UNIDO and the World Bank at the occasion of the supervisory missions.

d. As the existing Architectural Designs have been prepared without the contribution of National Director, CTA, and Experts or counterparts immediate consultation with the team at the STC is required.

e. International Tenders notices are to be advertised not later than March 1989.

f. The work plan to be prepared for the final report of Phase I will take into account the status of the physical facilities.

6. As stated in the Agreement, article VIII, UNIDO will provide the client (SPIC) with statements and reports in the format normally followed by UNIDO for accounting and financial reporting. In accordance with the above it is agreed that UNIDO will provide Expense Reports for the periods ending June, September 1988, and continue to do so in the future.

7. The Backstopping Officer participating in the High Level Mission will extend his stay until 30 November 1988 to visit the Sugar Training Centre at Sennar.

8. In addition to the above mentioned supplementary support Project, UNIDO will consider other support activities under I.D.F., Regular Budget, or IDDA Funds, as the case may be, on the basis of official requests from the Sudanese government to be presented through the UNDP office, Khartoum.

Such services could consist of , for instance :

--Fellowship Programmes

--Short Term Advisory Services

to cover specific aspects of the Rehabilitation of the Sudanese Sugar industry.

9. It was agreed that four qualified counterparts must be recruited to participate in the orientation programme in March 1989 in order to prepare for their activities during Phase II.
It was further agreed that four training officers are to be recruited by March 1989 to serve at the four sugar mills. Training facilities will be supplied at each of the sugar mills to accommodate for the needs of the training officers.

10. SPIC will by the end of January 1989 make available results of surveys of training needs at each of the four sugar mills contained in MATS team reports and the recently completed survey of job specifications by the Management Development Centre.

For the United Nations Industrial Development Organization

Mr. Horst P.F. Wiesebach
Deputy Director General
Department for Programme and Project Development

Date: 26 November 1988

Place: Khartoum

For the Sugar project Implementation Committee:

Mr. Badr El-Din Y. Habbani
Chairman, Sugar Project Implementation Committee

Date: 26 November 1988

Place: Khartoum

Mr. Mohamed Ali Mohamed Osman
National Director SSTC

Mr. Jack Bye (CTA SF/SUD/86/003)

Resident Representative
United Nations Developpment Programme
P.O. Box No. 913
Khartoum, Sudan

Appendix I

OUTGOING MESSAGE

To Be Sent by TELEX/CABLE

Drafted by: IM/ma

From: UNDEVPRO, Khartoum — Date: 24-11-88

To: UNIDO, Vienna — Charge to: UNIDO

Ref: IDO/ORG — Received for Dispatch:

TEXT

MISC SIAZON INFO VASSILIEV INFO KAMEL INFO CREYDT INFO KHOUADJA FROM WIESEBACH, UNIDO DDG AND HABBANI CHAIRMAN SPIC. IN MIN OF INDUSTRY, SPIC, SSTC MANAGEMENT AND WORLD BANK OFFICE HAVE DISCUSSIONS OF STATUS OF SSTC PROJECT AGREED ON NEED FOR SPEEDY ACTION TO FINALISE PHASE I BY END - MARCH 1989 AND MAKE FINAL REPORT AVAILABLE BY END - APRIL . ALSO DISCUSSED ..... AND START UP OF PHASE II, ESPECIALLY PHYSICAL PLANT. TO FINALISE PHASE I IMMEDIATE RECRUITMENT OF SENIOR TECHNICAL EXPERT AND POST 11-03 TRAINING METHODOLOGY NEEDED . BOTH EXPERTS TO BE IN SITE NOT LATER THAN FIRST WEEK JANUARY FOLLOWING SHORT LIST: FOR STE MR. ..... (FIRST PRIORITY) , MR.

(FIRST PRIORITY) AND MR. .....(SECOND PRIORITY). MR. ANESTIS TO STAY UNTIL NEXT TUESDAY FOR TECHNICAL FOLLOW -UP AND VISIT TO SSTC. IN ORDER TO STAY WITHIN GIVEN LIMITS OF BUDGET OF PHASE I I.E. 334000 USD WE AGREED THAT UNIDO UNDERTAKES SUPPLEMENTARY SUPPORT PROJECT OF USD 31507 TOFINANCE SHORT TERM EXPERTS (28000 USD) AND MISCELLANEOUS (USD 3507). PRODOC BEING PREPARED BY MESSRS ANESTIS AND BYE TO BE CLEARED BY SPIC AND SUBMITTED TO PRC AND IDDA TASK FORCE FIRST WEEK DECEMBER 88.

ALL DISCUSSIONS WERE HELD IN MOST CONSTRUCTIVE SPIRIT AND ALL SIDES CONFIDENT THAT PROJECT WILL BE FINALISED WITH GOOD RESULTS.

(WANNOP)

List of persons met for discussions is given below:

Sudanese Officials:

Mr. Abdel Wahab Osman	Minister of Industry
Mr. Gaafar Hussein	Director for Industry
Mr. Badr El Din Yousif Habbani	Chairman of SPIC
Dr. Bashir Fadil	Chairman of Tech. Committee
Mr. El Fadlabi	National Dir. of Training Centre
Mr Awad Mahil	Director-Vocational Training Authority
Mr. Elahi	Adviser to SPIC

World Bank Mission to Sudan:

Mr. Singh	Resident Representative
Mr. Raza	Deputy Res. Rep.

UNDP Office in Khartoum:

Mr. W. B. Wannop.	Res. Rep. UNDP
Mr. Ismail Mohamed	Prog. Officer UNDP

UNIDO CTA FOR SF/SUD/86/003

Mr. Mark Bye

UNIDO

Appendix II

PROJECT BUDGET/REVISION

24 November, 1988

PROJECT NUMBER SF/SUD/86/003		ORIGINAL		REVISION.							
BUDGET LINE	Description	m/m	$	m/m	$	m/m	$	m/m	$	m/m	$
11-01	Chief Technical Adviser (CTA)	6.0	46,965	9.0	72,900						
11-02	Senior Training Expert	6.0	43,623	6.2	55,400						
11-03	Trng. Methodology a. Techniques	2.5	18,180	2.5	20,213						
11-04	Audio-Visual Aids	2.0	16,150	—	—						
11-05	Oper./Mainten.of Vehic./Ag.Equ.	2.0	14,746	3.25	29,000						
11-50	Short-term	4.0	36,360	—	—						
11-99	Total experts	22.5	175,033	20.95	177,113						
16-00	UNIDO supervision missions		10,000		10,000						
32-00	Study tours		34,000		34,000						
41-00	Expandable equipment		4,000		4,000						
42-00	Non-exapandable equipment		83,000		83,000						
49-00	Total Equipment		87,000		87,000						
51-00	Miscellaneous		11,451		11,081						
61-00	Contingency		16,710		15,000						
99-00	Total	22.5	334,194	20.95	334,194						

Appendix IV

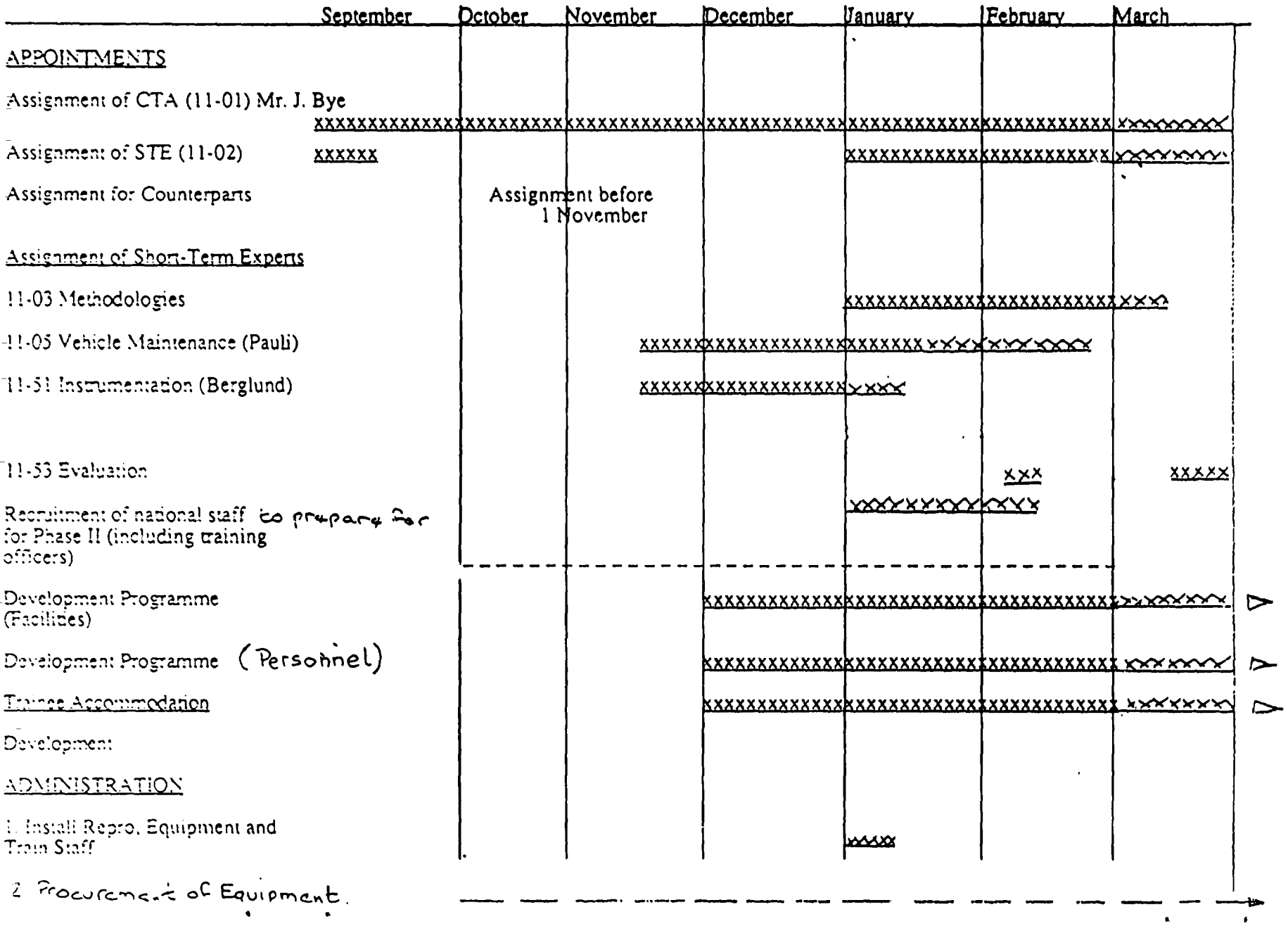
Appendix III

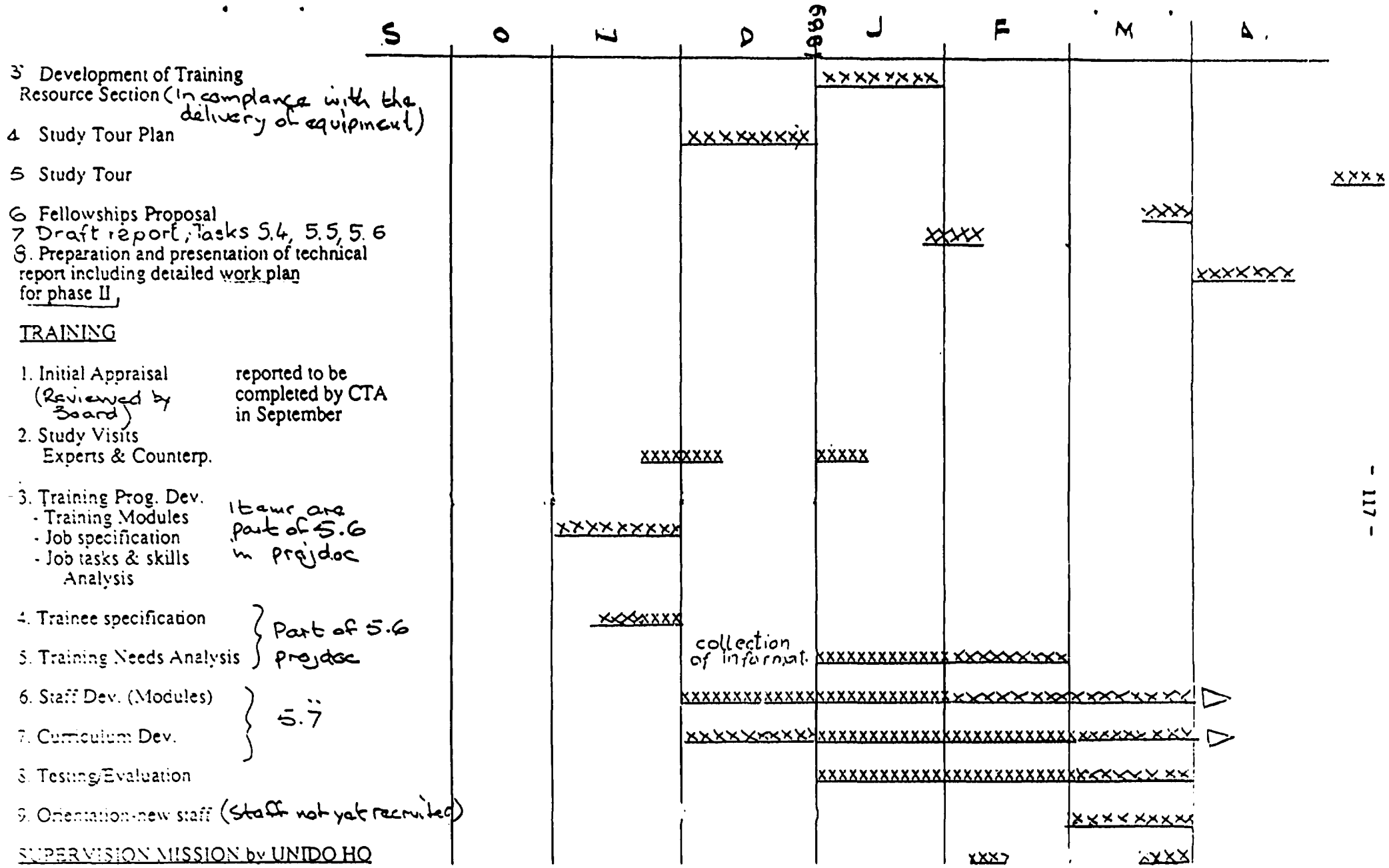
Supplementary Support Project to the project
SF/SUD/86/003

