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ASSISTANCE TO THE PETROLEUM TRAINING CENTRE, SURIBE, ANGOLA

DP/RAF/83/022

THE PEOPLE'S REPUBLIC OF ANGOLA

Report on Training Survey in the Republic of Malawi, 13 - 22 July 1987*

Prepared for the Government of Angola
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

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United Nations Industrial Development Organization
Vienna

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1. SUMMARY

This report reviews the current identifiable training needs of technical and managerial manpower in the energy sector of the economy in the Republic of Malawi with particular reference to the petroleum industry and the extent to which these needs can be fulfilled by the Regional Petroleum Training Centre in Angola established under Project DP/RAF/83/022 - Assistance to the Regional Petroleum Training Centre - Sumbe - Angola. (RPTC).

The report also discusses the proposed communications network to facilitate participation of Malawi in the activities of the regional training project in order to ensure that Malawi receives due consideration for and a fair share of the benefits of the project in common with the other Member States of the Southern African Development Co-ordination Conference (SADCC).

2. INTRODUCTION

Project DP/RAF/83/022 - Assistance to the Petroleum Centre, Sumbe, Angola was designed to develop the centre into a regional training facility to develop technical and managerial manpower in the energy sector, particularly in respect of the petroleum industry in each of the Member States of the SADCC.

UNIDO was designated as Executing Agency for the project and technical assistance services were subcontracted to COVERINT (Italy) for

- a) assisting the RPTC in management and organisation.
- b) assistance to courses.
- c) surveys, research and educational engineering.
- d) language courses, managerial courses and seminars.
- e) supply of equipment, spare parts, consumables and means of transportation.
- f) organisation of fellowships and study tours in Europe.

Thus the Centre has now been fully equipped and is being professionally run.

An evaluation mission on the project was undertaken from 14 - 25 April 1957 to carry out an in-depth evaluation of the project by representatives of UNDP, UNIDO and NORAD. The report of the evaluation mission noted that feedback from the oil companies located in Angola indicates general satisfaction with the quality of the training. However, the mission concluded that while the impact of the project has been greatest so far in Angola (due to the physical presence of the RPTC in Angola and the high degree of participation by local oil companies in Angola) there is still low participation by Member States of SADCC other than Angola

despite efforts to identify problems and remove constraints that have continued to dampen the success of the project in terms of its regional context.

Included in the constraints surrounding the project, the evaluation mission highlighted inadequate communications between the RPTC and the Member States of SADCC and the lack of proper assessment of training needs in each State. Accordingly, in the case of Malawi, which so far has not derived any benefit from the regional project, it was decided to undertake a mission to assess training needs capable of fulfilment by the project.

The terms of reference of the mission are included in Annex 2 attached.

3. OVERVIEW OF THE ENERGY SECTOR

Malawi has a predominantly agrarian economy accounting for 40% of the Gross National Product and over 90% of the country's export earnings. Malawi imports are mainly intermediate material for industry, transport, plant and machinery and petroleum products.

Malawi has no indigenous petroleum industry and although consumption of petroleum accounts for only 3% of total energy consumption, the major part of foreign exchange earnings is expended in the procurement of adequate supplies of petroleum products.

The energy source mix to support the economy is as follows:-

ENERGY SOURCES

	Per Cent
Fuelwood and Charcoal	90
Coal	1
Electricity	6
Petroleum	3
Total	100.0

Energy Planning and Development (EP and D) is undertaken by the Department of EP and D in the office of the President and Cabinet. Training needs identified are shown in Annex 3.

3.1 Fuelwood and Charcoal (90%)

Fuelwood supply has been increased in recent years to minimise the burden of the cost of imported petroleum products.

To arrest severe deforestation, the Energy Studies Unit of the Ministry of Forestry and Natural Resources is undertaking studies to develop appropriate energy policies for urban areas. Of particular interest are a) studies to husband forestry

potential by improving the efficiency of fuelwood utilisation and b) studies to increase charcoal production using pine trees previously grown for paper production and which are easily replaceable.

