THE UNIVERSITY OF HULL

TRAINING THEORIES AND PRACTICES AND THEIR APPLICATIONS
IN THE LIBYAN OIL INDUSTRY

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by

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DEDICATED TO MY LATE PARENTS

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LIST OF ABBREVIATIONS

COMET : Committee for Middle Eastern Trade.

ICUAE : International Congress of University Adult Education.

I.L.O : International Labour Organisation

INAPET : Petroleum and Petrochemical Training Institute.

LATAS : The Libyan American Technical Assistance Service.

NOC : National Oil Corporation.

OAPEC : Organisation of Arab Petroleum Exporting Countries.

OPEC : Organisation of Petroleum Exporting Countries.

UCAE : University Council of Adult Education.

UESCE : United Nations Economic commission for Europe.

U.K. : United Kingdom.

U.S.A : United States of America.

ABSTRACT

The purpose of this study is to describe, analyse and evaluate the problem of shortage of well-qualified and trained personnel in the Libyan Oil Industry and to examine training policies, practices and programmes currently provided by this highly valued industry. The major goal of this study was to identify the necessary steps to be taken in order to improve the training and development programmes in this industry.

A review is presented of literature on the nature and importance of training; how training can be conducted effectively; what kind of techniques should be followed to set up proper systematic training programmes; and criteria for evaluating the effectiveness of training and development programmes. The policies and practices of training currently in use in the Libyan Oil Industry are investigated, as are the current general education and training system in Libya and the role of Libyan universities and other higher education institutions.

A questionnaire was applied to a sample of 101 trainees sent by the Libyan Oil Industry on training to the U.K. respondents represented different companies and projects and various fields of specialisation. Descriptive statistics were used to analyse the raw data obtained from the questionnaire responses.

The results of the study indicated the following:
1. A master plan for organising and supervising training programmes is needed.
2. Training programmes should be designed after identifying training needs.
3. Training should be in job related.
4. Trainees should work in the area in which they received training.
5. Top management should receive training in their major activities and responsibilities.
6. Training should be provided for all employees.
7. Training programmes should be evaluated regularly.
8. Co-ordination and collaboration should be made between industry and the university in regard to manpower training and development.
9. Training policies should be periodically reviewed.
10. Training should be considered as a continuous process.

Chapter One

Chapter One

INTRODUCTION

1.1 Background to the Problem:

Although Libya has made immense efforts to overcome its problems in education and training, much remains to be done in this regard. The education and training systems existing in Libya, which are similar to those in existence in other Arab countries, are unable to supply, at the right time and in sufficient number, the qualified manpower needed for industrial development in particular. In this respect, Birks and Sinclair (1980) clearly noted that:

> Not only is educational attainment low throughout
> the Arab World but, in general terms, the nature
> and direction of education in the region is little
> suited to furthering the declared aims of the
> government-modern industrial economies.(p.19)

Moreover, education and training are heavy financial burdens. These problems prevail in both the main sources of skill generation: the general education system, and the training system, which encompasses vocational secondary schools, university and industrial undertakings such as the oil industry, which is the focus of this study.

In Libya, as in many Arab oil-producing counries, the Oil Industry, despite its high value, still suffers from a serious shortage of qualified personnel, at many levels and in most key positions, for example, plant managers and administrators,

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graduate engineers in production and research, technicians, draughtsmen, and highly skilled production workers. According to the International Labour Office (1980):

> while a number of Petroleum-Producing Countries are now in a position to train managers for their own industry and some other countries can even "export" them, the industry still suffers from a shortage of national skilled workers and technicians. Hence the need to organise and continue training is an urgent one.(p.36)

In this respect, Al-Wattari (1979) stated that:

> ...the Arab world and particularly its oil states employ foreign labour on a large scale. This is in part due to the unavailability of the type of skilled manpower needed in many activities, which highlights the overall need, indeed the absolute necessity, for training, retraining, and development. (p.80).

Samir Yousry (1988) in his article, Human Resources and Transfer of Technology stated that:

> Convinced of the ever increasing importance of training and development of Arab labour, OAPEC in 1975, embarked upon a study of the labour force in the oil sector of member countries. The study, which covered the period 1976-80, revealed major deficits in skilled labour in member countries. One of its findings also, was a great shortage of information regarding the labour force in the oil sector, and a shortage in instructors in that field. (p.7)

In Libya, such shortages seriously hamper the country's transformation plans and industrial development programmes in oil and petrochemicals in particular, and there appears to be no immediate prospect of substantial improvement. Balazi (1973) clearly blamed this situation on the inadequacy of education and training:

> Libya's Petroleum sector suffers from the

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acute shortage of skilled manpower. The
bottleneck in Libya's manpower supply lies in
its educational and training system. The
educational system, as it exists today, is not
capable of supplying an adequate number of
skilled manpower desperately required for Libya's
development programmes. Unless some drastic
reforms are taken in the near future, the problem
of inadequate supply of skilled and professional
manpower will continue to be a major one in the many
decades to come. (p.241)

Frequently, graduates have not acquired the skills needed
for the jobs they hold in the industry. Many examples exist of
graduate engineers barely meeting the requirements of jobs at
technician level. Although engineers are in fact often called
upon to fill such jobs because of the shortage of competent
technicians, such a substitution is rarely satisfactory; the
skills and knowledge of the two occupations are quite different,
and all too often, a poor engineer simply becomes a poor
technician. The reasons for such qualitative deficiencies lie in
defects in the main sources of skills and qualifications for
industrial employment, namely general education and the training
system. Education has many objectives which are not necessarily
linked to the goal of industrial development, but it also has
another basic aim: to prepare the individual for vocational and
technical training.

In this particular regard, Birks and Rimmer (1984) noted:

In the Arabian Oil States, the very governments
which wish to diversify their economies away from
oil wealth and towards industrialisation have
labour policies which drive down standards in the
education systems intended to prepare nationals to
take over industries now dependent on non-national
labour and skill. This frustrating of purpose
results from willingness to provide easy and

remunerative employment even for nationals who
merely serve out their time in stage after stage
of the education systems, and it is a frustration
intensified by the fact that the education systems
are not designed to prepare young people for genuine
productive work in modern technology-based
industries.(p29)

In Libya, there are two main weaknesses that characterize
manpower training for skilled personnel:

1. Overlapping of different types of institutions or forms

    of training, e.g vocational schools and training centres

    on the one hand, and training provided in undertakings on

    the other;

2. The low quality and high cost of both forms of training.

Both the training centres and the vocational schools are

handicapped by having inadequately trained instructors or

teachers, curricula which are too theoretical, too general and of

poor quality, and equipment that is out of date or inappropriate

to the instruction given. Furthermore, both types of institution

suffer from inadequate or non-existant links with industry.

1.2   The Problem:

Because of the acute shortage of skilled manpower, to

improve the running of its existing operations and to carry out

expansion projects such as the establishing of new terminals or

petrochemical complexes, Libyan oil companies frequently set up

accelerated training centres for their existing employees. Such

centres can train persons for specific needs within the space of

a few months, but they are expensive to set up and run.

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Moreover, the skills taught are narrow and the centres are not flexible enough to adapt to changing needs.

Training in industry, even when organised systematically, is often too narrow in scope, dividing the skills and knowledge into too many sub-specialisations, and paying little attention to in-depth skill training. Instructors lack pedagogical training, and there is a lack of teaching materials. Moreover, all too often, there is a failure to provide the necessary theoretical framework, which would not only meet immediate needs, but would lay the foundation for any further training or retraining made necessary by technological change. This low level of basic training has repercussions throughout the occupational structure.

Although industrial organisations appear generally dissatisfied with the quality of the personnel trained by the school system, it is by no means certain that they have themselves been able to establish a better system.

Many companies have tried and still try to remedy these defects by sending employees abroad for training. Unfortunately, this approach also seems in many cases to be inadequate. It is very costly, the training programmes arranged are often irrelevant to the trainees' occupations and qualifications and the instruction received is too little geared to the requirements of the industry.

According to the International Labour Office (ILO) World

Labour Report (1985):

> Training is increasingly looked upon as a
> concerted effort emanating from policy and
> supported by institutions and programmes that
> are effectively run, properly co-ordinated and
> financed, and produce a relevant output of
> trained resources.(p.90)

It would appear that this ideal has not so far been achieved in Libya, at least as far as the oil industry is concerned. The Oil Industry in Libya is the major source of revenue to the economy, on which the economic and social development plans of the country mainly depend. Since the development of the country depends on the productivity of the oil industry, which in turn depends on the quality, qualifications and skills of its employees, then there is a need for more effective and adequate training and development for Libya's oil industry employees. It was clearly acknowledged in oil sector development plan for 1985, that current training and development efforts are insufficiently job training oriented. The plan drew attention to the following shortcomings:

> . For the key manpower group, systematic job
>   training is practised by few companies, and
>   those that do adopt it are not yet making
>   full use of its potential.
>
> . Very little attention is being given to the
>   aspect of continuous training of the confirmed
>   skilled manpower group; effort is being
>   concentrated on vocational training at trainee
>   level.
>
> . There are indications that considerable training
>   budgets are being spent, which show fulfilment of
>   training obligations, but that this expenditure
>   in fact benefits only a small number.
>
> . With each company trying to find its own solution,
>   creating its own infrastructure and planning
>   strictly from its own viewpoint, the total effort

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> is wasteful, uncoordinated, and does not meet the
> need for a broadly based effort of human resources
> development. (p.IV-5)

The shortage of well-qualified and trained personnel is a crucial problem one for the Libyan Oil Industry, necessitating examination of the training policy, practices and programmmes currently provided by this industry. This study aims to describe, analyse and evaluate these aspects, and to make suggestions for improvement. It is hoped that this study will benefit the Libyan Oil Industry and its employees, and enable them to play their part in meeting the country's socio-economic development objectives.

1.3. <u>Aims and Objectives of the Study</u>:

This study aimes to survey and examine critically the Libyan Oil Industry's current position in the area of training and development of its employees, to draw attention to deficiencies in the current training policy, practices and programmes and to recommend ways and means of meeting future manpower training and development needs.

The specific objectives are:

First, to conduct a review of relevant literature on training and development, including a description of manpower training and development policies and practices in the oil industry worldwide, with special reference to developing countries. It may be that Libya can learn from the experience of major oil companies elsewhere, in manpower training and develpment.

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Second, to examine Libya's education and training system, manpower planning and development efforts, in terms of their objectives, effectiveness and adequacy. It is hoped this examination will prove useful in three respects: It may point the way to means of increasing the effectiveness of manpower planning and development policies and procedures in Libya, it may enhance understanding of industry's requirements and individual needs and expectations from training and development, and indicate ways in which the training and development programmes undertaken by the Libyan Oil Industry can be improved; and finally, it may highlight the potential role of higher education, especially university, in training and developing the qualified personnel needed by the industry.

Third, to review and examine critically current training and development policies, practices and programmes provided by the Libyan Oil Industry, and highlight their strengths and weaknesses. It is hoped to shed some light upon the key factors that influence the industry's manpower training and develpment efforts.

Fourth, to survey a sample of Libyan oil industry trainees in the U.K. to find out to what extent the said industry has succeeded or failed to train and develop its employees adequately to make them competent in their work and to meet the industry's operationsal requirements.

Fifth, in the light of the research findings, to draw conclusions and make recommendations as to how the training and development policies and practices of the Libyan oil industry can be improved.

1.4 Limitations of the Study:

The design and subject matter of this research was subject to the constraints imposed by the availability of information and statistical data. Libya, like most developing countries, lacks the skilled and well-qualified personnel, the know-how, and the sophisticated facilities needed to compile more comprehensive data that would serve all the purposes of social and economic development.

This research study is limited to one Libyan industry, the oil industry. Therefore, the suggestions and recommendations will be exclusively limited to that industry. Moreover, they may not be applicable to oil industries in other countries.

1.5 Significance of the Study:

This study is significant because of its : 1) Uniqueness; 2)Relevance; and 3) Contribution to knowledge.

1.5.1 Uniqueness:

This study is unique because there have been no published studies dealing in depth with manpower training and development in the Libyan Oil Industry. Among all the published works and unpublished Ph.D studies, the following are the only ones known to the researcher that have touched on manpower development in the Libyan Oil Industry:

    1. The following two unpublished Ph.D studies:

        a) Manpower Policies and Development Planning in Libya

           with Special Reference to Agriculture, Petroleum and

Education, by William Charles Wedley in 1971; and

b) Human Resources Development: The Case of Libya, by
Omar Mohammed Balazi in 1973.

2. One published study regarding labour turnover in the
Libyan Oil Industry, sponsored by the N.O.C and carried
out by staff of Garyounis University in Benghazi in 1980.

Thus, this study will be the first to deal with this
particular subject, and it is hoped that it will shed some light
on a neglected, yet important issue.

1.5.2 Relevance:

This study could be of great value to those responsible for
planning and formulating manpower training and development
programmes for Libya's oil industry. It is of particular
importance to the Secretariat of Planning, the Secretariat of
Education, the Secretariat of Labour and Civil Service, the
Secretariat of Petroleum, the National Oil Corporation (N.O.C)
and its affiliates and other oil companies within which manpower
training and development strategy, policies and programmes are
formed and executed.

1.5.3 Contribution to Knowledge:

Although the study is addressed particularly to the problem
of manpower training and development in the Libyan Oil Inudustry,
it should have some significance for other developing countries
that may be interested in developing comprehensive and integrated
manpower training and development programmes. The results of the

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study will contribute to an understanding of Libya's difficulties in developing the human resources in its main industry, the oil industry, and its aspirations for better training and development programmes. Libya's experience in this respect may also be of interest for international comparative studies and research. In addition, the study may be of general interest to local and international businessmen, private enterprises, and particularly those who are planning substantial investment in Libya, to guide them in setting objectives and selecting strategies

1.6 Methodology:

1.6.1 Research Design:

Educational research has been defined in various ways.
Travers (1958), defined educational research as:

> ..an activity directed toward the development
> of an organised body of events with which
> educators are concerned.(p.44)

Peters and White (1969) defined it as:

> ..systematic and sustained enquiry carried out
> by people in some form of thinking in order to
> answer some specific types of questions.(p.3)

Research in education can be of various types.

Sax (1979) , classified educational research into:

a) Analytic;
b) Descriptive;
c) Experimental.

Borg and Gall (1983) identify following categories:

a) Historical;
b) Evaluation;
c) Observational;
d) Survey.

Most educational research can be placed in one of three broad categories:

1. Descriptive research: aimed at describing the characteristics of subjects;

2. Correlational research: which explores relationships between variables;

3. Experimental research: which manipulates one or more variables, and measures the effects of these manipulations on other sets of variables.

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It is important to realise that human beings, the usual subjects in educational research, are much more complex organisms than the subjects studied in other sciences. Education and the related behavioural sciences, such as psychology and sociology, are much newer and less advanced than natural sciences, like biology or chemistry. As a result, descriptive research is important in education. Most descriptive research in education can be roughly classified as either survey research or observational research.

In this study, the descriptive survey has been employed. The descriptive method has been chosen because it is primarily concerned with portraying the present situation, and describing existing conditions with the hope of improving them in the future. As Best (1981) pointed out:

> A descriptive study describes and interprets
> what is. It is concerned with conditions or
> relationships that exist, opinions that are
> held, processes that are going on, effects that
> are evident, or trends that are developing.(p.93)

1.6.2 Sources of Data for the Study:

The attempt to provide both breath and depth of coverage in this study meant that the research had to be focused in two important ways: the need for broad coverage demanded selective sampling from among some oil industry sectors; the need for understanding in depth required the identification of key factors and issues that merited special attention. To satisfy the first of these, it was necessary to refer to the training policies and practises of some multinational oil companies, as well as those

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practiced in developing countries. To satisfy the second, it was necessary to investigate not only the policies and practices of training and development currently *in use in the Libyan Oil* Industry, but also the wider of system education and training in Libya, with particular reference to Libyan universities and other higher education institutions.

Briefly, the study relies on the following sources to obtain the required data:

1. A questionnaire designed to ascertain the views of Libyan oil industry employees being trained in the U.K. about their training programmes; responses to the questionnaire are presented in raw scores and percentages.

2. Official documents on training strategy, policies,practices and programmes, and statistical data, obtained from the relevant authorities and from the oil companies.

3. A variety of literature dealing with training and development issues.

1.6.3 Questionnaire:

The survey data for this study were collected by means of a questionnaire to determine the opinions, preferences and perception of a group of Libyan Oil Industry employees who were sent for training in the U.K. during 1988 - 1990.

Nouly (1970) advised that when constructing a questionnaire, the researcher should pay attention to the following:

(1) To attain a thorough grasp of the field,

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of the objectives of the study, and of
the nature of the data needed.

(2) To delimit the study to the point that
the investigator is not expecting too
much and yet is able to obtain a
reasonable answer to his problem.

(3) To believe in the importance of scholarly
construction.

(4) To consider the issue of open versus closed
questions.

(5) To be fully aware of the content of each
question.

In designing the questionnaire, guidance was sought from
relevant literature. The questionnaire contained the following
elements, the advantages of which have been thoroughly discussed
by Rae (1986):

1. a five point, Likert type scale which offers scope for a
wide variety of answers;

2. a Thurstone response scale which presents the
respondents with a number of statements related to the training
event and requires either agreement or disagreement with each
statement. A variation of this approach, which many people seem
to prefer, is for the individual to state whether there is
agreement or more agreement than disagreement, or disagreement or
more disagreement than agreement. This does away with the need to
have a choice between the extremes of agreement or disagreement
only;

3. Open questions; to obtain opinions;

4. Binary choice, whereby a question is posed related to
the subject under consideration and alternative answers supplied
from which a choice can be made; the answers may consist of

simple YES or NO;

    5. Multiple choice, which can help to avoid any problem that may have resulted from the binary choice by offering a wide choice of answers, the chosen answers to be either ticked or ringed by the respondent; the greater the number of optional answers offered, the less chance there is of random selection producing a high score, as is the siuation with binary choice.

    The survey instrument contained two main sections:

    Part one sought general background information about the respondents; company for which the respondent works; present position held; total years of experience; educational level attained and training received during employment.

    Part two dealt with perceptions. It consisted of:

    (1) twenty Likert-type items designed to gauge perceptions of the content and effectiveness of the training programmes the respondents received in the U.K;

    (2) two Thurstone response scale items, concerning the satisfaction of trainees with the training programmes they attended;

    (3) two binary choice items asking whether the programme was worth its cost, and whether it was worth recommending to the respondents' colleagues;

    (4) six multiple choice items to obtain feedback as to how the respondents found the training programme, in terms of presentation, achievement of training objectives, organisation and coordination.

    (5) five open questions to assess the overall feelings of

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the respondents towards the programme and how far it corresponded to their expectations, and to give them the opportunity to make any other comments they wished. It was hoped that by inviting the respondents to give their own comments, they would feel more directly involved, and express their opinions more freely. Thus, the chief disadvantages of the closed form -loss of spontaniety and expressiveness on the part of the respondents – were to some extent, counter-acted.

In the preparation of the questionnaire the researcher consulted various studies made on this particular issue carried out in U.S.A and U.K. Also, a number of Ph.D researchers were invited to check and comment on the content of the questionnaire. After their evaluation, some statements were modified. The final version adopted to be used in this study is presented in Appendix (II).

In addition, a pilot survey was conducted in which the questionnaire was administered to a random sample of 15 trainees, to find out the following:

    a) Did the respondents understand the purpose of the inquiry?

    b) Were the instructions in the questionnaire clear?

    c) Were there any difficulties in answering the questions?

The trainees selected for the pilot survey expressed their satisfaction, and confirmed that the questionnaire was easy to understand and straightforward to complete.

1.6.4 Content Validity:

A test is said to be valid if it measures what it is intended to measure, while content validity may be defined as the extent to which a test measures a representative sample of the subject matter content (Englehart, 1972). Content validation is usually guided by a major question: Is the content of this measure representative of the content of the subject being measured? Any educational subject has a theoretical universe of content, consisting of all the things that can possibly be said or observed about the subject. A test high in content validity would theoretically be a random sample of the universe of the content (Kerlinger, 1964).

In developing the questionnaire for this study, an attempt was made to identify the important components of any training programme. Content, organisation, format of presentation, and participants' involvement were conceptualised as constituting the major elements in any training programme. The statements selected for the questionnaire, after careful construction and review, are presumed to be a representative sample of opinions, feelings, beliefs (perceptions), and possible action tendencies pertaining to training. According to Kerlinger, content validation consists mainly of judgement. One judges the representiveness of the items alone, or with others.

1.6.5 Sample Selection:

Respondents to the questionnaire were Libyan trainees sent by the Libyan Oil Industry for training in the U.K. 101 trainees

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were selected, representing 50.2 percent of the survey population. The respondents represented a variety of companies and projects operating within the Libyan oil industry and various fields of specialisation. Table 1.1 shows the distribution of the selected trainees by companies and training course title.

1.6.6 Major Research Questions:

As was explained previously, the main purpose of the investigation was to conduct an examination of the opinions, preferences and perceptions of a group of trainees towards the training they received in the U.K. More specifically, the research sought to answer the following major questions:

1. Are there significant differences in the perceptions of trainees in respect of:

   a) the content of the training programmes they attended;

   b) the organisation of the programmes; and

   c) the format of presentation of those programmes?

2. Are there significant differences in preferences of trainees toward the following:

   a) training techniques used in the programmes;

   b) demonstration in training courses; and

   c) training materials and facilities?

1.6.7 Data collection Procedures:

To facilitate questionnaire distribution, the researcher contacted the agency responsible for providing training to the

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Table No. 1.1: Distribution of the Selected Trainees
by Companies and Course Title

Company/ Course	Agp	Az	Ago	Brg	Gas	Naf	Nap	NOC	Prc	Ras	Stc	Tbr	VB	Wh	ZU
English	2	2		2		1	4		1	1				5	5
Geology	1		1					1	5				1	3	1
Geoph.														2	
Pet.Eng.	1								1					1	1
Res.Eng.	1		2							6		1	2	3	
Corros.	1			1					1	6	1				2
H.&Saf.	1		1						1					1	
Mec.Eng.			3						1						1
Chem.Eng.			1						1						1
Civ.Eng.			1	2						2					
Elec.Eng.										1					
Acc.&Fin.								2							
Chemistry									1						
Instrum.									1						1
Drilling													2		
Prod.Eng.														1	
Physics														1	
Bus.Adm.								1						1	
Computing												2			1
Totals	7	2	9	4	1	1	4	4	11	18	1	3	5	18	13

Total = 101

Codes:

Agp = Agip (North Africa and Middle East) Ltd.
Az = Zawia Oil Refining Company.
Ago = Agoco = Arabian Gulf Oil Company.
Brg = Brega Petroleum Marketing Company.
Gas = Gas Projects.
Naf = National Oil Fields and Terminals Catering Company.
Nap = National Petrochemical Company.
Noc = National Oil corporation.
Prc = Petroleum Research Centre.
Ras = Ras-Lanuf Oil and Gas Processing Company.
Stc = Specific Training Centre (Zawia).
Tbr = Tobruk Refinery.
VB = Veba Oil Libya.
Wh = Waha Oil Company.
Zu = Zueitina Oil Company.

Libyan Oil Industry in the U.K., namely Umm Al-Jawaby Oil Service Co. Ltd. in London, to obtain a list of trainees and their addresses. A list of 201 names and addresses was received, of which 101 were selected (selection procedure was to select No. 1, 3, 5 and so on). The questionnnaires were mailed to the selected sample, accompanied by a covering letter (see Appendix I) inviting respondents to participate in the study, explaining the purpose of the study, and assuring that the information given in the questionnaire would be kept strictly confidential and would be used only for the purpose of the study.

Of the 101 questionnaires distributed, 83 or 82% were returned to the researcher. After exclusion of three respondents who had not filled in the questionnaire properly, the survey produced 80 completed questionnaires, a response rate of 79.2 percent (see Table 1.2)

This response rate can be considered high, and reflects the high level of cooperation and interest shown by the respondents.

1.7 Organisation of the Study:

The study consists of eight chapters followed by a bibliography and appendices. Chapter I explains the background to the problem, statement of the problem, aims and objectives of the study, significance of the study, methodology, and the organisation of the study. Chapter II presents a review of related literature. Chapter III discusses training policies and practices in the oil industry worldwide, and particularly in developing countries. Chapter IV deals with the potential role of

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Table No. 1.2: The Composition of the Main Sample and the
Number of Questionnaires Properly Completed

Population	Total
Number of questionnaires sent out	101
Number responding	83
Percentage of those responding	82.1%
Number of questionnaires not properly completed	3
Number of questionnnaires properly completed	80
Percentage of completed questionnaires	79.2%

the Libyan universities in manpower training and development. Chapter V focuses on the important role of manpower planning, education and training in the economic development of Libya. Chapter VI contains a review of the current training policies and practices in the Libyan Oil Industry. In chapter VII the data collected in the empirical survey are presented and analysed. Chapter VIII presents the findings and conclusions derived from the survey, makes recommendations for an improved approach to manpower planning and training for Libyan industry, and indicates areas for further study.

1.8 Conclusion:

This first chapter has established the nature of the problem to be examined further, and has provided some introduction to the context of the study. We now turn to a review of selected literature concerning the theory and practices of training and a systematic approach to training. This will provide a theoretical basis for discussion of training policies and practices in the oil industry, the potential role of the Libyan universities in manpower training, and the important role of manpower planning, education and training in the economic development of Libya, which will be dealt with in subsequent Chapters.

Chapter Two

Chpater Two

Review of Related Literature

2.1 Introduction:

The rapidly changing society in which we live is forcing the whole world to make all possible efforts to stay abreast of the changing technology. In technologically advanced industries such as oil, in particular, employees need a high level of education and training to give them the skills reqauired to perform their work efficiently. In developing countries, this is not always provided.

Kohler cites, for example, the situation of supervisory skills:

> " Foremen are trained, as a rule, through normal promotion from the shop-floor; frequently, however, the lack of general education among the workers in many developing countries prevents them from being considered as suitable candidates for further advancement.Employees who have been trained as senior technicians are generally impatient and few of them are content to climb the career ladder in the normal way. As for engineers in the developing countries, they receive training comparable with that of their counterparts in the industrialised countries, but, unlike them, they do not find a structured, organised professional environment which enables them to adapt their theoretical knowledge to industrial realities."(I.L.O.Report III, 1986, p. 34).

In view of the importance of training of the oil industry's employees, this chapter reviews the different training elements and components of training programmes with a veiw to identifying the elements which should be developed to create effective training programmes to meet the needs of both the Libyan Oil Industry and its employees.

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the chapter will deal with the following main aspects:

1. The theory and practices of training:

    a) Definition of training.

    b) Training, education and learning.

    c) Training as a continuum.

    d) Manpower planning.

    e) Objectives of training:

        (1) Training for current role.

        (2) Training to adapt to change.

        (3) Specific goals and strategies.

2. The systematic approach to training:

    a) Why people train.

    b) How an effective training programme can be developed.

    c) The assessment phase.

    d) Training methods.

    e) Evaluation of training.

    f) Factors impeding establishment of effective training programmes.

2.2 The Theory and Practices of Training:

2.2.1 Definition of Training:

Training is a difficult term to define, the word being used in English in several senses, including: "to draw along"; "to alure"; "to cause to grow in the desired manner"; " to prepare for performance by instruction, practice, exercise, etc., (King, 1964).
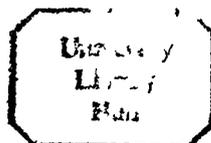
According to Patten (1971), the term once had the restricted meaning of "education in a narrow sense" or "drill", and still has the emotional connotation of the earlier narrow meaning.

However, the term has become much broader. It encompasses activities ranging from the learning of a simple motor skill up to the acquisition of complex technical knowledge, learning elaborate administrative skills, and even developing attitudes toward intricate and and controversial social issues.

UNESCO (1978) defines training as:-

" Activities which aim at providing the skills, knowledge and attitudes required for employment in a particular occupation, group of related occupations, or for exercising a function in any field of economic activity. Within this broad term a number of derivatives or subdivisions may be noted based on the purpose or level of the training, the age group or other characteristics of the trainee, the place where the training is given, etc. (p38)

In the industrial context, Patten defines training as the formal procedure which is used to facilitate employee learning so that the resultant behaviour contributes to the organisation's objectives.