(Under preparation, to be submitted upon approval
by PRC - Project Review Committee of UNIDO)

Appendix IV

REVISION . . - BAR CHART OF PROJECT ACTIVITIES




S
O
N
D
1991
J
F
M
A
3 Development of Training Resource Section (In compliance with the delivery of equipment)
4 Study Tour Plan
5 Study Tour
6 Fellowships Proposal
7 Draft report, Tasks 5.4, 5.5, 5.6
8. Preparation and presentation of technical report including detailed work plan for phase II
TRAINING
1. Initial Appraisal (Reviewed by Board)
reported to be completed by CTA in September
2. Study Visits Experts & Counterp.
3. Training Prog. Dev.
- Training Modules
- Job specification
- Job tasks & skills Analysis
Items are part of 5.6 in projdoc
4. Trainee specification
5. Training Needs Analysis
Part of 5.6 projdoc
collection of informat.
6. Staff Dev. (Modules)
7. Curriculum Dev.
5.7
8. Testing/Evaluation
9. Orientation-new staff (Staff not yet recruited)
SUPERVISION MISSION by UNIDO HQ

Project/Budget Revision Request - IDF, RP, SIS

..... Based on the detailed explanations given in the Annex and considering the attached
..... Project Budget/Revision Sheets, you are kindly requested to issue a revised PAD.

Project Number: XP/SUD/88/122/A

Project Title: Training Component of the Sudan Sugar Rehabilitation Project
(Support to Project SF/SUD/86/003)

Specific Activity Code: J19200

RP Prog. Comp./IDF Priority Area:

Donor Country:

Budget Lines (Sub-totals not required)	orig. PAD DATE: 31.12.88		1st Revised PAD Date: 9.3.89		2nd Revised PAD Date:		3rd Revised PAD Date:		4th Revised PAD Date:		5th Revised PAD Date:	
	m/m	Amount	m/m	Amount	m/m	Amount	m/m	Amount	m/m	Amount	m/m	Amount
11-50	2.8	28,000	3.3	33,000								
42-00		1,000		---								
51-00		2,600		600								
TOTAL:	2.8	31,600	3.3	33,600								

In order to speed up the in-house processing, it is imperative that the reasons for the proposed revision, including reasons for delays, be given in fullest detail. The explanations should cover the proposed charges on each budget line separately *. The justification should be given on a comparative, and on a budget-line-by-budget-line basis.

A) Detailed justification/explanation for the proposed project/budget revision:

The entire project consisted of 2.8 m/m to cover the services of two experts, one in electrical engineering and instrumentation and one in sugar technology. Both experts were recruited and accomplished their assignment, however, the expert on sugar technology has not been able to visit the duty station and make the in-plant assessment. In order to complement these in complete aspects and fulfil IDA's and SPIC's wish that a sugar technologist should be fielded during Phase I of SF/SUD/86/003 (copy of relevant cable is attached), UNIDO has to field another expert for 0.5 m/m. It is therefore appropriate that

(i) three thousand US $ are shifted to BL 11-50 from budget lines 42-00 and 51-99 respectively and

(ii) another two thousand US $ are approved, thereby making the total project costs US $ 33,600.

B) Scheduled operation completion

i) as per original project document (month/year)	March 1989
ii) as per latest revision (month/year)	March 1989
iii) as per revision now requested (month/year)	~~9 March 1989~~ JUNE

*) Budget Line 16-00: Please always indicate the number of staff members to be financed under budget line 16-00 and also which Section(s)/Branch(es) they represent; the substantive contribution to be provided by each staff member should furthermore be explained.

Annex IV

BACK-TO-OFFICE MISSION REPORT

ACHIEVEMENTS:

(a) Khartoum: 24 - 26 February 1989

1. A series of working meetings were held with Mr. J. Bye, CTA, in Khartoum. The main subject of those meetings/discussions was the structure of the final report for Phase I, for which a framework with related issues to be covered was handed to him.

2. During the meeting, held in the UNDP Office with Mr. Corso, Assistant to the Resident Representative, and Mr. Ismail, Programme Officer, the main issue raised and discussed was the DSA-problem faced by the experts of the project, due to the low UN exchange rate for US $ against Sudanese Pounds (according to the Bank of Sudan 1 US $ = 4,5 Sudanese Pounds; for purposes of comparison: the official market exchange rate reads: 1 US $ = 12.1 Sudanese Pounds).

In this connection the UNDP Representative, Mr. Corso, expressed his intention to suggest to UNIDO to open an impress account for experts in Sudan. This would enable the Organization and its experts to avoid similar difficulties in the future.

3. An informal meeting was held in the Sudan Sugar Project Implementation Committee, SPIC, Headquarters. The mission was informed by Mr. Elahi, Advisor to SPIC, that

(i) IDA on its own costs will field in May an independent consultant to review the final report of Phase I.

(ii) In September 1989 IDA will review the possibilities to extend the credit beyond the year 1990. IDA's certain insistence in having the inputs of a sugar technologist during Phase I was also communicated to the mission and has been reflected in a cable, dated 25 February 1989, sent to UNIDO Headquarters.

4. A visit to the consultant architect, who is responsible for the design of the extension of the Training Center in Sennar, taking into consideration the training needs and the substantive comments of the UNIDO experts.

b) 26 - 27 February 1989 Travel to Sennar

Visits to:

(i) the Training Center in Sennar, including the class-rooms, the store rooms, the mechanical and electrical workshops and accommodation facilities for the guests;

(ii) the Sennar Sugar Plant;

(iii) the accommodation facilities for the international experts of the project.

During the stay in Sennar the staff members had the opportunity to attend a course on staff development, which was conducted by Mr. Clanton, Expert in Training Methodologies and Techniques, and a course for instrument technicians, conducted by the National Counterpart of the Expert in Electrical Engineering and Instrumentation. Through discussions conducted with the participants of both courses it became obvious how appreciative they were of the lectures standards delivered by the expert and the national instructor. These standards seemed to be completely in line with their expectations and professional interests. However, it is worthwhile to mention that for Phase II appropriate didactic materials and relevant technical documentation and manuals have to be made available to the Center.

In this connection, Mr. El-Gallaf wishes to highlight the CTA's ability to create a proper working environment, so that the international experts and their counterparts are able to develop a good teamwork. Regarding the experts accommodation, relevant suggestions are reflected in the attached note.

(c) Khartoum 27 February to 3 March 1989

The UNIDO mission, headed by Mr. Khouadja and accompanied by the CTA and the STE, had a series of intensive meetings with SPIC Officials and the Management of the Sugar Training Center. The issues raised and agreed upon during these discussions are reflected in a note, which was signed by both parties involved, namely SPIC and UNIDO. A copy including a list showing all the participants in the above-mentioned discussions is attached.

The UNIDO delegation also participated in a meeting held in IDA Headquarters and which was chaired by Mr. Raza, Dep. Resident Representative of the World Bank Resident Mission to Sudan (IDA). During the meeting IDA brought to the attention of SPIC and the National Director of the Center that certain budget limitations occur and that the anticipated extension of the physical facilities for the Center should take this fact into consideration. In this connection, it was stated that a clear specification should be made by the Sudanese counterparts in line with the available budget. Also IDA's appreciation for the work performed by UNIDO until now was stated. In this connection, Mr. Raza complemented that no final decision could be made prior the submission of the final report for Phase I. However, he didn't omit to reveal his positive attitude for Phase II. SPIC agreed to make available a copy of the progress report to IDA.

FOLLOW-UP ACTION NEEDED:

Please refer to the attached note.

DATE OF REPORT: 8.3.1989

UNIDO MONITORING MISSION TO KHARTOUM AND SENNAR, SUDAN
27 February to 2 March 1989 (Inclusive)
Project: SF/SUD/86/003

Introduction

The mission was agreed to be undertaken by UNIDO in the memorandum of understanding (November 88) to discuss with representatives of the Sugar Project Implementation Committee and the National Sugar Training Center, Sennar to monitor the implementation status of the above project prior to the completion of the draft technical report to be submitted at the end of Phase I and which will, of necessity include recommendations for the execution of Phase II.

Meeting and discussions held at SPIC, headquarters on 1 March 1989.

Present:

Mr. Habbani	Chairman of SPIC
Head, PPD/AREA/LDC	UNIDO Head of Mission
Dr. Bashir El Fadil	Chairman of N.S.T.C. Technical Committee
Mr. Fadlabi	Director National Sugar Training Center
Mr. Elahi	Advisor to SPIC
Ass. Ind. Dev. Officer	UNIDO Integrated Industrial Project Section
Ind. Development Officer	UNIDO Training Branch
Mr. Mahgoub	SPIC National Financial and Training Advisor
Mr. Lygdman	UNIDO S.T.E.
Mr. Bye	UNIDO C.T.A.

1. It was suggested that since the required number of counterparts (according to the prodoc) had not yet been met, however, there was a suitable number to proceed with the fellowship program as an initial input to Phase II, there is still time available to proceed with further recruitment.

2. The recruitment and further training to be carried out by the N.S.T.C. will require monitoring by UNIDO before the start of Phase II Implementation.

3. An important requirement for the start-up of Phase II will be the completion of further physical facilities for the Training Center and accommodation.

4. It is suggested that at least two monitoring missions from UNIDO will be necessary to:

   a. Assist with further Staff Development Training.

   b. Supervise the installation of equipment ordered under Phase I.

   c. Prepare for UNIDO, inputs for Phase II according to the development of the facilities so that UNIDO will be in a position to recruit suitably qualified Experts and complete all assignment procedures on schedule.

5. With the anticipated starting date of building developments being December 1989/January 1990 the facilities will not be available for a considerable time that after date it is recommended to have funds made available from the Phase II budget to finance the Fellowship Training Program and the monitoring missions (total of 2 m/m) since the project proper is not likely to begin before early 1990.

6. The purposed extensions to the buildings should be made in order of priority (to be recommended by the Technical Committee) to establish a rolling development program assessing the most urgent training needs of the Sugar Industry.

7. The general expressions of satisfaction relating to the progress of the Project and UNIDO; input, as reported in the Progress Report of the CTA was confirmed by all participants.

8. A budget revision within the amount of US $ 334,194 was agreed upon and is attached as Annex I.

9. The CTA has expressed concern for the availability of suitable living accommodation for the UNIDO experts during Phase II since there will be at least 9 Experts fielded and will all be present in Sennar on various occasions. It was noted that an agreement had been established between IDA /SPIC / NSTC / UNIDO to procure prefabricated houses, to solve the problem.

10. The nominations for the Study Tour with the itinerary have been submitted to the UNIDO Mission by the CTA for approval and processing.

11. The fielding of an expert in Sugar Technology in Phase I did not take place, however, certain substansive inputs were prepared by the said expert in UNIDO, H.Q. based on reports presented by the field experts team will be made available to the CTA to incorporate accordingly in the final report for Phase I.

    The Technical Committee agreed that the originally proposed candidate namely Mr. A Bedewy would be more useful to make a longer input as a Sugar Technology Expert during Phase II.

12. The surplus funds of the Phase I budget can be utilised at the discression of the Technical Committee for the purchase of further necessary items for the Project and /or Training with IDA approval.

13. Proposals for developing physical facilities as shown in the Progress Report are acceptable and just adequate to accommodate and fulfill the training needs of the Sugar Industry according to the Quantitative Analysis carried out.

14. With reference to para 2.f. of the Memorandum of Understanding (26 Nov. 1988) it was agreed that SPIC and the Training Center may nominate the training requirements in specific areas for consideration.

15. It was agreed that the implementation of the project is keeping pace with the Phase I workplan and the work carried out so far is satisfactory to all parties and is expected to finish as scheduled by the end of March 1989.

UNIDO

PROJECT BUDGET/REVISION

Revision I Revision II

PROJECT NUMBER SF/SUD/86/003		1988		1988		1989					
		m/m	$	m/m	$	m/m	$	m/m	$	m/m	$
BUDGET LINE											
11-11	Chief Technical Adviser CTA	6.0	46,965	9.0	72,500	9.0	72,500				
11-12	Senior Training Expert	6.0	43,623	6.2	55,400	6.2	55,400				
11-13	Trng. Methodology a. Techniques	2.5	18,180	2.5	20,213	2.5	23,000				
11-14	Audio-Visual Aids	2.0	15,150	-	-						
11-15	Oper. Mainten. of Vehic./Ag.Eq	2.0	14,746	3.25	29,000	3.25	29,000				
11-50	Short-term	4.0	36,360	-	-	-	-				
11-99	Total experts	22.5	175,033	20.95	177,113	20.95	179,900				
16-00	UNIDO supervision mission		10,000		10,000		15,000				
32-00	Study Tours		34,000		34,000		34,000				
41-00	Expandable Equipment		4,000		4,000		4,000				
42-00	Non-expandable equipment		83,000		83,000		83,000				
49-99	TOTAL Equipment		87,000		87,000		87,000				
51-00	Miscellaneous		11,451		11,081		11,081				
	Contingency		16,710		15,000		7,213				
99-99	TOTAL	22.5	334,194	20.95	334,194	20.95	334,194				

Annex V

Sudanese Counterpart Personnel.