3.2 Coal (1%)

Up to 1985, coal imports were 100% of requirements. However, geological studies have indicated that Malawi has more than 12 million tonnes of exploitable coal and efforts are now being made to produce increasing quantities of indigenous coal at acceptable cost.

3.3 Electricity (6%)

Electricity is mainly derived from hydropower and efforts are being made to increase sources of electricity from hydropower to coal fired generating stations leading to further savings in imported petroleum products.

The 1987/88 Development Programme includes work in the electricity sector involving the Rural Electrification Project funded by the African Development Bank and the 132KV Power Transmission Line (Nkula - Blantyre - Lilongwe, Phase 1) funded by West Germany.

3.4 Petroleum (3%)

a) Exploration

Malawi has no indigenous oil or gas production. It has always been regarded as a country unlikely to contain any petroleum. Consequently, very little exploration activity has been undertaken.

In the late 1960s and 1970s, some preliminary seismic work was conducted on Lake Malawi. The results of this work revealed that in the southern sector of the lake, there is a thick sedimentary area with hydrocarbon potential. Also traces of hydrocarbons have been found in Zambia on the border of Malawi.

Discussions are taking place with private oil companies with a view to undertaking further exploration activity in the near future.

b) Petroleum Products

There is no refinery in Malawi, all petroleum products being imported. There are four private oil companies marketing a range of petroleum products and services, all with Head Offices in Blantyre. These are Oilcom, Mobil, Caltex and Total with Oilcom accounting for 60% of the total domestic market.

The total imports of petroleum products during 1986 amounted to 185 million litres (or 134,630 cubic metres) distributed

as follows:-

	Per Cent
Gasoline	39.5
Industrial Diesel Oil	55.5
Paraffin	<u>5.0</u>
Total	100.0

Customers include farmers, motorists, householders, construction and civil engineering contractors, airlines, shipping on Lake Malawi and a wide variety of industrial and commercial concerns.

Supply problems of a landlocked country are posing continual marketing problems and the Government, through the recently established Petroleum Control Commission located in Blantyre, is endeavouring to diversify sources of supplies and to reduce foreign exchange spent on the importation of petroleum products.

3.5 Ethanol Production (ETHCO)

As a result of studies undertaken in 1979 concerning uses of molasses and fuel ethanol production in Malawi, an ethanol manufacturing and blending company (ETHCO) was established in 1983.

Ethanol is produced from final molasses arising at Dwanga Sugar Corporation's adjacent sugar mill. 20% of ethanol is blended with 80% of regular gasoline enhancing the octane rating from 83 to 93 thus eliminating the importation of high cost premium gasoline.

The production season is similar to that of the sugar mill and runs from May to November each year. Production of ethanol totalled 10.1 million litres in 1986 and the immediate target is 11 million litres per annum.

4. PETROLEUM CONTROL COMMISSION (PCC)

The PCC - a statutory body within the Ministry of Works and Supplies - was established in 1986 with responsibility for:-

- a) ensuring the procurement of adequate supplies of petroleum products
- b) ensuring that there are adequate facilities for oil storage
- c) recommending wholesale and retail prices of petroleum products
- d) setting minimum stock levels.

The PCC is establishing its secretariat and a representative of each oil company and ETHCO sits on the Board of Directors.

A particular training need of the PCC is in the area of trends, developments and economics in retail petroleum marketing. Such a need could be fulfilled by seminar in Luanda or through the Fellowships and Study Tours component of the project.

In the event that exploration activities are undertaken by private oil companies, the PCC would be the natural body to oversee the activities of the exploration companies. In this event, senior Government staff in the PCC Secretariat would need introductory courses in oilfield operations (exploration, geology, geophysics, drilling and completions) in a general sense to broaden their knowledge and awareness of what is involved in exploration.