Wexley and Latham (1981) emphasise that training is a planned activity. They define it as " a planned effort by an organisation to facilitate the learning of job-related behaviour on the part of its employees". (They use the term "behaviour" in the broad sense to include any knowledge and skills acquired by

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an employee through practice). This definition corresponds to the sense in which the term , training, is used in this thesis.

2.2.2 Training, Education and Learning:

Both training and education are instructional processes designed to modify human behaviour. Their basic foundations are dependent on learning and transfer processes (King, 1964).

However, while both terms are related to the teaching process, they refer to two dimension of teaching.

In the past, professionals emphasised differences between training and education based on the specificity of their programme objectives. Thus, industrial training objectives were easily specified and were designed to produce uniform terminal behaviour, while education was broader and produced diversity of behaviour. However as modern industrial society becomes more concerned with providing services and managing human resources, management has realised that uniform behaviour by all trainees is not necessarily a desirable goal; this has led to management training programmes designed to enhance individual modes of behaviour. Education, on the other hand has become concerned with setting minimum acceptable levels of performance, resulting in a greater degree of universality (King, 1964).

Brucher (1959) suggested that while education is a long-term process of developing the individual and is concerned with general values, skills and knowledge, training usually takes a

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short time and begins, not with people, but with jobs, as it is primarily interested in qualifying people with the skill necessary to perform a job effectively.

The comparison between the training system and education system presented in Figure 2.1. may help in clarifying the distinction between the two systems.

Training and Learning:

According to King (1964), learning is to be considered as a process occuring within the human being which enable him to adapt to the changes demands of his environment. Through learning, a person gets to KNOW himself in relation to his environment.

There is a close relationship between training and learning, in the sense that the real role of training is to cause learning.

In this regard, Schneir (1974) states that:

> " There is little debate among those interested
> training and development in organisation that the
> principles of learning are basic to their programs'
> design and implementation. This view is evidenced
> by the fact that training has been equated with
> learning (e.g. Blumenfield and Holand, 1971), and
> many proponents of organisational development,notably
> those favoring laboratory training techniques, have
> stressed "learning to learn" as a primary objectives
> (e.g. Golembiewski, 1972)." (p288)

It is known in psychology that the individual learns under

Figure 2.1

Comparison Between Training and Educational Systems

Training System	Educational System
* Everyone is expected to succeed.	* Everyone is assumed to reach a standard matched to their natural abilities
* Those who have difficulty are given further coaching until they do succeed.	* Those who have difficulty are directed to other topics.
* Those who learn easily reach the standard sooner or with less help from the trainer.	* Those who learn easily cover more topics in the time allowed.
* The final standard is such that everyone can attain it.	* The final standard is expressed as a pass mark which is based on statistical average.
* The end-of course marks are 100 per cent.	* The end-of-course marks, by tradition, range from about 10 per cent to 85 per cent.

Source: Dodd, B, "Allocating and Arranging Resources for Learning", in Davies, I. K. (ed), The Organisation of Training, MacGraw-Hill, 1973.

certain conditions. The successful trainer is aware of and considers this fact in planning for training.

Lee Hess and Len Sperry (1973) pointed out that:-

"...each individual learns in a way which is uniquely personal. This personal way of learning (i.e., receiving, perceiving, thinking, problem-solving, and remembering) is called a person's "learning style".(p781)

Despite individual differences, there are certain general principles of learning, of which training organisers and presenters should be aware. Schneir (1974) listed them as follows:

1. Objectives and success criteria for learning programmes should be specified and communicated to all learners before the programme begins.

2. Tasks of the learner's progress should be scheduled.

3. Tasks should be broken into component behaviours that can be learned directly.

4. The value of teaching machines and programmed learning devices lies in their ability to help sequence learning allow the learner to progress at his own pace, and to help control attention by focusing the learner on the stimuli; their value does not lie in their gadgetry or hardware.

5. To measure learning, note observational changes in the frequencies of desired behaviour responses.

6. Whole   presentation   is   usually   better   than   part presentation.

7. Learning   can   and   does   take   place   in   every   context. (p289-290).

These   principles   can   assist   in   designing   an   effective training   strategy which   uses an   understanding of   the learning process to make training programmes more successful and to define clearly   the   factors   that   affect   the   trainee.   Failure   to understand   the   learning principles   will   result   in ineffective training programmes   and   make training   processes difficult   for trainees.

In this   respect Denova (1971) maintains   that good teaching is based   on a reasonable understanding of how individuals learn. He pointed   out that the basic   list of values of   which trainers should be aware is as follows:

1. No one learns without feeling some urge to learn.

2. What a person learns is influenced directly by his surroundings.

3. A person learns most quickly and lastingly what has meaning for him.

4. When an   organisation is ready to act,   it is painful for it not to act, and when an organisation is not ready to act; it is painful for it to act.

5. Individuals differ in all sorts of ways.

6. Security and success are the soil and climate for growth.

7. All learning occurs through attempts to satisfy needs.

8. Emotional tension decreases efficiency in learning.

9. Physical defects lower efficiency in learning.

10. Interest is an indicator of growth.

11. Interest is a source of power in motivating learning.

12. What gives satisfaction tends to be respected; what is annoying tends to be avoided.

13. The best way to learn a part in life is to play that part.

14. Learning is more efficient and long-lasting when the conditions for it are real and lifelike.

15. Piecemeal learning is not efficient.

16. You can't train the mind like a muscle.

17. A person learns by his own activity.

18. Abundant, realistic practice contributes to learning.

19. Participation enhances learning.

20. Firsthand experience makes for lasting and more complete learning.

21. General behaviour is controlled by emotions as well as by intellect.

22. Unused talents contribute to personal maladjustment.

23. You start to grow from where you are and not from an artificial starting point.

24. Growth is a steady, continuous process, and different individuals grow at different rates.

25. It is impossible to learn more than one thing at a time.

26. Learning is reinforced when two or more senses are used at the same time.

27. The average learner is largely a myth.

28. If you want a certain result, teach it directly.

29. Learners develop in terms of all the influences which affect them.

These value-statements can be used in a number of ways: to judge the variety of the instructor's practice, to judge the psychological validity of his practice, to test new practices, and to justify his practice.

Torrington and Weightman (1985) claim that learning may be classified into five basic types, which can be summarised as follows:

1. <u>Comprehension</u>: when the learning involves theoretical subject matter, knowing how, why and when certain things happen; this type is best approached by methods that take the whole subject as an entity, rather than splitting it up into pieces, and taking one at a time. The lecture is the time-honoured method of doing this.

2. <u>Reflex learning</u>: when the trainee is acquiring skilled movements or parceptual capacities. Effectiveness requires practice as well as knowing what to do and speed is usually important, so that the learning process involves constant repetition to develop the necessary synchronisation and co-ordination.

3. <u>Attitude development</u>: concerned with enabling people to alter their attitudes and social skills. This has been very popular in management development and centres on the understanding trainees have of themselves.

4. **Memory training**: this deals with people learning information, like the periodic table of chemical elements, and is usually done in the same way as reflex learning, with trainees taking in and memorising parts of the information at a time and then proceeding to the next stage.

5. <u>Procedural learning</u>: very similar to memorisation, exept that the drill to be followed does not have to be memorised; it has to be located and understood. If a process plant is run down once a year for annual maintenance, the engineers do not have to memorise the run-down procedure, but they have to know where it is and be able to understand all its stages when it is required.

These learning types can be indicated by the acronym, CRAMP, which can be used to classify learning situations and appropriate training techniques (see Figure 2.2).

In practice, most forms of training, Torrington and Weightman add, involve more than one type of learning. For example, a trainee motor mechanic will need to understand how the car works (comprehension: knowing how; and why) as well as practising the skill of tuning an engine (reflex: Knowing what to do). The car driver needs to practise the skill of co-ordinating hands, feet and eyes in driving as well as knowing the procedure to follow if he breaks down. However, CRAMP analysis, they note, helps us to identify the type of learning that predominates in any particular situation.

Torrington and Weightman (1985) also refer to a chain of

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Figure 2.2

CRAMP ANALYSIS

WHAT IS THE LEARNING OBJECTIVE?

Is the objective to develop general understanding?	Is the objective to produce fast reliable patterns of response or manipulation?	Is the objective to change or develop new attitudes?	Is the objective to remember specific facts and figures?	Is the objective to acquaint the learner with a wide range of procedures that are easy-to-follow but nonetheless important?
↓	↓	↓	↓	↓
If Yes	If Yes	If Yes	If Yes	If Yes

WHAT TYPE OF LEARNING IS INVOLVED?

↓	↓	↓	↓	↓
C	R	A	M	P
↓	↓	↓	↓	↓
COMPREHENSION	REFLEX DEVELOPMENT	ATTITUDES	MEMORY	PROCEDURAL LEARNING
↓	↓	↓	↓	↓

IF SO, WHAT ARE THE LEARNING METHODS AVAILABLE?

	Simulations	By example		
- written material	Practical demonstration	Case studies	Mnemonics	Algorithms
- talks	Supervised practise	Group exercises	Jingles	Checklists
- Discovery method			Repetition	Practical demonstration
- discussions and argument	Stamina development	Roleplaying	Active use of the information to be remembered	
- projects				

Source: Ivor K. Davies; The Organisation of Training McGraw-Hill, U.K. 1973.

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eight events involved in all learning. These elements of the learning process can be briefly explained as follows:-

1) Motivation: the learner has to want to learn, and that requires that he wants to achieve the product of his learning.

2) Perception: the matter to be learned has to be identified and separated from other matters around it, so that it becomes a clear and specific objective.

3) Acquisition: the matter being learned is made sense of by being related to other things known by the trainee.

4) Retention: the material or skill acquired is retained in the long-term memory and/or the short-term memory. The two-stage process of human learning comprises first the short-term memory in which one holds, for instance, the name of a person to whom one has just been introduced.
Secondly, there is the long-term memory to which one transfers those names which one want to store permanently.

5) Recall: the learner has to be able to summon up items from his memory when they are needed.

6) Generalisation: this is the ability to apply what has been learned to a wide variety of situations other than the specific situation in which learning has taken place.

7) Performance: what has been learned is now done: e.g., the student writes his examination script.

8) Feedback: the learner receives some feedback as to whether the performance was satisfactory or not. (pp. 185-7).

Chruden & Sherman (1980) maintain that there are two preconditions for learning that will increase the success of those who are to receive training: trainee readiness, which refers to both maturational (knowledge) and experiential (skills); and factors in the background of the trainee. They give in this regard a list of training techniques (see Table 2.1) that involve active participation of the trainee.

2.2.3 Training as a Continuum:

Should we consider a continuum of training from training for a specific task to training for general role?

First of all it is worth mentioning here that general education as provided in schools has functional applications as well as being worthwile for its own sake, and that it is the only phase of education during which all new entrants to the labour market can acquire the basic skills needed to survive it.

It is essential, from the economic point of view, that the content of training within the established educational institutions should be relevant to employment and cover what is most necessary for satisfactory performance in a job.

As one of the aims of the educational system is to meet specific manpower needs, therefore, there will be constant presure from employers in industry and other economic sectors, for the content of the educational system to be more and more job specific. This will enable graduates to take up particular occupations at less cost in initial training to the employers, but it will also make it less easy for them to acquire other skills, or to change their jobs as their careers develop. The need for some continuous training component to match the needs generated by job and career changes over lifetime is gaining substantial recognition.

According to recent discussion paper of the Manpower Services Commission entitled "Towards an Adult Training" quoted

by Jennings (1985):

> " ...Today's young people cannot hope to train
> once for a lifetime of work ... There is an urgent
> need to increase awareness of the necessity for
> learning to be a continuing process, for people of
> all ages." (p65)

Initial skill training often has to extend beyond the formally rcognised period of training in order that it may be adapted to a specific task. Further and more-advanced training is increasingly being called for as technical tasks become more difficult and complex and continuous training is becoming essential in many occupations (O.E.C.D, 1983)

Training therefore, must not be seen to be limited to a specific task, as in the case of a machine operation, which normally required knowledge and skills specific to this particular job-task: rather, it should be viewed as a continuum. Fundamentally, training is a dimension of education which in its nature is a continuing process, starting from earliest infancy through adulthood (Coombs, 1973). It necessarily entails a variety of methods and sources of learning.

These methods can be found in the following, though it should be understood that there is overlap and a high degree of interaction among them:

1. informal lifelong training whereby the individual acquires attitudes, values skills and knowledge from daily experience and the educative influences and resources in his environment (from family, neighbours, media etc.).

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2. formal education and training (the educational system)
which runs from primary-school education to the university and
other higher academic studies, in addition to various full-time
specialised technical and professional training institutions.

3. non-formal education and training, which Coombs (1973)
defines as any organised educational activity outside the
established formal system, whether operating separately or as an
imprortant feature of some broader activity, that is intended to
serve identifiable learning clienteles and learning objectives,
such as adolescent and adult literacy classes, and occupational
training programmes for adolescents in industry and other
sector, carried on outside the formal school structure.

Industrial training can therefore be seen as one of a number
of complementary and mutually-reinforcing elements which make up
the totality of the lifelong educational process.

2.2.4 Manpower Planning:

As manpower is considered as a scarce resource, it must be
planned and controlled in the same way as other resources.

Manpower planning may be defined simply as an activity in
which one tries to use human resources as effectively and
efficiently as possible (Lewis, 1969). More specifically, it is
a strategy for acquisition, utilisation, improvement and
preservation of an enterprise's human resources (Stainer, 1971),
or analysis of present and likely future manpower requirements
and the formulation of plans to meet forecast deficits or

surpluses.   Its   main   components   are   manpower   requirements

planning and manpower supply planning (Terry et al, 1977).

The need to ensure that the future labour requirements will

be available, and to increase the organisation's productivity,

are considered to be two important reasons for undertaking

manpower planning: shortages of certain grades of manpower have

given recruitment and training plans critical importance in many

organisations;   on   the   other   hand,   pressures   to   increase

productivity have brought about reductions in staff, making it

essential to plan to handle,   or, if possible, to avoid,

redundancy programmes (Lewis, 1969). Thus, manpower forecasting

must be viewed in relation to the company's overall plans,

incorporating   production,   technological   innovation,   group

development,   marketing policy,   and financial plans, or their

equivalent in the other operations of a given industry.

Manpower planning in the organisation has two main stages:

(1)   The forecast of manpower requirements; sometimes called
      the "demand forecast" — how many men, in terms of the
      approximate number of   posts, will be required,in
      suitable categories of   manpower and at   suitable
      intervals of time in the future.

(2)   From where the personnel to fill these posts are to
      come; often called the "manpower plan proper". This
      stage is,in turn, broken into two parts: the internal
      supply forecast-how many of the present staff will
      remain at the date being considered in the future,

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assuming no other action is taken - and the external supply forecast - what the state of the labour market is likely to be. While the internal supply in the future can be affected by managerial action, the external supply cannot easily be altered by one organisation alone. One part of the planning activity which affects both is the training plan, which may alter the internal structure by, for instance, retraining existing staff, or taking in new staff and then training them (Lewis, 1969).

In the educational and training context, manpower planning as a proper preparation for professional life may be considered to entail the interaction of two much more comprehensive aggregates: on the one hand, educational planning, with the various assignments which a whole society can give to an educational system, and on the other, the planning of human resources embodying other aspects,such as action to improve the health and safety of works, to increase workforce mobility and to influence the wage structure (O.E.C.D., 1983).

2.2.5 Objectives of Traininng:

There are three major objectives of training in a broad sense which can be outlined as follows:

1. To provide the knowledge and skills, and as far as is possible, the attitudes needed for individuals to undertake their current jobs more effectively, as well as to assist employees at

all levels to extend their abilities and to understand the implications and significance of their roles.

2. To help employees to become capable of assuming other responsibilities within an organisation, either at higher or at their current levels. This objective, in other words, is concerned with developing the potential of employees.

3. To help employees to adapt to changed circumstances facing the organisation, as part of the process of organisational development. (Grant and Smith, 1984)

2.2.5.1 Training for Current Role:

If the newly recruited employee comes without the skills necessary for the job, some form of training will have to be provided. This may most thoroughly be done by using a job skills check list which analyses the various tasks which make up a job, and in this way allows the trainer to assess what tasks are known and what tasks need to be learnt. In order to enable the employee to carry out his role in the organisation he works for, that organisation must give him the oppurtunity to acquire the relevant job skills by providing adequate training.

In the case of existing employees, it is very important that they are given the opportunity to develop their potential, whether by upgrading the knowledge and skills required in their current role, or by acquiring new ones which will enable them to take on a more challenging role in the organisation.

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2.2.5.2 Training to Adapt to Change:

Industry is a world of development, innovation and change. An organisation's capacity to cope with a rapidly-changing environment is heavily dependent upon the skills and knowledge of its workforce.

Some training needs will be determined by changes which are happening to the organisation itself.

Some of the common changes can be listed to include:

1. expansion of business operations;

2. reorganisation of the company;

3. use of new work methods or systems;

4. introduction of new equipment or technology to be introduced;

5. new legislation affecting work conditions;

6. new products, services or tasks;

7. changes in layout or location;

8. reduction in staffing level due to reduction in operation of production.

By anticipating the need in advance of the change (which is a strategic responsibility of management), it is possible to instigate training which contributes greatly to the success of the change.

Moreover, national competitiveness depends partially on the practical applications of technology and so those technologies

which are likely to have most impact in the future need to be identified. The key technologies specific to each industry have, by definition, the potential to improve competitiveness. Engineers and technicians must not only recognise their importance but must also have the educational background to be able to work with these technologies, which may appear to be remote from their own specialisation. In this way, the key technologies provide a guide to education and training in the longer term (Engineering Council, 1988).

However, industry adopts new techniques faster than the education system and so it is impractical to rely on frequent changes in styles of education as a means of ensuring an up-to-date workforce. In preparing students for an uncertain future, educational institutions need to enable them to learn fundamental principles which underpin the development of specialist experise as well as economic awareness and associated management and business skills. Thus, the application of general principles and the ability to select and uderstand the appropriate key technologies depend on a broad education as a foundation for peak achievement in specialist areas (Engineering Council, 1988).

At the same time, no one knows what will be the long-term effect of new technology and also which skills will become obsolete, in which order and at what time. It is therefore vital to think in more open-ended and flexible ways about the way young people are trained and the way in which opportunities for adults are extended (Combe Lodge Report, 1982).

Skill needs are now changing so rapidly that provision of high-quality flexible training for adults in mid-career is crucial to industry's competitiveness (Tinsley, 1987).

The more training and development are given to a company's staff, the more readily and effectively will that company, in the face of economic or other environmental and technological changes, recognise and adapt to deal with its new operational requirements (Pepper, 1984).

2.2.5.3 Specific Goals and Strategies:

It may be seen that training, whether for current role or to adapt to change, involves knowledge and skill acquisition. However if we want to draw the specific goals of objectives of any training programme we shall, according to Wexley and Latham, (1981), find one or more of the following:

1. to improve the individual's level of self-awareness;

2. to increase an idividual's skill in one or more areas of expertise;

3. to increase an individual's motivation to perform his job well.

Self-awareness involves learning about oneself: one's role and responsibilities in the organisation, how one is viewed by others, and how one's actions affect those other people.

Many different kinds of skill can be learned during training programmes. Regardless of the type of knowledge and skill

concerned, training is based on the assumption that it will increase an employee's ability to solve job-related problems and make better decisions.

Increasing an individual's motivation is a prime issue, because although people may posses the skill and knowledge to carry out the job, they often lack the motivation to exhibit their abilities. Therefore, training has among its goals, the maximization of an employee's desire to perform the job well.

These three specific goals can be attained by using one or more training strategies. The training specialist can try to improve an employee's performance by directing his efforts towards:-

1. Cognitions i.e. thoughts and ideas; an example is the company orientation programme by which the newly recruited employee is provided with information about company work schedules, vacations, grievance procedures, pay scales, overtime, holiday and any other benefits.

2. Behaviours; supervisors, for example, can be taught how to take effective disciplinary action, delegate responsibility to subordinates etc. The focus is primarily on modifying the trainee's behaviours, rather than transmitting large doses of cognitive or factual information.

3. The environment in which the person is working, since improvement in the employee's job performance may sometimes be brought about by means of certain planned environmental changes,

such as job rotation, whereby trainees are exposed to a well-planned sequence of environmental changes (e.g., jobs, supervisors, colleagues).

2.3 The Systematic Approach to Training:

2.3.1 Why People Train:

People, whether in developed or developing countries, train for social and economic reasons. Training enables people to be more productive and useful, not only to their organisation, but also to the socity in which they live.

The wealth of a country is based upon its power to develop and to utilise effectively the innate capacities of its people. The economic development of nations, is ultimately, the result of human effort. Thus, a country which is unable to develop its people cannot develop in other respects, because people are both factors of production and the very purpose of development. Without people, land would remain uncultivated, natural resources untapped, machines would remain idle and services would be neither needed nor rendered (I.L.O., 1976).

People train because training can help them in many aspects of their lives such as:

- enabling them to break out of poverty;
- raising their productivity;
- increasing their incomes;
- improving their ability to choose freely their employment, and contributing to their mobility;

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- protecting their employability and reduce their
  vulnerability to unemployment in a time of depression;
- opening the doors to career development and leading to job
  and personal satisfaction;
- promoting self-reliance and self-respect.

There are many pressures on people to train, some of them internal, arising from management policies, others external, arising from legislative, economic, social and ethical changes in society. Taylor (1966) gives the following examples of pressures arising from policy decisions which demand a more effective use of expensive manpower:

* high capital investment which calls for improved plant utilisation;

  * technological changes which require the acquisition of new
    skills and new company operating methods;

  * product changes involving demands for new operator and
    management skills and knowledge;

  * the growth of plant bargaining with its pressure on
    improved conditions and working arrangements.

Some of the external pressures are even more exacting, as for example:

  * shortage of manpower, which can only be solved by making a
    more effective use of the existing resources;

  * the increasing cost of manpower in terms of wages and
    fringe benefits;

  * the growth and extension of labour and staff trade

unionism;

* the need to reduce costs in the face of international competition;

* society's changed concept of employers' responsibilities for employees.

At the industrial level (as for example in the oil industry on which this study focuses), training is valuable in a number of important respects as highlighted by Deverell (1979):

1) Training can reinforce employees' motivation.
2) It has to bring a direct gain in an increase of business.
3) It is important in coping with the problems of resistance to change.
4) The trained worker is likely to be less exposed to accident.
5) The trained working force is likely to have lower labour turnover rates.
6) Training becomes very essential if the delegation of tasks is to take place effectively.
7) Where technological change is as rapid as it now is, failure to train employees could lead to a lack of adaptability which is disastrous, and finally to high-cost obsolescent methods (p98).

2.3.2 How An Effective Training Programme Can Be Developed:

According to Chruden and Sherman (1984) state for training to be effective, it should be developed systematically. This involves:

1) Formulating instructional objectives.
2) Developing learning experiences to achieve these objectives.
3) Having performance criteria to be met.
4) Obtaining evaluative information.(p.187)

A clear model for instructional programmes, which incorporates these elements, has been put forward by Goldstein

(1974), which can be summarised as follows:

1. **Assessment Phase:-**

a- <u>Assessment of instructional needs</u>: in which training needs are identified by means of (1) organisational analysis; (2) task analysis; and (3) person analysis.

(1) Organisational analysis involves examination of both the short and long-term goals of the organisation and the trends most likely to effect these goals. Goldstein emphasises that upper-level management should examine their expectations concerning training programmes. For example, he points out that training designed to produce poficient sales personnel must be structured differently from programmes to train sales personnel who are capable of moving up the corporate ladder to managerial positions.

(2) **Task analysis** is a careful analysis of the job to be performed by the trainee upon completion of the training programme. (This process is discussed in more detail in a later section).

(3) **Person analysis** involves translation of job requirements into the human attributes necessary to perform the task. The determination of the learning environment and instructional media is directly dependent on the particular type of behaviour necessary to perform the task.

In addition, person analysis is the examination of the performance standards and the capabilities of the target population. It is important to determine which necessary behavioural characteristics have already been learned by the prospective trainees. It is illogical and unproductive to design the training environment without acknowledging the characteristics of the groups to be trained.

b- <u>Behavioural Objectives</u>: Based on the information that was obtained in the assessment of instructional needs, as Goldstein states, a blue-print emerges that describes the behavioural objectives to be achieved by the trainee upon the completion of the training programme. These behavioural objectives provide the input for the design of the training programme, as well as the measures of success (criteria) that will be used to judge the programme's adequacy.

2. <u>Training-Development Phase</u>: The training environment:

Once objectives have been specified, the next step is to design the environment necessary to achieve them. This is a delicate process that requires a blend of learning principles and media selection, based on the tasks that the trainee is eventually expected to perform. The abilities and the potentialities of the trainer and the trainees, the number of trainees, their job level, and the time and expense involved should also be considered (Chruden and Sherman 1980).

3. <u>Evaluation Phase</u>: Training, like any other function of

personnel management, should be evaluated to determine its effectiveness. The existence of a training staff and an array of courses and other training experiences for employees does not ensure that learning is taking place. Therefore, not only should trainees be tested before and after receiving training, but also the same evalutions should be made of individuals in a control group which has not received the training and whose members are matched with all trainees on the basis of relevant variables such as intelligence, experience and level of job. In addition, measures used to evaluate training such as production records, supervisory rates, cost records, accidents, etc., should be sufficiently reliable or consistent to serve as dependable indicators. They should also be as free from bias as possible (Chruden and Sherman, 1980). Possible review procedures are discussed in a later section.

Various writers have put forward similar models for the systematic development of appropriate training courses. Although they may differ in the exact number of stages they identify and the names they give to the various stages, all have in common the basic elements of assessment, implementation and evaluation. King (1966) suggests the following sequences:

1.<u>Studying the job</u>:

   * study the work.
   * prepare the job specification.
   * design training specification.

2.<u>Preparing selection procedures</u>:

   * consider selection requirement of the job.
   * prepare selection methods and equipment.

* design organisational procedures.

3.<u>Devising training methods</u>:

* identify learning difficulties.
* prepare training equipment and exercises.
* determine targets and progress records.
* select teaching aids for background.knowledge.

4.<u>Designing training handbook</u>:

* introduction,training requirements, and selection
  methods.
* general training programme.
* instructions,records,and hints for instructors.
* training policy and organisation.
* appendices.

5.<u>Administering training</u>:

* task and organisation of the training section.
* role of manager.
* role of instructor (trainer).
* role of the trainee.

6.<u>Reviewing the effectiveness of training</u>:

* problem of performance after training.
* reviewing training and company performance.
* reviewing the effectiveness of training services.
* reviewing the quality of training techniques.
* feedback of training experience to modify policy.

In most industrial organisations or companies, such as those operating in the oil industry, there is a specialised training department of training specialists or co-ordinators who have the organisational responsibility for this particular activity, and most managers need no more than a passing understanding of the process that is involved. The ASDICE model for training in organisation, presented in Figure 2.3 is one of a number that have been developed, which can provide a basis for the administration of training programmes and courses.

Hudson (1973) identifies eight stages (see Figure 2.4) that have to be considered in designing or preparing a training

Figure 2.3

A S D I C E

Phase I
ASSESSMENT OF
TRAINING NEEDS → organisational needs / individual needs → job analysis process → specific training needs identified

Phase II
SPECIFICATION OF
TRAINING OBJECTIVES → educational objectives / behavioural objectives → criteria for evaluation → training specified

Phase III
DESIGN OF THE
TRAINING PROGRAMME → organisation of training material / organisation of training sessions → physical and psychological environment

Phase IV
INSTRUCTION METHODS
SELECTION → on-the-job training methods → off-the-job training methods

Phase V
CONDUCT OF
TRAINING → motivation of learning → instruction → feedback and reinforcing

monitoring of progress

Phase VI
EVALUATION OF
TRAINING PROGRAMME ← feedback from trainees ← performance appraisal

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Figure 2.4

Stages in the Preparation of a Training Programme

3.1 TRAINING PRESCRIPTION	Gives details of objectives, initial and final behaviour and test, task analysis.
3.2 ANALYSE SUBJECT MATTER	Develop a rule-set; a list of the learning points.
3.3 PLAN LEARNING TACTICS	Determine learning structures and appropriate tactics.
3.4 WRITE DRAFT COURSE	A cheap draft copy of the course which may be easily amended.
3.5 TEST WITH INDIVIDUALS	A test of the course with typical trainees. The course is on trial.
3.6 REVISE COURSE	Continue to revise and re-test until an acceptable standard is achieved.
3.7 PRODUCE AND INSTALL COURSE	Final version of course together with administrative and maintenance
4 VALIDATE COURSE	See part 4 of the book.