Explanation:

1. When the CTA and STE arrived at the beginning of July 1988 there was only the basis of a 'Caretaker Staff in place.
2. The Staff were in office with contracts with G.O.S. which did not fall in line with G.O.S. of the AGREEMENT. (item 5.3).
3. Certain difficulties were experienced in recruiting further staff thus restricting the intended output(7.1).

A. The following Staff were in office at the beginning of the UNIDO input to the Project.

N.S.T.C Training Director - Mr M.A.M Osman (El Fadlabi)

Assistant Director - Mr Fathi Bashir Musa
- Sugar Technologist (and former Director NSTC)
- Given extended leave of Absence.

Head of Mech. Eng - Mr Osman El Tahir Ali.
Senior Instructor - Mech. Eng - Mr Mohamed Abbas Mohamed.
Head of Vehicle and Ag Eqpt - Mr Ibrahim Mohamed Abdu.
Head of Electrical and Instrumentation - Mr Mudawi El Sadiq Mudawi.

B. Resulting from the first recruitment campaign the following additional staff were enlisted:

Instructors - Auto Electrics - Mr Eltayeb Hassan Elshiek.
Instructors - Agricultural Eqpt - Mr Awad Mohamed Shagag Ahmed.

It should be at this shape that further appointment were offered but not accepted - these were for the posts of:

Head of Training Methodology

Senior Instructors - Curriculum Development and Training Aids Development.

A further Instructor took up appointment in the Electrical Department and was assigned the responsibility of "Electric Motors and Installaticn" but after several days left without resignation or reason.

C. Certain informal approaches were then made to suitable qualified people who indicated an interest in the developments of NSTC - those recruited by this process and via the second recruitment campaign were:

Head of Training Methodology - Mr Ibrahim Abdel Mageed Ibnoucef

Instructors - Welding - Mr Adil Saeed Maglad
Instructors - Fabrication - Mr Mohamed Ahmed Abdel Wahab.
Instructors - Pipe Fitting - Mr Mohamed Ibrahim Khalid.
Instructors - Auto Electrics - Mr Awad Abdel Rahman
Instructors - Accounts and Administration.
- Mr Gabir Birair Elshiek
Instructors - Electrical Machines - Mr Elnour Mohamed Elnour.

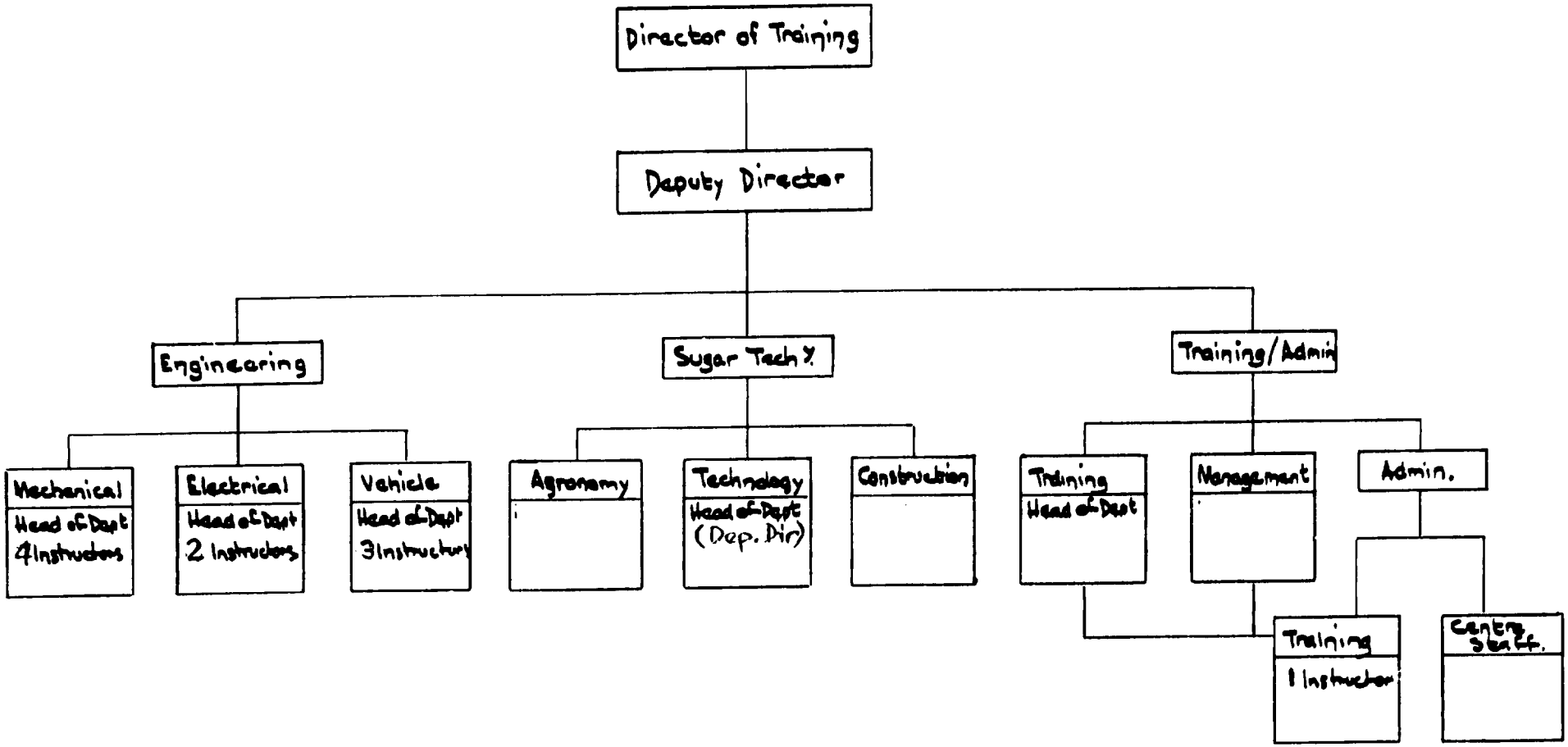
D. SUMMARY

Sixteen in Office with A.D.G. on extended leave, Fifteen in office - actually - of whom twelve have qualified for overseas Fellowship Training.

Three In-plant Training Officers are also in post.

These are:

Mr Moubarak M Salah	- Assalaya
Mr Abdul Gadar Ahmed Abass	- Guneid
Mr Suliman Koko	- New Halfa.



NSTC Structure - March 1989

Annex VI

List of items purchased from Project Budget

Two - Toyata Land Cruisers - Short wheel base with spare parts

N.B. One Packing Case not landed
One Packing Case opened and items missing
Insurance Claim being processed

One - Sharp SF 8100 Plain paper copier with spares and developer and toner

One - Gestetner 4194 Electronic Stencil Scanner with spares, stylii and stencils

One - Sharp XQ 380 Typewriter - with Daisy wheels and tapes

One - Sharp ZX 405 Typewirter - Printwheels and tapes

One - Shortwave Transiever and two hand sets

One - Consignment of spare parts for Visual Aids Equipment

One - GBI Binding Machine with various spines

N.B. This machine had not arrived at the end of Phase I input - an investigation was being conducted prior to insurance claim

Plus Various Petty Cash purchases according to receipts submitted for re-imbrusement to C.T.A.

One major 'software' purchase - complete set of ILO Learning Elements

Annex VII

Recommended Priority Procurement for Phase I

1. IBM P.S.2 Computer - 30-002 - (1 off)

2. IBM Proprinter XL - (1 off)

3. Scanner - Abatron Scan - (1 off)

4. Portable Overhead Projector - IBM - (1 off)

5. Spare parts for Colchester 1800 Lathes

Part Numbers	77747	- 1 off
	77798	- 2 off)
	77742	- 1 off
	77615	- 1 off
	77738	- 1 off
	77795	- 2 off
	88650	- 4 off
	88743	- 4 off
	88850	- 2 off
Leadscreen 40"	78091	- 1 off
Bearings	78052	- 2 off

6. Graziols Universal Dividing Head
   for Esse 80 machine (11.5 mm slot)
   Complete with all accessories

7. Precision Pneumatic Calibrator - 1 off

8. Pillar Drilling Machine -
   (I.L.O E.P.G. 5.1.5) - 1 off

9. Machine Vice
   (I.L.O. E.P.G. 5.1.6) - 1 off

Annex VIII

Training Programmes Established

The various Training Programmes established were:

a. Staff Development

i. The Introduction to a Modular Training System
Duration 3 weeks

ii. The Introduction to Computers and Word Processors

b. Programmes used as a means of validating Training Materials

Mechanical

i. Alignment of Drive Systems
Duration - 1 weeks In-plant Programme

ii. Skills Awareness for Graduates
Duration - 3 modules x 3 weeks each

iii. Basic Artisan Engineering Skills Training
Duration - 3 modules x 4 weeks each

iv. Basic Maintenance and Repair Methods
Duration - 3 modules x 4 weeks

v. Technical Skills Appreciation for Supervisors
Duration - 1 week

Electrical/Instrumentation

i. Basic Course for Instrument Technicians
Duration - 3 modules x 4 weeks each

ii. Basic Practical Skills for Electricians
Duration - 3 modules x 4 weeks each

Automotive i. Basic Practical Skills for vehicle Mainteance Fitters

Duration - 4 modules x 3 weeks each

ii. Drivers Training Course

Duration - 2 weeks

iii. Basic Practical Course for Auto-Electricians

Duration - 4 modules x 3 weeks

Annex IX

Fellowship Training Programme Proposal

As referred to in Section 9.0, it will be beneficial to proceed with the Fellowship Training before the physical facilities are necessarily completed in order for the Instructors to be able to offer more informed opinions as the workshops are bien constructed and further developed.

The most effective action (in terms of cost and also the development of human resources) will be to organise a two stage Training Programme, i.e.:

i. Improvement of Instructional Capability; and
ii. Personal skill upgrading to suit each individual

i. The further improvement in Instructional Capability could be best achieved by raising a specific training programme with the general objective of "The Improvement of Instruction and Communications Skills for NSTC Staff."
   a. The programme would be attended by all Instructors and potential Instructors
   b. successful completion would be the final criteria for qualifying to undertake further studies/training abroad
   c. The programme would be conducted in English with Tutorials in Arabic and cover such topics as:
      Preparation of Lesson Plans
      Preparation of Demonstration Plans
      Training Workshop Management and Organization
      Use of Visual Aids and Audio-Visual Aids
      Communication Skills

d. A programme of 6 weeks duration is proposed in June and July 1989. It is proposed that this part of the Fellowship Training be conducted at NSTC by suitable specialist engaged as Visiting Professors from an appropriate Centre of Excellence and in this content the I.L.O. Turin International Centre would be the first choice recommendation, particularly a "Sudanese based input" would be available. (Mr. Ahmed Khier - Fellowships Administration Manager of the I.L.O. Turin Centre has already visited informally at the request of the CTA whilst on home leave in Sudan)

ii. The Individual Skill upgrading - as recognised by the Experts is as follows:

The Centre Director - M.A.M. osman (Fadlabi)
- Management of Vocational Training Institutions - 10 weeks
Turin International Centre
18.09.89 to 24.11.89

Osman El Tahir - Advanced Machining Techniques
Adil Saead Maglad - Advanced Welding Techniques
Location - West Germany (many possible)
Duration - 8 weeks - 1989

Mudawi Elsadig Modawi - Instrument Maintenance Repair
Location - Siemens Instrument Division
West Germany
Duration - 8 weeks - 1989

Ibrahim Mohamed Abdu - Light and Heavy Vehicle Maintenance Techniques
Location - United Kingdom

Eltayeb Hassan
Elsheik - Auto Engineering (Technology and Science)
Location - United Kingdom
Duration - 8 weeks - 1989

The above would comprise the first half of the Overseas Fellowship Programme

The second half would then be as follows:

Ibrahim Abdul Mageed
Ibnaucef - Training Methodology
Location - Garnett College - U.K.
Duration - 8 weeks - 1990

Gabir Birair Elsheik - Management of Accounts
Location - United Kingdom
Duration - 8 weeks - 1990

Mohamed Abbas
Mohamed - Advanced Fitting and Machining (Toolmachining Techniques

Mohamed Ahmed Abdel
Wahab - Fabrication Methods
Location - United Kingdom
Duration - 8 weeks - 1990

Awad Mohamed Shagag - Tractor Maintenance

Awad Abdella Abdel
Rahman - Vehicle Electrics
Location - United Kingdom and Egypt
Duration - 8 weeks - 1990.

A further three Instructors have yet to satisfy the initial requirements to qualify for Fellowship Training, ehnce they have not been considered at this stage of implementation.

Training Officers

The three qualified Training Officers would benefit further from an extension to the subjects covered in the Staff Development Training Programmes - particularly in the area of Identification of Training Needs (and including Job, Task and Skills Analysis, Job Specifications and Identification of Modular Units)

This particular aspect creates a temporary problem in finding a suitable Programme, Institute and Location, i.e. English or Arabic speaking.

Further investigation is required

The three candidates are:

Moubarak M. Salah

Abdel Gadar Ahmad Abass

Suliman Koko

Annex X

THE NATIONAL SUGAR TRAINING CENTRE

SENNAR.

Seminar held at the Training Centre on 8th February 1989.

TITLE: The current development situation of the Centre and the further programmed development in co-operation with the MATS Teams.