5. MALAWI DEVELOPMENT CORPORATION (MDC)

MDC is a statutory body wholly owned by the Malawi Government and was established in 1964 to develop the agricultural, commercial, industrial and mineral resources and the economy of Malawi.

Included in its endeavours, MDC promotes new industries as well as modernising, expanding and diversifying existing industries. MDC also provides consultancy and engineering services. Among major projects being promoted by the Government in collaboration with MDC is the Oil Recycling Project.

MDC has its own in-house training programmes in the fields of starting new industries and financing. However, most of the training needs identified can be met by the RPTC (see Annex 3).

6. TRAINING NEEDS

In the longterm, manpower and training needs in Malawi in the energy sector depend on the overall socio-economic development, industrial development and the development of the existing indigenous energy resources of the fossil fuels of fuelwood, charcoal and coal, plus hydropower, with perhaps some contribution in the future from hydrocarbon resources, if discovered in commercial quantities, biomass and renewable energy resources.

It is therefore difficult to obtain estimates of manpower requirement in the longterm. Consequently, the training needs identified herein are mainly in the shorterterm and at the specific time of the mission. As overall development takes place, manpower and training needs change and therefore should be reviewed on a continual basis.

The various training needs identified are listed in Annex 3. Most or all of these needs can be met under the project, either in Angola or by fellowships and study tours in Europe. The main thrust of the project is to develop technical manpower by training at the RPTC in Angola. As funds allocated to fellowships and study tours in Europe are limited, all the requirements of Malawi under this heading may not be met by the project. However, it is possible that other sources of funds may be available to support these particular training needs e.g. The Overseas Development Administration via the British Council. For this reason, a call was made to these offices in Lilongwe.

All the oil companies have their own in-house training programmes. For example, Oilcom, which is 20% owned by BP, undertakes specialised training and seminars in BP Harare. They have a computer installation and train their own computer operators. Nonetheless, Oilcom expressed keen interest in the programmes of the RPTC particularly after learning that the RPTC is professionally run and that training their people there would be highly cost effective as is the case with current oil company participation in Angola. Further details of course contents are required and the length of courses should not be too long. Similar interest was expressed by the other oil companies, ETHCO and MDC in Blantyre.

ETHCO is especially keen to participate in the programmes of the RPTC during the shutdown period of the ethanol manufacturing plant from November to April each year for maintenance. All the courses currently being conducted at the RPTC in English are of interest to ETHCO provided they do not exceed four months duration.

United Transport Malawi (UTM) is also interested in the RPTC as they provide a tanker fleet service to oil companies in Malawi.

Thus all the oil companies, ETHCO, MDC and UTM confirmed their willingness to use the RPTC on a continual basis subject always of course to satisfactory training effectiveness.

7. COMMUNICATIONS NETWORK

During the discussions in Lilongwe and Blantyre, the consensus of opinion as far as communications with the RPTC are concerned, was that Personnel Management and Training, OPC, would co-ordinate in Lilongwe, while the Executive Secretary of the Petroleum Control Commission in Blantyre would co-ordinate the training applications from the oil companies, ETHCO, UTM and MDC.

The proposed communications network is shown in Annex 4. It would expedite matters of the Petroleum Control Commission

Executive Secretary could advise the RPTC directly of training needs in advance in order to determine the starting and completion dates of the next courses to be implemented by the RPTC and the courses contents. OPC would then co-ordinate the list of candidates to be sent to the RPTC after Government approval and be able to solve the local problems of obtaining visas for Angola.

8. CONCLUSIONS AND RECOMMENDATIONS

- a) Everyone in the right places have now been informed and enlightened about the benefits of the regional training project and pledges were made by Government officials, oil companies, ETHCO, MDC and UTM to apply for participation in the programmes of the RPTC and the fellowships and study tours programme.
- b) To facilitate this process, it is recommended that the proposed communications system is adopted.
- c) It is also recommended that supplies of the UNDP/UNIDO/COMERINT brochure describing the facilities of the RPTC and course contents are obtained and distributed to OPC and the Petroleum Control Commission for further dissemination.