Source: Ivor K. Davies; The Organisation of Training McGraw Hill, U.K. 1973.

course. The first four are concerned with the development of appropriate learning tactics and the writing of the first draft course. In the final phase, the course is produced and validated with trainees, though further amendment may be necessary as evidence of the effectiveness of the course accumulates. The development process is one of successive approximation towards the ideal course.

In this section, we have presented a brief outline of the main elements to be incorporated in the systematic development of any training programme. In the following three sections, we shall look more closly at the three basic components: assessment, implementation (training methods), and evaluation.

2.3.3 The Assessment Phase:

In the previous section, it was indicated that a prerequisite of an effective training programme is that those assigned responsibility for training must define specifically the objectives which must be realised in order to achieve the desired result, within an acceptable time, and on an economic basis. The statement of a training objective may consist of three parts:-

1. The task to be performed;

2. The conditions under which it will be performed;

3. The standard of performance.

All of these must be presented if the objective is to be used (Hudson, 1973).

Shirley-Smith (1968) argues that in industry, no method of instruction, however successful, will give benefit in isolation.

Nor will haphazard growth of training facilities give maximum efficiency, even with the most sophisticated training aids. Only by devising an integrated training system and by planning and implementing according to need and resources, will a comprehensive and fully training pattern emerge.

Planning of training should be based on task analysis and training objectives, and take into account local opportunities, such as suitable technical college courses; the extent and nature of existing in-plant training; the number of instructing and supervising staff, and above all the size and the conditions of the departments where training is to take place. The yearly intake of new staff and the labour turnover over a period of time might be deciding factors in the allocation of funds and the choice of training media.

In regard to task analysis, Hudson (1973) maintains that once the prescription and the budget have been determined, the training officer or unit can begin to construct the learning system by analysing all the tasks making up the job, and writing training objectives (see Figure 2.5). Before this can be done, however, two things must be decided:

1) The TERMINAL BEHAVIOUR of the trainee, i.e. what the trainee must be able to do at the END of the course.

2) The INITIAL BEHAVIOUR of the trainee, i.e. that which the trainee must be able to do at the START of the course.

The trainee's behaviour is simply what the trainee DOES, dependent on his knowledge, skills and attitudes. If, from the

Figure 2.5

Identifying the Training Need

```
┌─────────────────────────────────────┐
│  i;1. TASK ANALYSIS                  │
│      A detailed account of how a task│
│      is performed together with details│
│      of the knowledge, skills and    │
│      attitudes necessary to perform it.│
└─────────────────────────────────────┘
                    │
                    ▼
        ┌───────────────────────────┐
        │   2. OBJECTIVES           │
        │   What the skilled man does.│
        └───────────────────────────┘
     │                              │
     ▼                              ▼
┌──────────────────────────┐  ┌──────────────────────────┐
│ 3. INITIAL BEHAVIOUR AND │  │ 4. TERMINAL BEHAVIOUR AND │
│    TESTS                 │  │    TESTS                  │
│ What the entrant must be │  │ What the trained man must be│
│ able to                  │  │ able to do at the end of the│
│ do and how he will be    │  │ course and how he will be  │
│ selected.                │  │ tested.                    │
└──────────────────────────┘  └──────────────────────────┘
     │                              │
     ▼                              ▼
┌─────────────────────────────────────┐
│ 5. THE TRAINING NEED                │
│ Subtract 3. from 4. to determine    │
│ what the trainee has to learn.      │
│ (Steps in the development of a training│
│ programme for this need are detailed in chapter 6)│
└─────────────────────────────────────┘
```

Source: Ivor K. Davies; The Organisation of Training
         McGraw Hill, U.K. 1973

knowledge, skills and attitudes necessary to carry out a task, we subtract those already in the repertoire of the trainee, the difference is what he must learn.

The task analysis on which this assessment is based should list the stimuli perceived by the skilled man (what cues he receives), the responses he makes (what he does when he perceives the cues), and the knowledge, skills and attitudes he must possess to perceive the stimuli and make the right responses. Detailed information about the job may already be available from some previous examination. If not, a task analysis should be completed. The first step is to break down the job into duties and tasks. An example of such a breakdown, for the job of spooling, is shown in Figure 2.6.

Each task is now analysed in detail. There are many methods of task analysis; of which the three most important are the following:

1. Mager's Job Description, task listing and task detailing methods, where the tasks which make up the job described are listed before each one is broken down into the steps necessary to perform the task. This will enable the trainer to adopt a job-oriented point of view from the outset.

2. Babin's CRAMP System, which was discussed in a previous section of this chapter. In this method, by assigning each task to one of five types of learning, attention is focused on the

Figure 2.6

Part of the Breakdown of the Job of Spooling


```
   JOB              DUTIES                        TASKS

                 ┌─────────────┐
                 │ 1.          │         2.1
            ┌───►│ Collecting  │       ┌──────────────────────────┐
            │    │ A           │   ┌──►│ Reading the Design Paper  │
            │    │ Job         │   │    └──────────────────────────┘
            │    └─────────────┘   │
            │                      │    2.2
            │    ┌─────────────┐   │    ┌──────────────────────────┐
            │    │ 2.          │   ├──►│ Placing Bobbins on Spindles│
            │    │ Setting     │   │    └──────────────────────────┘
            ├───►│ up          ├──►│
            │    │ 1st Bank    │   │    2.3
            │    └─────────────┘   │    ┌──────────────────────────┐
            │                      ├──►│ Leading Ends Through Ravel │
            │    ┌─────────────┐   │    └──────────────────────────┘
            │    │ 3.          │   │
            ├───►│ Running-In  │   │    2.4
            │    │             │   │    ┌──────────────────────────┐
            │    └─────────────┘   ├──►│ Placing Ends Through Ravel │
┌─────────┐ │                      │    └──────────────────────────┘
│ Spooling├─┤    ┌─────────────┐   │
└─────────┘ │    │ 4.          │   │    2.5
            ├───►│ Faults      │   │    ┌──────────────────────────┐
            │    │             │   └──►│ Lapping Ends Under        │
            │    └─────────────┘        └──────────────────────────┘
            │    ┌─────────────┐
            │    │ 5.          │
            ├───►│ Changing    │
            │    │ A           │
            │    │ Shot        │
            │    └─────────────┘
            │    ┌─────────────┐
            │    │ 6.          │
            ├───►│ Building    │
            │    │ out         │
            │    │ the Job     │
            │    └─────────────┘
            │    ┌─────────────┐
            └───►│Administration│
                 └─────────────┘
```
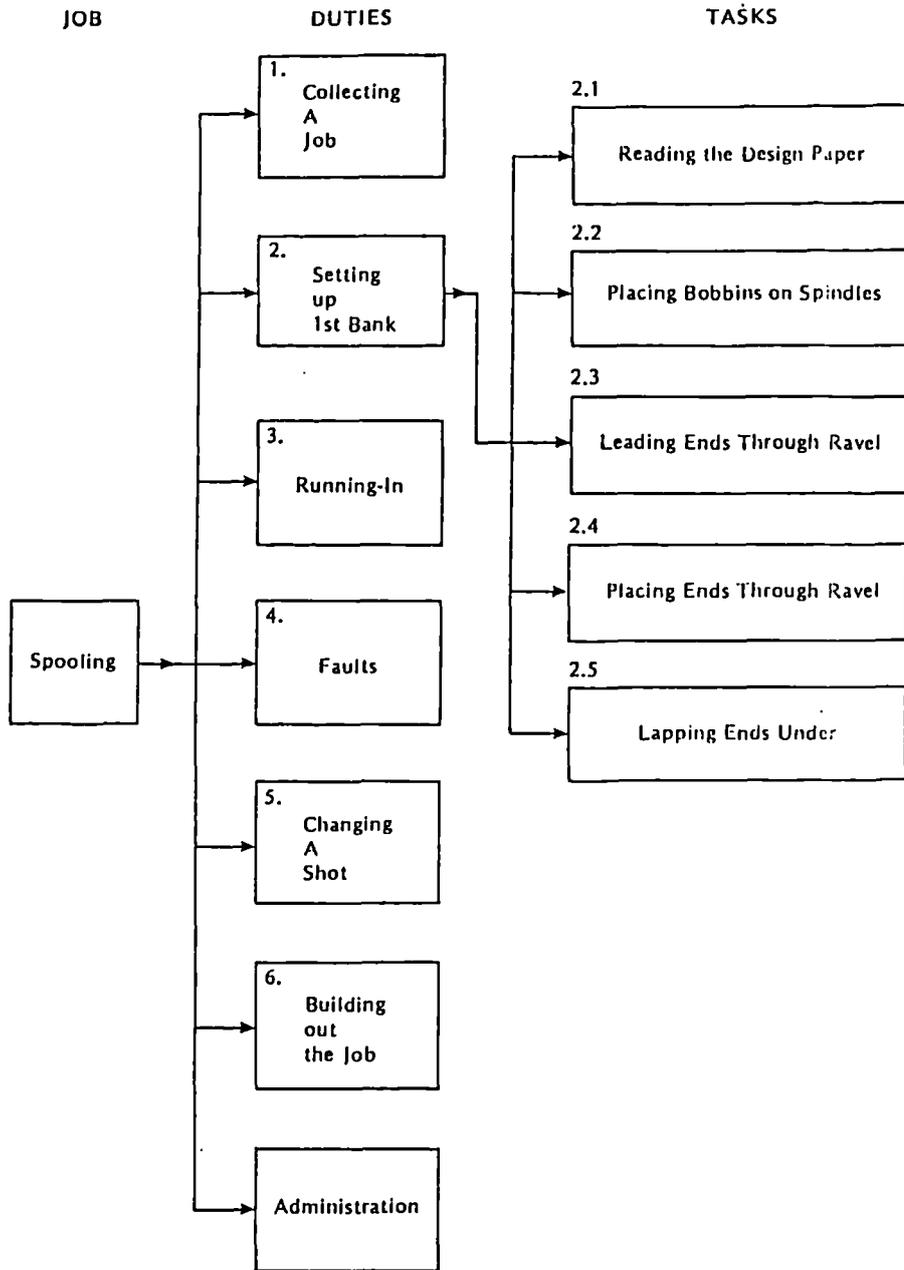
important problem areas and appropriate strategies of learning may be formulated. CRAMP may be used as a basis of selection for training.

3. Seymour's Skill Analysis. This is a very detailed breakdown of what the skilled worker does and how he does it. The methods attempt, in lesser or greater detail, to break down a task into small elements so as to reveal the knowledge, skills and attitudes which contribute to its successful performance. Both the frequency and the difficulty of performance are recorded, together with the type and difficulty of the learning situation. An example of an analysis sheet is shown in Figure 2.7.

By recording the stimuli (cues) perceived, and the appropriate responses, which in turn becomes the next stimulus, no steps are likely to be omitted. In columns 4 to 6 the knowledge, skills and attitudes necessary to perceive the cues and to make the responses are listed. Column 6 will also note frequency of performance, learning difficulties and any hints and tips discovered as the analysis is made.

The analysis can be as broad or as detailed as the situation demands. It should be made by observing and questioning a skilled worker, and checked with an instructor before approval by supervisors and management. Discussion of any areas of disagreement among these three authorities allows procedures to be standardised and also gives the training officer the

Figure 2.7

Part of a Task Analysis in Spooling

DUTY: 2—Building First Bank   JOB: Spooling   TASK: 2.2—Placing Bobbins in the Bank

Serial No.	Stimulus	Response	Knowledge	Skill	Attitudes and Remarks
2.2.1	Design paper attached to drum.	Turn drum until mask runs along first shot.	First line is at the bottom of the paper.	(See foot note)	Stress that the placing of bobbins in the bank is the most frequent operation in spooling.
2	Mask along first shot.	Look at first sequence of squares.	TS starts at RHS DS starts at LHS		Suggest spoolers memorize six bits of information e.g., Three No. 2's, Seven No. 4's and Eight No. 12's. Assure trainees that short term memory will improve with practice.
3	Looking at first sequence.	Memorize first sequence.	Shades are referred to by numbers not colours. Shade numbers are marked at various points on the paper.	Quick mental coding of sequence and good short-term memory.	
4	First sequence memorized.	Collect shades from box.			
5	Shades collected.	Place at front of bank.	Pile of shades must not encroach on first row of spindles.		
6	Shades at front of bank.	Pick up first shade.	DS holds bobbin in RH TS holds bobbin in LH		
7	Bobbin in hand.	Locate end of the yarn.	If end not hanging down it may be found by rubbing fingers up and down the bobbin.	Ability to locate end quickly.	
8	End located.	Grasp it with free hand.	DS uses LH TS uses RH		
9	End in hand.	Orientate bobbin correctly.	End must come off far side of bobbin.	Turning bobbin over if end not coming off far side.	
10	Bobbin correctly orientated.	Place bobbin on first spindle of first row.		Placing bobbin quickly on correct spindle.	

FIG. 5.3   *Part of a task analysis in spooling*

Note: 1. Where there are no entries in column 4–6 the knowledge, skills and attitudes were already in the repertoire of the trainee on entry to training or were learned in an earlier module.

2. DS = spooler working on LHS of machine, TS = spooler on RHS.

Ivor K. Davies; The Organisation of Training
Source: McGraw Hill, U.K. 1973.

opportunity to make all concerned feel involved in the training scheme (Hudson, 1973).

2.3.4 Training Methods:

Torrington and Weightman (1985), describe a variety of training methods which they recommend as most suitable for CRAMP analysis, by which appropriate training methods are identified for the different kinds of learning required in the training programme (see Figure 2.8).

These may be summarised as follows:

Lectures: These are for conveying information and understanding, on the basis that the lecturer has enlightenment in his head that can be coherently transfered to the heads of his listeners.

The advantages of this method are:

(1) It can be used to introduce new subjects.

(2) It is effective for summerising the subject.

(3) It enables coverage of a large quantity of material in a short time.

(4) It assists direct focus on the main subject.

(5) It is needed with a large group

The disadvantages are:

(1) There is no role for the members of the group.

(2) There is no chance to exchange ideas among group memebers, unless the trainer gives a chance for discussion of the lecture.

(3) There is no evaluation of group reaction.

Figure 2.8

The Most Suitable Training Methods for CRAMP Learning

Type of Learning	Typical Training Methods
Comprehension	Lecture Seminar or discussion Film, film strip or video
Reflex	Progressive part Cumulative part Simplification
Attitude	Experiential methods
Memory	Mnemonics Jingles
Procedural	Rules or routines
Varied	Assignments Distance learning

Source: D.Torrington and J. Weightman; The Business
of Management. Prentice-hall International
1985.

Discussion Seminar: This type of technique depends largely on whole-group participation. Meetings are held to exchange information and discuss problems of understanding. The process is similar to the lecture, except that activity centres round what the trainee does not understand, rather than what the lecturer wants to say. Although the lecturer leads the participants toward the objectives, he does not dominate of influence the discussion of the group.

Films: These provide a useful variant of the lecture but cannot be used to achieve much else. Through careful preparation and by adding a range of visual images to the words of explanation, the film can be an effective means of exposition. Some of the tape/slide and videotape forms of presentation can have the useful added feature of enabling the trainee to "participate" by rerunning particular parts of the exposition that he has difficulty in following.

Assignments: Used when a number of different types of learning are needed and where the trainee can work largely on his own initiative. This technique is the basis of research training in universities and other educational establishments, where it has been found to be the most appropriate means for the able and well-qualified student to further his education and develop a thorough understanding in an area. It is a method also found in management training schemes, which sometimes require a young manager to undertake an assignment to deal with an organisational problem. It is also the core method used in Action Learning, developed by Revans and now extensively used in management education, where groups are set up of eight to twelve trainees

from different organisations - or from different parts of the same organisation -who then work together on a real problem, developing their varied expertise. The prerequisites for success are a supply of genuine problems, a will and ability to implement the solutions that are proposed, and the availability of data and research findings for trainees to consult.

Distance Learning: A mode that puts control of learning in the hands of the trainee. The trainee is provided with a mass of notes and assignments which he works through while the tutor guides his progress at long range by commenting on his written or taped assignments. It enables each trainee to proceed at his own pace, but the sole nature of the study does not suit all trainees.

Part Methods: Used in reflex learning skills. It is particularly in this type of learning that detailed behavioural analysis developed from Skinner's work is most useful. The task is split up into steps that are appropriate in difficulty for those who are to learn the task. In retraining a pilot, for instance, to fly a Boeng 757 instead of a 747 one would expect relatively large steps because of the substantial amount of relevant skill and understanding that is already possessed by the trainee. Training a novice to pilot a Boing 757 would require more and smaller steps in the learning process. There is great emphasis on the precision with which instructions and prompting (help) are given.

Progressive Parts: The task is broken down into a series of actions or subroutines. The trainee practises action 1 until competent, then action 2, and then 1+2. He next practises action

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3,2+3 and 1+2+3, and so on. Thus the full task is constantly being practised as a developing entity. This can also be done backwards, where the criteria for the finished task need to be carefully established, as in the laying-out of a surgeon's trolley. The sequence then is 7,6,6+7,5,5+6+7 etc.

Cumulative Part Method: The trainee begins by practising the irreducible minimum part of the whole task and then gradually adding extra components, but the extra components are not practised separately. So the sequence would be to practise action 1, then 1+2, then 1+2+3, and so on. This is necessary if actions 2 and 3 cannot be performed without 1 (like juggling, for example) and it can be useful in skills where the most difficult actions can be dealt with first, so that they get much more rehearsal than what comes later.

Simplification: can be used when a job cannot be subdivided into separate elements, so the task to be performed is retained as a whole but reduced to its simplest form, with skilled performance being reached by gradually increasing the complexity of the exercise. Learning a language sometimes follows this pattern.

Mnemonics or Jingles: Aids to memorisation whereby a simple formula provides a clue to a more comprehensive set of data. If initial letters are difficult, a jingle can help. How many people could remember the sequence of colours in the spectrum without the clue of ROYGBIV, which is easier to remember as Richard Of York Gave Battle In Vain?

Routine: A helpful training device is the rule or routine, which reduces the volume of material to be remembered. "I before

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E except after C" is a simple rule to prevent a certain type of spelling mistake. Every maintenance engineer works to a set of fault-finding rules, as do doctors, who gradually eliminate possibilities by a series of questions which progressively rule out possibilities until eventually a diagnosis is reached.

Experiental Method: A term to embrace a range of methods whereby the experience of the trainee is the way to understanding. Role-playing is probably the most widely used version. In this, people play out parts in a contrived situation. For example, salesmen play the parts of buyers and thus come to understand the process of selling from a point of view opposed to their own. Other experiential methods, such as sensitivity training, do not depend on a contrived structure for interaction, but try to confront members of a group with how they really see each other.

Torrington and Weightman also note a fashion for self-development methods, as described particularly by Padler, Burgoyne and Boydell (1978). These have much common with action learning and distance learning, as the focus is on what the trainee knows he needs to do, instead of on what someone else believe he should be told. This approach is particularly advocated for management training.

This, of course, is not an exhaustive list. Goldstein (1974) includes others, like programmed instruction, computer-assisted instruction, business games, role-playing and behaviour modification. However, as he pointed out, it is neither

necessary nor possible to discuss all training methods and techniques, because so many variations exist. What has been attempted here is simply an indication of the range of possibilities available to the trainer.

2.3.5 Evaluation of Training:

No one can be sure whether or not a training course has been successful unless it has been evaluated. There is no value in training for its own sake and its effectiveness depends on its success in helping the trainee to acquire the required knowledge and skills. Thus, if a satisfactory method of evaluating training can be found, there are benefits to be reaped by everyone. The organisation is better equipped to meet its obligations and management's decision to invest money in the activity is vindicated, encouraging it to continue to provide the resources (Torrington & Weightman, 1985).

Evaluation has two main aims. The primary aim is to assess the effectiveness of a particular method of instruction, both per se and in comparison with others, and to judge whether the training is worth the cost. A secondary aim is to use the outcome of evaluation to improve the existing training situation. Evaluation is concerned with the whole training process, not just its outcome.

The advantages of using evaluation techniques are for the most part self-evident. The efficiency and effectiveness of a course are assessed on fact rather than on value judgements.

Decisions can then be made on the basis of evidence rather than on subjective optimism. Evaluation also points the way to achieving objectives more effectively, and may lead to considerable future savings in time and costs (Hartley, 1973).

King (1964) outlines a number of review types, as follows:

1. <u>Company Review of Training</u>: The important feature of this review is that it gives an opportunity to reconsider company performance as a whole and the part which training can play in improving it, though it should not be confined merely to highlighting the weaknesses of training in a negative way. The company review of the effectiveness of training should be the responsibility of top management. As a result of this review, certain changes in policy may be indicated, which may affect both objectives and procedures, as the review may indicate that each department manager should give more time to training was formerly the case.

2. <u>Review of the Effectiveness of Training Services</u>: When some training is delegated to a training department or to a specialised educational institution outside the company, it is appropriate to review the effect of training in relation to performance standards (Though it is worth noting that training is only one of many factors bearing on performance). Department managers and the training department in the company may collaborate in assessing the value of outside training courses. In addition, it is worth obtaining the openion of people

attending courses.

3. Review of the Quality of Training Techniques: This is the more technical and specialised examination of instructional techniques such as training simulators; different kinds of teaching aid; alternative ways of setting targets, recording performance, and presenting information to be learnt. A good training instructor will be continuously aware of the effectiveness of his techniques in relation to different kinds of learning situation.

There are many different evaluation instruments or techniques. Some are borrowed from the psychological and social-psychological sciences such as: interviews (directed and non-directive "in-depth" interviews), knowledge tests, group situational performance tests, reaction to group situations tests, personality tests and projective techniques, measures of perception of self and others, and questionnaires. Some discussion has occured of "Economic" or "Organisational" evaluation, but there has been very little research to establish an explicit relationship between the evaluation of the "human" results and that of "Economic" or "Organisational" results of training.

The evaluation criteria most often suggested are according to Robinson (1985):

a) Appraisal of superior or subordinates.

b) A more functional conception of organisational problems.

c) Morale.

d) Climate.

e) Productivity, increased sales, lower costs.

The question of evaluation of training is therefore complex. What does a suitable evaluation involve? What can be considered through approaches to evaluation?

Surveying the training literature, Watson (1987) recommends the following three evaluation plans:

1. KORB'S (1956) who considers that training can be measured with respect to three sets of criteria:-

(1) In-course evaluation of participants' progress: which measure the effectiveness of the training as a process. This involves an assessment of: a) increased knowledge; b) acquired skills; c) changes in expressed attitudes; d) indications of interest; e) degree of participation; f) acceptance of training given.

(2) Impact on participants after training: This is an appraisal of the effect of training as revealed by subsequent, modified behaviour on the job. It involves measures of: a) the transfer of instruction into changed behaviours and attitudes on the job; b) the extent and duration of such change; c) whether the changes are positive, contributing to improved efficiency, production, and employee satisfaction; d) whether progress has been made in meeting the specific objectives of the training.

(3) Impact on the organisation: This involves a determination of the extent to which training has played a part in organisational success. The kinds of things that indicate

significant contributions to organisational success include:- a) an improved supervisory and management force; b) improved interdepartmental functioning; c) improved productivity and morale; d) improved communications, vertically and horizontally; e) greater customer of public satisfaction with goods produced of services rendered; f) an adequate reservoir of talent to meet present promotion and future expansion needs.

This level of assessment is usually carried out by the higher levels of management. It puts into perspective the ultimate goals of training.

2. KIRKPATRICK'S (1967) approach to training evaluation involves measuring the effectiveness of training programmes in terms of four criteria:- a) Reaction: How well did the participant like the programme? b) Learning: What principles, facts, and techniques were learned? c) Behaviour: What changes in job behaviour resulted from the training? d) Results: What were the tangible results of training programme in terms of reduced cost, improved quality, improved quantity, etc.?

3.HAMBLIN'S (1974) Work on training evaluation extends Kirkpatrick's ideas one step further, adding a fifth criterion, ultimate value, which includes such things as the social value of training. To what extent do trainees feel better about themselves? Has the training helped people stisfy some of their personal goals? Has it assisted them in their career development?

It may be useful here to describe in brief some of the instruments or techniques used to evaluate instructional or

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training programmes, as discussed by Robinson (1985):

* Validation: by which the evaluator has to ascertain precisely to what extent the training has met its objectives and the needs of the trainees. Three types of validation have been identified:-

1. Internal assessment: to measure whether or not the objectives of training were achieved.

1. External assessment: to ascertain whether those objectives were realistically related to the original analysis of training needs.

3. The verification of a programmed text by comparing the results on a target population with established criteria(MSC,1981).

* Cost-Benefit Analysis (C.B.A): As training is considered as an investment, it has to be measurable in financial terms. Training evaluation has therefore borrowed the techniques of C.B.A. which considers both the economic and social effects of investment.

* Anecdotal Feedback: The assumption is made that if the trainee says the training was good and that he learned a lot, it must have been satisfactory. The more people who respond favourably, the better.

* Integration with overall design: As one of the key requirements of an effective training evaluation system is that it should be part of the total training procedure, it is valuable at the outset of a programme to ascertain the expectations of the trainees. This may be done by designing a multi choice questionnaire, the completion of which will greatly assist the

trainer to find out to what extent the employee's needs and those of the organisation have been discussed with him before he came.

* De-briefing by the supervisor: The supervisor or the department manager who releases the trainee for training should always concern himself with how the time is spent and to what extent the objectives are met. Any shortcoming needs to be identified promptly. Moreover, the employee may well return with ideas as to how he may modify his approach to his work and he will want to obtain the agreement of his supervisor to implement changes. Therefore, the post-training review meeting should become a regular activity which every trainee expects to encounter on his return.

* Transferability of training: The secret of successful transferability is not so much to do with the actual process of applying learning on the job as with setting up the training itself in such a way that the transfer is facilitated. One prerequisite is a willingness on the part of the employee to equip himself to work more effectively, having conceded that there may be gaps in his knowledge or capability which can be filled by suitable training. The environment in which the training takes place must be sufficiently informal to protect the employee from embarrassment when any weaknesses are revealed. His relationship with the trainer should be one of trust so that he is not inhibited from seeking information or explanation. The training experience itself should as nearly as possible mirror the realities of the job. If patience and understanding are shown during the early stages of transfer, the pay-off is usually worthwile in terms of long-term loyality and reliability.

* **Post-Training Assessment**: It is quite common for post-programme questions to be given to the trainees towards the end of a programme, and it is possible to relate these to the expectations questionnaire given at the commencement of the programme. Similar questions may be asked to ascertain whether or not the participants felt that the needs which they identified were in fact met, or their expectations fulfilled.

The post-programme questionnaire should also provide an opportunity for additional comments which would not otherwise be covered.

However, the new data in the trainee's memory-store will not necessarily be required immediately after training but will be retrieved as and when appropriate and he will not concern himself with the source of the data he uses to make a decision. It will be used instinctively in the same way as knowledge gained from experience. Thus, if the employee's performance in the job is what we are seeking to improve, then his supervisor is the most appropriate person to make the judgement as to whether or not the training has had the desired effect. It may therefore be more appropriate for him to complete a questionnaire on his subordinate's performance.

It is advisable to design the evaluation system during the planning phase of the training programme. The benefits of this may be briefly outlined as follows:-

1. It tends to cause the plan and its implementation to be taken more seriously than might otherwise be the case, because

people tend to respect those things that are inspected.

2. It causes greater thought to be given to establishing programme goals and standards. Also, when objectives and standards are more specifically defined,better plans can be formulated. This, in turn, increases the likelihood of success.

3. It raises the level of professionalism of the training staff and brings it greater respect and recognition from others.

4. It increases the likelihood of improvements being made in future training programmes, because it causes commitment to inspecting and evaluating results and overcoming the areas of deficiency descovered. (Watson, 1987).