In attendance:

Mr. Fadlabi	-	Director of the Centre.
Mr. Osman El Tahir	-	H.O.D. - Machanical.
Mr. P.N.R. Roa	-	MATS Team Leader and Training Advisor, Guneid.
Mr. Abdul Gadar Ahmed Abass	-	Training Officer, Guneid.
Mr. D.Banks	-	MATS Factory Engineer and Training Advisor,Assalaya.
Mr. Moubarak M.Salah	-	Training Officer, Assalaya.
Mr.M.N. Krishna Murthy	-	MATS Team Leader and Training Advisor, New Halfa.
Mr. R.L. Clanton	-	UNIDO Training Methodology Consultant.
Mr. L. Lygdman	-	UNIDO Senior Technical Expert.
Mr. J. Bye	-	UNIDO Chief Technical Advisor.

The Seminar was jointly Chaired by Mr. Fadlabi and Mr. Bye.

A G E N D A

1.0	Welcome	Mr. Fadlabi
2.0	General outline of the Project	Mr. Fadlabi
3.0	The Developing Situation	
	3.1 Instructor Training	Mr. Bye
	3.2 Further Recruitment Policy	Mr. Fablabi
		Mr. Bye
	3.3 Future Training Programme Development.	Mr. Clanton
	3.4 Physical Developments	
	At the Centre	Mr. Bye
	In Company	Mr. Bye
	3.5 The Development Strategy	Mr. Bye
		Mr. Fadlabi
	3.6 The Overall Philosophy.	Mr.Bye
4.0	Maintenance Management Goals	Mr. Lygdman
5.0	Open Discussion	
	The Objective - To identify Training Priorities and a Unified Approach.	

S U M M A R Y

1. In his opening remarks the Director of the Centre welcomed all the visitors to the Centre referred to the conspicuous absence of any representation from the Sennar Sugar Mill and also regretted the absence of Mr. Suliman Koko the Training Officer from New Halfa whose apologies for absence were noted.

2. Early emphasis was placed by the Director on the need to build up a high level of co-operation between the MATS Teams and their appointed Counterpart Training Officers with the Training Centre in order to Strengthen the training activities at the individual Sugar Mills.

3. The visiting participants were invited to make specific requests for assistance from the Centre.

3.1 Instructor Training would be the focal issue for immediate attention (Bye) however this concept needed assistance from the meeting to resolve priorities to provide most and lay a foundation for long-term planning.

Some documentation had been made available within the past few days which needed analysis before long-term programme planning could be undertaken.

3.2 (a) Mr. Fadlabi re-affirmed the recruitment policy of the Centre in only accepting suitable qualified and experienced candidates for recruitment and training as Instructors indicating that if the best applicants at interview did not meet specific criterea then no appointment would be made.

(b) Mr. Bye development the concept of having a group of full-time Instructors at the Centre as the core of the training infrastructure and by taking the best operatives/workers/supervisors for training in a linited area of their own occupation then a number of trained on the job Instructors could be brought into action fairly quickly.

Various interjections were made, such as:

Krishna Murthy - The Overall policy would seem alright but there were several very urgent needs identified in his report to the Centre Director.

The Centre must deal with people from the Sugar Mill besides continuing the development programme.

D. Banks - The size of the task ahead may be best addressed by establishing Training Departments at each Sugar Mill to cover all training activities as a preliminary to training at the Centre.

There is a distinct shortage of resources at the Sugar Mills to undertake this task.

Biggest problem - What incentive could be used to recruit trainers?

Krishna Murthy - An indication of support from Top Management would help and the next meeting should include the Director Generals whose very presence would show a commitment to training.

P.N.R. Rao - Certain aspects of training could only be covered **IN-PLANT** in pure terms of **COST EFFECTIVENESS** particularly Plant Operation, Process and Quality Control since a Pilot Plant would be far too expensive for the needs of the industry at the Training Centre.

From the general discussion several points were raised to be held for further consideration under other items.

3.3 - Mr. Clanton discussed the need for full co-ordination of training development and training development and training activities.

- Top Management must be fully committed to training and identify/support the role to be played by the Centre.

- The results of training must be seen to be an improvement in performance allowing the gain to be recongnised as something tangiable.
- When the role of the Centre has been precisely defined then if would be essential to prepare a **"Training Policies and Procedures Manual"** which would require full approval and be 'signed off' by Top Management.

3.4 - Mr. Bye referred to an outline proposal he had prepared for extensions the existing facilities at the Centre. This had been discussed by the G.O.S. the Donors, SPIC and the Consultant Architects along with the Director and C.T.A. when informal approval was given to the Architects to proceed with an Initial Design Proposal.

- The rationale, analysis details and proposal had been submitted to UNIDO and whilst the full Quantitative Survey has been distributed by them the CTA had not yet received approval and clearance the details could not be made available.

- Sketch plans were presented to indicate the extent of the proposed development of the physical facilities.

- Refering back to para 3.2 and certain points tabled during the discussion it was evident that none of the visiting participants had the slightest notion of the Terms of Reference of the UNIDO Input at the Centre. It was resolved that these would be circulated before the next meeting.

- It is most evident that considerable expansion is needed to the reference in para 8.1 of the Prodoc, - local Inputs - quote - Adequate training facilities for the four training departments of the four Sugar estates will be provided - unquote.

- This matter has obviously a well guarded secret from everyone not directly associated with the UNIDO Input:

- Items for further consideration were:
  i. Should the Training Officers be on the NSTC Budget?
  ii. What form of link needs to be established between the Training Officers and the D.D.G.'s of the Sugar Mills.
  iii. Attempts should be made to create a direct link of the Sugar Mills.
  iv. Create a new Job Title - replace Training Officer with TRAINING MANAGER.

3.5 - The C.T.A. referred to the Prodoc section 5, Para 5.9, item 3 - an extract quote, reference the report on Phase 1 - "no training would yet be provided for the sugar estate personnel" going on to explain that the present training programmes at the Centre, together with earlier programmes were being run for the specific purpose of:

  i. Evaluating the Instructional Materials prepared by the Staff of the Centre.
  ii. Evaluating the existing training facilities (accomodation and equipment) and
  iii. Assessing the performance of the Instructors.

- It was noted that any skill upgrading which took place was a bonus which was a result of the particular Development Strategy adopted.

- The Centre Director asked for continued support from the MATS Training Advisors and the Sugar Mill Training Officers by selecting suitable candidates to be trained and by monitoring the performance of the trainees on their return to the work situation.

- A follow-up procedure would be designed by the participants of the present Staff Development Programme.

- Mr. Bye briefly outlined the underlying philosophy of developing a Modular System of Training whereby selected Modular Units (developed at the Centre) could be combined to build up a tailor-made programme, short course or full scale apprentice training programme.

- It is possible to phase the training into clearly defined compartments or packages by this method.

- The system was built up by translating Job Descriptions into Job Specifications identified in terms of requireed Modular Units, hence qualifying the actual training need for any Job.

- The precise training requirements of any individual is then identified by allowing "credits" of Modular Units (by assessment or actual completion).

- The ulimate objectives being that all personnel would complete the necessary training as a pre-requisite for promotion.

4.0 - Mr.Lygdman presented specific ideas on the development of all aspects of training to be oriented towards maintenance and good house keeping methods. The target being for Management Personnel to be convinced that Maintenance Management Procedures are the real key to arresting the decline in plant performance.

- It was agreed that no radical changes could be made until Senior Supervisors and Managers began to believe in the case for Planned Maintenance and began to practice it with total commitment.

- This led to a broadening of the discussion leading naturally to item 5 of the Agenda.

5.0 Open discussion - The following are some of the main items tabled:

5.1 Stores and Inventory Control Training is needed i.e. Spare Parts Management.

5.2 Instrumentation for all parts of the plants was urgently required - A very costly process - some areas of the mills were running WITHOUT ANY INSTRUMENTS FUNCTIONING.

5.3 Pump Maintenance - a critical area for the industry - was of considerable importance, Mr. Banks was having some success with planned maintenance of pumps.

5.4 Other items mentioned were:

1. Auto-Electricians Training
2. Training for Factory Fitters
3. Training of Irrigation Workers
4. Maintenance of Camico Cane Harvesters
5. Hydraulic Pump Maintenance
6. Hydraulic Systems Maintenance
7. Boiler Maintenance.

5.5 It was decided to circulate a list of priority needs for each Mill in order to rationalise the many areas mentioned to provide a priority timetable of training activities

5.6 Further attention was given to the need for urgent training in Boiler Operation and Urgent training in Boiler Operation and Maintenance.

- There is a need for some expression of Goverment Policy concerning Operational standards, Testing and Certification for Boilers and Pressure Vessels.
- Some authority is required to monitor Boiler Maintenance Management. This could be vested in an Institution such as the National Sugar Training Centre.

6.0. **R E S O L T I O N S**

The following items were **RESOLVED:**

6.1. This type of meeting should continue on a monthly basis.

6.2 Date of next meeting 12th March 1989.

6.3 The C.T.A. would provide copies of the relevant sections of the UNIDO/SPIC Agreement.

6.4 Based on the discussions with respect to item 3.2, the training Officers would prepare individual proposals outlining the requirements necessary to establish a credible Training Development at this particular Sugar Mill. This matter could be discussed further for inclusion in the Phase 11 Proposal.

6.5 A PILOT PLANT is not a necessary item since training could be carried out wholly in-plant and thus removing what was seen as an extravigance and by far the least cost effective aspect of the whole training proposal.

6.6 It will be necessary to have a Training Policies and Procedures Manual approved in the near future.

6.7 The Training Officers and MATS Training Advisors would support to the best of their ability the present development activities at the Centre.

6.8 The education of Supervisors and Managers in Maintenance Management Procedures is an aspect which would help in promoting the idea of giving the Centre maximun support.

6.9 A priority list of Training Programmes / Short Courses would be established.

6.10 All training should be administered by the Centre with the Director being the one person responsible for co-ordinating all aspects of training for the industry.

6.11 The Centre should go ahead immediately and establish a 1 year Off-the-Job Apprentice Training Scheme.

MAJOR CONCLUSIONS

By the Project C.T.A. and recorder of these notes.

1. There is an enormous wealth of good will and positive motivation focussed on the desire to succeed by all concerned with the training situation within the Sugar Industry of Sudan.

2. There is a certain degree of backwardness and lack of confidence, best described in English Terms as - "Nobody is prepared to grasp the Nettle"-

3. This is no longer the case. It is evident to all those seriously concerned with the Sugar Industry that unless TRAINING becomes a most desireable and necessary part of the production process the gradual decline in production efficiency will continue to accelerate.

4. Unless Management are convinced immediately for the need of training in all areas then they automatically identify themselves as the major contributors to the eventual destruction of one of the nations greatest natural areas of economic growth.

5. One final observation is necessary in an attemp to attain complete co-ordination of effort is that the Centre most exert more influence on the development situation since a particular model of "MODULAR TRAINING" has been set in place at the Centre. Yet there is, as yet not a complete appreciation and understanding of the overall philosophy and presentation format. This most be addressed at a further meeting.

Personal Minutes of a Workshop held at The National Sugar Training Centre Sennar on the Future of Training in the Sugar Industry.

12 March 1989

Present: Mr Bads Eldin Habbani - Chairman

Mr Gaafar Hussain - (Director - Public Industries)

Mr Sahli (Deputy Chairman-SPIC)

The Director General of Guneid Sugar Estate.

Mr P.N.R. Rao MATS team leader Training Advisor Guneid.

The Deputy Director General of Assalaya Sugar Estate

Mr. Moubarak M Salah Training Officer Assalaya.

The Director General-New Halfa Sugar Estate.

Mr Krishna Murthy MATS team leader, New Halfa.

Mr Bashir Mahgoub

Mr. Bakri Deputy Director General Sennar

Mr.Plomax MATS Training Advisor, Sennar.

Mr.Ibraham, Head,Training Department NSTC.

Mr.L.Lygdman, UNIDO STE.

Mr. M.A.M. Osman Fadlabi Director NSTC and Workshop Co-ordinater.

Mr J.Bye UNIDO C.T.A.

Recording Secretaries Mr Osman El Tahir and Miss Ibtisam.

Main Topics

Workshop Programme.

All as attached agenda calling the meeting.

W O R K S H O P

ON

THE FUTURE OF TRAINING IN SUGAR INDUSTRY

MAIN TOPICS:

1. The Concept of Modular training.
2. Training Policies and Procedures.
3. Overseas Training Administration and Co-ordination.

* * * * *

WORKSHOP PROGRAMME:

First Day (12th March 1989)

First Session (10:00 to 2:00)

Chairman: Mr. B. Habbani
(Chairman of SPIC)

TIME		SUBJECT	BY
10.30 - 10.35	-	Welcome	Di-ector of N.S.T.C
10.35 - 10.45	-	General outline of the Project.	Director of N.S.T.C
10.45 - 11.15	-	a) The concept of Modular Training.	Mr. Jack Bye C.T.A UNIDO
		b) Introduction to the Modular System of training beingMr. developed and adopted in the National Sugar Training Centre.	Jack Bye C.T.A UNIDO
11.15 - 11.35	-	First Working paper	Guneid Sug Co (D.G or MATS RRG Officer.)
11.35 - 12.00	-	Second Working Paper	New Halfa Sug (D.G or MATS TRG TRG Officer.)