9. FOLLOW-UP ACTION

UNDP Malawi

To obtain copies of the UNDP/UNIDO/COMERINT brochure from UNDP Luanda for delivery as in 8 (c) above.

UNIDO Vienna

To ensure that TAU Energy Section issues an invitation to the Executive Secretary of the Petroleum Control Commission to visit the RPTC in Angola in due course.

To urge the Director of the RPTC and COMERINT to deal expeditiously with applications from Malawi while the subcontract is still valid.

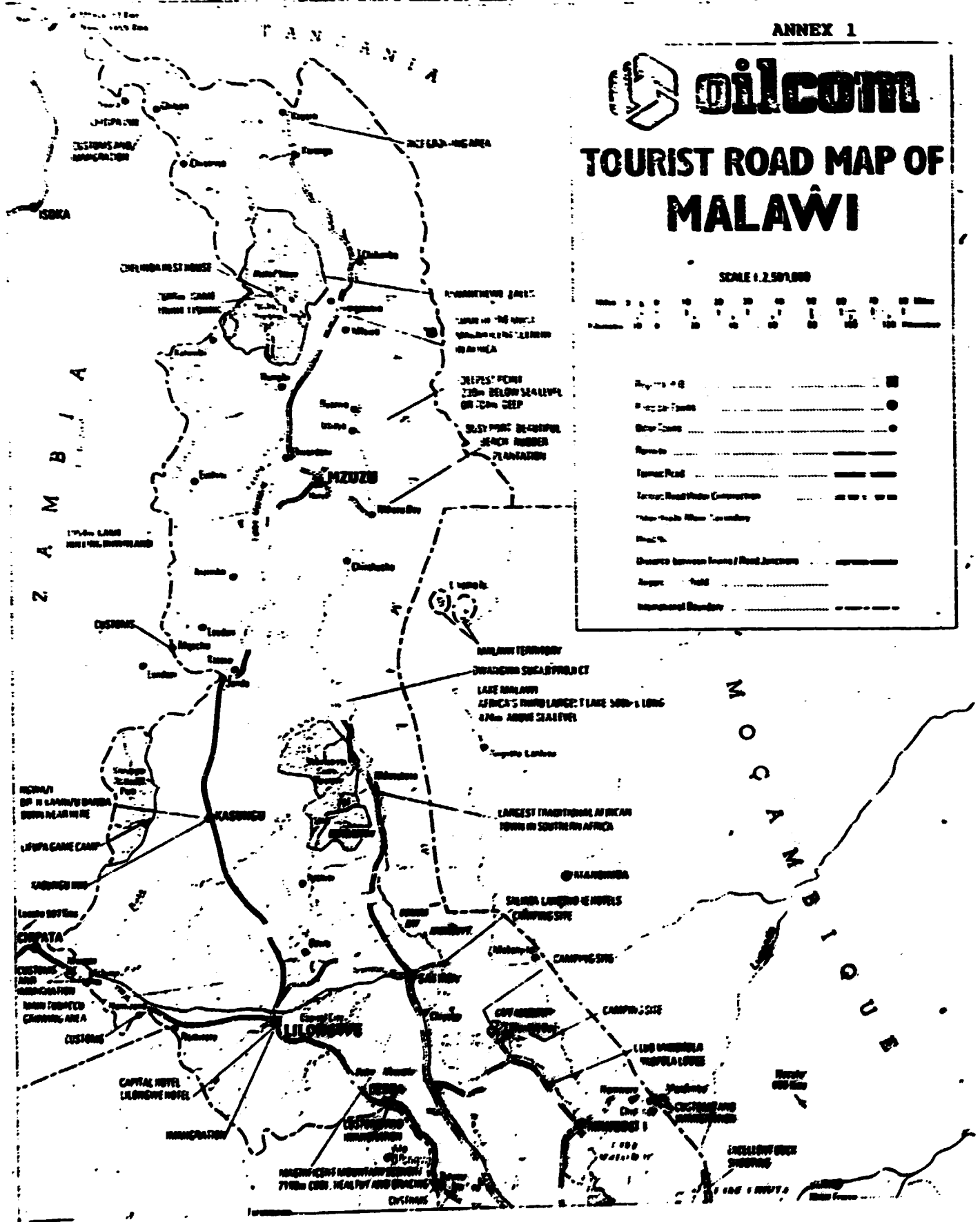


TOURIST ROAD MAP OF MALAWI

SCALE 1:2,500,000



- Highway 48
- Public Road
- Dist. Road
- Regional
- Trunk Road
- Former Road/Under Construction
- Proposed New Road
- Proposed
- Distance between towns / Road Junction
- Range
- International Boundary



ZAMBIA

MOCIMBIQUE

TANZANIA

RECRUIT DEP IN LAMPARA BANDA BURN NEAR HERE

CHIPATA

CUSTOMS AND IMMIGRATION MAIN FORESTED CHANGING AREA

CAPITAL HOTEL LILONGWE HOTEL

NORTHWESTERN MOUNTAIN REGION 75000 COWS, HEADS OF AND OTHERS

MALAWI TERRITORY DIVISIONAL SECRETARIAT CT LAKE MALAWI AFRICA'S THIRD LARGEST LAKE 500x1000 470m ABOVE SEA LEVEL

LARGEST TRADITIONAL AFRICAN TOWN IN SOUTHERN AFRICA

SALIMBA LAMPARA RE NOVELS CAMPING SITE

CAMPING SITE

CAMPING SITE

LIDO MUMBELA MUMBELA LODGE

ENGLISH BIRCH SHEDDING

TERMS OF REFERENCE

In addition to the duties spelled out in the main job description, the consultant shall conduct a training survey in Malawi. That shall include but will not be limited to the following:-