Throughout the review process, however, it is important to destinguish between training effectiveness and training efficiency.

Davies (1973) maintains that the difference between efficiency and effectiveness is that efficiency involves doing things right, while effectiveness involves doing the right things (see Figure 2.9). Effectiveness is simply a function of what the training manager or trainer does; if he fails to realise the training objectives he has been set, he is ineffective, no matter how efficient he may be. The trainer's sole job is to be effective and he will be judged by what he accomplishes.

Davies suggests three main characteristics of effective training programmes, which have to be realised as indicators of the successful achievement of training or learning objectives:

Figure 2.9

Efficiency Versus Effectiveness in Training

Effectiveness in training			Efficiency in training
Do the right thing	rather	than	Do things right
Produce creative alternative	"	"	Solve problems
Optimise resource use	"	"	Safeguard resources
Realise learning objectives	"	"	Follow duties
Meet training needs	"	"	Lower cost of training

1. the absence of any great variation in performance between trainees.

2. the achievement of all or most of the agreed learning objectives.

3. the absence of any direct relationship between the ability of trainees and their actual achievement at the end of training.

However, it is not enough that the programmes devised by individual organisations or industries be effective. Ideally, they should be part of a systematic national approach.

2.3.6 Factors Impeding Establishment of Effective Training Programmes:

There are many reasons why training may be inadequate. Logically, it is unlikely that any training programme will be successful unless great attention and effort has been devoted to designing it in a proper way, bearing in mind the needs of the individual, and of the company.

Among the major factors behind the failure to achieve a well developed and successful training programme are the following, which were discussed in a previous sections of this chapter:-

1. Lack of attention to, or failure to understand the principles of learning.

2. Failure to acknowledge the characteristics of the group to be trained.

3. Failure to consider the behaviour required of the individual who will be in the training programme, i.e the job requirements and the human attitudes necessary to performa the task.

4. Failure to consider what specific skills and knowledge the trainee is going to get from the training and to tailor training to meet the designated objectives.

5. Failure to recognise the need for continuous training

to match the needs of the individual, generated mainly by career changes over a lifetime.

6. Selection of trainees which fails to take into account not only the requirements of their job duties but also their ability to be trained and learn a new skills from the conducted training programme. ·

7. Lack of relevance of the training programme to trainees' work-based-experiences.

8. Lack of up-to-date information provided by the training undertaking on trainee attendence, behaviour and general progress of the trainee. This is the responsibility of the trainers who should provide written and oral reports to the authority concerned with the training.

9. Trainers' attitudes and a perceived unwillingness to deal with training problems in order to achieve the planned goals.

10. Deficiency in the quality of training, as revealed by the following:

    (a) At the end of training the trainee is unable to carry out a specific job although he is regarded as capable of doing that job.
    (b) The training fails to reach a certain standard; in other words, when training is being judged against criteria accepted as "good" in themselves, without establishing a relationship between training and a specific job, and emphasis is rather upon the development of the trainee's talents for work in general, or for a broad range of job.

11. Training as a dimension of educational development cannot be achieved without a thorough understanding of cultural forces. In this regard, many educational sociologists consider the close correlation between educational achievement, in which training plays the main role, and social background and more particularly socio-cultural climate in the family and in the wider social environment (Kallen, 1987).

Negligence in considering these issues may produce unrealistic training or educational programme(s) which are costly for the organisation and detrimental to the trainee(s)'attitudes, behaviour and way of performing the assigned tasks.

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2.4. Conclusion:

The value of training in general has been recognised and accepted by experts in education, government and industry as an effective and important tool in improving the efficiency of employees and enabling them to adapt to change. This chapter has explored the components needed for productive and successful training.

From the literature, it appears that the following elements are those most likely to be beneficial to trainees:

1) Well developed training programmes.

2) Focus on training needs.

3) Skillful and knowledgeable trainer.

4) Availability of appropriate materials and facilities, sufficient training time, and selection of suitable training techniques or methods.

5) Training environment.

Since there are several possible negative factors whcich might cause the failure of training, careful planning, monitoring and evaluation is needed to overcome them and ensure that training is a valuable and positive experience.

Having explored the theoretical issues of concern to this study, we now turn to consider training as actually organised and practised in the oil industry worldwide. It is believed that by combining knowledge of the experience of other countries with the theoretical background presented in this chapter, we will be

better able to evaluate critically the training and development programmes currently provided by the Libyan Oil Industry.

Chapter Three

Chapter Three

TRAINING POLICIES AND PRACTICES IN THE OIL INDUSTRY

3.1 Introduction:

The development of a country depends on the efficiency of its economic sectors and industry in particular. This is a function of its effective utilisation of its human resources and how its training and development strategies and policies are suited to the need and the requirements of its operations. Education and training, formal or otherwise, are major sources of skills and trained manpower. Indeed, they play the most critical role in the economic development and growth of any country.

In this chapter, we will review and examine manpower training policies and practices of the oil industry worldwide with special reference to developing countries.

The basic objective in so doing is to draw upon other countries' oil industry experience and efforts in manpower training and development. The training policies and practices of these countries undoubtedly reflect their particular economic, social and demographic conditions, which may or may not be of significant relevance to the Libyan experience. Nevertheless, it is hoped that the conclusions to be drawn from this will have some relevance for Libya's oil industry efforts in manpower training and development.

3.2 The Prominent Features of the Oil Industry:

The oil industry is a highly integrated industry, for economic reasons. Oil companies, whether national or multinational, state-run or private, conduct all the operations, from prospecting to retailing the finished product. The industry comprises five major branches or activities of unequal size: exploration; drilling and production; transportation; refining; and distribution.

In the following pages it may be useful to give a brief description of the nature of these activities; each of which requires personnel with specific characteristics.

3.2.1 Exploration:

Exploration for oil covers all the research and operations carried out with the aim of finding and identifying economic sources of hydrocarbons, by selecting suitable geological layers and structural faults within the sedimentary deposits on land or beneath the sea. Basically this exploration depends upon geology and geophysics. Geology and its numerous complementary sciences (cartography, stratigraphy, sedimentology, paleontology, petrography, structural studies, geochemistry, etc.) are concerned with data obtained at ground level or from aerial observation. Some 20 per cent of exploration personnel work in these fields, the remainder being engaged in geophysics.

Geophysics is used to complement the geological data and

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verify the hypotheses. Without entering into technical detail, it is sufficient to note that the most accurate and by far most common method is seismic reflection. This consists of recording shock waves reflected from the deep subsurface strata, to obtain a picture of the underground configuration.

Test drillings are then carried out under the guidance of the geologists and geophysists to determine whether deposits of hydrocarbons actually exist. The resulting map of the substrata serves as a guide for drilling.

Exploration work requires personnel of robust physique, capable of initiative and taking decisions, with a team spirit and adaptable to work in a wide variety of climatic conditions. The laboratory work demands qualities of observation, patience and thoroughness.

3.2.2 Drilling and Production:

Drilling in the oil industry can be of two types : test drilling in search of oil and natural gas and production drilling. The production phase involves the installation, operation and maintenance of oil wells. Drilling and extraction are akin to work in heavy industry, including a wide variety of trades,with levels of skill varying from labouring to managerial.

Drilling and operating crews are by definition mobile. They work in shifts in climatic conditions which are often dangerous, either within or outside their home countries. The work of

drilling or well operation is generally carried out by specialised national companies - if a country's oil resources permit - or by multinational companies. Over the years, the multinational companies have trained many workers who are now serving their national companies.

As drilling workers and technicians are specialists and their working conditions are often severe, the average length of their careers ranges from 5 to 20 years. After this they must expect a change of employment, for example in the industry's design or methods departments. In organising training for drilling, three factors should be taken into consideration :

1) The turnover of the workforce;

2) The expansion of oil-exploration activities, particularly at sea; and

3) The need to provide personnel with opportunities of re-employment.

This mobility is much less marked in the case of surface personnel working on production sites. The personnel responsible for the operation of production installations and the pumping of crude oil or natural gas, or for the maintenance of the wells, remain more or less permanently in a production field. The work to be done has more in common with that of refinery personnel than with that of the drilling and maintenance teams. However, as the surroundings in which they work are often dictated by geological factors, career duration and later re-employment needs are the same as for drilling

workers.

3.2.3 Refinery:

Refinery activity covers the production involved in converting the crude oil into such products as propane, butane, heating fuels, lubricants, kerosene, bitumens, etc. The petrochemicals branch of the oil industry produces a large number of items for a wide variety of uses from the basic substances obtained from the refining process. Essentially , the refining of crude oil consists of distillation, cracking, and physical and chemical purification.

Work conditions in refineries are conditioned by the volume of continuous process work carried out, usually involving some 70 to 80 per cent of the technical personnel, and by the need for rigid observation of safety regulations. For refinery workers, this demands technical skill, a strong interest in technical activities, and a highly developed sense of responsibility and discipline. As the work is done by teams, sociability is an important factor.

The production of natural gas is very similar to the refining of crude oil and the qualifications demanded of the technical personnel are identical.

3.2.4 Distribution:

The final link in this industry is the distribution of oil and gas products. This is the stage which uses the most manpower

and aggregate investment. In being transhipped, distributed and marketed, oil may cross many seas and international boundaries and be handled by men of many different nationalities.

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The development of the activities described above requires, as Hossain (1979) maintains, substantial technical and managerial skills and marketing outlets. He adds that:

> Traditionally, such capital, skills and marketing
> outlets were provided (in areas outside the socialist
> world) by multinational oil companies : the legal
> framework within which this was done was that of a
> "concession ". Traditional concessions were increasingly
> viewed by host governments as a colonial legacy which
> worked to their disadvantages. The resulting pressure
> for change led to the emergence of a number of different
> types of arrangements, ranging from " joint ventures "
> and " joint structures " to " service contracts " and
> "production-sharing agreements". (p32)

A major oil company, therefore, will have on its payroll employees of many types and nationalities working in many countries. The circumstances in which the industry is carried on present many difficult problems in regard to recruitment and training of employees and the field of industrial relations.

The problems are particularly difficult in this industry because it is so frequently the case that operations are carried on in places where there has been no social development and in which there has been no previous industrialisation. Many of the biggest oil deposits have been found in sparsely populated localities in which the few inhabitants were wholly engaged in pastoral occupations. However the exploration work and subsequent operations can be undertaken only by those who possess

the necessary highly specialised training. Ghadar (1977) points out:

> The complex technology (technical skills, knowledge, and experience by the multinational companies) makes its maximum contribution during the initial period of exploration, development, and establishment of the industry until the oil operations within the host country become profitable. However, even there the skills and experiences of researchers and skilled personnel of the parent company are still needed. (p36)

This is, of course, because, as Attiga (1981)emphasises:

> Governments, public institutions and companies in the advanced countries control nearly all basic and applied research as well as training facilities in modern science and technology. (p64)

3.2.5 Jobs and Job-related Skills Requirements:

It may be of interest to give examples of some specific jobs in the industry and the skills required to perform them:

Exploration: Much of the workforce is employed in the maintenance of mechanical, electrical and electronic equipment, the placing of explosives, and maintenance of transport equipment.

Skills at the manual worker level are not industry specific. This is not, of course, the case of the technicians engaged in either geology or geophysics.

On the exploration site, the geological technician forms part of the surface geological research team and acts as assistant to the geological engineer. The geological technician

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should have completed a secondary course in science, mathematics and technology.

Geological teams include topographers and assistant topographers responsible for surveying, topography and contouring (in these categories a certificate of proficiency is required for the geometers and for the map designers).

The geophysical team includes a topographer, and a chief test mechanic who carries out the light test work of the seismic team and maintains the equipment and vehicles. These specialist workers are trained on site and must have a very good practical knowledge of drilling and mechanics. In addition, a maintenance technician with a sound practical knowledge is required for the maintenance of the electronic and electrical equipment.

Drilling: A drilling team consists of workers and technicians such as the rig-man; the derrick-man or mud-man; the second driller; the first driller; and the chief, the tool pusher.

The basic qualification required by the first three is equivalent to a certificate of general education and the training can be carried out on the site after a relatively short course.

The first driller must possess (in addition to the technical and practical knowledge of the rig-man, the

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derrick-man and the second driller), specialised knowledge of drilling technology and operations. He must have a secondary technical education or a mechanical engineering certificate. In addition, he must have leadership and organising abilities.

The tool pusher must possess the knowledge required for all the jobs on the drilling platform and in particular, that of the first drillers. In addition he must be able to handle questions of management, supplies and costs.

Thus, there are three main groups of drilling personnel and therefore three groups of qualifications. To move from one grade to the next, a man needs additional scientific, technical and commercial training.

Production : Production department jobs, whether manual or supervisory, involve techniques specifically related to the oil industry.

The production workforce monitors the control equipment and operates the installations according to instructions. In this category there are two types of jobs. From a single control room, a panel operator, under the supervision of a chief operator, controls and co-ordinates the working of one or several production units; an outside operator, under the supervision of a chief operator, monitors and controls the installations. These workers hold general or technical secondary school diplomas or have served an apprenticeship as chemical equipment operators.

The production workers, who have completed primary education, perform a number of jobs which do not demand a detailed knowledge of installations. There are several grades according to the complexity of the tasks : assistant production workers; grade 1 (unit pump man); grade 2 (furnace man, compressor operator, refrigeration operator, chief unit pump man); and grade 3 (compressor operator for special high pressure units).

The production supervisory staff include the production foreman, who is the production engineer's deputy. He gives instructions to the chief operators and checks the results. The duty shift foreman is responsible for the operation of the installation according to the orders he receives. The chief operator (shift worker), under the supervision of a production foreman or engineer, is directly responsible for the operation of the production units. These workers are certificated technicians and receive further training in specialist establishments.

General Services in Refinery : These services are responsible for the production and distribution of all types of energy : steam, hot water, electricity, compressed air. They are responsible for the safety of the plant, the receipt of materials and the despatch of finished products. With the exception of safety and product despatch, these tasks do not demand special training for the oil industry.

The manual workers include grade 1 and 2 assistants and operators in steam plants, operators of thermal power plants, turb-maintenance operators, electrical distribution panel operators and water treatment operators. These workers hold primary education or proficiency certificates.

The supervisory staff include; the furnace foreman who is deputy to the services engineer and assists him in preparing job schedules, co-ordinates the work teams, and ensures that maintenance work is completed; the shift supervisor who is subordinate to the chief furnace man and co-ordinates the work; and the safety foreman. These hold technical or marine engineering diplomas. They are appointed to their posts by internal promotion.

Maintenance: On both safety and production grounds it is essential that the installations operate continuously. This demands systematic inspection, overhaul and replacement of parts. Maintenance departments do not require qualifications specific to the oil industry, but a sound of knowledge of the equipment is necessary. The personnel represent some 20 to 40 per cent of the total workforce of a plant.

All the trades which are found in a normal C department are represented : mechanics, electrical instrument mechanics, boiler-makers, pipe filters, welders, pipe laggers, fitters, turners, etc.

3.2.6 The Impact of the Oil Industry on Manpower Training and Development:

Because of the enormous and rapidly increasing demands for skilled labour for oil industry operations, an attempt has been made to develop longer term forecasts of manpower supply and demand to provide a global picture based on a forecast of the size of the world oil industry in the year 2000, taking into account likely technological changes. The figures are given in tables Nos.(3.1) & (3.2) Mackay (1984) stresses that :

> " ...it should be interpreted with caution for two
> reasons : First, the uncertainty concerning future
> oil demand. Secondly, the limited availability of
> comparable data on international manpower statistics
> in the petroleum industry for the last twenty years."
> (World Petroleum congress, V.5, 1984)

The oil companies must not only recruit people of high quality but must continue to train their employees and give opportunities for development which will ensure that talents are properly used both in the group's best interest and to the satisfaction and fulfilment of the individual.(B.P,1977)

In most cases the establishment of training schemes is compulsory by law. Training obligations incorporated in the old concessions led to a considerable development of trained manpower (Hossain, 1979) and this pressure has continued, as Ghadar (1977) asserts:

> The host government, to further develop their local
> economies and increase the number of local personnel
> in the oil industry, particularly emphasized work -
> force development. The local governments continuously
> increased pressure on the foreign company to train
> local personnel. (p22)

Table No: 3.1
Number of Employees Needed for Oil Industry Operations
Statistical Data and Estimates
for 1960, 1980 and 2000

Country groupings†	Population		GPD in 1980 US dollars			Oil production		Oil consumption		Est. numbers employed in petroleum industry			
	millions	% of world	billions	per capita	% of 1980	million tonnes	% of world	million tonnes	% of world	exp & prod 000s	refining & blending 000s	mkt/dist admin/ supp. 000s	total 000s
1960													
OECD	622	20.5	3330	5554	56	426	39.1	764	71.8	380	280	760	1420
OPEC	202	6.7	120	594	39	439	40.2	30	2.8	130	35	25	190
LDCs	1189	39.3	490	412	52	59	5.4	127	11.9	140	80	115	335
CPEs	1014	33.5	570	562	45	167	15.3	144	13.5	180	65	140	385
World	3027	100.0	4510	1490	58	1091	100.0	1065	100.0	830	460	1040	2330
1980													
OECD	780	17.6	7496	9610	100	707	23.0	1817	60.5	640	300	725	1665
OPEC	335	7.5	506	1510	100	1356	44.0	126	4.2	150	45	75	270
LDCs	1851	41.8	1471	795	100	286	9.3	414	13.8	140	115	290	545
CPEs	1466	33.1	1846	1259	100	730	23.7	645	21.5	270	110	450	830
World	4432	100.0	11319	2554	100	3079	100.0	3002	100.0	1200	570	1540	3310
2000													
OECD	880	14.2	12100	13750	143	685	23.2	1500	50.9	640	170	525	1335
OPEC	550	8.9	1150	2090	138	1120	38.0	310	10.5	170	60	155	385
LDCs	2870	46.3	3300	1150	145	395	13.4	420	14.2	190	95	275	560
CPEs	1900	30.6	3200	1684	134	750	25.4	720	24.4	300	115	435	850
World	6200	100.0	19750	3185	125	2950	100.0	2950	100.0	1300	440	1390	3130

Sources: OECD, UN, World Bank, BP and other publications listed under References 5, 8, 13–18 BP Associates and own estimates

† Country groupings

OECD member countries* Europe—Members of the European Economic Community* (Belgium, Denmark, France, Greece, Republic of Ireland, Italy, Luxembourg, Netherlands, United Kingdom, West Germany) plus Austria, Finland, Iceland, Norway, Portugal, Spain, Sweden, Switzerland, Turkey (* as defined in 1981).
Other member countries—Australia, Canada, Japan, New Zealand, USA.

OPEC member countries: Latin America—Ecuador, Venezuela. Middle East—Iran, Iraq, Kuwait, Qatar, Saudi Arabia, United Arab Emirates (Abu Dhabi, Dubai and Sharjah). North Africa—Algeria, Libya, West Africa—Gabon, Nigeria. South East Asia—Indonesia.

Less developed countries (LDCs): All countries not included in OECD, OPEC or Centrally Planned Economies.

Centrally Planned Economies (CPEs): The member countries of CMEA (Council for Mutual Economic Assistance): Bulgaria, Cuba, Czechoslovakia, German Democratic Republic, Hungary, Mongolia, Poland, Romania, USSR, Vietnam: plus Albania, China, Cambodia, Laos, North Korea and Yugoslavia.

Estimating the World Supply and Demand for
Graduates 1980, 2000

· All figures in millions (other than percentages)

	1980	2000
1. Total population	4432	6200
2. Numbers in 20–24 age group (from which most first time students drawn)	409	531
3. Total number of students at university and equivalent institutions	34	50
As % of 20–24 age group	(8)	(9)
4. Number of students entering university and equivalent institutions for the first time	5.4	8.3
As % of total number of students	(16)	(16)
5. Number of graduates:		
First Degree	4.4	6.8
Higher Degree	1.1	1.7
Total graduates	5.5	8.5
6. Number of 'technical' graduates (engineering, geology, chemistry, physics, mathematics, computer science, economics and business studies)	1.9	2.9
As % of total graduates	(34)	(34)
7. Number of technical graduates entering employment	..	..
As % of total technical graduates	..	..
8. Number of technical graduates entering oil industry:	0.025	0.040
As % of total technical graduates entering employment	..	..
As % of total numbers employed in the oil industry	(0.8)	(1.3)

Source: UNESCO, UN and own estimates.

By this means, oil companies contribute to general education through their training centres situated in all their oil fields and terminals, in addition to carrying on training programmes abroad. The companies' training programmes may be short or long, and cover various categories of specialisation. Some courses are rewarded by a degree or certificate.

3.2.7 The Need for Training to Meet the Technological Changes:

In any industry, changes in technology impact on training, for a number of reasons:

1. Some jobs will be enlarged, thereby requiring additional skills.

2. Others will require a narrow range of skills and,

3. Many jobs will be replaced entirely by newly created jobs. (Chruden and Sherman, 1980).

The manpower implications of developments in the oil industry were considered by the Petroleum Committee of I.L.O. in its Tenth Session in Geneva in 1986:

1. New technological developments in this industry will be rapid but are expected to follow the paths of the recent innovations. Subsea production techniques and remote unmanned platforms, for example, are likely to be used increasingly for the exploitation of marginal oil and gas fields. Since the success of recent subsea production projects has shown

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that this technology is sufficiently mature to warrant its increased use in offshore production, therefore the number of personnel such as operators, maintenance fitters etc., will decrease; a change in skill level and mix is also likely to occur. The more sophisticated equipment will require employees to be more skilled and will also increase the demand for marine engineers, control and instrumentation engineers, robotics experts, etc.

2. The use of three-dimensional seismic techniques in exploration and field development has increased significantly with the advances in the electronics and computer industries. This trend is likely to continue with the development of more sophisticated tools for geophysicists and their survey teams. Consequently, an increase in the demand for specialists in this area is likely.

3. The development of Measurement While Drilling (MWD) techniques is also bound to continue with the evolution of both highly advanced computer-controlled techniques and cheaper basic techniques for specific applications.* As the name implies, MWD is a tool and the complexity of the tool determines the level of personnel required for its use. However, for instance, the use of advanced techniques by the drilling, petrophysicist engineer does not necessarily eliminate the need for a skilled tool operator on the drilling rig.

4. Besides the aforementioned technological developments,

other technical, economic and administrative factors should be taken into account. Natural gas discoveries will continue to occur more frequently than discoveries of oilfields. Many developing countries could cover a large part of their energy needs from local gas resources if costs could be brought substantially below the border price of petroleum. In addition, it can be expected that the strengthening of national capacity to develop the petroleum sector, including the role of national oil companies, will increase the need for technical, administrative and managerial skills.

3.3 International Training Policies and Practices:

3.3.1 Training Objectives and Requirements:

In addition to the general objectives of training outlined in Chapter Two, the oil industry has, according to I.L.O (1975), the following main training objectives:

1) to develop manpower capabilities appropriate to skill requirements determined by production goals and technologies;

2) to achieve worker attachment to enterprises so that training can provide a long-run economic return;

3) to satisfy employment regulations promulgated by national governments (especially in developing countries). Training requirements differ from training objectives.

Objectives establish general targets that are sought through training, while requirements identify particular needs that must

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be met in order to attain training objectives. Training requirements are shaped by factors previously discussed: increasing technological complexity; the location of many of the industry's activities in remote areas, where it may be difficult to recruit personnel with the required skills; and persistent and apparently world-wide shortages of manpower in certain skill categories and especially technicians and supervisors. A final major influence on training requirements is the fact that a large proportion of world oil output is located in less industrially advanced nations, where companies are under pressure from national governments to train indigenous personnel to replace expatriate employees.

Looking at the first objective referred to above, that of developing skills determined by production goals, it can be said that one of the main influences on training decisions in the oil industry is the desire of line or department managers to utilise the latest and best technologies available, in order to remain competitive in world oil markets by reducing unit costs of output. One very important consequence of this situation is that major oil companies usually meet economic imperatives for efficient production first, and then adapt training objectives and methods to the requirements of the technologies used, though the situation differs from country to country, depending on the prior development of a core of personnel with general aptitudes and skills in administrative, technical and managerial training. (I.L.O., 1986).

Because of the substantial cost of manpower training, managers tend to develop a perspective that identifies training as a process of investment in " human capital". The workforce is viewed as a resource, and skills that have been developed by training are evaluated in terms of the balance of costs and benefits that are attributable to training activities. This view of training as an investment in skills underlines the importance of the second objective of training - that of securing worker attachment to work plants, so that training benefits can be realised and external recruiting costs minimised. Worker attachment is encouraged by emphasising policies for promotion within the enterprise. These are complemented by the establishment of vertical job opportunity structures which must be supported by continuous training opportunities for promotable employees and by incentives to the employees to take advantage of these opportunities. Manpower planning activities are designed to ensure that training encompasses the entire skill structure in the enterprise. However, training programmes may have to be changed to accommodate the capabilities of the available workforce. (Blinn et al, 1986).

Training practices which promote work stability, enable costs of external recruiting to be reduced. Vacancies can be filled from within and recruiting is usually pursued only at a limited number of entry-level jobs in vertical job structures. These relatively few positions where hiring is necessary are usually located at the bottom of occupational skill clusters or

job categories. Examples are entry-level labourers, entry-level skilled workers and starting jobs for technical, engineering and managerial personnel.

A third general objective of training programmes is to comply with the labour regulations and employment policies of national governments. In most industrially developed countries this is not a major problem. However, oil companies that operate in the developing countries of Africa, South America, Asia etc. are often required to replace expatriate workers with local employees, and staff development for the purpose of localisation is nowadays basically aimed at the managerial and sub-managerial levels where expatriate employees are concentrated. Issues relating to the transfer of technology and skill to host countries are being recognised in contractual agreements between state and international oil companies. To give two examples:

1. The Petroleum International Agreement (PIA) of Dubai requires the International Oil Company (IOC) to initiate on-the-job training but the host country retains the power to select nationals for this training, with a view to qualifying them for clerical, technical and administrative duties.

2. In Guatemala, a PIA obligates the IOC to carry out an in-house training programme to train Guatemalan personnel. (Blinn et al, 1986)

For many major oil companies, the satisfaction of government requirements is a matter of survival, since failure to comply

with national policies could lead to expropriation and loss of management control.

Such technology transfer by and training effort of the multinational enterprises, it has been suggested, may be looked upon as a contribution to development if

1-   they economise on local scarce resources,and exploit abundant resources, thus directly or indirectly contributing to economic growth;

2-   they have an impact not only on GNP, but also on the livelihood and employment possibilities for the people; and

3-   they form an integrated part of the host governments' development planning process and strategies, and do not create "technological enclaves" or "regional imbalances".(I.L.O.,1981p11).

3.3.2   Volume and Type of Training:

Within the Oil Industry, training is provided for :

1)   skilled workers including apprentices;   2) Highly specialised workers and technicians;   3) Supervisory staff (in ascending order of volume). (I.L.O., 1981).

Training can be of several broad types:

- sponsored university education either at home or
  abroad;

- technician training in specially built schools and
  workshops;

- on-the-job training;

- managerial - supervisory and development courses.

In-plant (on-the-job) training usually predominates for all categories of workers, as many oil companies have their own training centres either in the home or the host country.

Benefits of on-job training according to Shepherd (1988) are:

1) There is no need to prepare special training rigs, therefore it is relatively inexpensive.

2) Elements of the task mastered during training will transfer positively to the operating situation.

3) Training is usually one-to-one, therefore it can progress at the trainee's own pace.

4) Instruction is given by a man with considerable operating experience, who can deal with real problems as they arise and has credibility in the eyes of the trainee.

5) Instruction is seen as directly relevant to the trainee.

6) In most process jobs, trainees are only available for instruction individually; off-job training provision for the individual might prove expensive.

7) The relationship developed with the instructor helps the trainee to adjust to all aspects of the work situation.

However, there are disadvantages:

1) The instructor is often expected to carry out normal operations whilst showing the trainee how to do the job, which can disrupt both instruction and operations. .

2) Instructors are often untrained in instructing.

3) Instructors are often given no documented support for handling instruction. This can result in:

(i) passing on bad habits;

(ii) dealing only with the problems that arise during the period of instruction;

(iii) forgetting to include key operating and safety points.

4) Beneficial training aids are rarely anticipated or provided.