TIME

12.00 - 12.30	-	**BREAK & REFRESHMENTS** -	INFORMAL DISCUSSIONS
12.30 - 12.55	-	Third Working Paper	Assalaya Sug. Co (D.G or MATS TRG Officer.)
12.55 - 13.20	-	Fourth Working Paper	Sennar Sug Co (D.G or MATS TRG Officer.)
13.20 - 14.00	-	Chairman Summary and Discussion	Mr. Habbani

14.00 - 16.00 - **LUNCH BREAK** - INFORMAL DISCUSSIONS

Second Session: (16.00 - 18.00)

Chairman: B. Habbani
(Chairman of SPIC)

16.00 - 16.15	-	Statement on behalf of SPIC	- Mr Habbani
16.15 - 16.30	-	Statement on behalf of the Ministry	- Mr Gaafar
16.30 - 18.00	-	Discussion Chairman	- Mr Sahli
18.00	-	**CLOSING & REFRESHMENTS.**	

SUMMARY

1. In his opening remarks the Director of the Centre welcomed all the participants to the Centre and referred to the absence of representation from the Sennar Sugar Company indicating that a message had been conveyed to the Company.

   After some time the Company Representatives arrived with apologies for lateness.

2. In outlining the present status of the Project, the Director of the Centre re-emphasisted the need to built up a high level of co-operation with the MATS inputs at the four Public Sector Sugar Mills in order to co-ordinate the overall training situation of the sugar industry in order to maximise the benefits from the available resourses.

   The Director also referred to the earlier One Day Seminar at the Centre on 8th February 1989 which had proved to be an inportant step forward and the present Workshop was the result of certain Resolutions and Conclusions made on that occasion. The record of the seminar is attached.

3. The C.T.A then enlarged upon the general concepts of what Modular Training might be in the minds of different people, from different industrial enviroments and different economic climates throughout the World to them focus on the particular Modular Training System being developed at NSTC.

   Specific examples were used to illustrate how the Project Philosophy had been developed to meet the specific needs of the Sugar Industry of Sudan and how this could then be applied to make an immediate impact if the Sugar Mill Management and MATS Advisors would support the philosophy of nominating the more nature and able personnel from the various Department to attend short training programmes at NSTC with the objective of building up a team who would be able to assist the Training Officers with the supervision and assessment of in-plant training activities besides Instructing on a limited basis. This gave rise to certain comments initially but was further reflected in the presentatives of the sugar Mills.

4. PREFACE to the records of the statement, presented on behalf of the previous Sugar Mill - every care has been taken to produce an impartial record of the remarks since no papers were made available. Certain remarks may indicate a total lack of understanding of UNIDO's role in the Project even though each presenter had been provided with the terms of reference etc of the UNIDO/SPIC Agreement; a high level of inflexibility in the concepts of the form of training assential (from their own experience) to meet particular (often limited or isolated) situations, of little significance except for a particular vacancy at that time; a lack of appreciation of the mammoth talk ahead; the misguided belief that no matter how good the training is, it will not be effective.

It should also be noted that there is not one Sugar Mill providing anything like adequate training facilities if any at all - This alone should place certain points in true context.

Similarly, Phase 1 of the Project was concentrated upon the rehabilition of NSTC and was never anticipated to fulfill any training requirements of the Industry (as stated in the prodoc).

5. Guneid Report and remarks. (No Training Department)

5.1 The Training Centre and the Training System being developed are satisfactory but there is a missing link, as with any Enterprise and Training Institution specific training must be applied for performance improvement. This is not happening in Sudan.

5.2 Recruits from Vocational Training Institutes are noted for using wrong working practices either because they have taught them or they quickly fallen into bad habits.

5.3 What we need is what is actually required to make the machine run?

5.4 Training outside the factory is not effective, it should always be carried out on site.

5.5 One-the-Job Training should be carried out by Experienced People using the principal - see, observe, learn and hopefully put into practice.

5.6 The NSTC should be engaged only in providing refresher courses.

5.7 The NSTC should concentrate on producing Arabic Training Materials for Technician level and below.

5.8 Supervisory training is essential since at present there is a lack of knowledge; Technical Expertise and Leadership Qualities.

5.9 The expertise available at NSTC should be directed to the field as per the recent course on Alignment of Drive systems.

5.10 Agriculture is a neglected area since we have not yet got down to root level.

5.11 A further need if for a Agriculture Research Centre to run a Seminar every 3 weeks.

5.12 Training should contribute to the National Economy.

6. New Halfa Report and Remarks (very small basis training workshop available, 1 instructor doubling as Training Officer.)

6.1 The Training Officers is as yet a very neglected role, it is therefore necessary to establish a stronger position in order to be able to develop a good Training Department.

6.2 The MATS responsibility to prepare a Training Report has been completed and the report submitted.

6.3 The main requirements for training have been identified.

6.4 The short-term and long-term objectives must be set now - ie, What to do for the next 2 years and then 5 years.

6.5 The report contains guidelines on the courses required.

6.6 What are the training requirements for Technicians to overcome the situation of being promoted to Supervisory level without training for the new role.

6.7 A specific request was tabled for all the MATS Training Reports to be considered and a formal responce made by NSTC.

6.8 High level Training such as Sugar Engineering
Mill Engineering
and others should be conducted abroad.

6.9 On-site Training is of major importance, particularly in the area of Preventative Maintenance as in the recently organised Alignment of Drive Systems Course.

6.10 If NSTC wishes to recruit and train part-time in-plant Instructors then some form of incentive will be required.

7. Assalaya Report and Remarks (No Training facilities)

7.1 There is a lack of basic skills across the board in all areas.

7.2 The short to medium term training strategy should be aimed at an all round improvement of basic skills with training being devised to dovetail into the structure defined by Job Descriptions.

7.3 In line with the CTA, earlier suggestion an Apprenticeship Scheme should be established. Further this scheme should consist of:

7.3.1 6 months off-the-job training plus shop floor experience.

7.3.2 3 months training at intermediate level plus shop floor experience.

7.3.3 3 months training at advanced level plus shop floor experience.

7.3.4 The whole scheme should occupy 3 years.

7.4 Since Assalaya did not have a Training Department there was no real possibility to conduct In-plant Training as follow-up External Training or similarly analyse future training requirements.

7.5 There are no facilities to begin the development of a Training Unit mainly through lack of Finance.

7.6 Help and advice from NSTC was essential to start developing training facilities.

7.7 Because of the numbers involved NSTC would not be able to undertake all the training. The Centre must be supported by active Training Departments on all the Sugar Estates.

7.8 There is a great reluctance to transfer good people to the Centre for training as Instructors.

8. Sennar Report and Remarks (No Training Facilities although facilities at NSTC is available on request.)

8.1 The formulation of a relationship between the Sugar Estates and NSTC is of great importance and it is necessary to prepare this immediately.

8.2 The second most important issue is how to administer and conduct Overseas Training.

8.3 A Training Department is now being established at the Sennar Sugar Mill with the Training Manager Directly responsible to the Deputy Director General. See diagrams.

8.4 The Training Department is a recoqnised department in the company, The communication and staffing charts indicates the level of activity.

8.5 What is now required is a clearly defined relationship with NSTC.

8.6 Should training abroad be administered by NSTC or the Ministry of Industry?

8.7 A clear resolution on these items (8.5 and 8.6) is essential.

8.8 The Company Training Policy is

8.8.1 The Managers prepare a Training Plan

8.8.2 The Managers identity Training Needs and priority.

8.8.3 The Managers decide how, when and where the need can be met.

8.8.4 The plan is implemented.

8.8.5 The training is evaluated.

8.9 The application of the plan takes place preferably:

8.9.1 In plant (using own resourses)

8.9.2 At NSTC

8.9.3 Externally - in Sudan

8.9.4 Externally - Abroad.

8.10 The Company must have, at all times, control of resourses which would include direction of certain Project Funds available for Fellowship:

8.11 The relationship between the Training Department and NSTC must - be:

Friendly

Effective

Official

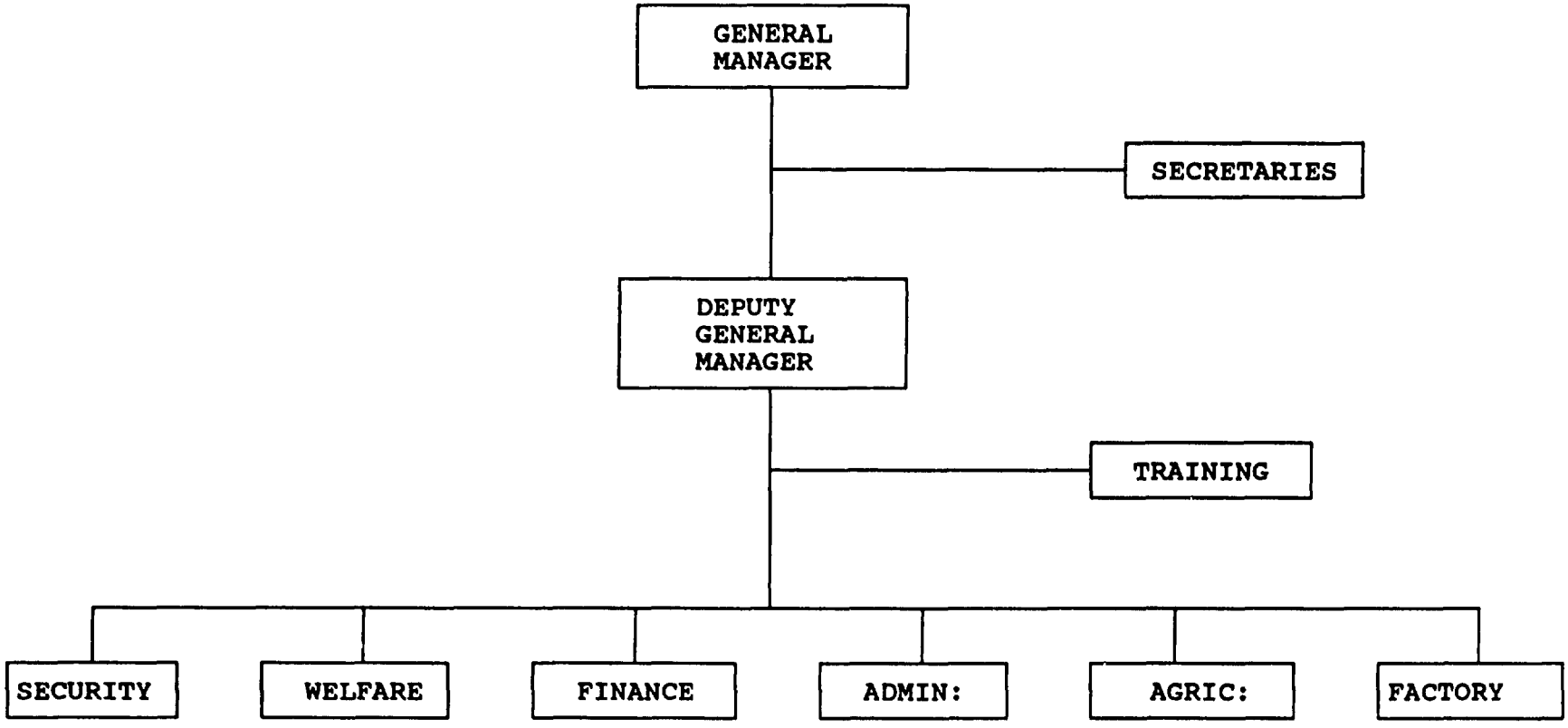
Co-operative

and with absolutely no interference with each others internal affairs.

8.12 It was proposed that one result of the present meeting should be the establishment of a "Working Group for Training" to meet every 6 months.

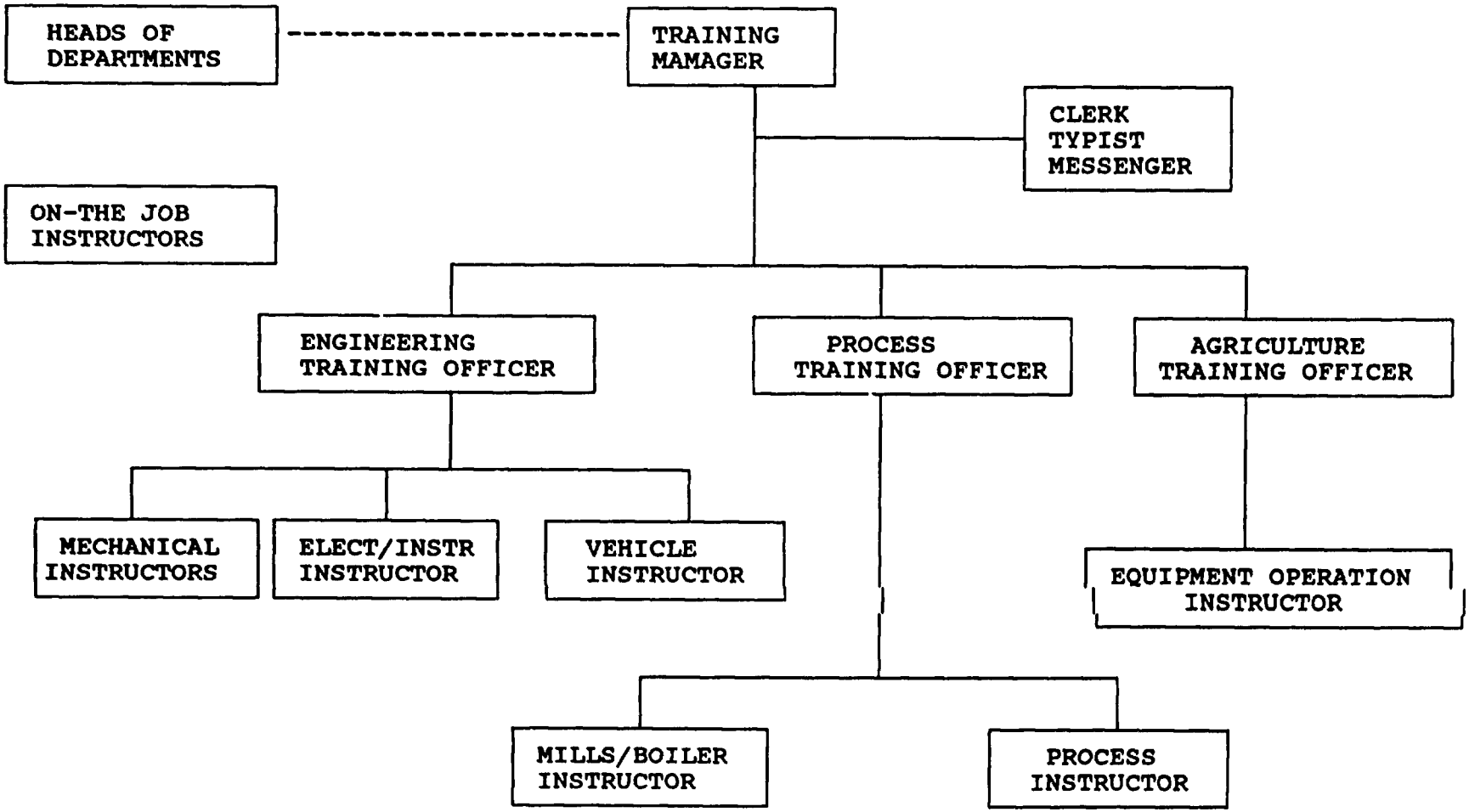
SENNAR SUGAR, CO.