- Meeting national authorities responsible for energy sector development of the country and those directly managing enterprises dealing with petroleum and petroleum products handling (pipelines, fuel storage and distribution companies and the like);
- Presenting the PTC and the project activities;
- Identification of the needs of the country in training, which could effectively be done at PTC under the project activities. Such identification shall have both shortterm and longterm nature.

While carrying out this assignment, the consultant shall utilize his knowledge and the information obtained in the course of his participation in the Project Technical Committee. The consultant shall prepare a report on the results of his mission.

TRAINING NEEDS

ORIGIN	SUBJECT	COMMENT
<p><u>OPC</u> Department of Economic Planning and Development, Energy Planning Unit</p>	<ol style="list-style-type: none"> 1. Energy planning techniques 2. Management techniques 3. Procurement, pricing and marketing of petroleum products 4. Planning for Petroleum storage 	
<p>Ministry of Trade, Industry and Tourism</p>	<ol style="list-style-type: none"> 1. Management techniques 	
<p>Ministry of Forestry and Natural Resources</p>	<ol style="list-style-type: none"> 1. Energy planning techniques 2. Management techniques 	
<p>Petroleum Control Commission</p>	<ol style="list-style-type: none"> 1. Trends, developments and economics in retail petroleum marketing. 2. Introduction to oilfield operations. (Exploration, geology, geophysics, drilling) 	<p>Longterm need of general information</p>