5) On-job instruction is often regarded as the only method to be adopted for operator training and alternative approaches more suited to the complex assets of the task are not judged on their merits.

In general, skills learned by on-the-job training are less transferable to other employment situations than are skills learned in formal training institutions. This special value of on-the-job training for developing worker attachment may be utilised even if workers are sent to outside schools to learn skills that might make them attractive to other employers. Enterprises often combine periods of on-the-job training with training that takes place in outside institutions. When employees return to the company after further training they tend

to be employed at skill levels corresponding to the training received and in which the more generally marketable skills they have learned in school are applied to work-specific assignments.

3.3.3 Examples of Types of Training Conducted by the MNES Worldwide:

U.S.A:Exxon Corporation:

Training programmes provided by Exxon have the following aims:

(1) to ensure that employees have the necessary skills to perform their present assignments.

(2) to promote their individual development.

Local training activities in Exxon include on-the-job training, especially tailored training courses and seminars within the company and special training and educational programmes outside the company. They cover the full range of employees from blue-collar operating personnel to technical, managerial and executive levels, Exxon's Corporate and regional headquarters provide advisory and programme development assistance as required, mainly in the following ways which may serve as examples of the training policies and practices of MNEs in general:

* Making available to local affiliates the experience and materials gained elsewhere. The company maintains a continuing exchange of its training resources.

* Making available experienced training professionals

to develop and conduct training programmes where such a resource is not available locally.

* The establishment of regional training centres required to provide specialist programmes. These courses either represent needs which are not great enough in individual affiliates to warrant such programming or take the form of institutes for trainers in a newly developed course, which they can then conduct in their own country.

* The sponsorship of university-type training outside the home country, particularly for employees of developing nations.

* Training for local nationals, particularly professional employees,at company installations elsewhere,to provide experience and exposure. (I.L.O., 1977).

U.K:Shell International Petroleum Company Limited U.K.:

Training programmes provided by this MNE, especially those concerned with the role of service companies, comprises:

(a) Management training of such quality and kind as cannot be provided by operating companies in isolation.

(b) Functional training of such quality or sophistication for which expertise is either not available in or through operating companies or which is not economically justified on such a basis.

(c) Miscellaneous training for which no better alternatives can be developed in the country or

region concerned; this may be organised either in London or the Hague on location.

(d) To maintain expertise (methodology, techniques, etc.) and develop training material to assist operating companies in covering any need which cannot be fully met with local resources alone; and to help them identify training needs and to develop their own training strategies, etc. (I.L.O., 1977).

In France, the organisation of training programmes and courses is based on company needs in accordance with the relevant legislation. In addition to external courses sponsored by bodies like the French Petroleum Institute, there are internal courses for all categories, including: general economics (for managers, spread over two years); management and leadership for managerial staff and foremen with personnel responsibilities; general training (including written English) for all categories; and basic education for migrant workers. (I.L.O., 1977).

In Germany, the purpose of the training measures carried out or sponsored by ESSO AG is improvement in the knowledge, qualifications and attitude of the employees. These measures cover all employee levels. Training may be on internal and external courses and seminars; or on-the-job. They include technical/specialised seminars, supervisory seminars (for foremen, shift leaders, group leaders, section heads, department managers up to the board of management) and introductory training for new employees. (I.L.O., 1977).

In **Italy,** ESSO states that because of the highly technical nature of refining activities and the risk of rapid obsolescence, training is given special attention. It mainly takes the forms of on-the-job training for new or transferred employees, refresher courses for engineers, technicians and wage earners, and participation in seminars or training assignments abroad, both in the parent company and its subsidiaries. Since promotion to managerial positions is made from within, training for employees with such potential is not limited to the upgrading of professional and technical skills but seeks to endow them with broad management capabilities. (I.L.O., 1977).

In Australia, ESSO Australia Ltd. organises training programmes in two broad categories, viz. management and technical, and trade and operator craft training, respectively, either internally or through temporary assignments with overseas affiliates in the United States, United Kingdom, Singapore, Malaysia, France and Canada; in addition, external management training is undertaken through universities, consultants and management institutes. (I.L.O., 1977).

Evidence of the extensive training programmes carried out in the oil industry is provided in Table 3.3, which shows that in 1979 alone, Royal Dutch/Shell provided 834 group training courses, involving trainees from 52 countries through the globe.

Group Training Courses Provided by The Royal Dutch/Shell

Nationalities participating during 1979 other than British and Dutch.

Exploration, production, manufacturing.

Europe	No.	Africa	No.	Middle East	No.	East Asia and Australasia	No.	N. and S. America and Caribbean	No.
Austria	8	Algeria	1	Egypt	6	Australia	64	Argentina	3
Belgium	14	Gabon	2	Iran	1	Brunei	15	Brazil	5
Cyprus	8	Ghana	2	Jordan	5	India	9	Canada	6
Czechoslovakia	1	Kenya	6	Lebanon	4	Indonesia	7	Chile	1
Denmark	16	Nigeria	102	Oman	9	Japan	9	Colombia	1
Finland	2	South Africa	7	Qatar	3	Malaysia	50	Dominican Republic	2
France	80	Sudan	2	Turkey	10	New Zealand	9	USA	13
F.R. of Germany	90			United Arab Emirates	1	Pakistan	10	Venezuela	70
Greece	1			Yemen	1	Philippines	10		
Ireland	7					Singapore	42		
Italy	5					Sri Lanka	1		
Norway	44					Thailand	16		
Portugal	4								
Spain	7								
Sweden	11								
Switzerland	55								
TOTALS	337		122		40		234		101

Source: I.L.O. Manpower Planning and Development in the Petroleum Industry, I.L.O. Geneva, 1986.

3.3.4 Training Practices and Collaboration with the Local Educational Authorities and Institutions:

Examples of the practices of affiliates in carrying out the training policies may be given in the following:-

In Australia, there is substantial co-operation between ESSO AUSTRALIA, public authorities and institutions in the field of training. Liaison with universities begins at the undergraduate stage with interviewing potential graduates for employment and some financial assistance to schools specialising in geology, science and engineering. Universities are also used for post-graduate training (e.g. MBA courses), and for business administration and advanced management programmes. A National Employment and Training Scheme was introduced by the authorities in 1974 to assist industry in the employment and training of staff, especially in the areas of retrenchment, retraining and apprenticeships.

In Canada, close and continuing contact is maintained with public and private institutions in the area of recruitment, together with substantial financial assistance to universities and other institutions: numerous scholarships are awarded for higher education, including programmes for employees' children proceeding to university, and summer employment schemes for high-school and university students.

In **F.R. of Germany**, several companies have co-operated with the Hamburg Chamber of Commerce to establish a business academy in order to give senior high-school graduates training in business administration, along with on-the-job training in the sponsoring companies. Seminars are organised in co-operation with state educational authorities to familiarise teachers with the problems of business and industry, and there is also active co-operation in a working group of the German Society of Personnel Management on training and development.

In France, petroleum enterprises co-operate actively in organising training courses under the auspices of the National Joint Committee on Employment and Training in the Petroleum Industry; in addition, regular contacts are maintained with and training staff assigned to universities or institutions of technology, etc.

In Italy, although the bulk of training requirements is handled within the enterprises concerned, certain forms of specialised training involve recourse to outside institutions, both public and private. Contact with schools and universities is largely for the purpose of personnel recruitment and exchange of scientific information.

In U.K, over-all training activities are conducted under the jurisdiction of the Petroleum Industry Training Board established by the Industrial Training Act, 1964. There is no difficulty in meeting or exceeding the board's requirements, and

close and continuing contact is maintained with it, as well as the Department of Education, universities, polytechnics business and technical schools and related professional bodies. About 75 per cent of training takes place within the companies concerned, while craft apprentices, for example, receive both on-the-job training and "day-release" training at local technical colleges.

3.4 The Oil Industry's Training Policies and Practices in Developing Countries:

3.4.1 The Need for Training:

The training objectives discussed in the second part of this chapter have particular significance in developing countries, as emphasised by Report III of the I.L.O. Petroleum Committee presented on the 10th Session of 1986:

1. There are now a number of developing countries with established oil industries and, like the Arab Petroleum-Producing Countries, most have a policy of localisation or indigenisation, that is, the replacement of expatriates by nationals at all levels of the organisation. The technology of oil and gas production was usually introduced into various countries by one or more of the multinational companies. In recent years, policies of indigenisation, have been pursued more vigorously, with the national oil companies placing great emphasis on the training of their nationals.

2. The level of technology in use will, of course, vary from one country to another. Many of the Oil-Producing Arab Countries have opted for acquisition of the latest technology, minimising the number of skilled operating and other staff, while other countries have found it more practical to introduce technology which is simpler and more robust than sophisticated techniques which would require too many specialist staff for operation and maintenance. An example of the use of robust technology is plant instrumentation and control. A company operating in a developing country may opt for a proven

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conventional system rather than a potentially sensitive computerised system which may require specialist engineers and maintenance staff. While the use of the former type of system may require more plant operators, the training of staff is easier and there is less risk of plant shutdown and hence lost production.

3. More attention to the necessary personnel training and development programmes will help to avoid the shortages of skills which may occur as a result of the introduction of new technology, as has been previously discussed, and, in the case of Arab and other developing countries, assist in the smooth execution of the process of localisation.

Under the influence of such factors, many of the Arab countries have dramatically accelerated their training efforts in recent years. For example, one Arab national company has a full-time training staff of more than 2,700 teachers, instructors and support staff, and nearly 30 training centres and workshops throughout its operations area. The courses offered by these training facilities range from driving instruction to management training, and last from one week to one year or more.(I.L.O.,1986)

In reviewing the possible developments and trends which will effect the training scene, the Director-General of the I.L.O. in his Report (1980) claims that:

" Training policies, schemes and programmes have
to be reshaped and redesigned in order that millions
of people, young and adult, men and women, who have
the right to or who are looking for means and ways to
acquire skills and knowledge may be able to receive
training that improves and protect their employability,
increases their productivity and incomes, improves their
career prospects and generally contributes to better
conditions of work and life.

In addition, training policies, systems and programmes have to be <u>recast</u> and cope with rapid technological developments and the consequent rapidly changing training needs. The emphasis will therefore vary from one sector to another and for various levels of skills according to the progress achieved and the changes which come over the years."(p15)

The said report discussed the categories of people needed to be trained for industrial development, especially of the developing countries, due to the shortages that exist at all levels of skill. It predicted an increasing demand for more training at all levels and in particular for three categories of manpower which play a critical role in the industrialisation process: managers, supervisors and technicians.

For the oil industry, in particular, the new technology will have a special effect on its personnel categories, and the first effect will be on personnel engaged in " front- end" operations,i.e. exploration and production. For example, the increasing use of sophisticated seismic tools for exploration purposes could result in a deficiency in the skill groups of geophysicists and seismic data processors. This may then necessitate the recruitment of experienced personnel or development of existing ones.(I.L.O.,1986).

3.4.2 <u>Manpower Supply and Demand</u>:

<u>In Exploration</u>:

Two situations in this field may arise in developing countries:

1) In the first case, the exploration is carried out by

multinational companies from the developed countries, which send out complete or nearly complete teams and only recruit unskilled labour locally.

2) In the second case, the exploration is carried out in association with national companies and local personnel may be recruited at all levels from labourers to engineers.

When programming the training of exploration personnel, attention must be given to the composition of the geophysics teams, the staffing of operational bases which serve several teams, and the rotation of personnel working in particularly difficult conditions, for example at sea in offshore operations, or in the desert in remote areas.

A geophysics team may consist of a dozen persons at the technical level : a team chief, geophysical engineer, site chief, geophysicist, chief computer operator, seismic geophysicist, two topographic technicians, two teams of two observer technicians, and a chief mechanic assisted by one or two mechanics.

In general, five teams of this type are supported by an operational base responsible for the maintenance of the electrical, electronic and mechanical equipment, reconditioning of cables, and a topography supervisory office. To meet these needs the base should have a technical staff approximately 18

strong, including 3 electronics   engineers, 5 electronics
technicians (observers) 5   mechanics   and 5 topographic
technicians.

In developing countries, the opportunities of employment   in
this field are greater than the number of qualified technicians
and workers available, and a large demand exists for manpower
from the developed (industrialised) countries. Thus, most of the
positions are usually filled by expatriates.

In Drilling and Production:

Employment in the oil industry is never static. It may
vary according to local conditions in countries   in the same
region and can change very rapidly with fluctuations in
production rates. It can happen that drilling operations are
interrupted, at least temporarily, for technical , economic   or
even political reasons which are not always foreseeable.

In Refining Operations:

It is difficult to estimate the number of specialists   and
technicians employed in the refineries. In modern   plants, the
size of the staff depends on the complexity, i.e. the number of
separator-cracking units in the refinery.

At a certain degree of complexity of processing,   refining
becomes petrochemistry. Steam-cracking and all the   subsequent
processes can be regarded as petrochemistry.   However, the
technical qualifications required of the personnel are the same.

It is worth mentioning that the construction and enlargement of refineries in developing countries depend upon considerations which vary from one country to another . Among other factors, these include the rate and the volume of refining and therefore the training requirements. Also the replacement of foreign or expatriate personnel by national technicians is not always of the same extent or urgency. In some countries, this has been going on for several years and has practically been completed. In others, where oil production commenced later and training facilities are lacking, it is just beginning.

Two trends are apparent with regard to the location of refineries. In certain oil-producing countries, the long-term objective is to export refined products rather than crude. In consequence, their equipment and need for technical personnel greatly exceed local consumption requirements. In non-oil producing countries, an increase in refining capacity is one of the features of general industrial development.

3.4.3 The Productivity Required and Manpower Development _ and Training:

As productivity depends not only on employee motivation and skills but also on the provision of more and better equipment, a sustained effort is needed to develop, train and upgrade the manpower at all levels. This type of investment may not have received the attention it deserves in the developing countries, and in the Arab Oil-Producing ones in particular, which suffer

from a shortage of the productive, well-trained and qualified manpower needed while they are establishing and expanding huge petroleum, petrochemical and other industrial complexes. The acute shortages in this respect can be considered as resulting from the following main problems:

1. The imbalance between what general education provides and what the petroleum industry, in specific, needs. In these countries, the emphasis has hitherto been more on providing a high standard of general education than on practical training related to a particular trade or job (I.L.O.,1980). These countries suffer from inadequate technical and vocational education and training.

2. The misallocation of resources, arising from shortages in certain skill areas and abundances in others; insufficient vocational and technical training and/or insufficient attraction to such training in several countries; inadequacy of arrangements to improve inter- country flows; and the wrong choice of technologies or areas of activity (Sayigh,1983).

3. The increasing reliance on the productivity (both quantitative and qualitative) of non-national or expatriate manpower (see Table 3.4.

Countries like Saudi Arabia, The United Arab Emirate, Libya, Qatar and, to a lesser extent Venezuela, are involved in the development of the petroleum industry despite the fact that they obviously do not have similar manpower resources (See Table No.3.5). As an example it has been estimated that in the countries of the Gulf alone, approximately US$ 5,000 million are spent on employing skilled manpower from abroad, or

Capital-Rich States: Extent of Dependence upon Non-National Labour, 1975

State	Nationals' Employment	Per cent of Total	Non-Nationals' Employment	Per cent of Total	Total Employment
Saudi Arabia	1,026,500	57.0	773,400	43.0	1,799,900
Libya	449,200	57.5	332,400	42.5	781,600
Kuwait	91,800	30.6	208,000	69.4	299,800
United Arab Emirates	45,000	15.2	251,500	84.8	296,500
Bahrain	45,800	60.4	30,000	39.6	75,800
Qatar	12,500	18.9	53,800	81.1	66,300
Total	1,670,800	50.3	1,649,100	49.7	3,319,900

Source: J.S. Birks and C.A. Sinclair, *International Migration and Development in the Arab Region* (ILO, Geneva, 1980), Table 8.

Table No: 3.5
OPEC: Area, Population, GNP and Crude Production

Country	Area '000 Sq. Kms.	Population '000 Mid-1979	Inhabitants per Sq. Km.	GNP at Mkt. Prices 1979, $ Mil.	GNP per Capita 1978, $	Crude Prod., 1979 '000 b/d
Algeria	2,382	19,130	8	22,290	1,260	1,154
Ecuador	281	8,080	29	6,890	880	214
Gabon	268	540	2	1,930	3,580	203
Indonesia	1,904	139,376	73	48,820	360	1,591
Iran	1,648	37,140	23	80,000*	1,648	3,168
Iraq	438	12,770	29	22,720	1,860	3,477
Kuwait	18	1,272	71	18,040	14,890	2,500
S.P.L.A.J.	1,760	2,860	2	18,960	6,910	2,092
Nigeria	924	82,700	90	45,720	560	2,302
Qatar	11	210	19	2,840	12,740	508
Saudi Arabia	2,150	8,110	4	63,310	7,690	9,532
UAE.	84	885	11	11,440	14,230	1,831
Venezuela	916	13,520	15	40,710	2,910	2,356
Total OPEC	12,784	326,593	26	383,670	1,208 (Average)	30,928

* Estimated

Source: Ian Seymour, OPEC: Instrument of Change, OPEC, 1980, p.290.

US$ 20,000 on average per year per worker.(I.L.O., 1980).

5. Insufficient incentives are available to attract specialists from the local and to some extent, international labour markets. The result has been a "brain drain" problem, whereby specialists, already in short supply, left the developing countries in search of higher renumeration,better facilities etc.

For example, up to 1976, up to 50 per cent (24.000) of the Arab World's medical doctors, 23 per cent (17.000) of its engineers, and 15 per cent (7,500) of its natural scientists went to Western Europe and the U.S.A. (Khasawnih, 1986).

6. In many developing countries, general education is still relatively poor, and illiteracy rates high. For example, Khasawnih (1986) comments on the inadequacy of Arab education and training systems as follows:

" In spite of the numerous national, bilateral,
and regional conferences and meetings of education
ministers and highly specialised committees, and
in spite of the quantitive and qualitive improvements
in Arab education, education systems in the Arab
States are still not capable of meeting modern
educational needs .... Educational curricula lack the
scientific and technological content required to
overcome the prevailing ignorance in these fields."
(p58).

3.4.4 Training Provisions:

Many developing countries have begun to realise the importance of training in addressing the problem of localisation and shortage of skills needed for development, and have begun to make attempts to bring order and relevance to training. For

example, OAPEC recognised the wasteful fragmentation of its members' efforts in the field training, and in 1977 established an Inter-Arab Petroleum Training Institute, one of whose objectives would be to promote the progressive harmonisation of training by providing instruction for oil industry employees from the member States of OAPEC, by providing teaching materials in Arabic and by disseminating relevant technical information (Khasawnih, 1986).

Not all workers need special training. It has been revealed that training of manual workers employed in exploration for oil, for example, does not require special training. Familiarisation or orientation of unskilled workers is carried out on the site. Employment of some skilled workers, such as mechanics or electricians, is conditional on their knowledge of their trade and not on previous training specific to the oil industry, as such qualifications are considered to be transferrable. Other personnel, such as geophysical observers, site managers and drillers, receive special training within the oil industry, either on-site or in training schools or by the companies concerned.

The following are examples of the efforts that have been made by some developing countries to train and redeploy national oil production technicians:(I.L.O., 1980)

* Algeria has three training centres for oil industry personnel, of which two are for technicians. These two centres belong to the Algerian Petroleum Institute and in 1976, 200

senior drilling and 127 oil production technicians were trained. These technicians can also take additional training to obtain an advanced certificate. The duration of the training varies in relation to the entry level: elementary, secondary or university education, or previous experience. For example, the training of a chief driller may comprise the following: a training period of 30 hours per week for 37 weeks; a familiarisation period of 30 hours per week for 6 weeks; and a period of practical work for 40 hours per week for 9 weeks. This makes a total of 52 weeks spread over 2 school years.

* In Brazil, the national company PETROBAS has programmed 17 training courses for drilling technicians and 41 for production technicians. The first is for approximately 300 and the second for more than 800 trainees.

* In Indonesia, training is provided by the national AKANIGAS company and also by the Indonesian Oil Institute. From 1970 to 1976 82 drilling and 68 production specialists received their diploma. The programmes consists of basic and advanced training courses of two years for technicians and one year for senior technicians.

* In Venezuela, INAPET (Petroleum and Petrochemical Training Institute) organises several types of training programmes: basic training; accelerated training; a three- year apprentice course with an entry age of 16 to 18; advanced training; introduction to new techniques; and training for redeployment. The institute is practically well equipped for specialisation in drilling and oil production.

In Nigeria , the practical training of refinery technicians

is carried out at the Petroleum Training Institute. Technicians may also be sent to the Port Hartcourt refinery for a preliminary training period of 4 to 5 months. At the Warri refinery, the training period is 9 to 16 months, depending on candidates' capabilities. The programmes cover basic and technical instruction (I.L.O., 1980).

The training of nationals in the oil industry is a matter which has received much attention from the International Labour Organisation (I.L.O.). A report presented in the 9th. Session of the Petroleum Committee in Geneva 1980 clearly points out that the petroleum industry has been established in developing countries with the aid of capital and technical skills imported from abroad, but that this situation is changing. The establishment of national companies, the increasing desire of the developing countries to assume control of petroleum operations and the development of efficient training facilities in these countries has become part of a continuous process.

However, while the report admits that the multinational corporations have trained large members of workers for employment by the national companies, it states that the national industries still suffer from shortages of skilled indigenous personnel.

3.4.5: Organisation of training:

Organisation of training varies from one country to another. The establishment of training facilities, especially those for

vocational training, can take various forms, which can be briefly indicated in the following: (I.L.O.,1984)

1. Centralised at the national level, e.g. Venezuela and Mexico, where in conjunction with the general educational system, centralisation makes it possible to set up an autonomous scheme to provide specialised training and retraining for the industry. Concentration of resources, independence in relation to individual companies, standardisation of methods and the formation of a corps of specialist instructors are obvious advantages. But among the possible diadvantages are the delays involved in setting up a large organisation, the risk of it losing touch with the realities of industrial life and the budgetary problems inherent in such an organisation.

2. Decentralised Training Systems In India, for example, vocational and technical training for the oil industry is largely decentralised.

Decentralisation involves making several organisations in the public or private sector - or both - responsible for oil industry training, in order to fill possible gaps in the national educational system.

This method has the advantage of flexibility and enables the training to be adapted to the direct needs of the companies. The disadvantages are the risk of higher costs through dispersal of effort and lower efficiency through lack of co-ordination.

3. Training Through Subcontractors is generally provided

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in conjunction with the installation of new equipment, and is regarded as an investment, in the same way as the equipment the personnel are being trained to operate. If the investor country considers that it does not possess the facilities to provide the training involved in starting up and operating a plant, it calls upon the service of a foreign organisation specialising in personnel training. Frequently, the foreign company responsible for the installation of the equipment is also made responsible for training the appropriate national personnel, from the basic design stage to the entry into operation of the completed plant. This type of " product-on-line" contract is tending to replace the type known as the " turn-key" contract.

A situation of this type can arise both in countries insufficiently equipped with training facilities and in those which possess the facilities but consider them inadequate to meet a specific problem, such as the number of trainees required or the technical complexity or character of the subject.

An example of " product-on-line" contracts may be found in Algeria in relation to installation of the liquefied natural gas plant at SKIKDA. The National SONOTRACH Oil Company handed over to a foreign engineering company, and to one of its subsidiaries specialising in training, the responsibility for the design, construction and starting up of the plant, and the selection and training of 180 Algerian technicians for production, maintenance, laboratory work and industrial safety. The training was continued up to the appointment of the personnel to positions of

real responsibility.

3.4.6 Types of Training Programmes:

Training in the oil industry in developing countries in general is programmed to provide technical, industrial and professional training.

Types of training provided by the oil industry in developing countries may be exemplified by the prescribed training system currently provided by The Bahrain Petroleum Company (Bapco):(Babco,1984).

1. Induction Programme: which is designed to provide newcomers with an overview of Bapco, and an introduction to the industry. Participants of company rules and procedures, and particular emphasis is laid upon the development of safety.

2. Orientation Programme: by which groups of sponsored trainees who arrive from outside Bahrain are given a one-week orientation period to introduce them to Bahrain and its features, and to assist with any questions concerning accomodation, banking, shopping, and other facilities. The programme provides for a medical examination, and includes an induction course.

During orientation, every assistance is provided to encourage a smooth transition to living in Bahrain, and to training with Bapco.

3. Craft Programme: This programme includes :

   (1) Automotive;

   (2) Electrical;

(3) Electronics;

(4) Instrumentation;

(5) Machining;

(6) Mechanical fitting;

(7) Metal trade fitting;

(8) Welding.

This kind of programme covers a wide variety of skills and requirements. It is conducted in the Training Centre which was completed in 1983, at a cost of $4 million and is fully equipped to train the wide variety of craftsmen. These programmes can be regarded as essential components of the three-year training programmes which are designed to produce craftsmen from secondary school leavers. A list of the programme titles are attached together with a few typical course description (see Appendix I).

4. <u>Operations Programmes</u> : which covers the following:

(1) Basic Training Course for Operators;

(2) Operations Modules:

(3) Technical Development;

(4) Oil Spill Contingency Planning and Response; and

(5) Appreciation Course.

These courses cover the following principal areas of concern:

* Oil Refinery Plants.

* Industrial Power Generation.

* Storage and Pipelining of Petroleum.

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* Industrial safety.

* Environmental Protection.

Many of the courses are short, isolated events, but they and others are often combined to provide elements in multi-year training programmes to suit individual requirements.

In meeting the demands of changing technology and other needs, new courses are being developed continually.

5. <u>Supervisory and Management Development</u>: which includes:

    (1) Management Workshops; and

    (2) Professional development Programmes.

Supervisory and management development, as it has been reported, is committed to the following objectives:

1. The effective development of people as present and future managers and supervisors.

2. The development of a succession of people at all levels of supervision and management within the company.

3. An increase in operational efficiency, and thus profitability, as a result of the Supervisory / Management Development Programmes.

4. The institution and maintenance of a long term planning process that identifies objectives and performance standards on a divisional and departmental basis.

5. The search for effective blends of Arab and Western

cultural values as they impact on management training.

6. <u>Industrial Studies Courses</u> : which includes the following :

       (1) Administrative, Secretarial, and Clerical;

       (2) Industrial Studies (mathematical, science);

       (3) Arabic;

       (4) Job English (stages 1-5);

       (5) Job English (specialised).

7. <u>An Integrated Training Programmes</u>: where a variety of ingredients make up the full programme for training an individual up to a specific standard of competence. These may include appropriate off-the-job courses alternating with structured training in the line, together with modular training events. The elements which comprise the total programme are integrated to give the trainee a sensibly balanced approach which he can depend upon when he comes to apply his training to future work situations.

Each programme is individually tailored to the specific objectives desired, and may occupy from several weeks to several years. Throughout the programme, the trainee's progress is carefullty monitored, and compared with standard expectations by means of comprehensive trainee performance checklists.

In general, the training programmes are constructed from standard courses, or modular units of instruction, according to the entry level of the trainee, and the target standard desired.

3.5 Conclusion:

As we have seen, in this chapter, that the general tendency of the oil industry's training policies and practices is based on: 1) developing employees' capabilities to the level required to meet the industry's operational standards as well as to adapt to change and; 2) to satisfy employment regulations of the national government in replacing expatriate staff without prejudice to work efficiency.

Training by multinational enterprises (MNEs) is inseparable from technology transfer. Direct investment consists in transferring equipment and the "know how" necessary to operate it. Labour has therefore to be taught the techniques involved.

In case of developing countries, the point at issue is the extent to which technology transfers by multinational enterprises (MNEs) raise the level of knowledge in these countries.

The importation of advanced management and production techniques by multinational enterprises may help to improve the skills of local staff in developing countries, but only if the local staff are used in managerial and supervisory posts and production, especially in the core functions of the industry.

In developing countries, training (vocational training in particular) by multinational firms compares very favourably with that normally available locally. The close co-operation with host country institutions which has often become the rule has no

small influence on national vocational training systems.

We have seen how subsidiaries of the MNEs work closely with national training institutions in host countries and do much to make the national training system more efficient. Their co-operation is especially beneficial to developing countries, such as Libya, where it often leads to the use of more modern methods of training and, more particularly, to the introduction of a systematic approach. This and other issues discussed in this chapter will be explored further in the next chapter, which will focus on the required role of the Libyan universities in manpower training and development and the potential benefits, to both parties, of a linkage between university and industry.