POSITION OF TRAINING DEPARTMENT IN COMPANY ORGANISATION.



SENNAR SUGAR, CO.

TRAINING DEPARTMENT ORGANISATION.



9.0 Statement on behalf of SPIC - Mr Babr Eldin Habbani.

9.1 All training opportunities are administered by a Central Committee on which NSTC Management is represented.

9.2 It is essential to strengthen still further the relationship between the Sugar Mills and NSTC and to this and continuous communication and dialogue is essential.

9.3 The Minister of Industry has personally endorsed the efforts of SPIC in their desire to participate in a highly successful project.

9.4 Issues like training facilities SHOULD NOT HAVE BEEN AN OBSTACLE since if companies place a request in the Budget Proposal it will certainly be supported

9.5 NSTC is better equipped in all senses of the word to cover the training requirements and therefore In-plant training must be complimentary to the work of the Centre.

9.6 The Training Department in the various Sugar Mills would best serve the industry by conducting short training courses and concentrating on monitoring and follow-up procedures.

9.7 SPIC definitely see the need for training as highlighted by UNIDO but there is also a visible need for further SCIENTIPIC TRAINING which must be carried out externally.

9.8 The Managament of NSTC must be the focal point for all information concerning training to cover;

9.8.1 Trainee nomination - proposed subject - proposed location.

9.8.2 Co-ordination of training opportunities (to provide equal opportunity for all candidates.)

9.8.3 Nominations will be evaluated on scientific grounds .

9.8.4 No Company should endevour to privately silicit individual scholarships.

9.9 A system is already set in place therefore, between now and the start of Phase 11 if there is any extra-ordinary case, it may be chanelled through the central committee through the relationship between the Companies and NSTC.

9.10 A financial platform has been astablished and is on-going, by presenting a proposal with costings there should be no difficulty.

10.0 Statement on behalf of the Minister of Industry - Mr. Gaafar Hussien.

10.1 Mr Gaafar Hussien very ably summarised the progress of the Workshop by relating all the presentations, statements and disscussions to the most important sector of all, that is, the Sugar Industry in Sudan and so, besides producing an essential product to be consumed by the population of the nation, its rehabilitation and future development also has a great influence on the economic growth and future prosperity of the Country.

10.2 Mr Gaafar was also able to pass on the information that the Minister of Industry was very pleasent and happy to have had the opportunity to visit NSTC and was completely satisfied with the progress made during Phase 1 of the Project.

10.3 Again the need for co-ordination of effort between the Companies and NSTC was emphasised.

10.4 It was now appreciated that several steps had been taken to train the NSTC staff and so it had become one of the most important Institutions, to support the Industry and therefore, without doubt - IT MUST SUCCEED.

10.5 Any strategy or plan for future development should first consider using the available resources within the Country. However Fellowships are distributed originally by the Ministry of Industry and what can be done will be done at all times within this important sector.

10.6 The future of NSTC was very promising indeed judging by recent progress but following the initial input it was hoped that the training activities of NSTC will not be confined to technical skills but that further developments include Supervisory Training, Management methods even to include special Seminars for General Managers.

10.7 One essential item to discuss and resolve was the administration of overseas training particularly in view of a generous offer of support for up to 80 candidates by the Federal Republic of Germany

10.8 The final and very pertinent remark is of considerable importance with relation to the overall strategy of the Project - the remark made reference to the fact that formal training had not yet begin within the industry because of the process of rehabilitating the NSTC but now that this was well under way, the Training Department in the Sugar Mills have not yet been established.

11.0 Open Discussion - Chairman Mr Sahli.

11.1 The Ch.irman provided the context for the open discussion by making certain qualifications which appeared to have been engulfed in the discussions of the day. These most accurate and significant observations included the following remarks:

11.1 Training Evalutions - The Sugar Mills are not legal Institutions authorised to certify by efficiency or proficiency the performance of any individual. Therefore, who provides credibility and certification?.

11.1.2 Upon what basis would any test be carried out if not under the auspices of NSTC.

11.1.3 NSTC must have the facility to monitor all training inside the Sugar Mills.

11.1.4 A Legal Agreement exists between the G.O.S and UNIDO with many clearly defined responsibilities and these must be strictly adhered to at all times irrespective of other influences.

11.1.5 The most significant fact which appeared to have been overlooked throughout the discussions of the day had been that there are no specialised people in the various Sugar Mills who were able to conduct any form of training correctly and therefore the orginal presentation by the Director of NSTC and the CTA had to be the basis for any future development. The co-ordination and supervision is vested with NSTC and written into the Terms of Reference of the Director and CTA.

11.2 The following points were raised in the discussion.

11.2.1 For the report on the Analysis of Training Needs a committee must be established to process and approve the Final Draft.

11.2.2 All Grants or Fellowship should be utilised with the objective of satisfying the best interests of the industry.

11.2.3 The rehabilitation of NSTC should endevour to continuosly raise the standards of the facilities.

11.2.4 It is essential to establish the best possible communications and co-operation between N.S.TC/SPIC/GOS to maximise all available resources for the overall benefit of the industry.

11.2.5 ALL DEVELOPMENT, MUST AT ALL TIMES, BE SUBJECT TO MEASURES FOR ASSESSING THE EFFECTIVENESS AND EFFICIENCY OF THE SYSTEM BEING ESTABLISHED.

11.2.6 Since the rehabilitation of NSTC has begin to have a measurable inpact, the Director Generals, Assistant Directors General and NSTC must follow-up the initial achievements by providing motivation for further continuous development.

11.2.7 Further recruitment and training of Instructors is essential before the formal starting date of Phase II.

11.2.8 THE OVERALL REHABILITATION OF NSTC IS WORTHY OF SPECIAL CARE AND ATTENTION BECAUSE IT HAS TO SUCCEED.

12.0 Concluding Remarks by the Director, NSTC.

12.1 Certain references have been made to NSTC being the second choice to provide training. This must never be the case, NSTC will endeavour at all times to provide the training from any available source. Co-ordination through NSTC is essential for the overall benefit of the industry.

12.2 The management of the Sugar Estates must make a serious effort to establish Training Departments.

12.3 The position of the Training Officer in the organisation chart appears to be very low when compared with actual responsibility. Probably the title of Training Manager would be more appropiate and direct communication and responsiblity to the D.D.G. essential.

12.4 Specific requests for assistance in various aspects of training such as Job, Task or Skills Analysis could be accepted by the Training Department of NSTC.

12.5 The development of various Modular Units and Learning Packages is being undertaken specifically designed to cover on-the-job requirements following attendance at NSTC for Skill Up-grading/Awareness Programmes.

13.0 Conclusion and Resolutions.

13.1 Certain conclusions were tabled but then left over for more careful consideration and further discussion.

13.2 A further meeting was convened at SPIC Headquarters Khartoum on the 19th March 1989 to prepare a set of guidelines for the formulation of a National Training Policy for the Sugar Industry of Sudan.

14 Private Observations - J.Bye - UNIDO. CTA.

14.1 The interface between UNIDO and the various MATS representatives is still not totally secure despite a good deal of professional respect and friendly goodwill generated during the Project.

14.2 The real basis of the problem is that five difference sources exist for the establishment of a training policy. The MATS training policy is incoherrent and fragmented and in the main based upon subjective appraisal rather than objective analysis.

14.3 It is most evident that the outputs of the various MATS Training Advisors could be incoropated into an overall strategy based on NSTC, however the competative attitude and struggle for individual recognition still appears to override objectivity.

N.B. There is one particular exception to this situation.

14.4 The ground rules were well and truly laid during the workshop and it is now a matter of convincing the concerned individuals that the established Philosophy is the quickest and most effective precedure to be adopted to revitalise the Sudanease Sugar Industry and make a significant contribution to the economic growth of the Nation.

15.0 Footnote.

15.1 During the Open Discussion (item 11.0) the reporter attempted to avoid making a contribution purely from a personal point of view (since it was difficult to understand how it was difficult at the end of a workshop for individuals who should know better for them still be able to confuse the terms Training Needs (Objective) and Training Requirements (Subjective) and be asked to explain what is meant or requirement within the context of Training.

15.2 The actual ability of Training Specialists to use the term Training Needs (even though nothing had been identified) to replace the preferred term of Training Requirements might be considered an indicator to something or other.

15.3 In three presentations out of the four it was evident that the presenter assumed personal superiority and the ability to satisfy all the training needs -in-plant (without instructors, material or facilities). Better than can be accomplished at NSTC. Until this syndrome is removed the interface between the Sugar Mills and NSTC will remain uncomfortable - as suggested in earlier reports to UNIDO

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION.

PROJECT NO. SF/SUD/86/003.

STUDY TOUR PROPOSAL

OBJECTIVE:

To provide the participants with an appreciation of several aspects of SKILLS TRAINING - particularly oriented to the Sugar Industry, which are being developed in various parts of the world and at the same time establish a basis for extended co-operation between the Institutions visited and the National Sugar Training Centre, Sennar in such matters as:

a. Curriculum Development.

b. Training Programme Development.

c. Inter-exchange of staff for Staff Development Purposes.

d. Exchange of information and newly developed Training Materials.

DURATION:

The proposed dates for the Study Tour are from 11th May 1989 to 3rd June 1989 (i.e. 24 days inclusive).

PARTICIPANTS:

Head of Mission - Mr. Gaafar Hussein Salih,
Director of Public Industries
M.O.I.

Dr. Bashir El Fadil Mekki,
Dean, Gazira University.

Mr. Mohamed Ali Mohamed Osman (Fadlabi),
Director, National Sugar Training Centre, Sennar.

Mr. Mahdi Beshir Mohamed Ali,
Director General, Assalaya Sugar Company.

Mr. Bakri Mahgoub Mohamed Ali,
Deputy Director General, Sennar Sugar Company.

UNIDO

Continuation sheet No. 2

ITINERARY:

Thursday	11 May	-	Khartoum/Cairo - Flt. No. MS754 - Dep. 04:30
Sunday	14 May	-	Cairo/Rome - Flt. No. MS793 - Dep. 17:00
Wednesday	17 May	-	Rome/Turin - Flt. No. AZ240 - Dep. 09:00
Sunday	21 May	-	Turin/Rome - Flt. No. AZ197 - Dep. 07:35
			Rome/Madrid - Flt. No. AZ366 - Dep. 10:00
			Madrid/Havana - Flt. No. IB945 - Dep. 16:35
Friday	26 May	-	Havana/Paris (Orly) - Flt. No. CU440 - Dep. 19:00
Saterday	27 May	-	Paris/C. de G/London - Flt. No. BA311 - Dep. 15:40
			Note - OVERNIGHT FLIGHT INCLUDING TIME DIFFERENCE.
Thursday	01 June	-	London/Vienna - Flt. No. BA700 - Dep. 09:25
Saterday	03 June	-	Vienna/Amsterdam - Flt. No. KL258 - Dep. 10:15
		-	Amsterdam/Khartoum - Flt. No. KL561 - Dep. 13:15

All bookings have been made as ECONOMY CLASS.

PROPOSED VISIT SCHEDULE

May 11, 13 and a.m. 14

Arrangements left in the capable hands of
Societe des Sucreries et de Distillerie d'Egypt.

- Sugar Mill - Training Centre - On-the-Job Training Facilities.

May 16

Visit to F.A.O. Training Department.

May 18

Turin Centre. Tour of facilities and discussions with Fellowship Department and Centre staff.

May 19

A.M. Visit to Fiat Mirafiori (Production Plant).

P.M. Visit to Fiat Training Centre, (or vice-versa).

May 22, 23, 24 and 25

Visits left to INiCA - Havana.

May 29

Bank Holiday in UK.

May 30 and 31

Visits to Tate and Lyle Laboratory,
Reading University
and Letchworth Skills Training Centre
or/and Garnett College, London.
and Booker, Tate & Lyle Office, London.

June 2

Debrief in UNIDO, Headquarters, Vienna.

OUTPUT

A concise Group Report on the related activities undertaken including a proposal on how best to establish secure linkages with the various Institutions visited.

(To be submitted to the UNDP Resident Representative along with appropriate forms F.10 following return to Sudan).

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION.

PROJECT SF/SUD/86/003.