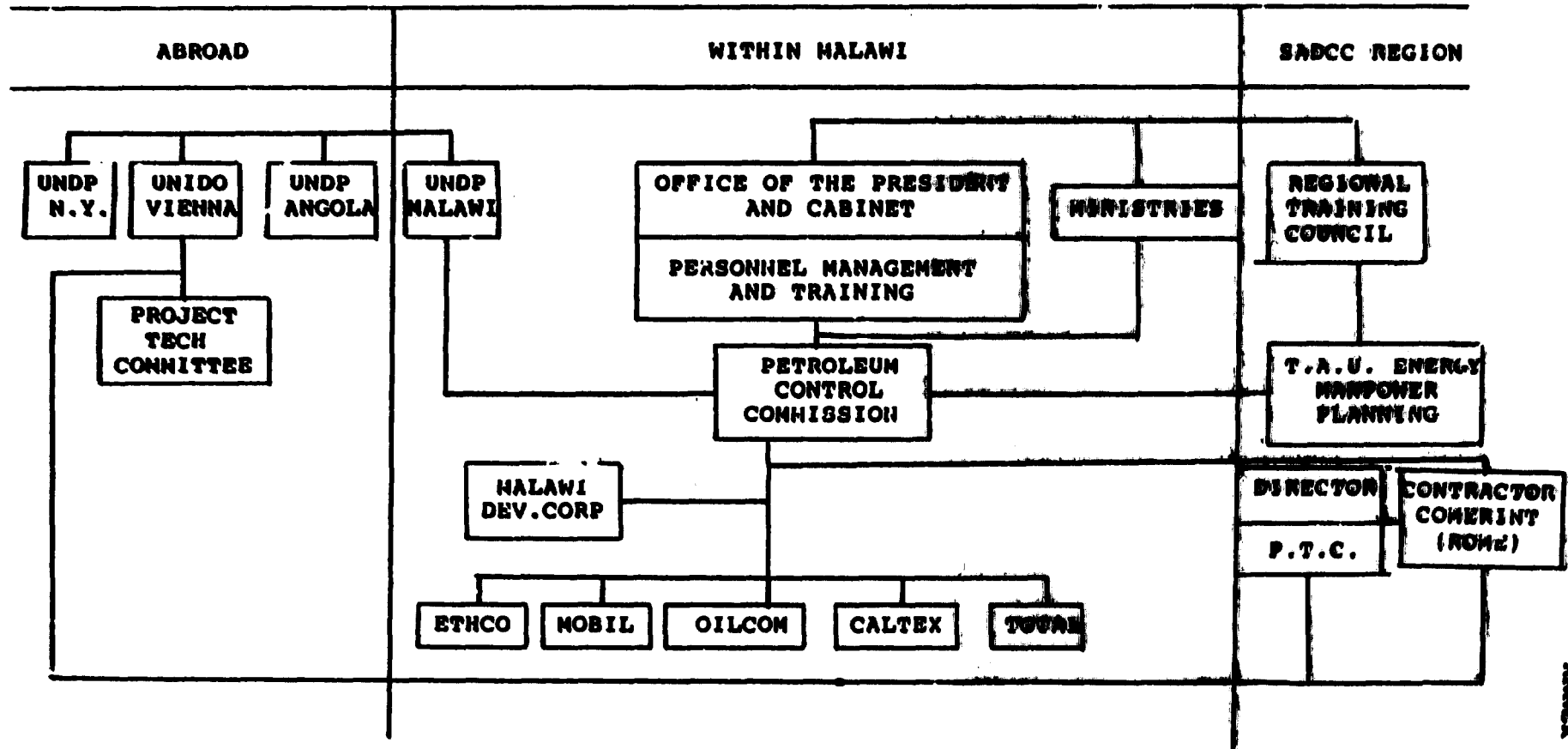
<p>All Oil Companies</p>	<ol style="list-style-type: none"> 1. Fire fighting and safety 2. Retail equipment maintenance 3. Petroleum, storage, transportation and distribution operations 4. Instrumentation (Electronic and pneumatic) 5. Welders and pipemaking 6. Auto mechanics and electricians 	<p>Forecourt pumps, tankage and instrumentation. Courses should not be too long. Courses contents needed. Storage installations</p>
<p>ETHCO</p>	<ol style="list-style-type: none"> 1. Fire fighting and safety 2. Ethanol manufacturing plant technicians 3. External plant operators 4. Production supervisors 5. Production operators 6. Chemical laboratory analysts 7. Electricians 8. Instrumentation technicians 9. Industrial plant maintenance 10. Welders and pipemaking 11. Storage, transportation and distribution operations 	<p>Similar to refinery technicians. All courses not exceeding 4 months. Courses contents needed.</p>
<p>UTM</p>	<ol style="list-style-type: none"> 1. Fire fighting and safety 2. Auto mechanics 3. Auto electricians 4. Oil storage, transportation and distribution operations 	<p>Courses contents needed.</p>