Chapter Four

Chapter Four

THE POTENTIAL ROLE OF THE LIBYAN UNIVERSITIES
IN MANPOWER EDUCATION, TRAINING AND DEVELOPMENT

4.1 <u>Introduction</u>:

Because of the changes which have taken place in modern
society, the philosophies, goals and objectives of university
education have undergone continuous re-evaluation, leading to
a restructuring of its traditional characteristics.   Moreover,
universities no longer have a monopoly in post-secondary
education. The university is a now one among several types of
institution of higher education. As the university surrenders
parts of its functions to other institutions, so the great
search for other avenues and alternatives is evident almost
worldwide(Bubtana,1977).   Universities have moved away from
their traditional focus on ethnic and the liberal arts, and
are now expected to prepare people for various professions, in
accordance with national needs and socio-economic and cultural
changes.   There is, today, an increasing recognition that
continuing education must become a major purpose and function
of education.   This has been necessary for a long time in
professional fields. No professional person can 'keep up' if
he does not continue to learn (Mangum, 1965).

In this regard, in 1970, Professor Stewart, Chairman of
the Universities Council for Adult Education, clearly stated
the principle that a university is a place of intellectual
excellence equally for undergraduates, graduates and students
in adult-education courses (UCAE, 1970).

A report by the Continuing Education Working Party of the University Grants Committee in 1984 emphasised that continuing education in the UK must be developed in order to cope with, and take full advantage of rapid pace of technological, scientific, legal and social changes. Although evidence was presented of a significant and increasing amount of continuing education activity in the universities, it was said that there was a need for more provision and that universities could play an important part in catering for that need (UGC, 1984). Among its recommendations were the development of part-time modular courses, particularly at postgraduate and post-experience level; cooperation between universities, public sector institutions and validating bodies in the development of a continuing education credit system leading to the award of recognised qualifications; and review of the student grant regulations, to see if they might be amended to encourage the development of modular courses and a credit transfer system.

In Libya, the establishment of the university as a higher education was modelled on foreign influences. Not only Britain and USA, but also Egypt, had vital interests at stake, which did not always coincide with what was best for Libya. The intrigue over the type of university Libya was to have is typical and illuminating (Pattison, 1984).

There is a need, now, to review the Libyan universities' role in accordance with the current and future needs of Libyan society, including continuing adult education; research to promote the socio-economic and cultural development of the Libyan society; and responsibility towards the development and

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training of the qualified personnel needed for the country's socio-economic development plans.

These issues will be addressed in this chapter, which provides a brief historical outline of the development of university education in Libya, assesses its present situation, and finally, considers the measures needed to link this type of education with industry and other economic sectors, to the benefit of each. First, however, it would be helpful to give some examples of practical co-operation between universities and industry in the UK and USA, which may indicate the potential role of Libyan universities.

4.2 Collaboration Between Universities and Industry in the UK:
4.2.1 Examples of Initiatives for Improvement:

A number of formal steps have been taken to foster good relationships and to link universities with industry in the UK.

Some of the initiatives undertaken by universities are directed at providing training courses better suited to the needs of industry in content, timing and delivery; facilitating access to university expertise of a standard that industry can accept; and providing support for the licensing of university generated technology and the setting up of new ventures.

For their part, industrial companies have developed policies to coordinate and facilitate linkages with universities. Financial institutions have developed closer links with universities to invest in new ventures and in some

instances to fund the development of technologies. Technology transfer agencies have stepped in to provide new channels from technology to be transferred into the economy. Government has encourage of these developments by providing financial incentives to improve the relevance of teaching; making provision for universities to exploit inventions themselves; and focusing research monies on industrial-relevant technology.

These initiatives have opened up opportunities for industry to acquire skills and technologies needed to become and stay competitive; make greater use of universities for research and development work; and invest in new business opportunities.

Universities also benefit, in terms of revenue, status and relevance of their teaching and research (Mackenzie and Jones,1985).

4.2.2 Research and Training for Industry:

Efforts have been made by universities to offer industry key resources and train manpower in new technology by modifying undergraduate courses and increasing the number of courses directed at introducing new technologies to mature students. Courses for the latter may be conducted in the evenings and at weekends, or in comparatively short units of two or three days a month. Some are run in the workplace, or located close by.

A. Examples of Industry-Oriented Courses:

1. The Imperial College of London provides practical experience of information technology in the College-based company, Imperial Software Ltd, whose technology base is ahead of that of industry.

2. In Loughborough, final year engineering students, for instance, are directed in selective students towards group design projects proposed, in outline form only, by industry.

3. With the assistance of the Engineering Industry Training Board and senior managers from industry, Cranfield Institute's School of Production Studies designed a fellowship programme aimed at increasing the supply of well-qualified managers in manufacturing. Each fellow spends one year in a supervised position in industry as part of the programme.

4. The Professional, Industrial and Commercial Updating Scheme (PICKUP), was launched by the DES in 1982. It was principally aimed at colleges and polytechnics but spread to universities in 1985. The scheme aimed to assist higher education institutes to recognise the need of employees for updating courses and to encourage them to develop appropriate courses; to encourage new technology methods; and to increase awareness by employers of the need to invest in retraining. An example of the projects funded is a scheme to tackle the national shortage of computer engineers skilled in software maintenance and reliability.

B. Examples of Transfers of Personnel:

1. Transfer of knowledge through people takes place when graduates work in industry and industrial employees carry out research work in universities.

2. The value that can accrue from sponsoring students is demonstrated in an example from Leicester Polytechnic. KTM, a major machine tool manufacturer, sponsored students at polytechnics and universities in sandwich courses, principally for their own use. In developing its new generation of stand-alone machining centres, KTM needed to be able to identify broken components and wanted an image recognition system to improve on the traditional probe system. An engineer, who was a former student of Leicester Polytechnic, remembered that the polytechnic had been doing work in this area. As part of the Scheme, Leicester dedicated a postgraduate student, who subsequently got his PhD based on this commercial project.

C. Examples of Exploiting University Expertise:

1. Research and Consultancy Contracts

British universities are receiving an increasing number of major contracts from industry for research on consultancy. For example:

* six major international companies, including Procter and Gamble and BP, jointly contributed 200,000 to extend research into process plant design at Liverpool University;

* ICL, with government support, is spending 900,000 with Edinburgh University to build one of the first integrated

voice and data computer networks using a digital private automated branch exchange, PABX;

* The University of Hull has been awarded 79,000 by BP to investigate a new process to increase the amount of oil extracted from rock by using detergents.

2. Focused Research Centres

To respond to the need for research and teaching in subjects that require an interdisciplinary or highly specialised approach, research centres have been set up which cross traditional disciplinary boundaries and could be said to be market focused. They are often supported by industrial liaison bureaux. increasingly, these centres are looking for support from industry, and present an opportunity for industry to invest in areas of specific interest.

3. The Formation of Research Companies

A number of universities believe that the best way of carrying out research for industry is through a company structure which gives greater autonomy to its managers. This makes decision-making and financial control easier than if the bureau or research centre were part of the university's administration or a department. Aberdeen University, for example, has set up a company with eight subsidiaries that act as the commercial arm of departments and research centres within the university.

4.3 Education and Industry in the USA:

4.3.1 The Corporate Image of Adult Education in the USA

As Long (1987) points out, educational review and debates in the USA has been reflected in the change from the religious motives of the seventeenth and eighteenth centuries to the current specialized secular rationale for education. The secularization of education has been paralleled by increasing occupational justification, based on national development and national defense.

The economic and political world climate since World War II has contributed greatly to the emergence of an economic-political coalition in USA composed of business and industry, government and postsecondary education. Increasingly, the goals and motives of the members of the coalition have converged. Education of adults is, thus, increasingly justified in language that is common to this coalition.

People in the corporate context are seen as resources which can sometimes be modified (through training or education) as organisational needs change. New skills can be developed among existing employees and when this can be done less expensively than by hiring new workers it is best for the company to sponsor the training. When new workers can provide the required labour less expensively than the older experienced workers can after training, the company decision often favours the decision to fire and hire rather than train. Thus, corporate management behaviour tends to be governed by the profit-making motive of the economy. Government also has a similar perception of people as resources to be used in the

achievement of specific national goals.

As the interests of business and industry, government and postsecondary education converged, a high degree of blending has taken place. Specialists move among the three institutional forms with increasing ease and frequency. Managers and planners and scientists are equally at home in research laboratories, governmental bureaucracy, corporate offices and university administration. Presidents, Chancellors and Deans in educational institutions employ administrative procedures and attitudes lifted directly from the board room and executive suite, while executives of large corporations move freely from Wall Street to the White House or to higher education institution boards of control. Higher education, one of the major providers of systematic education for adults in the USA, has adopted a corporate approach in resolving educational issues and in directing the mission and activities of its institutions.

The permeability of the boundary between educational and corporate administration is quite high. Americans greatly respect the successful business leader. As a result, businessmen and women have long been favourite candidates as board members and policymakers for public school and postsecondary institutions (private and public). It is assumed that these kinds of people have a particular skill and gift for efficiency and cost containment, i.e. they can operate an educational institution and show a profit.

4.3.2 Co-operation and Competition:

The current relationship between postsecondary education and industry in the USA is based on both co-operation and competition (Long, 1987). Declining student enrolments and fewer federal dollars for research has stimulated postsecondary education administrators to turn to business and industry for additional students and research dollars. Simultaneously, consulting organizations and other entrepreneurial organizations have increased their competition for government money and for additional clients for expanding training and personal development scheme. Higher education has stepped up its efforts to obtain assistance from business and industry.

4.3.2.1 Co-operation

An interesting example to support the contention of a merging of interests and goals among higher education and industry is that in April 1985 the University of Georgia announced the appointment of a founder and former chief executive officer of Agrigentics Corporation, as Bicentennial University Professor in the Management Department of the University's College of Business Administration.

Other evidence of the increasing interest of educators in linkage with business and industry for more co-operation in a number of areas that are perceived to be mutually advantageous is provided by the numerous conferences being held on the topic. For example, in one conference on 'College and Business: Building on a Successful Partnership', participants

were scheduled to address the following topics:

(a) getting started: making it work;

(b) how to improve your marketing strategy;

(c) building quality assurance for training programmes;

(d) expanding programmes and opportunities for training; and

(e) combining resources for better work productivity.

4.3.2.2 <u>Competition</u>

Competition between higher education and industry is primarily of two kinds: competition in instructional activity and research. Continuing education for adults, is one area of intensifying competition. For example, it is suggested that some large private and even quasi-governmental organisations may open their internal management education programmes to outsiders. More large corporations are expected to follow their lead in specialized areas.

An uneasy truce between education and the corporation will probably exist as long as education can do the following:

(a) provide education less expensively (through governmental support of the educational establishment) than the corporation; and

(B) provide specialized education that meets the needs of the corporation.

If government support declines, or some other event occurs that weakens the cost advantage, so that higher

education can no longer adequately and effectively provide the specialized instruction desired by corporation, the corporation will icrease its continuing education activity. A second step in the process leads to the development of the corporate college in the very large business organisations.

Despite the increasing transfer of management strategies and attitudes from the corporation to education, education generally has maintained a competitive position, for at least three reasons:

1. education has a carry-over impact into the corporation world, it continues to have the reputation as the main source of college degree;

2. education has access to a multiplicity of specialists at a competitive price as a consequence of state and federal assistance, while private institutions derive similar benefits from endowments;

3. more higher education institutions are adopting various schemes to enrol more adults.

Demographic trends in the United States and formula funding schemes in public education based on enrolment have stimulated postsecondary education to seek new consumers. Thus, the adult, 25 years of age and older, has been identified as a consumer by institutions that previously had little interest in anyone over 23 years of age. Meanwhile, the corporation have shown increased interest in education for adults, contributing to a trend of corporate co-operation.

4.4 The Development of University Education in Libya:

4.4.1 Historical Background

The Libyan government, in the early years of independence, was very concerned to establish a university, and began through the Libyan American Technical Assistance Service (LATAS), which had been set up to assist and advise on technical programmes for the development of the country, started to study the project. The university of Nevada in the USA was commissioned to conduct feasibility study and came to the conclusion that Libya needed, not a university, but a running two-year courses during which students would study a selection of subjects, from a choice of twenty-five. Graduates would be appointed as secondary school teachers, assistant engineers, technical assistants and the like. Good students might be awarded scholarships for further study in the USA.

The plan was extremely practical, in view of the shortage of educational resources, faculty staff, administrators and the number and quality of students available. The Libyan financial worries of the Libyan government were also set at rest by an offer of $1,500,000 by LATAS to facilitate the funding of the institution. However, the suggested plan would, it was considered, have led to considerable American academic dominance (Pattison, 1984). Moreover, the Libyan government was disappointed that the establishment of a university was not recommended. It therefore turned to Egypt, which supported Libya's desire to introduce university education.

In December 1955 a Royal Decree was issued for the founding of the Libyan University. In 1956, The Faculty of Arts was established at the Royal Palace (Al-Manar Palace) in Benghazi City.

In 1957 two new faculties were opened: The Faculty Economics and Commerce; and the Faculty of Science in Tripoli. The University continued to expand through the creation of additional faculties . (colleges) and departments until 1973, when the revolutionary government decided to split the university to form two separate institutions, the University of Benghazi (renamed Garyounis); and the University of Tripoli (renamed Al-Fateh).

By 1987 there were the following four universities:
1. Garyounis University in Benghazi is composed of ten colleges: 5 for Sciences and 5 for Humanities.
2. Al-Fateh University in Tripoli is composed of nine colleges: 7 for Sciences and 2 for Humanities.
3. Sebha University in Fezzan is composed of two colleges, for Sciences and Education.
4. Al-Najm El-Sataa (Bright Star) at Marsa Al-Baraigha specialises in Science and Technology.

Plans continued to open new departments and colleges. By 1990s decisions were taken to establish many other universities. Libya now has established new universities in Musirata, Azzawia and Derna. The majority of these universities provide undergraduate studies only.

University education in Libya has witnessed enormous

expansion in student population, number of faculty staff, physical facilities and number of graduates. For example, in the year of 1983/4 the number of students in Libyan universities was 39,612 (28,810 male and 10,802 female) compared with only 3,663 (3,253 male and 410 female) in 1969/70. The number of graduates in 1969 was 513 (53 female) and in 1983, 2,225 (559 female) (Secretariat of Planning, 1985). This was encouraged by the tremendous improvement in socio-economic conditions after the discovery of oil in the early sixties, and a national constitutional stipulation that higher education be available to every high school graduate (Bubtana, 1977).

4.4.2 University Education and Labour Requirements

Selection to particular colleges and departments is based on High School Grade Point Average, and Total Grading Grades.

Continuation of the present admission policies seems likely to lead, in the long run, to surplus of unemployed graduates in some areas of specialisation.

Bubtana (1977) argues that admission of students to various schools and specialities should be based on predetermined national manpower requirements and needs.

In an attempt to address social requirements, a new strategy for education was set in the Transitory Plan 1981-1985, based on:

1. Providing citizens with the knowledge and skills they need to play a significant role in society and

take decisions;

2. Relating education to social and economic plans;

3. Creating an educational environment that would meet the society's requirements;

4. Reviewing the structure of university education with the intention of re-organizing scientific departments to meet current needs.

The university faculty system was changed to a system of specialized departments or centres. Undergraduate degree fail into two categories according to the length of the courses, which range from two to three of five years depending on the nature of the specialization (Secretariat of Instruction, National Commission for Education, Culture and Science, 1983).

However, due to the previous structure of the educational system, the Libyan labour force indexes show evidence of a tremendous gap between skilled and unskilled categories of labour, with a severe shortage of semi-skilled labour, forcing the country into complete dependence on imported labour (Bubtana, 1977). In 1980 for example, the total number of Libyans employed by various economic sectors was 532,800 compared with the total number of migrant workers which was estimated by Birks and Sinclair (1980) at 518,500.

Despite this evidence, the higher education system in Libya continues to provide for the training of skilled and professional manpower, with an apparent neglect of the training of semi-skilled and middle manpower (Bubtana, 1977).

The main shortcomings of the educational system as a whole and university education in particular, in this respect, are as follows:

1. Libya has been zealous in developing the educational system with numerous new school facilities and increased enrolments, but extremely high repeating and dropout rates, primarily the result of an antiquated grading policy, cause a great wastage of educational resources. Overemphasis on the elementary and university levels rather than preparatory, secondary, and technical education has caused similar inequities. The numerous foreign workers at all skill levels is ample proof that Libya's educational system has been unable to fulfil the country's demand for educated and trained people (Wedley, 1971).

2. At postsecondary level, many of the inherent weaknesses and tensions in the education system become most overt. At university and technical college level, the links between the quality and subject of education and manpower requirements of the burgeoing modern sector labour markets should be at their most direct, but such is not the case. If the education and training system were effectively guided by the manpower requirements approach advocated by the economic planners, then postsecondary education would be characterised by: a bias towards the scientific and technological; high quality and research towards the modern (especially private) sector (Birks and Rimmer, 1984).

3. In Libya, as in other Arab Oil-states, the very
    governments which wish to diversify their economies
    away from oil wealth and towards industrialisation
    have labour policies which drive down standards in
    the education system intended to prepare nationals
    to take over industries now dependent upon non-
    national labour and skill. This frustrating of
    purpose results from a willingness to provide easy
    and remunerative employment even for nationals who
    merely serve out their time in stage after stage of
    the education systems, and is intensified by the
    fact that the education systems are not designed to
    prepare young people for genuine productive work in
    modern technology-based industries. Immense capital
    expenditure over a period of only twenty years has
    produced education systems heavily dependent on
    expertise imported from countries inexperienced in
    the utilization of capital in this field (Birks and
    Rimmer, 1984).

4. An educational programme cannot be contained within
    a period of five or ten years, and its full results
    will not be seen for decades. A long-term
    assessment needs to be made of the prospective
    demand for different types of trained manpower and
    definite goals set, to be reached in stages. A
    proper balance has to be maintained between
    primary, secondary and higher education, between
    general education and vocational training (Prasad,
    1963).

5. The problem exists of finding an appropriate and

comprehensive philosophy of higher education, which defines the nature, functions, objectives and goals of the whole system. Because of the lack of such a philosophical framework, expansions have always occurred in a horizontal way, in the addition of new departments to existing colleges, or the creation of completely new colleges and universities. The structure of the system, however, has been lacking in the vertical aspect of expansion, by the creation of lower division independent colleges or short-cycle higher education through new types of technical institution, or the establishment of graduate departments of institutions.

6. Since wage and promotion policies generally encourage staff to acquire formal educational qualifications, they seek to improve their industrial career prospects by taking a higher degree rather than improving skill and proficiency by learning on the job, or through non-formal education and training. Thus, by not giving skilled workers and technicians adequate incentives for hard work or sufficient opportunities for in-firm learning and training, wage and promotion policies may be partly responsible for an insufficient use of labour. The education, training and experience of high-level manpower may also be ill-adapted to industrial requirements, resulting in inefficiency, low productivity and high labour cost (ILO, 1986).

7. Despite the progress that has been achieved in the Libyan educational system, the educational status of

Libyan nationals is low, and the system displays many shortcomings. The low educational attainment of Libyans is a result of the nature of the colonially imposed system which destroyed much of the Sanusi-based educational tradition of Libya, which did not attract (nor perhaps, did administrators try to make it attract) the national population to a very extensive degree. This, with a long delayed adult literacy campaign, has resulted in a high illiteracy level. It is also the heritage of the colonial educational system that has resulted in the rather ill-directed pattern of the present system (Birks and Sinclair, 1980). Many ideas, such as the dispersal of higher institutions to provincial areas the fostering of indigenous arts, the rewriting of textbooks in the process of cultural decolonization, and the spread of egalitarian values, were admirable but they were not backed up by careful planning. The revolutionary government is making decisions which do not always gain the support of the student population or of academics, who complain that the changes are ill-conceived and implemented with undue haste. Acute shortage of experienced educationalists to plan and implement change is one of the reasons for this problem (Pattison, 1984).

The irregularities in the educational ladder, the imbalance in the labour force, and dilemmas in higher education, indicate that a new role for the university needs to be defined. In the following pages, we shall attempt to propose such a role.

4.5 Proposed Approaches to Link Universities with Industry and Other Economic Sectors:

The unlimited expansion of university education is extremely expensive, especially in a developing country like Libya, and the wastage of resources caused by inappropriate programmes which do not have the desired results cannot be afforded. The only long term and effective solution will be a broader and more flexible expansion of higher education which would include provision of alternative non-university avenues for further training and postsecondary education (Bubtana, 1977).

Nevertheless, priorities are necessary, particularly where universities and industry and other economic sectors embark on joint schemes of educational collaboration (ILO, 1974). Higher education should not be confined to graduate and postgraduate studies, but should incorporate education and training courses for adults in various fields of work in industry and other economic sectors, to meet the national requirements for skilled and semi-skilled labour. This is urgently needed to reduce dependence on expatriate employees, which is politically undesirable and expensive, and also to fill the gap caused by those emigrant workers who have left the country.

This cannot be properly done without an appropriate planning policy and timetable. The following may be considered necessary elements of the new approach:

1. University staff must be made aware of the needs and

expectations of the various sectors in the country.

2. A thorough review of the basic objectives of university education, including goals and standards, should be undertaken in the light of new national objectives.

3. A periodic evaluation should be conducted of the university's adult education and training.

4. Individuals with experience could give occasional presentations reflecting the goals, policies, objectives and nature of operation of their organisations. These would provide valuable orientation for both students (including adults of full-time of part-time status), and staff.

A Department of Adult and Manpower Education and Training could be set up which could, in conjunction with the universities, establish courses such as the following:

1. Colleges of Engineering (with its different specialisations could run courses leading to professional qualifications and functional training for adult trainees in technical professions needed by the economic sectors in the country.

2. Faculties of Agriculture could run courses aimed at middle ranking agricultural project supervisors, as well as instructors and administrators in the agricultural sector.

3. An intensive training course for secondary school teachers, in particular, could be offered by Faculties of Arts and Education.

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4. An adult and continuing education programme could be provided for adults who need to acquire new skills and knowledge, or upgrade existing skills.

5. Faculties in other relevant colleges could be made available for training of high-level manpower in the fields of: Accountancy; Administration; Fisheries; Hotel and Hospital Management; Marketing of: agricultural, industrial and petroleum products, and so on.

If diversification of national income is to be effective, nationals must take an active and formal part in modern industrial activity (Birks and Rimmer,1984). As Burgess (1985) reminds us, people in all countries, developed and developing alike, face many social, economic and organizational problems. It is one purpose of post-school education to help overcome these deficiencies, by developing individuals so that they can best serve the country.

Linkage between education and industry can be of benefit to both parties.

Bringing industry and other economic sectors into the university in particular could increase national interest in technology and in education. The relevant departments and colleges within the university would have beneficial contracts with the world of industry, commerce and banking, and many joint projects could be undertaken to mutual advantage, when the work strategies and operational problems of industry and commerce become clearly known to the academic world.

Linkage between professional training and professional experience would enable trainees to understand required standards of performance and prepare them to solve operational problems.

Evans (1985) suggests that there are four groups of changes which need to be made to bring opportunities for adult learning into a better relationship with the lives adults now live:

1. The acceptance that sources of academic learning are diverse and that institutions should be prepared to accord such learning official recognition.

2. The next group is based on the studies of human growth and development; the acceptance of the implications for curricula of the psychological roots of readiness for learning, which become in fact sometimes a literal question of capability for learning.

3. Then come modes and patterns of study designed for adult learners as variations from present practice.

4. And last, and in a different category, money questions of the funding of institutions and of students.

All are variations on a common theme-recognition of what it means to be an adult learner in the last years of the twentieth-century and changes relate to every institution which provides for adult learning, though the emphasis may be different according the level of academic study.

4.6 The Role of the Libyan Universities in Manpower Education and Training:

Universities do not exist in a vacuum. As they become more integrated in and vital to the surrounding society they are required to undertake more functions and have to expand their role from training a small elite to serving diverse needs (Pattison, 1984). Libyan universities could be involved in the following main types of manpower training and education:

1. On-the-job (in-service) training, both full-time and part-time, for workers in different fields of industry and other economic sectors.

   This type of training could be organized by the universities through a designated unit in each organization which would implement provision.

2. Post-experience training courses can be offered directly by the universities for qualified experienced employees in the fields of their work.

3. Post-experience training and updating courses are a major responsibility of universities, because they are the sole agencies in the field.

   This can be done through a short-time release of, in particular, managers and supervisors in industry, commerce and banking corporations for full-time courses related to their job functions.

   Obviously, the size of a company is a factor determining the likelihood that it will release managers and supervisors for full-time courses. The larger the company, the more likely it is to have a formal management development scheme and to release

managers and supervisors to attend full-time courses. by virtue of its size, however, it is also more likely to have the necessary facilities to provide internal courses.

There are many reasons for the need to release managers and supervisors for internal and external training courses, among which the following can be given:

American oil companies operating in the country have withdrawn, and there has been a process - especially following the nationalization of BP and Amoseas- of mergers and acquisitions by many companies such as Um Al-Jawabi (Ex-Amoseas) which merged with AGECO (Ex Bp. Exxon's services as an operating company have been taken over by Sirte, a 100% Libyan Oil Company. Marketing activities have been given to a national company, namely Brega Marketing Company. The new demands on local expertise since the Americana companies withdrawal, the establishment of new petrochemical complexes and terminals and the setting up of new national oil services and catering companies create new needs for training.

More widespread training would facilitate achievement of the industry's objective of unifying its policies and operational practices.

4. In view of the importance now attached to the country's ability to develop in the industrial field in general and in oil and petrochemical operations in particular, improvement of existing facilities for the education of properly qualified and well-

prepared manpower should be accorded high priority, not only by the concerned industry but also by universities and other higher education authorities. The strengthening and redeployment of existing facilities is the most practical means of bringing about the improvement sought.

5. As this may be achieved not only by an increase in numbers but perhaps more effectively by an improvement in the quality of men who are engaged in this work, consideration should be given, in the case of the oil industry for instance, to the form of the courses now existing both in the universities and the technical colleges and institutions, beginning with the Petroleum Engineering Faculty, the university of El-Najm El-Sataa for Science and Technology, the Higher Institute of Electronics, etc.

6. Education, training and experience are all required to produce highly qualified and professional manpower and the balance between these three elements should, therefore, be agreed between the industries concerned and the appropriate university faculties and related institutions.

4.7 Conclusion:

An attempt has been made in the foregoing pages to explore the potential role of Libyan universities in addressing the problem of the shortage of skilled personnel, particularly in industry. The experience of the U.K and US demonstrates the potential value, both to industry and to

universities, of mutual cooperation in training and research. In contrast, it was seen that although university education in Libya has expanded rapidly, there has been a lack of planning and of philosophical direction, so that the output of the system is not commensurate with the needs of industry. We have therefore emphasised the need for Libyan universities to be involved in development planning, to familiarise themselves with the needs of industry and commerce, and to foster links with various sectors of the economy for the provision of education and training of different kinds, in response to need. These issues will be explored in the next chapter. The problem of acute shortage of skilled and well trained manpower cannot be solved without realising the importance of effective manpower planning and practical strategy and policy for adequate training and development for employees working in Libya's economic sectors, and the oil industry in particular.

Chapter Five

Chapter Five

THE IMPORTANT ROLE OF MANPOWER PLANNING,
EDUCATION AND TRAINING IN THE ECONOMIC DEVELOPMENT OF LIBYA

5.1 Introduction:

Libya has enjoyed a considerable growth of its national economy since its crude oil was produced and exported in the early 1960s. But despite the increasing and rapid expansion in the education system, the rising figures for enrolment and well-equipped buildings, the country still suffers from acute shortages of the well-qualified and skilled human resources needed to achieve the country's socio-economic development and transformation plans, and run the increased number of large industrial establishment like the oil industry, where a large number of foreign personnel still occupy core functions.

This chapter shows that a number of practical and theoretical problems are responsible for inaccurate manpower planning, and also for the retardation of the development of the necessary manpower education and training.