BUDGET ALLOCATION PROPOSAL

5 Participants - D.S.A. Component per individual.

Khartoum/Cairo

3 nights Cairo x 95 USDLR - 285

Cairo/Rome

3 nights Rome x 144 USDLR - 432

Rome/Turin

4 nights Turin x 107 USDLR - 248

Turin/Havana

5 nights Havana x 85 USDLR - 425

Havana/Paris/London

5 nights London x 156 USDLR - 780

London/Vienna

2 nights Vienna x 129 USDLR - 256

Vienna/Amsterdam/Khartoum

TOTAL 2428 USDLR

Based on 80% Advance, each Participant should receive the sum of /or equivalent in other foreign currencies.

Final settlement being made upon submission of a Concise Group Report of Related Activities and duly completed and approved forms F. 10 for each Participant.

Cost of round trip ticket = 3197 USDLR

Total Cost per participant = 2

Total Cost to Project Budget - BL = 28125 USDLR

Continuation sheet No. 2

Budget Allocation Proposal (Cont.)

Further, because of the duration of the tour the C.T.A. would propose a contingency allowance - on loan - for the Head of Mission to carry for contingencies such as urgent dental treatment or medical attention.

A sum of $USDLR 1,000 would be considered appropriate.

Bye
March 1989
Khartoum

Annex XII

The Living Accommodation

The following general remarks concerning the Living Accommodation are prepared by the CTA with the approval of all the other UNIDO Experts who were assigned to the Project.

The remarks are a summary of notes taken after various discussions and it was agreed that all would be recorded in this Report.

It must be recorded that every Expert assigned - all that took up residence in Sennar, that is - to the Project, had strong views about the conditions under which they were expected to live, they were totally unsatisfactory. The CTA is in full agreement with the sentiments expressed since it was evident that as the Experts stayed longer at the duty station, their behavioural attitudes were modified to attempt to account for the conditions and in every instance this was accompanied by a change in the level of input.

Every UNIDO Staff Member had, upon arrival, to spend a considerable amount of time and effort in scrubbing the house throughout, several times before being marginally satisfied and this activity was then followed by maintenance to windows, doors, door handles, electrical fittings, etc.. before attempting to clean up the furniture and attempt to make the beds and/or chairs something like comfortable. Without attempting to be more specific in this report, it was the general concensus of opinion BY ALL that the living conditions were worse than anyone had previously experienced.

Great improvements are necessary if the project is to attract and retain the correct calibre of Expert.

THE LIVING ACCOMMODATION MUST BE IMPROVED CONSIDERABLY SINCE IT IS INEVITABLE THAT THE EXPERT WHO HAS THE EXPECTATION OF HIGH STANDARDS OF ACCOMMODATION AND QUALITY OF LIFE IS THE ONE WHO WILL GIVE A CORRESPONDINGLY HIGH STANDARD OF COMMITMENT AND QUALITY OF INPUT.

Annex XIII

FITTING & MACHINING

S.N.	DESCRIPTION	QTY.
1.	'General Shop' Goodheart & Willcox	1
2.	"Exploring Metalworking" J. Walker	1
3.	"Modern Metalworking Walker, Goodheart, Willcox	1
4.	"Machining Fundamentals J. Walker	1
5.	Basic Proficiency in Metalworking"ABB Arabic	1
6.	Grundfacne F.D. Metallgewerbe ABB.	
7.	"Construction in Metal ABB.	1
8.	"Manual for operation & Maintenance of Milling Machines	1
9.	"Fundamentals of Engineering Mechanics Levinson	2
10.	"Metal-cutting Tool Production " palay	2
11.	"Benchwork Makiyenko	2
12.	"Machine Tool Design. VOl-1	1
13.	"Machine Tool Design VOl-2	1
14.	" " " " VOl-3	1
15.	" " " " VOl-4	1
16.	EITB Booklet FYT-3 Machining Processes	1
17.	EITB Booklet FYT-3/52 Tool Grinding	1
18.	EITB Manual Module H_2 Turing Part 1	1
19.	EITB Manual Module H_{23} Turing Part 2	1
20.	" " " H_4 Milling Part 2	2
21.	" " " H_{29} Milling Part 2	1
22.	" " " H_5 Grinding Part 1	1
23.	" " " H_{31} Grinding PT. 2 VOl.1	1
24.	" " " H_{28} Boring	1
25.	" " " H_1 Machining for Tool Making & Experimental work.	1
26.	EITB Manual Module H_{26} Inspection & Measurement	1
27.	" " " H_3 Mechanical Fitting Part 1	1
28.	" " " H_{25} Mechanical Fitting Part 2	1
29.	" " " H_{24} Instrument Fitting	1
30.	EITB FYT booklet No. 1 Terminology, Tools Technigies	1
31.	EITB Training Module H_{24} Instrument Fitting	1
32.	EITB Handbook for Part "A" of first Year Training Engineering Crafts	2
33.	EITB FYT. Handbook for first YR Training - Men & Technicians	1
34.	EITB Training Element A3 Capstan Bathe	1

CONT./..2

(Contd. F.M.)

S.N.	DESCRIPTION	QTY.
35.	EITB Training Element A4 Turret Bathe	1
36.	" " " A7 " "	1
37.	" " " D3 Work Holding	1
38.	" " " F5 Tool Holders	1
39.	" " " F8 " "	1
40.	" " " F11 Stops & Trips	1
41.	" " " F14 Knurling Tools	1
42.	" " " G6 Capstm & Turret Bathes	1
43.	" " " G7 Production Exercises	1
44.	" " " B2 Limits & Fits	1
45.	" " " B3 Workshop Galculations	1
46.	" " " C1 Micrometers	1
47.	" " " C2 Gauges	1
48.	" " " C3 Bore Gauges	1
49.	" " " C4 External Gauges	1
50.	" " D1 Metals	1
51.	" " " D4 Drills Reamers etc.	1
52.	" " " D5 Boring Bores	1
53.	" " " D7 Turning Tools	1
54.	Elementor Lehrgang Metall. Ausbldg. Absch. 1"	1
55.	ABB "General Instructions on Turning"	1
56.	ABB - "Measurement"	1
57.	Intems "Technology - Metal Part 1"	5
58.	Intems "Workshop Exercises Metal"	6
59.	Machine Elements "Dobrouolsky"	2
60.	EITB Training Element No. D.8. Taps & Diesetc	1
61.	" " : " D.9. Sharpening Tools	1
62.	EITB Training Element No. F9 Speeds & Feeds	1
63.	" " " " F10 Coolant & Swarf	1
64.	" " " " G.1 Safe Working	1
65.	Instructions for Machinists & Fitters VOl-1 Shell	1
66.	" " " " " VOl-11 Shell	1
67.	" " " " " VOl-111 Shell	1
68.	Tool Post Grinders P. 19681	1

INSTRUMENTATION

S.N	D E S C R I P T I O N	QTY.
1.	Process Instruments & Control Handbook Considine	1
2.	"Transistor Circuit Design" Texas Instruments	1
3.	"Electronic Engineers Handbook" Fink	1
4.	"Semi-conductor Data Library Vol.6" Motorola Inc.	1
5.	"Code for Temperature Measurement - Part 2" B.S.I	1
6.	" " " " Part 5	1
7.	" " " " T.62 B.S.I	1
8.	"Methods for the Measurement of Flind Flow in Pipes Part 2" B.S.I.	1
9.	"Methods for the Measurement of Flind Flow in Pipes Part 3 B.S.I	1
10.	"Designing with TTL Integrated Circuits" Morris & Miller Texas Instr.	1
11.	"Instrument Technology" Vol.1" E.B Jones	1
12.	"Handbook of Applied Instrumentation" Considine	1
13.	"Instrumentation & Control Manual" Lotus-Foxbora	15
14.	"Instrument Trainees Course Manual" Lotus-Foxbora	14
15.	"Instrumentation Course Textbook HVA	1
16.	"Electrical Distribution" HVA Textbook	1
17.	"Measuring & Control Equipment HVA Textbook	1
18.	"Meet en Regelen" Dow.	1
19.	"Instrumentation" Dow.	1
20.	"Transport Van Vloeistoffen 4.S.W." Inhoud Deel 3	1
21.	"Hoofd Stuck X 3 Appeudages" Dow Manual (3Parts)	1 Each
22.	"Eitb Fyt Handbook" Electrical & Electronic Technigues	1
23.	Basic Electronics" Grob	1
24.	Intems - "Electricity" (90-217-5000-7)	1
25.	Eitb Manual Module G22 - 1 Rotating Equipt. Vol. 1	1
26.	" " " G22 - 2 " " " 2	1
27.	" " " G2 - 1 " " " 1	1
28.	" " " G2 - 2 " " " 2	1
29.	" " " J2 Electrical Maint.	1
30.	" " " G3 Electrical Fitting I	2
31.	" " " G23 Electrical Fitting II	1
32.	Instrument Instructors Course Manual - Lotus - 5 Vols.	1 Set
33.	F Manual Module G.I Static Equipt. Vol.I	1
34.	" " " G.I. Static Equipt. Vol.II	1
35.	" " " G21 Static Equipt. Testing	1

CONT./2

(Contd. I)

S.N.	DESCRIPTION	QTY.
36.	Eitb Manual Module J22 Electrical Maint. PT.2	1
37.	" " " G27 Rotating Equipt. PT. II	1
38.	" " " G4 Electrical Assembly	1
39.	" " " G24 Electrical Inspection	1
40.	"Basic Electricity Kaufman	1
41.	Foxbore Instrumentation Instructions 13FA.	1
42.	Foxbore Instrumentation Instructions 12A.	1
43.	Foxbore Instrumentation Instructions 69TA	1
44.	" " " 135Z	1
45.	" " " 11AM	1
46.	" " " 11GM	1
47.	" " " 120F	1
48.	" " " 130	1
49.	" " " 102	1
50.	" Process Control Instr.	3
51.	" Instrumentation for Sugar Processing	1
52.	" Process Instrumentation for the Sugar Indy.	1
53.	Eitb Training Element - Module G.1.	1
54.	" " " " G2	1
55.	" " " " G3	1
56.	" " " " G4	1
57.	" " " " G21	1
58.	" " " " G22	1
59.	" " " " G23	1
60.	" " " " G24	1
61.	" " " " J1	1
62.	" " " " J22	1
63.	Eitb Booklet 3/41 Wiring & Soldering	1
64.	Eitb Booklet 3/40 Coil Winding	1
65.	"Instruction Manual - Instrument Mechanic " Shell	1

AUTOMOTIVE

S.N.	DESCRIPTION	QTY.
1.	Instructional Guide for motor Vehicle Mechanics PT. 1 Shell	2
2.	" " " " " " PT. 2 Shell	2
3.	"Automotive Service Technology "Book 1" Tempest	1
4.	"Automotive Service Technology "Book 2" Tempest	1
5.	"Principles of Wheel Alignment Service Bacen	1
6.	"Electrical Systems - FOS - 208 "John Deere	1
7.	"Automotive Electrical Equipment" Grouse	1
8.	"Operation Guide SEB4.5415-01 for Caterpillar Engine 3408/3412	2
9.	"Lucas - CAV T. Manual C2127.E" Lucase	6
10.	"Lucas - CAV T. Manual 2124	6
11.	"Automotive Chassis & Body" Crouse & Anglin	1
12.	"Automotive Tune-up" Crouse & Anglin	1
13.	"Automotive Mechanics" Crouse 7th Edition	1
14.	"Motor Vehicles" Artamonov.	1
15.	"Vehicle Mechanics - Body, Chassis Work" Vol.1 Shell Part Harcourt	1
16.	Vehicle Mechanics - Body, Chassis Work Vol.II part Harcourt	1
17.	Vehicle Mechanics - Body, Chassis Work Vol.III Shell Part Harcourt	1
18.	"Automotive Emmission Control" Crouse & Anglin	1
19.	Diesel Mechanics " Schulz	1
20.	Engine Mechanics - Engine Theory" Shell	1
21.	MF. Tractor 185 Operators Instructions	2
22.	Automobile Mechanics Intents (90 - 27 - 4000 - 1)	6
23.	Caterpillar Parts Book 3304 Engine Nos.285272	1
24.	John Deere "Hydraulic Manual" FOS. 10 B.	1
25.	" " "Shop Tools Manual " FOS. 51. B.	1
26.	" " "Fuel Injection Manual" TM. 1064	1
27.	" " "Preventative Maintenance Manual FMO. 161 B.	1
28.	" " "Tractor Systems Manual" FMO. 101 B	1
29.	" " "Agricultural Machinery Safety " FMO. 181 B.	1
30.	Shell "Instructional Guide for Diesel Mechanics Vol.I	2
31.	Shell "Instructional Guide for Diesel Mechanics Vol.II	2
32.	Automobile Transmission-servicing & Overhaul Staten Abbey	1
33.	Automobile Steering Braking & Suspension Staton Abbey	1

CONT./2

(Contd. A)

S.N.	DESCRIPTION	QTY.
34.	Motor Vehicle Engines Khovakh	2
35.	Automotive Mechanics - Metric May & Crouse	1
36.	Instructional Guide - Motor Mechanics "Figures" Shell	1
37.	John Deere T.M. 1065-4230 Tractor	1
38.	John Deere P.C. 1294-4230 Tractor - Partsbist	1
39.	Lubrication & Maint. Guide D.4 Tractor - Caterpillar	1
40.	Lubrication & Maint. Guide D.7 Tractor Caterpillar	1
41.	Lubrication & Maint. Guide D.7G Tractor Caterpillar	1
42.	Operators Handbook - Ford Tractors	1
43.	Air Cooled Diesel Engines	1
44.	Service Manual 120 G. Grader - Caterpillar	1
45.	" " D.7 Tractor - Caterpiller	1
46.	" " D.4 Tractor - Caterpillar	1