NDC	1. Management techniques 2. Industrial management 3. Production management 4. Quality control	Courses contents needed
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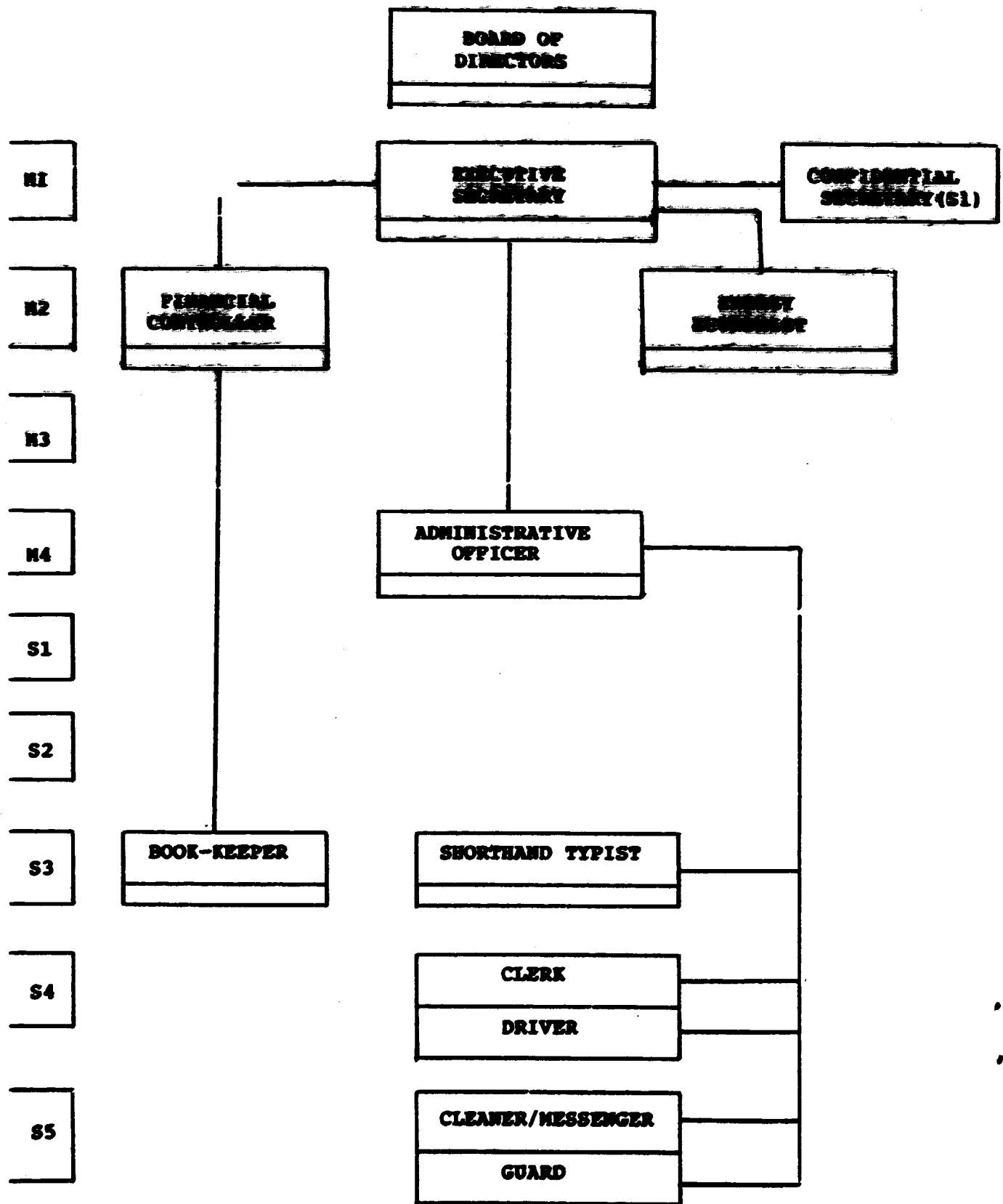
NOTES