It outlines the scientific and practical factors needed to improve productivity, describes the procedure and methodology of manpower forecasting currently in use, and calls for action to correct its deficiencies in order to have a well-planned and properly executed strategy for effective manpower training and development for the purpose of real control of Libya's natural resources, mainly oil and gas.

5.2 Some Economic, Demographic and Educational Aspects:

Libya can be considered, from an economic point of view, as a developing country, with an ambitious economic programme, the success or failure of which will depend to a considerable extent upon the human factor. It became rich from the revenues obtained following the discovery of oil, and thereafter the country enjoyed economic and social progress. Before oil, especially in the 1950s, the country suffered considerable social and economic problems; but since the 1960s, Libya has achieved a higher standard of living than many other countries of the Third World, and its per capita national income has become relatively high, compared with some of the other oil producing countries (see Table 5.1).

Some important indicators of development have changed. For example, the birth and death rates and natural population increase rate per 1,000 population in Libya are lower now than in the past, and the ratio of doctors to population has improved. Libyan society has been developed from a rural society through a commitment to a process of modernisation, introduction of updated technology and application of modern scientific knowledge to many social and economic aspects of life. The industrial sector has become relatively well-developed. The country can be considered rich in natural resources, although the variety is rather limited, mainly concentrated on oil and gas. With the tremendous expansion of education, literacy has increased to about 50 per cent, which is relatively high compared with some of the other oil producing countries, especially considering the position in the 1950s and 1960s (see Table 5.2).

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Table No 5.1: Socio-Economic Indicators for OPEC Countries, 1960-83 (Current market prices)

	1960					1983				
	Population million	GDP $ million	Oil revenue $ million	Per capita GDP $	Per capita Oil rev. $	Population million	GDP $ million	Oil revenue $ million	Per capita GNP $	Per capita Oil rev. $
Algeria	10.80	2,670	228	248	20	20.57	49,450	6,630	2,400	320
Ecuador	4.36	940	(a)	216	(b)	8.19	11,690	1,470	1,430	180
Gabon	0.45	130	48	292	107	0.70	2,950	1,250*	4,250	1,780
Indonesia	92.70	430*	221	5*	2	155.82	87,120	13,480	560	90
I.R. Iran	21.52	4,330	820	200	38	42.51	na	19,070	na	450
Iraq	6.89	1,680	445	244	65	14.66	na	9,650	na	660
Kuwait	0.28	1,610*	962	5,750*	3,435	1.67	30,290	11,770	18,180	7,050
S.P. Libyan A.J.	1.35	350	12	265	9	3.34	25,100	11,390	7,500	3,410
Nigeria	42.95	3,360	50	78	1	93.64	71,030	11,590	760	120
Qatar	na	na	na	na	na	0.28	5,960	3,380	21,170	12,070
Saudi Arabia	3.19	1,400*	772	440*	242	10.44	127,080	47,810	12,180	4,580
UAE	na	na	na	na	na	1.21	25,770	13,950	21,340	11,530
Venezuela	7.35	7,660	1,980	1,042	270	17.26	70,820	13,840	4,100	800

Sources and notes:

1. 1983 is the latest year for which data on the indicators shown are commonly available for OPEC Member Countries. For that year, population, GNP and per capita GNP are from The World Bank Atlas 1985.

2. All the remaining data, except those denoted by asterisk (*), are computed from International Financial Statistics, 1984 Yearbook. Otherwise, the figures are estimates using the following sources: The World Bank Atlas, statistical annexes of the World Development Report, several issues, and national annual statistical bulletins.

3. na denotes not applicable, as Qatar and UAE were not yet formed at the time.
  (a) denotes less than $1.00.
  (b) denotes less than $1.00 million.

Table No 5.2: Socio-Economic Indicators for Selected Countries

	Adult literacy rate		% Primary school enrolment			Life expectancy at birth			Infant mortality rate			Population/ physician			% Population w/safe water	Energy cons./ person	
	1960	1974	1960	1975	1981	1960	1975	1982	1960	1974	1982	1960	1974	1980	1975	1960	1981
Middle East OPEC	15	50	59	90	108	45	53	59	176	125	90	5,800	2,100	1,300	58	550	3,367
IR Iran	15	50	90	90	95	44	51	60	163	120	102	3,800	2,570	–	51	522	808
Iraq	15	28	65	93	113	45	55	59	139	104	73	6,600	2,370	1,800	82	411	855
Kuwait	47	55	119	90	94	58	56	62	89	44	32	760	800	570	89	10,398	6,261
S.P. Libyan A.J.	22	50	59	145	123	45	53	58	158	95	65	5,800	1,140	730	100	198	2,309
Saudi Arabia	3	15	12	44	64	37	45	56	184	118	108	13,000	1,700	1,600	64	874	3,326
Other OPEC																	
Algeria	10	35	46	89	94	47	53	57	165	125	111	8,770	6,500	2,600	77	221	931
Ecuador	67	74	83	102	107	51	60	63	140	78	70	2,600	2,840	760	42	151	571
Indonesia	39	62	67	81	100	41	48	53	150	125	102	41,000	18,200	11,500	12	88	191
Nigeria	15	–	36	49	98	40	45	50	207	163	109	32,000	25,400	12,500	–	20	143
Venezuela	63	82	100	98	105	57	66	68	85	46	39	1,500	1,050	990	–	2,176	2,439
Low-income countries	10	23	30	52	72	36	44	51	163	122	114	20,000	12,000	5,770	28	140	253
Middle-income countries	54	70	79	97	102	49	58	60	128	90	76	3,050	2,430	2,020	60	317	721
Industrialized countries	–	99	108	104	101	69	74	76	29	15	10	860	650	550	–	3,141	4,985

Definitions: Adult literacy rate: percentage of persons aged 15 and over who can read and write.
Percentage primary scholars: total enrolment of students of all ages in primary schools as percentage of population of primary school age.
Life expectancy at birth: number of years newborn children would live if subject to the mortality risks prevailing for population cross-section at the time of their birth.
Energy consumption per capita (kg of coal equivalent).

Source: World Bank, World Development Report, 1984 Annex on World Development Indicators.

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Nevertheless, Libya has far to go to develop fully all of its resources. Some regions, especially on the coast, are developing rapidly, whilst others are grossly underdeveloped, particularly in some of the Oases and settlements in the South of the country. Some industries are well-developed, such as the oil and petrochemical industries and electric power; others still require much more development. Productivity in agriculture and in many manufacturing industries is low because of: (a) technological backwardness; (b) unenterprising management; (c) low level of incentives to change traditional work practices and attitudes. In addition, the general pace of change set by social customs is a slow one.

5.3 Phases of Socio-economic Development:

Since independence, the Libyan Government has recognised the necessity of further development of the economy, and since the mid-sixties efforts have been focused on industrial establishments. It was reported that capital formation for the oil and industrial sectors from 1963 to 1986 was about LD 4.1 billion, giving rise to 415 industrial projects, 161 in heavy industry and 254 in light industry (as shown in Table 5.3). In recent years, as a result of governmental policy to allocate a high proportion of oil revenues to industry (beside the expansion of petrochemical plants and complexes) such enterprises are growing faster than before, despite deficiencies in their operations. As a result, Libya has enjoyed a significantly higher standard of living than other countries; the per capita in Libya for 1980 reached US$ 8,640,

Table No. 5.3: Industrial Establishments 1970-1986

Industry	Heavy Finished	Heavy In process	Light Finished	Light In process
Food Industries	52	8	26	54
Textile Industries	16	1	34	27
Wood and Paper Ind.	7	1	3	16
Petrochemical & Chemical Industries	24	3	13	21
Construction Materials	23	2	9	19
Metal & Engineering	18	6	10	22
Totals	140	21	95	159

Gross total = 415

Source: Secretariat of Industry 1987.

whilst in Algeria in the same year it was US$ 1,920

(Kadri,1986). in order to maintain the benefit for future

generations, the government is pursuing a policy of economic

diversification, based on the assumption of a future decline

in oil revenues:

> "Over-reliance on these revenues would thus carry
> the risk of total national income decreasing to a
> level that would not allow the maintenance of
> present living standards. In order to minimise this
> risk, investments are made in new industries and
> enterprises independent of oil production, an also
> for the development of agriculture, forestry and
> fisheries"(Kadri,1986, p.313).

In this regard Birks and Sinclair (1978) note that the

change of emphasis towards heavier industry is most obviously

exhibited by the development, for example of: ·

> (1) The iron and steel industry at Misurata which
> cost some $1,000 million. This is a typical
> example of an oil exporter trying to diversify
> and attain a foreign exchange capacity.

> (2) The investment in foreign exchange returns in
> the Cement plant, with a planned output of 7
> million tons per annum by 1980, allowing for
> exports of some 3 million tons once the
> domestic market is provided for.

> (3) Aluminium production is also planned.
> Japanese assistance has been sought in building
>
> a US$800 million plant to be run by a joint
> company established with Yugoslavia from where
> aluminium will be imported (pp29-30).

With regard to development planning, the aims of the

Economic and Social Transformation Plan were stated in 1976,

when projected spending of LD 7.5 billion was announced. This

sum was subsequently increased by 23 per cent to LD 9.3

billion. In addition, to reducing dependence on Oil and

achieving self sufficiency in food production, The plan

aimed:

(1) To increase productivity of manpower - an
acknowledgement of manpower shortages- and to
engender a more equitable distribution of income
throughout all sections of the population.
(2) In order to achieve this restructuring, a real
annual growth rate of 14.1% in the non-oil
branches of the economic and one of 7.8 per cent
in the Oil sector were envisaged. Exports were
planned to rise some 8 per cent per annum,
outstripping imports by almost 3 per cent,
leading to a substantial forecast surplus by the
end of the plan (Birks & Sinclair, 1978, p25).

Industrial production in 1977, as an example, totalled to

LD 71 million (US$ 245 million) an increase of 34 per cent

over 1976, this being in line with a declared aim of a 30 per

cent annual growth rate in industrial activity - the highest

rate of all sectors (see Table 5.4).

5.4 <u>Skill Shortages and Labour Requirements:</u>

Because of its demographic and educational character and

because of its current stage of social and economic

transformation and development, Libya has critical manpower

needs not only at the unskilled and skilled levels of the

occupational ladder, but also at management, professional,and

technical levels. In response to manpower shortages in

sensitive, technological vocational fields, the Libyan

educational system has therefore begun to emphasise

job-related training rather than more classical curricula.

Nevertheless,unfortunately, modern education is not

particularly well focused towards producing students attuned

Table No 5.4: Annual Growth Rates for Selected Sectors in 1980

Sector	%
Industry	30
Electricity	23
Transport	18
Agriculture	16 .
Education	14
Health	12

Average growth rate of non-oil sectors 14.1%

Source: J. S. Birks & C. A.   Sinclair, The International
Migration Project: Country Case Study: Libyan
Arab Jamahiriya, The University of Durham,
Department of Economics, July, 1978, p. 30.

to the needs of economic development. In general terms, the nature and direction of education is little suited to furthering the declared aims of the government-modern industrial economy, and the educational system existing in the country today can be characterised as being linear in design, heavily biased towards arts and literature, and as having a general university education as the pinnacle of the education pyramid (I.L.O.,1979).

In brief, the structure and emphasis of the country's

educational system combined with the employment policies of the government mean that: there is an unusually large number of university enrollees; vocational training attracts only the drop-outs of the formal system and the academically less able and carries the stigma of being the last resort of those unsuccessful in educational terms; school leavers tend to have formal and academic qualifications more applicable to clerical and administrative work than to technical or scientific jobs (I.L.O.,1979). This and continuing manpower shortages, as well as high student drop-out rates, have resulted in several reform proposals. One Peoples' Congress proposal of January 1982 suggested that specialisation in schools be encouraged at an earlier stage. Thus, general secondary schools would be phased out and replaced by

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secondary level technical training institutes whose curricula would be linked to those of universities and higher technical institutes. Another suggestion was that public sector corporations should be directed to hire only graduates of technical institutes (Kadri, 1986)

The weaknesses mentioned above, combined with many others in the Libyan education system have a considerable relevance to the labour market, which depends quantitatively and qualitatively on expatriate personnel.

The rapid increase in the rate of economic development since 1960s has been reflected in an overall increase in the labour force. In 1964, there were 96,761 economically active in Libya. By 1969, this had almost doubled to 182,000, and by 1974 the increase had become even more remarkable, the total employed having risen to 540,000, and it was expected that the labour force in the country would rise to some 930,000 in 1980. It was impossible, however, for such a large increase in the labour force to be met from the indigenous population of Libya, so the number of Libyans in employment was planned to rise from 454,000 in 1975 to 545,000 in 1980. However, Birks and Sinclair (1978) suggest those figures were somewhat optimistic. They expected the increase in Libyan labour force to be some 20% less than planned. Their

assumption proved correct, as will be seen.

From Table 5.5 we can see a decline in·the percentage of workers employed by Agriculture from 39 per cent in 1964 to 16.8 per cent in 1985 and a small increase in services (including Transport, Public Administration, Health and Education) from 39.3 per cent in 1964 to 43.8 per cent in 1985, while the percentage of those employed in Petroleum, Mining, Manufacturing etc., almost doubled, from 20.3 per cent in 1964 to 39.4 per cent in 1985.

Although the non-Libyan element in the labour force was projected in the 1976-80 plan to reach 41.3 per cent by 1980, it was in practice substantially larger. At the January 1982 meeting of the General Peoples' Congress, It was reported that, while the 1981-85 plan provided for expatriate workers to increase to 388,000 by the middle of the decade, their number already totalled 623,000 (of whom 106,000 were unskilled) (S.P.Libyan A.J.,1982).

These figures reflect Libya's serious shortage of qualified personnel at many levels and in most key posts in industrial sectors. In the oil industry, for example, at the end of 1982, as Table 5.6 shows, number of vacant positions was 3,200, equivalent to 30 per cent of the present workforce.

Table No 5.5:   Total Employment by sector, 1964-1985

Sector	1964 %	1975 %	1980 %	1985 %
1. Agriculture, Forestry, Fishing and Hunting	39.9	19.6	18.9	16.8
2. Petroleum, Mining, Manufacturing, Electricity, Gas, Water & Construction	20.3	31.9	33.4	39.4
3. Services (Trade, Transport, Finance, Public Administration, Health, Education) and other services.	39.3	48.4	47.7	43.8
Total	100.0	100.0	100.0	100.0

Adapted from the following sources:

1)   1964 and 1975 from Birks & Sinclair, The International Migration Project, op., cit., p. 36.

2)   S. P. Libyan A. J., The Socio-Economic Transformation Plan 1981 - 1985, A summary of development prospects and priorities and of opportunities for British firms, July, 1982, p. 11.

Table No 5.6: Number of Vacancies in Oil Producing
Companies in Libya at the end of 1980

| | Key | | Skilled | | Qualified | | Unskilled | | Total | |
	L	E	L	E	L	E	L	E	L	E
Core	510	240	320	420	700	660	650	—	1350	660
Non-core	120	30	350	110	600	140	450	—	1050	140
Total	630	270	670	530	1300	800	1100	—	2400	800
Total	900		1200		2100		1100		3200	

Codes: L = Libyan   E = Expatriate

Source: Oil Sector Manpower Development Plan'85, Tripoli, 1981, Exibit 5.

Two thirds of these vacancies were in qualified manpower categories, a total of 2,100 vacancies, equivalent to 45 per cent of the present number of qualified manpower. These figures point to major demands on recruitment, training and development. A plan was set for the availability by 1985 of a group of top professionals, such as geologists, resource analysts, surveyors, petroleum engineers (reservoir, production and drilling) and computer specialists, but it was recognized that this long-term target could not be reached without proper planning and good follow-through (Libyan National Oil Corporation, 1981).

5.5 Factors to Improve Labour Productivity:

Although great efforts have been made to improve the national productivity - as may be seen in Table 5.7 which shows the forecast of labour productivity for 1981-1985 - it has to be said that more efforts are still needed, not only for the further social and economic development of the country, but also to increase the contribution of nationals and reduce the dependence on expatriates. In this regard the following points are of particular importance:

1. Evaluation of labour productivity requires identification of all factors which lead to its improvement. The human factor is to be considered the most important; its

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Table No 5.7:Labour Productivity Targets-Value Added Per Head

	Labour Productivity in LD			productivity Index of Growth		Annual Rate	
	1975	1980	1985	1980	1985	1976-80	81-85
Economic Sector	Actual	Ammended	Target	1975	1980		
National Economy (a)	3,203	3,956	4,914	123.5	124.2	4.3	4.4
National Economy (b)	3,178	3,796	4,573	119.4	120.5	3.6	3.8
1.Agriculture, Forestry & Fishing	962	1,035	1,265	107.7	122.1	1.5	4.1
2.Other Mining and Quarrying	4,348	4,947	5.948	113.8	120.2	2.6	3.8
3. Manufacturing	2,705	4,190	5,747	154.9	137.2	9.1	6.5
4. Electricity, Gas & Water	1,615	2,589	4,039	160.3	156.0	9.9	9.3
5. Construction	4,240	4,794	5,611	113.1	117.0	2.5	3.2
6. Transport and Communication	4,101	4,254	4,704	103.7	110.6	0.7	2.0

(a)   Without Crude Petroleum and Public Administration.

(b)   Without Crude Petroleum,   refined products, petro-chemicals and Public Administration.

Source: Secretariat   of   Planning,   Directorate   General   of Demography and Manpower Planning, TRAINING GUIDE ON MANPOWER PLANNING,   Tripoli,   1983,   p.   144.

contribution to increased labour productivity depends on labour skills, job experience, and a desire to work, which is strongly related to morale and monetary incentive.

2. The role of capital equipment should not be under-estimated. Productivity can be increased substantially by the application of highly efficient machines and apparatus, as well as modern methods of production. This can be achieved by implementation of adequate investment programmes, as well as the development of technological research. Where equipment and technology are imported from abroad, careful selection is essential.

3. The efficient application of all the factors of labour productivity depends, to a great extent, on management and organisation, at two levels: management and work organisation in particular establishments, which has direct impact on productivity, and the management and organisational structure of the national administrative machinery as a whole, which involves planning human resources development and monitoring development plans. Any improvement of the administrative machinery has strong, though not direct impact on the levels of productivity in many sectors.

4. Finally the impact of all these stimulants to labour productivity depends mainly on the over-all macro-economi

policy*, as there is a close link between decisions taken at the macro-level and work efficiency at the establishments level.

The macro-economic policy may influence:

a) manpower ability to work, by developing suitable education and training systems, and by improving moral and monetary incentives;

b) capital equipment and technology (methods of production),by implementing productivity-promoting investment programmes and methods of production;

c) management and organisation, by carrying out structural changes in the national economy aimed at full utilisation of the existing manpower resources, and enhancing collaboration between different economic sectors, as well as between establishments and supervising agencies.

The main stimulants of labour productivity and inter-relations between them are shown in Figure 5.1.

The main problem, with regard to the labour force in Libya, is the continued, indeed increased reliance on expatriate workers. Although this may be considered as justified by the ambitious investments programmes which have been carried out for the social

* This means the various policies formulated and implemented at national economy and/or sectoral levels to achieve the overall objective and targets.

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Figure No (5.1):   The Main Stimulants of Labour Productivity
                     and the Iter-relations between them

LABOUR PRODUCTIVITY
(Output per Head)

HUMAN FACTOR
(Labour Ability and desire to work)

CAPITAL
Equipment and Technology
Methods and Production

Education and Training   Experience   Incentives   Incentives   Scientific Surveys and Researches

MANAGEMENT AND ORGANISATION

MACRO ECONOMIC POLICY
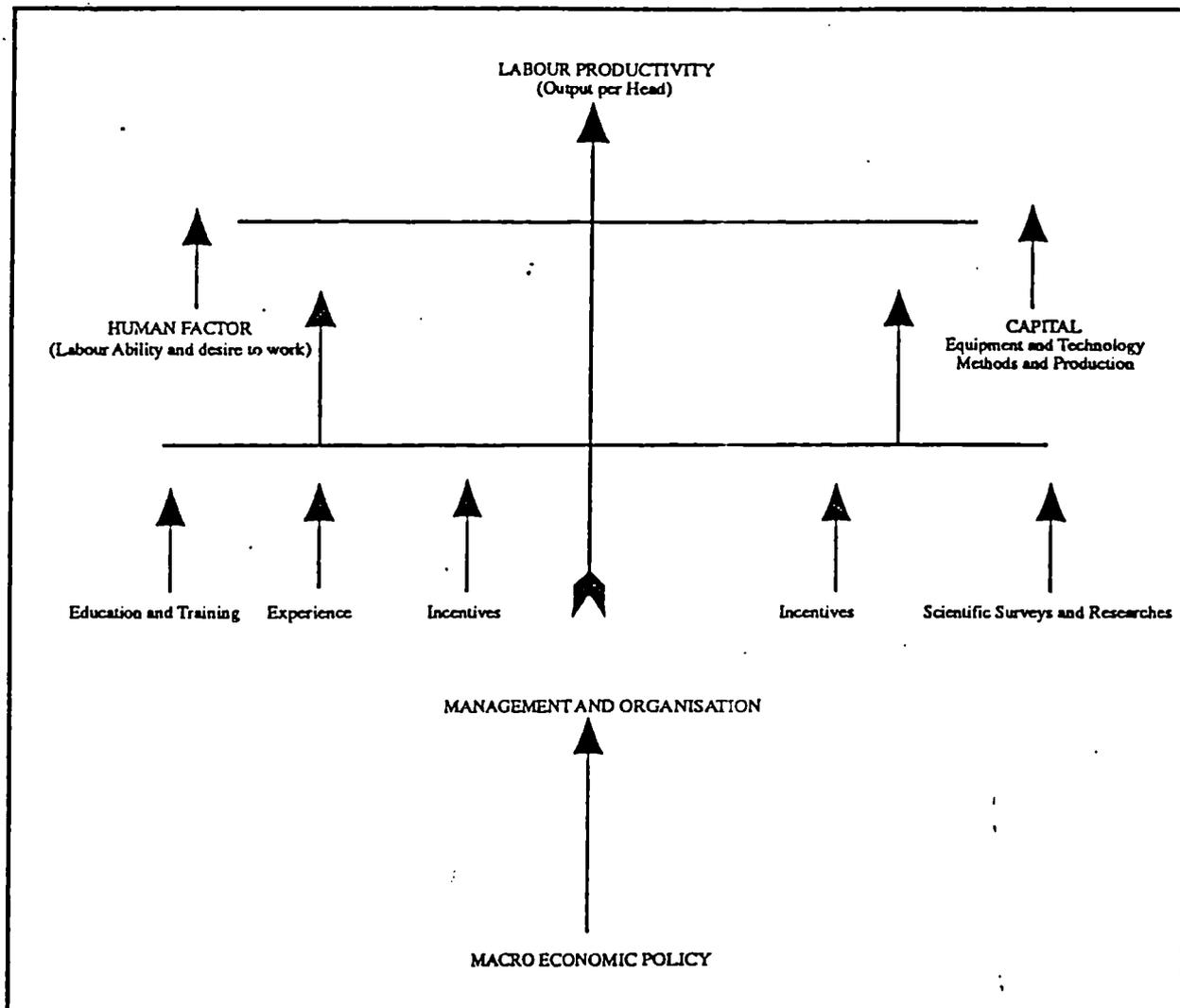
Source: S.P. Libyan Arab J; Secretariat of Planning. Training
         Guide on Manpower Planning, Directorate General of the
         Demography and Manpower Planning, Tripoli, Libya,1983.

and economic transformation and development of the country, it is argued that if participation and labour productivity were higher, adequate education and training systems were developed and if morale and monetary incentive policies for indigenous personnel were improved, then the reliance on expatriates could be decreased. For its own national pride and national security, as well as for economic reasons, the country should plan to have sufficient national manpower, especially at a high-level,to implement its development plans (Gummed, 1979).

University shortfalls may be the initial stage in a skill shortage. Then in the professions, if too few people are in the pipeline, there may ultimately be a skill shortage, depending on the actual demand, examples are legion - computer personnel and electronic engineers in particular.

One solution to the problem is to train people who have a related skill, or who have the potential. One advantage of this course of action is that large areas of the population, who were not eligible for various careers, may now return, to the benefit not only of the country but also of themselves (Marsden, 1986).

An effective strategy of human resources development and labour force productivity depends on the following key factors:

1. Overall socio-economic policies, as there is a close link

between decisions to be taken at the national level and work efficiency at the organisational level.

2. Overall educational and training strategies which include female education at all levels (female participation in the workforce is relatively low, and as we have seen, female literacy lags behind that of males), on-the-job training, individual self-development, and informal as well as formal adult education.

3. Well-planned and adequate incentive policies to attract people to enter the workforce, especially in the most critically needed sub-professional occupations, as well as to retain current employees.

4. Organisational structure management a strategy aimed at full utilisation of existing manpower resources.

It is quite illogical that a country like Libya, looking forward to greater development, should invest inadequately in manpower resource development, allocate money to inappropriate types of education and training or fail to integrate effectively formal education with on-the-job training programmes. Educational reform is as important as increased educational investment for promoting economic and social development.

In fact, Libya's investment in human resource development and training is inadequate to address the current skill shortages. For example, as shown in Table 5.8 the allocation in the 1975 development plan for training programmes for all economic sectors was only LD 29.6 million, 2.7% of the total plan budget of over LD 1 billion and only a fraction of the sum lavished on military hardware (arms purchases from the Soviet-Union are thought to amount to $6,000 million)(Birks and Sinclair, 1978) or on prestige building programmes. This implies a lack of awareness of the importance of the human factor in socio-economic development. Adam Smith considered that a man's talent should be part of his fortune, as well as that of the society to which he belongs, while Alfred Marshall argued that the most valuable of all capital of a country and nation is its investment in human beings (Harbison and Myers, 1965).

In this regard it was stressed in the 1988 symposium of the United Nations Economic Commission for Europe that:

> "Technological innovation in industry will have
> a profound impact on productivity, international
> competitiveness, economic growth, the structure
> of industry and employment patterns. In order to
> maximize the benefits of advanced technologies,
> new management approaches based on innovation
> and change must be developed, and training will
> play a key role in this process".(40,2)

Table No 5.8: Allocation to Training Schemes in Different Sectors and Their Percentage of the Expenditures of the Plan of1975

Sector	Total amount allocated in LD	Name of programme	Allocation LD	%
1. Agriculture and agrarian development	100,146,000	Research statistics and training	1,120,000	1
2. Integrated agricultural development	131,000,000	Nil	Nil	Nil
3. Industry and mineral development	138,000,000	Nil	Nil	Nil
4. Oil sector	83,780,000	Training	4,500,000	5
5. Electricity sector	114,320,000	Training	2,500,000	2
6. Transport and communications	72,407,000	Nil	Nil	Nil
7. Education sector	109,975,000	1. Vocational training 2. Teacher training 3. Postgraduate scholarships	1,790,000 5,260,000 3,000,000	10
8. Public health	25,247,500	Medical training	2,175,000	
9. Labour	8,707,700	Vocational training	8,107,700	93
10. Social affairs and security	6,901,000	Nil	Nil	Nil
11. Housing and utilities sector	130,000,000	Nil	Nil	Nil
12. Economy and tourism sector	3,470,000	Nil	Nil	Nil
13. Information and culture sector	8,110,000	Training on information affairs and printing	325,000	4
14. Municipalities sector	95,880,000	Nil	Nil	Nil
15. Planning and scientific research	8,515,800	Research studies and training	400,000	4.7
16. Administration development	377,000	Studies and training	377,000	100
17. Projects resources	5,293,000	Nil	Nil	Nil
18. Nutrition and marine wealth	3,870,000	Nil	Nil	Nil
19. Marine transport	63,370,000	Nil	Nil	Nil
Total	1,110,000,000		29,554,700	2.7

Source: Adapted from M. A. Fergami (1983). *The Libyan Jamahiriya*. Danf Publications, London, pp. 156-163.

In similar vein, Report II of the Petroleum Committee submitted to the Ninth Session of the I.L.O. in Geneva, 1980 notes that:

> "Bearing in mind the fact that productivity depends not only on employee motivation and skills but also on the provision of more and better equipment, a sustained effort is needed to train and upgrade the workforce at all levels. This is a real investment which may not have received everywhere the attention it deserve since, up to now, the proportion which the Petroleum Industry (in specifically) has invested in the recruitment and training of personnel to produce a given capital asset has been around 1 per cent - or less - of the total investment therein. One expert has estimated that even the most generous training budgets should be multiplied by five if the desired objective is really to be achieved'(pp5-6).