SUGAR ENGINEERING & PROCESSING

S.N.	D E S C R I P T I O N	QTY.
1.	"Heat Transfer" Inachenko	1
2.	"Centrifugal & Axial Flow Pumps" Stepanoff	1
3.	"Engineering Thermo Dynmics" Krillin	2
4.	"Cane Sugar Handbook" Speneer Meade	1
5.	"Mechanics of Crushing Sugar Cane" Murray & Holt	1
6.	"System of Cane Sugar Factory Control" Cloyton	1
7.	"Erection & Maintenance of Cane Mills & Gearing" HVA	1
8.	"Technucal Manual - Juice Extraction"	1
9.	"Technical Manual - Cane Handling & Preparation"	1
10.	"Sugar Cane Factory Analytical Control"	1
11.	"Modern Development of Rolling Mills"	1
12.	"Sugar engineering - Book 1" HVA	1
13.	"Steam Generation Equipment + Notes on Supervisors Responsibilities	1
14.	"Sugar Manual - Pnerto Rico" Gilmore 1962	1
15.	"Baggasse Boilers" HVA	1
16.	"Horizental Centrifugal Pumps" Sulzer	1
17.	"Sugar Processing Manual - HVA	1
18.	"Manual for the Sugar Chemists Cowx - Equipment & Macly" HVA	2
19.	"Manual for the Sugar Chemists Cowx - Cane Sugar HVA	1
20.	Training Manual Sugar Technology" HVA	1
21.	Try Manual for Sugar Chemists - Boiler Feedwater Physics, etc.	1
22.	"Mellors Modern Inorganic Chemistry Parkes"	1
23.	"Chemical Engineering" Kafarov.	1
24.	Laboratory Manual - Queensland Sugar Factories	1
25.	"International Standards for Drinking Water"	1
26.	"Introduction to Cane Sugar Technology Jenkins	1
27.	"Sugar Machinery" HVA	1
28.	"Laboratory Manual" HVA	1
29.	"Mechanical Engineering" Marks Standard Handbook	1
30.	"Training Manual - Sugar Processing & Technology" HVA	1
31.	Laboratory Work Shell	1
32.	General Chemistry Vol.I Shell	1
33.	General Chemistry Vol.II Shell	1
34.	Physical & Chemical Tests Shell	1

GENERAL

S.N.	D E S C R I P T I O N	QTY.
1.	New English Dictionary" Webster	1
2.	English Readers Dictionary	1
3.	Arithmetic Vol -I of Gens Subjects Shell	2
4.	Algebra Vol - 2 of Gens Subjects Shell	2
5.	Answers to Volumes 1.4 Gens Subjects Shell	2
6.	Geometry Vol -3 Gens Subjects Shell	3
7.	Physics Vol - 4 Gens Subjects Shell	3
8.	Management by Objectives Booklet	4
9.	Industrial Safety HVA Ethiopia	1
10.	Guide to the literature of the Sugar Industry - Schalit	1
11.	Advanced Level Physics Nelkon & Parker	1
12.	Jealth & Safety at Work Act 1974 British Safety Council	1
13.	Technical Manual - Air-conditioning - Vehicles & Basic Principles	1
14.	Polythene Pipe & Sheet _ Engineering & Installation Manual	1
15.	Guideline to Training of Employees	1
	Job Specifications & Summaries of Training Needs	
16.	"Safety" Intems (90-217-7500-X)	5
17.	Elementary Mathematics Dorofeev.	1
18.	Mathematics for Engineers & Scientists Jeffery	1
19.	Technology - Wood - 1" Intems	4
20.	Workshop Exercises - Wood - Intems	3
21.	ITB "Code Safety of Practice for Engineering Training Centres	1
22.	ITB Code of Safety Practice for Engineering Training Trainees	1
23.	Technignes for Technical Teaches Shell	1
24.	Operative Personnel Selection Shell	1
25.	Intems "Workshop Mathematics"	1
26.	Apprentice Law - Sudan	1
27.	Materials Handbock Brody	1
28.	Websters new collegiate Dictionary	1
29.	Arabic - English Dictionary	1
30.	Machinery Handbook	1

TRAINING METHODOLOGY & TRAINING GENERAL

S.N.	D E S C R I P T I O N	QTY.
1.	Apprentice Training Dept. of Labour	1
2.	EITB Apprentice First Year Training Dept.	1
3.	EITB Booklet No 9 Training Technician Engineers	1
4.	" " " 14 Training Technicians	1
5.	" " " 3 Training Adult Operators	1
6.	" " " 4 Training Juvenile Operators	1
7.	" " " 5 Training Professional Engineers	1
8.	" " " 20 Training Graduate Business Professionals and Business Technician	1
9.	" " " 3/19 Training Fork Lift Operators	1
10.	Intems "Visual Learning Materials"	2

ENGINEERING DRAWING

S.N.	DESCRIPTION	QTY.
1.	Basic Engineering Drawing Rlodes & Cook	1
2.	engineering Drawing Bogolyubov.	1
3.	Geometrical & Engineering Drawing Exercises Part 2 Green	1
4.	Exercises in Machine awing "Bogolyubov."	1
5.	Technical LDrawing, Blueprint reading and Freehand Sketching" Intems	2
6.	Technical Drawing Course Guide Intems	1
7.	Technical Drawing Intems	1
8.	EITB Training Element B-1 1st-43rd Angle Projections etc.	1
9.	Geometrical & Engineering Drawing Exercises PT. I Green	1
10.	Geometrical & Engineering Drawing Exercises PT. 3 Green	1
11.	engineering Drawings Communication, & Desigr Coolry	1

WELDING & PLATE/SHEETMETAL WORK

S.N.	D E S C R I P T I O N	QTY.
1.	"Welding" John Deere Technical Manual FOS 528	2
2.	"Welding" Workbook No. 10 by Miller	1
3.	"Forging practice" Kamenschikov	2
4.	EITB Manual Module D.3 "Pipe & Tube Fabrication"	2
5	" " " F21 "Advanced Pipe & Tube Welding"	1
6.	" " " D.2 "Thin Plate Working Part 1"	1
7.	" " " D22 "Thin Plate Working Part 2"	1
8.	" " " D.1 "Thick Plate Working Part 1"	2
9.	" " " D21 "Thick Plate Working Part 2"	2
10.	" " " F.1 "Oxy-Gas Fuel Cutting & Gauging Arc. Cutting & Gauging	1
11.	EITB Manual Module F5 "Oxy-Acetyline Welding"	1
12.	EITB Booklet No. 3/16 "Oxy-Acetyline Welding"	1
13.	" " " 3/14 "Electric Arc Welding"	1
14.	" " " 3/60 "Spot Welding"	1
15.	A.B.B. Handbook "Welding"	1
16.	A.B.B. Handbook "Sheet Metal"	1
17.	Entectic notes total - 82 pages in 4 plastic folders	41 Set
18.	Smitweld Welding notes 1 set of 7 pages	1 Set
19.	UTP "Welding Wear"	1
20.	BOC "Welding - Equipment"	1
21.	UTP "Electrode Manual"	1
22.	Oerlikon Welding Handbook	1
23.	Morelisse Welding Generator Manual	1
24.	Training Element 'O' Arc Welders	1
25.	" " A-12 Arc Welders	1
26.	EITB Training Element A.13 Arc Welding	1
27.	" " " B.7 " "	2
28.	" " " B.8 " "	1
29.	" " " D.12 " "	1
30.	" " " D.13 " "	1
31.	" " " G.12 " "	1
32.	" " " G 13 " "	1
33.	" " " G.14 " "	1
34.	" " " G.15 " "	1
35.	" " " G.16 " "	1
36.	" " G.17 " "	1

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(Contd. W.)

S.N.	DESCRIPTION			QTY.
37.	EITB Training Element	G.18	Arc Welding	1
38.	EITB Training Module	D.1	Thick Plate 1	1
39	" " "	D.2	Thin Plate 1	1
40.	EITB Training Module	D.3	Pipe & Tube	1
41.	" " "	D21	Thick Plate II	1
42.	" " "	D22	Thin Plate II	1
43.	" " "	F	Oxy-welding & Cutting	2
44.	" " "	F.1	OXy-Welding & Cutting	1
45.	" " "	F.5	Oxy-welding & Cutting	1
46.	" " "	F.2	Pipe TubeWelding	1
47.	EITB FYT Booklet No. 2 Fitting Forging & Handskills			1

PLANT MAINTENANCE

S.N.	DESCRIPTION	QTY.
1.	"Planned preventative Maintenancd in Sugar Factories"HVA	1
2.	"Shift Instructions" HVA	1
3.	"Type, Installation, Maintenance of Valves" HVA	1
4.	"Symbolen Voor Hydraulische & Pneumatische Installaties"	1
5.	"Organisation & Management of a preventative Maintenance Programme HVA.	1
6.	"Desiners Handbook No. 2 - Dry Bearings & Materials "Glacier"	1
7.	"Pipe line Componeuts Isometric Pipe Plan Reading"	1
8.	EITB Manual Module J.1 "Mechanical Maintenance PT. 1	2
9.	" " " J.21-1 "Mechanical Maintenance PT. 2 VOL. 1	1
10.	EITB Manual Module J.21-2 "Mechanical Maintenance PT. 2 VOL. 2	1
11.	EITB Manual Module J.3. "Maintenance of Factory Services PT. 1	1
12.	EITB manual Module J.23-1 "Maintenance of Factory Service PT. 2 VOL. 1	1
13.	EITBManual Module J.23-2 "Maintenance of Factory Service PT. 2 VoL.	1
14.	"Shell Instruction Manual for Maintenance Mechanics VOL. 1 "Sheil"	1
15.	"Elementary Course Manual on Lubrication" Shell	1
16.	"Basisleergang Constructievakken" Smecoma	1
17.	Principles & Maint. of Mechanical Seals & Centrifugal Pumps	1
18.	"Baggasse Boilers" HVA	1
19.	"Assembly Practice" Krysin	2
20.	"Lubrication Matters - Cane Mills " Centralube 7	1
21.	"Maintenance - Lancaster Flow Drain Tops P. 17018	1
22.	"Reducing Valves" Quitetite P-19895	1
23.	EITB Training Module J1 Mechanical Maint. - I -	1
24.	" " " J21 Mechanical Maint. - II -	1
25.	" " " J3 Factory Maint. - I -	1
26.	" " " J23 Factory Maint. - II -	1
27.	Maintenance Planning in Manufactury estabs 4 No.	1

CHECK LIST FOR SYLIABI AND CURRICULA

(TITLE)

S.N.	DESCRIPTION	SOURCE
1.	Syllabus Basic Meter Mechanics Course	STC
2.	Syllabus Diesel Mechanics Upgrading Course	STC
3.	Syllabus Auto Electrical Upgrading Course on Caterpiller, M/F.J.D.	STC
4.	Syllabus Basic Automotive Electricians Course	STC
5.	Syllabus Instrument Technicians Course	LOTUS
6.	Syllabus Potential Supervisors Course in Sugar Engineering (3 years)	STC
7.	Syllabus Potential Supervisors Course in Sugar Processing (3 years)	STC
8.	Curriculum Plant Maintenance Course	HVA
9.	Syllabus Plant Maintenance Course for Sugar Corporation Technicians	VTC
10.	Introduction to Plant Maintenance - Syllabus	STC
11.	Syllabus Boiler Operators Course (Arabic)	STC
12.	Syllabus Basic Fitters Course	VTC
13.	Curriculum Basic Fitters Course (3 months)	STC
14.	Syllabus Capstan Operation Setting and sequential Controlled	TRG. SERVICES
15.	Principles and Practices on Supervision	M.D.P.G.
16.	Syllabus Physics for HTS Sugar Technicians (Arabic)	STC
17.	Schedule Introduction to Supervisory Skills	MDPC
18.	Syllabus Mechanical Installation Foremen's Course	
19.	Syllabus for Pipe Welding etc..	

Annex XIV

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION.

THE BOARD MEMBERS: NATIONAL SUGAR TRAINING CENTRE

CHAIRMAN - Mr. Fathim Mohammed Suliman
Chairman, Sennar Sugar Company.

SECRETARY - Mr. M.A.M. Osman El Fadlabi
National Director for Training, N.S.T.C., Sennar.

MEMBERS - Mr. Badr El Din Babbani
Chairman of SPIC.

Mr. Ibrahim Hashim
Head of Training Management Development Centre

Dr.(Mrs.) Mahasin Khider
Head of Industrial Teaching, Ministry of Planning.

Mr. Ali Ahmed Abbass
Head of Training & Foriegn Relations,
Ministry of Industry.

Mr. Mohammed Rahama
Technical Education, Ministry of Education.

Dr. Bashir El Fadil
Dean, Gazera University.

Mr. Awad El Karim Mahil
Director, Vocational Training Authority.

Mr. Ali El Sayed
Training Director, Kenana Sugar Training Centre.

Mr. Atta Mohammed El Hassan
General Manager, New Halfa Sugar Company.

Mr. Abbass El Obeid
General Manager, Sennar Sugar Company.

Mr. Mahadi Bashir
General Manager, Assalaya Sugar Company.

Mr. Ibrahim Babbani
General Manager, Gureid Sugar Company

THE TECHNICAL COMMITTEE MEMBERS ARE:

Dr. Bashir El Fadil

Mr. Awad El Karim Mahil

Mr. Ibrahim Hashim

Mr. Badr El Din Babbani

Mr M.A.M. Osman El Fadlabi (Secretary)

Mr. J. Bye - UNIDO, CTA - Co-opted Member