1. The above is not a definitive list as other needs will arise.
2. Some of the above needs can be met by seminars and fellowships and study tours.

M A L A W I
COMMUNICATIONS NETWORK PROPOSAL
(PROJECT DP/RAF/83/002)



PETROLEUM CONTROL COMMISSION
PROPOSED ORGANISATION



LIST OF CONTACTSUNDP MALAWI

Ms K. LEITNER Resident Representative
 Ms P. BARSOTTI - Programme Officer

OFFICE OF THE PRESIDENT AND CABINET (OPC)

Department of Economic Planning and Development

Mr UPINDI - Principal Secretary
 C. KAPUNDA - Senior Energy Economist

Department of Personnel Management and Training

G. MOWDE - Manpower Officer

MINISTRY OF TRADE, INDUSTRY AND TOURISM

J.R. PHIRI - Principal Secretary
 P.R. GIVAH - Industrial Development Officers
 A.L. BANDA

MINISTRY OF FORESTRY AND NATURAL RESOURCES

Energy Studies Unit

L.B. MHANGO - Energy Officer

Department of Statutory Bodies

M.MBEYA

MINISTRY OF WORKS AND SUPPLIES

Petroleum Control Commission

R.E. KAMPHALE - Executive Secretary

MALAWI DEVELOPMENT CORPORATION

A. JACOB - UNIDO Expert

OILCOM

Industry Petroleum Supplies Unit

P.R. DOWN - Executive Secretary

MOBIL

D.S. KAMBALAME - Operations Manager

CALTEX

J.B.R. ALLEN - Director
S.R. SOKOSA - Operations Manager

TOTAL

R. LIGGITT - General Manager

ETHCO

W.C. SALINA - Administration Manager

UNITED TRANSPORT MALAWI

A.G. MVULA - Personnel and Training Manager

OVERSEAS DEVELOPMENT ADMINISTRATION

D.J. WOOD - Regional Manpower Advisor

THE BRITISH CCUNCIL

D. CORDINGLEY - Assistant Representative

CONTRACT No.84/19-UNDO PROJECT No.OP/RAF/83/022
 ASSISTANCE TO THE P.T.C.-SABRE-THE PEOPLE'S REPUBLIC OF ANGOLA
 COMMITMENT SERVICES FOR THE YEAR 1983

TRAINING ACTIVITIES (UP-DATED SCHEDULE)

DATE : 01.05.1987

REF	ACTIVITY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
1.b.2	Ext.Ref.Operations														7	16	ANG
1.b.3	Production Operations														2	10	ANG
1.b.4	Electricity														4	13	TAN
1.b.5	Instrumentation														6	10	ANG/MOZ
1.b.8	Ind. Plant Maint. (Fitting)														3	12	TAN
1.b.9	Ind. Plant Maint.(Ro.M.)														3	12	ANG/MOZ
1.b.10	Ind. Plant Maint.(M.V.)														3	10	ANG/MOZ
1.b.11	Welding & Pipe Milling														1	13	TAN/ANG
1.b.13	Ind. Plant Safety														1	10	MOZ
1.b.14	Welding & Pipe Milling														2	15	ANG
1.b.15	Welding & Pipe Milling														6	15	MOZ

TOTAL : 38 - 136

■ PLANNED ■■■■■ PERFORMED

■ NEW ACTIVITY