5.6 The Supply of Qualified Manpower in Libya and its Procedural Implications:

The main focus of this study, it will be recalled, is upon skilled, technical, executive and professional manpower. Such manpower is strategic to economic growth and attainment of socio-political objectives. The acquisition of high-level skills by Libya's labour force will necessitate a sizeable commitment of aggregate investment by the government and people over the foreseeable future.

For the purpose of this study, high level manpower is define operationally by concurrent reference to two criteria:-

1) Descriptive occupational title or activity.

2) The level of formal education required and typically

   associated with the occupation.

This procedure yields the simplified model of Libyan
employment structure set out in Chart No 5.1. Categories 1,11 and
111 constitute high-level manpower by definition.   The minimum
educational cut-off for inclusion in the high level manpower
category is at least nine years of formal education. However, new
entrants to the workforce in Libya enter at different ages and with
different levels of qualifications. Some (usually in the age group
21-24 years) hold a University or High Institute Degree. Others
aged 18-20, are graduates of Teacher Training Centres or Institutes
and Secondary Technical Institutes. Another category is made up of
graduates from Training Centres and some graduates from
Preparatory and General Secondary Schools, while yet another group
of new entrants is composed of those young boys and girls who have
not completed their studies, but have dropped out from educational
institutions.

All the entrants, taken together, form a certain skill
structure which determines the percentage share of different
occupational categories and occupations among the total.

Thus, outflow of graduates from the educational and
institutional training system, d different specialisations, is the

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Chart No. 5.1: Formulation of High-Level Manpower concept

Model category	The present broad occupational category used in Libya with modifications	Representative occupational titles or description phrase	Educational attainment or job requirement
I. Professional	1. Professionals Technical	Responsibility for policy decisions: Secretaries (Ministers) under-secretaries, top administrators in industry and related speciality public services	University graduates or postgraduates plus a quite professional experience mostly in a related speciality
II. Executive, administrative and technical	2. Administrative and managerial	Middle management or top level assistants to the above professionals departmental managers, academics, judges, chief engineers	Not less than 12 years of formal education plus special training and reasonable period of experience in related function of the job
III. Skilled	3. Chemical and related occupations	Occupation which requires skilled clerical and other services work	From 9–12 years of formal education
	4. Skilled and semi-skilled occupations	Production and other related work	
IV. Others	5. Unskilled workers	Not stated and not adequately defined	Less than 9 years of formal education

Source: Adapted from the following sources:

Hanbrison, F. and Myers, C. A. 1965. *Manpower and Education.* McGraw-Hill Book Co., p. 278.
S.P. Libyan A.J. 1983. *Demography and Manpower Planning, Training Guide on Manpower Planning.* Tripoli, p. 195.
S.P. Libyan A.J. 1980. *Secretariat of Planning, Results of Manpower Survey 1980* (tables of distribution of the workers by occupational major groups). Tripoli.

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main way of raising the qualifications and improving the skill structure of the productive force. Therefore, in education and manpower planning, special emphasis has to be placed on the formation of the skill structure most suitable for meeting manpower requirements. While sectoral requirements for labour can be useful tools in the formation of manpower distribution policies, they cannot provide the kind of information needed for guiding the establishment of educational and training programmes which are consistent with the development goals of the country, particularly those related to development of national human resources. Detailed information is needed about the occupational composition of manpower required in the various sectors at specific points in time. However, this aspect of manpower planning activity is more difficult than the projection of demand for labour in quantitative terms, as it requires a more complex projection methodology and a broader statistical scope.

5.7 The Current Methodology of Manpower Forecasting:

Projections of qualitative composition of employment in Libya are restricted to five broad occupational categories: Professionals, Technicians, and related occupations, skilled and semi-skilled occupations and unskilled workers. This is due to scarce manpower data, as well as lack of experience in application of suitable techniques for forecasting. The methodology of projecting in use is an extrapolation of past trend with a general

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assumption of increased numbers of professionals, technicians, skilled and semi-skilled workers, and a decrease in the number of unskilled workers.

It should be said that Libya is not the only country to suffer from these kinds of shortcomings related to manpower planning - it is the case of most developing countries, for many reasons.

In this regard Castley and Alftham (1986) state that I.L.O studies have found the main reasons for the disappointing performance of manpower forecasting to be as follows:

1. Statistical systems were incapable of gathering meaningful data;

2. Forecasts were inaccurate, and predicted shortages often became costly surpluses;

3. Qualitative aspects were frequently ignored;

4. The actual costs of manpower training were neglected;

5. Undue emphasis was placed on formal training for high-level manpower in the modern sector, to the almost total disregard of the informal sector (pp546-47).

It seems that the main points that were suggested, two decades before by the I.L.O., are still valid in regard to types of manpower information, the systematic collection and development of which would seem indispensable for the target - setting approach to human resource planning in industry in particular, and to

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organisational aspects of this approach at both the national and international levels. Five tools were recommended by the I.L.O. to specify the skill requirements of industries in developing countries. These briefly are:

1. An occupational breakdown of the population census should be made, or (whenever the sources do not permit this) a sample inquiry showing numbers by individual industries.

2. A sample survey of the actual educational and vocational qualifications of workers in selected occupations in individual industries would supplement that mentioned in the proceeding paragraph and would be of great help in connection with the three following suggestions.

3. A system of vocational training statistics, covering both formal courses and on-the-job training arrangements, and showing what is being done in this field and, if possible, at what cost, would greatly facilitate any target-setting in the area of industrial training.

4. A statement of general skill requirements should be formulated - and revised from time to time - for selected areas of industrial work that are expected to grow in the countries concerned.

5. Specific skill requirements should be catalogued for a number of key occupations (perhaps from 100 to 150) in a limited number of key industries. Such a catalogued would be useful for the same purposes as those stated in the previous paragraph, as it would be the basis for making specific training arrangements for the really crucial occupations in industry (I.L.O., 1967, p45).

5.8 The Need for an Accurate Forecasting:

The future high-level manpower requirements must be considered in terms of two major components: GROWTH; and REPLACEMENT. The growth factor is importantly affected not only by absolute economic growth, changes in the composition of the economy, productivity and technological developments, but also - in the Libyan context - by the expansion of present governmental services, especially education, agriculture and industrial projects, and the assumption of new governmental responsibilities, such as the establishment and maintenance of huge complexes of heavy and petro-chemical industries.

In the case of the oil industry, particularly from a manpower planning point of view, an important issue is the linkage between the skills acquired and their utilisation, exemplified by the following comments on the skill profiles needed for the three main activities or operations: exploration, engineering and production of an oil and gas-producing company (see Table 5.9) (I.L.O., 1986):

1. The number of personnel in each department obviously depends upon the size of the company and its operation. The number may also be affected by the amount of work contracted to specialist firms, for instance, the hire of drilling rigs and associated personnel for offshore drilling reduces the requirement for drilling personnel.

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Table No 5.9:   Skill Profiles of Departments within
and Oil/Gas Production Company

Skill category	Exploration	Engineering	Production
Scientific	Exploration management Interpretation geologist Interpretation geophysicist Other (geologists and related (R&D)		

General engineering		Engineering management
		Electrical/instruments
		  design process (and
		  design)
		Civil, structural (marine
		  and naval)
		Quality assessment/
		  control
		Costs contracts and
		  planning
		Mechanical (design)
		Telecommunications
		  services
		Projects (construction)
			Telecommunications

Production/drilling			General management
			Drilling/wellsite
			Platform engineer
			  (electrical)
			Maintenance — electrical
			Maintenance — technical
			Maintenance — other
			Technical/Installation
			  management

Technical support	Technical assistant
	  (exploration)
	Stratigraphic laboratory
		Draughting
		Technical assistant
		  (engineering)	

Operations support			Operator
			Multi-skill technician
			Technical assistant
			  (production)
			Safety/Medical/
			  Emergency
			Marine services
			Operations laboratory

Supply and trades			Supply contracts Materials control Security

Computer	Exploration data
	  processing
	Seismic/non-seismic data
	  processing		

Administration	Secretarial
	Information retrieval
	  library
	WP/VDU/comp. term.
	  operators
		Secretarial
		WP/VDU/comp. term.
		  operators	

Source: I.LO. Manpower Planning and Development in the
Petroleum Industry. I.L.O. Geneva, 1986.

2. The requirements of every company will differ depending upon how its operations are ·designed.

3. Changing conditions in the industry make it imperative that workers acquire knowledge and access to information on its optimum utilisation of skills available in the industry.

4. Rapid development of new fields, e.g. in the North Sea in the 1970s, or of other petroleum activities, such as in many developing regions today, entails innovation in supply and utilisation of skills.

The Report III of the I.L.O. Petroleum Committee in 1986 discussed this matter in relation to developing countries and stated that:

1. There can be considerable divergence between manpower requirements for production operations, the available theoretical knowledge base, experience and career expectations.

2. In an environment with low general educational standards and scarcity of high skills, personnel policy should be geared to close integration of recruitment, on-the-job training and career mobility, which requires much more attention to be paid to the assessment of training needs and its integration with career and incentive policies.

3. National training policies should pay special attention to

general upgrading of skills. The social patterns should be involved in planning at these different levels:

The replacement component for high level manpower is the sum of wastage, the normal labour force losses occasioned by death, retirement, illness etc. However, the wastage factor is a continuing element in any society.

The potential supply of high level manpower includes both domestic and external sources. The latter involves the importation of human capital rather than physical capital and represents the traditional sources of high-level manpower for Libya. The preparation of indigenous supervisory and technical cadres must be accelerated if the country's goal of Libyanisation is to be successfully reached. The formal educational system is the mother lode for high level manpower. However, it typically provides merely the basic raw material and must be supplemented by the refining processes of job-oriented programmes in either special training institutions or on the-job-training (as will be suggested later). Investment in human resources, it should be noted, involves not only education and training but also geographic relocation, housing, medical care, etc. These affect the amount of available manpower not only in the present but also in the future.

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As to the proper use of manpower assessments, it is axiomatic that continual upgrading reconsideration is essential in order to take into account the development of fuller and more reliable labour force data and changing political-economic conditions and goals.

In broad outline, the ensuing analysis involves the following procedure:

(1) Identifications and estimations of the pool (or what is normally called "stock") of high-level manpower in a certain base period; and

(2) Judgements regarding the accretions and deletions that may occur in the high level manpower base during the period of projections.

The previewing of manpower assessment is essentially a judgemental process based on the available labour statistics and stated or assumed political, social and economic goals and targets. Insufficiency, error, or change in any of these basic elements will significantly alter the findings.

The key factual gaps regarding Libya's labour force at present include the size and composition of the population, the occupational structure of employment, wastage rates and trends in both the industrial and public sectors.

The central assumptions which affect future manpower

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requirements pertain to the rate of total employment growth, the rates at which the high-level manpower categories multiply in relation to total employment, changes in the relative balance of employment in industry and other public services, wastage rates for the various occupational groups and the pace of the Libyanisation programme.

On the supply side, the main suppositions involve the potential output of educational and training programme, the time lag between completion of formal education and job readiness (i.e., the pipeline factor), and labour force participation rates for males and females.

Figure 5.2 illustrates a manpower planning system to minimise the risk of a company having a surplus or deficit of manpower with given skills (I.L.O.,1986). Such decision-making is an essential activity in an integrated multiple corporation.

5.9 Libyanisation:

Libyanisation has as its ultimate purpose the replacement in the employment structure of expatriates by Libyans. It seeks to accomplish national sovereignty in employment terms. In view of the transformation and the development of the country, it is urgent that an explicit Libyanisation policy be issued, setting out definite ground rules for expatriate employment in the various

Figure No 5.2: A Manpower Planning and Development System
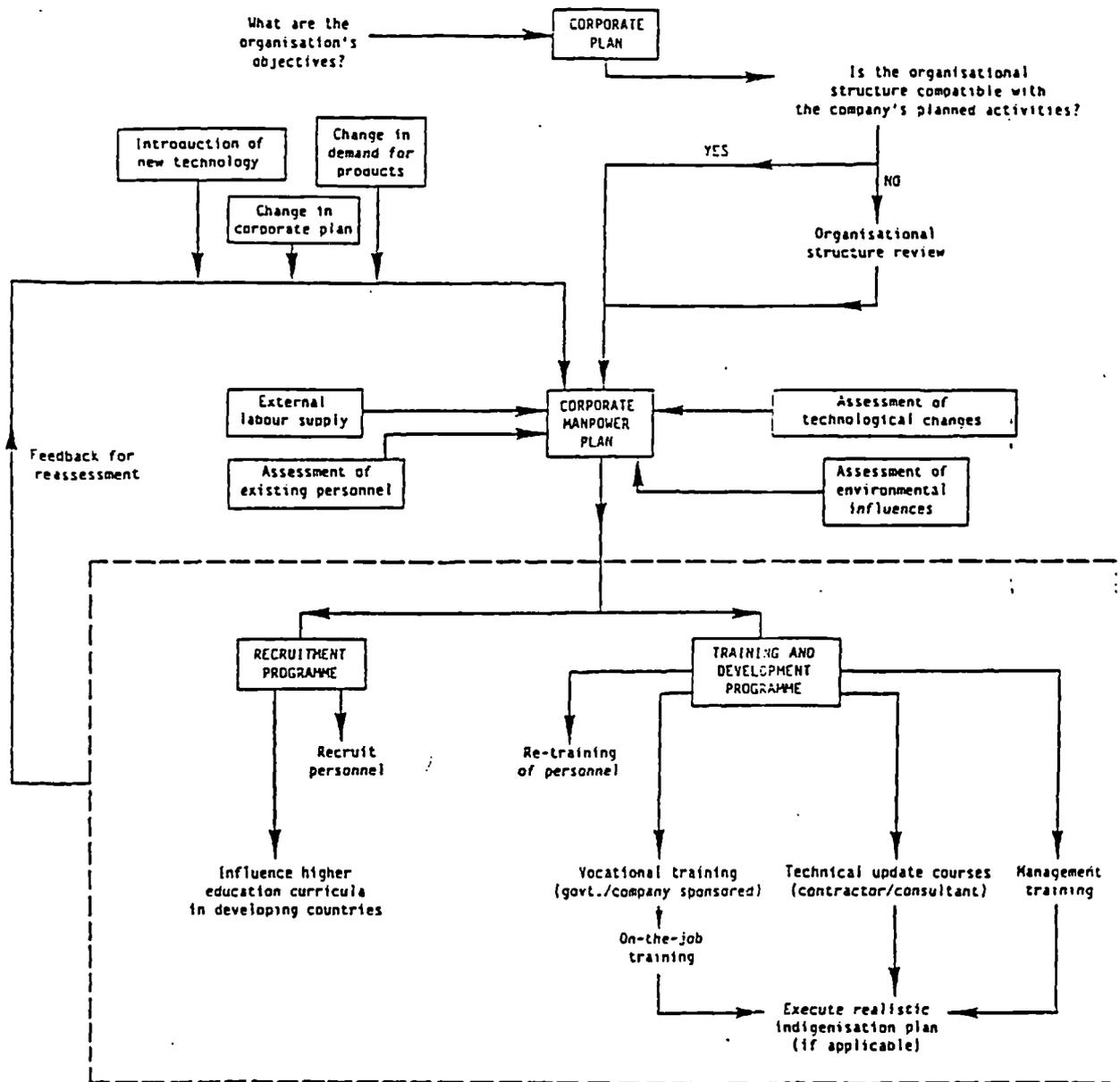
Source: I.L.O. Manpower Planning and Development in the . ¯ ¯
Petroleum Industry. I.L.O. Geneva, 1986.

economic sectors.

Viewed positively, the Libyanisation policy seeks the effective utilisation of the most needed Non-Libyan personnel. Its aim is planned replacement, rather than chaotic dispersal, as it has always been the practice in Libya to hire foreign personnel to make up for the deficiencies in skilled manpower. There is nothing wrong with such a practice, as long as it is done systematically for specific tasks and for specific periods of time while the development of local manpower is under way (Balazi,1973).

Therefore, the pace of an effective Libyanisation policy is essentially governed by the availability of Libyan replacements, especially in the major strategic industries, such as oil. The 1985 development plan for that industry has called for the following efforts to be deployed in order to Libyanise approximately 2900 positions:

1) Ensure that stated requirements represent legitimate needs. This will be a gradual process, and in view of the many openings for specialised qualified manpower, some of them unfilled for years, the outcome is uncertain.
2) Prevent losses, from the oil section, of qualified Libyans, leading to possible "de-Libyanisation" of positions.
3) Ensure optimum Libyanisation, that is the placing of the greatest number of nationals into expert positions, at the earliest moment, commensurate with maintaining proper standards (L.N.O.C, 1981, Part VII, p1).

A Libyanisation policy that necessitates or can only be

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maintained by external recruitment is not only self-defeating in the sense of failing to accomplish its basic purpose, but also wasteful of available resources. External recruitment tends, in the experience of the oil industry, to be more costly than utilising existing personnel. This was clearly demonstrated in the early 1980s when many personnel were conscripted for an indefinite period of military services and had to be replaced, and when qualified and experienced personnel in areas were shifted from areas where there was a surplus of manpower, to totally unrelated functions, requiring extensive training.

In addition, the Libyanisation policy must be differentiated from procedures designed to weed out incompetent personnel or those who cannot or will not give full support to public policy. The interests of socio-economic development goals require a surgical rather than a meat-axe approach; effective administration is diagnostic and selective rather than indiscriminate.

Procedurally, Libyanisation involves a balancing of the objectives of national sovereignty with highly qualified manpower demand and supply relationships. Some elements to be considered in the formation and administration of the Libyanisation policy, include:

1) Determination of the positions which must be Libyanised in the immediate interests of national sovereignty and safety. Not all posts are equally strategic.

2) Preparation of manning tables and replacement schedules
    for each sector and sizeable employment division; with
    regard to the Oil Industry in particular, these should be
    maintained for each occupational group.

3) Imposition of an obligation upon present non-Libyan
    personnel to train of replacements and notify when they
    intend to leave in order to qualify for a lump-sum
    termination settlement.

4) Communication of the Libyanisation policy and its
    specific ground rules to all personnel.

It is accepted that the employment of Non-Libyan personnel is
inescapable in the foreseeable future, if the objectives and
targets of development are to be attained. The real issue is not
whether to employ Non-Libyans, but - how, in what positions, in
what numbers and on what terms. The process is essentially one of
identifying which jobs cannot be filled from local sources.

Moreover, when formulating an external recruitment programme,
it is well to bear in mind the pervasive world-wide shortages of
high-level manpower, such as highly-qualified drillers, oil
production operators, doctors, nurses etc., and the competition
from other countries. Relatively long time lags in external
recruitment are common. Accordingly, the preparation of a
well-controlled expatriate employment policy is very urgent, and
has to be seen as of vital importance.

Practically, it is important to note the potential role of

salaries, allowances and other benefits as a positive instrument of

labour force direction, as well as their applicability to the tasks

of workforce recruitment, retention, training and retraining and

motivation specifically for candidates of very high calibre, who

have the ability and will to commit themselves to such an effort

that the Libyanisation programme can be successfully achieved.

5.10 <u>Education and Training for Libyanisation</u> :

The educational system has important multiple purposes,
including citizenship, job readiness and university preparation.
Given the limited resources available careful choice must be made
regarding educational structure, curricula and methods. However,
several comments seem necessary and appropriate in the context of
the manpower assessment.

If the educational programme is to give full support to
qualified manpower needs, the problem of potential obsolescence
must be taken into account and limitations must be avoided. Future
skill and personnel requirements are subject to change because of
the dynamic character of goals and technologies. The educational
system should therefore give due emphasis to continuing adaptation.

Likewise , the issue of balance in educational structure is
basic. The secondary school is the fulcrum for building the

high-level manpower base. It is the staging level for university entrance and the source for raising the quality of high level manpower in general. Therefore consideration should be given to accelerated development of secondary school education.

With regard to educational expansion at university level, the relative advantages and disadvantages of training inside Libya compared with those outside must be faced, although it has been reported, especially in the case of the oil industry, that a high success rate has been found with students studying in the country itself, as they are not subjected to the "culture shock" of foreign society (I.L.O., 1986). The continuous and wide expansion in university establishments, especially if no consideration is given to the purpose and quality of this expansion, would not be sufficient to produce well-qualified high-level manpower in the needed specialised fields; rather it would pose a major problem in creating universities which are merely degree granting institutions, and increased university enrolment would not necessarily ease the shortage of qualified personnel.

The formal educational process must be supplemented by training programmes to enhance job readiness and adapt the employee to new programmes, conditions and technology. In view of the present and foreseeable concentration of qualified manpower in the oil industry, it is desirable that this sector assume the major

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role in training, the potential gain being the building of a stable and efficient indigenous workforce, capable of fulfilling the productive role of the oil industry in the development of the country.

It is not easy to co-ordinate separate training efforts, each covering a different period, so as to obtain a coherent whole, but has to be realised that skills cannot be quickly acquired, and until the necessary adjustments can be made in the national skill generation system, existing staff will have to be given further training, either locally or abroad (I.L.O., 1967).

A study carried out by a group of Garyounis University staff on "Labour Turnover in the Libyan Oil Industry" (1980) explored employees' perceptions of the training situation in their company. It revealed that:

* A large proportion of the sample population (87 per cent) felt that they needed some form of training. This figure would indicate that overall company efforts in their direction had met with little success.

* Over half of employees (62 per cent) indicated that they needed some form of training that related to their present job.

These figures not only suggest that the industry has failed to satisfy its employees' training needs but, of greater significance, indicate a workforce which, in its own estimation, is incompetent

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to do the job it is employed to do. This situation would clearly be a cause of low productivity for the company, and an important source of frustration for the employees concerned which may contribute to high labour turnover.

Unfortunately, the education and training system in Libya, as in many other developing countries, is unable to supply at the right time and in sufficient number the qualified persons needed for industrial development.

5.11 Conclusion:

We have tried in the foregoing pages to address the problem of the shortages of skilled personnel in Libya, particularly in the oil industry, which plays a key role in the socio-economic development of the country. This chapter has focused on what would be the most appropriate way to carry out manpower planning, based on the shortcomings that currently exist in the methods of forecasting manpower needs on a national basis. It also highlighted the possibility of developing and training Libyans to overcome the existing skill shortages. A call was made for a link between the university and other education institutions and industry, which will enable industry to improve the productivity of its operations as well as develop its manpower to be well prepared to achieve the Libyanisation programme. Since the ultimate responsibility for effective training and development in an industry, or any given

organisation, rests with the management strategies and policies it

employs, in the following chapter we will review the current

manpower training and development policies and practices in Libya's

oil industry, to find out their strengths and weaknesses.

Chapter Six

Chapter Six

REVIEW OF THE CURRENT TRAINING POLICIES AND PRACTICES
IN THE LIBYAN OIL INDUSTRY

6.1 Introduction:

This chapter reviews the current training and development policies and practices in the Libyan Oil Industry. We will then consider, in the light of the theoretical framework presented in previous chapters, whether training theories and practices discussed earlier, including the systematic approach to developing training programmes, are applied in practice in Libya, and how training and development policies in Libya's oil industry compare with those in the industry worldwide.

6.2 Background:

As we have seen, due to the unprecedentedly rapid economic growth in Libya, there has been an upsurge in the demand for trained, skilled and experienced manpower, in particular for oil industry operations.

As the oil industry in Libya grew in technological complexity and evolved from exploration and production to include downstream operations and petrochemical activities, so this need, and increased manpower constraints, became critical factors in development projects. Libya experienced a shortage of indigenous, trained personnel, especially in the professional, managerial, supervisory, technical or generally skilled levels, as revealed elsewhere in this thesis.

The determination of training and manpower requirements for the oil industry is a complex issue, and was originally tackled as part and parcel of the general national manpower development policy within the educational system.

However, it was not possible for Libya to organize a uniform approach to manpower training policy prior to the 1970s, because up to that time the operating oil companies, which held the oil concession agreements, not only controlled the country's hydrocarbon resources but also wielded power over the recruitment and training of nationals employed in the industry. Most oil concession agreements included provisions for the training of nationals, as prescribed in Clause 18 Parag. 2 of the Second Schedule of the Petroleum Law No. 25 of 1955:

> The Company shall, as from the date of
> commencement of regular exports from Libya
> of petroleum in commercial quantities
> produced in the concession area, make an
> annual payment to the Libyan Government of
> not less than LD 2500 and not more than
> LD 5000, which payment shall be applied
> towards giving Libyan subjects such
> technical training as may be agreed upon
> by the Director and the Company, in order
> to fit them for employment in the petroleum
> industry or in related undertakings,
> provided however that the Company may each
> year reduce such payments by the amount
> which during that year it expended for the
> training and education of Libyan subjects
> for such purpose in Libya or abroad.

However, policy decisions concerning personnel, research and technological changes were taken at the foreign-based headquarters' offices of the foreign oil companies concerned.

6.3 The Impact of Nationalisation:

The nationalisation of the oil industry and the establishment of the National Oil Corporation (N. O. C.) enabled the industry to assume responsibility for the training and development of the manpower for its expanded activities. The assumption of control over its natural resources placed Libya in a better bargaining position as far as access to technology and industrial training in the oil sector was concerned. At the same time, heavy responsibilities were placed on the Ministry of Petroleum and the N.O.C. to recruit an adequate level of manpower for the industry, and to train them appropriately.

The Libyan oil industry expanded rapidly and took on the responsibility of supervising service companies and oil contractors in various training attachment schemes that became the vogue in project contracts. However, there was a tendency to concentrate on the pursuit of short-term training for immediate economic returns, with the main focus on high-level manpower who had passed through an elite educational system in foreign universities.

6.4 Training Institutes:

As an effort to develop productive manpower, especially for the oil industry, the following institutes were established:(Ben Omran & Kreshman, 1984):

* In 1961 the first engineering college in the country was founded under the name of College of Higher Technical

Studies. In 1967 it was annexed to the Libyan University (now the University of Al-Fateh) in Tripoli and named the Faculty of Engineering. In addition to the existing electrical and mechanical departments of the faculty, a petroleum engineering department was established in 1969, offering two specializations: refining and petrochemicals, and petroleum production.

* In 1972, the Faculty of Petroleum and Mining Engineering was established in the University of Al-Fateh. The faculty, in addition to the mining and metallurgical engineering departments, comprises departments for petroleum, chemical, geological and geophysical engineering. The faculty is equipped with facilities for drilling engineering, reservoir engineering(core analysis and PVT cell), crude oil and water properties testing, chemistry (physical, organic and analytical), instrumental analysis, petroleum testing, unit operations and petrochemical operations, hydrology, geology, geophysics, mining machinery and hydraulics, rock mechanics, photoelasticity, mine ventilation and conditioning, gas and dust analysis, ore and mineral assaying, surveying, surveying and photogrammetry, ore dressing, extractive metallurgy, treatment and melting of metal and alloys, metallographic testing, physical and mechanical testing of metals.

* In 1970, the Institute of Petroleum Affairs was established in Tripoli mainly to prepare technicians for the oil industry. Options available in the Institute are:

drilling technology of oil and gas wells, oil and gas production technology, field operations, technology of electricity, technology of mechanics and instrumentation and telecommunications. Applicants holding preparatory school certificates are eligible for admission to the institute. The curriculum in the institute continues for three years. Specialization subjects and laboratory and workshop hours represent about 50 per cent of the curriculum.

* In 1971, the Higher Petroleum Institute was established in Tobruk. Applicants holding high school certificates, or equivalent, are admitted to the institute, which offers a three year programme leading to a diploma in refinery, mechanical, electrical, petroleum or exploration engineering.

* In 1980, the Bright Star University of Technology was established in the oil industrial city of Brega. The new university comprises:

- the Faculty of Petroleum and Mining Engineering.
- the Higher Petroleum Institute.
- the Higher Institute of Electronics.
- the Higher Institute of Electricity and Mechanics.
- The Higher Institute of Technology.

The goal of the university is to develop graduates with technical and scientific skills and to provide intensive training and upgrading of skills among those already employed. In general, it is designed to meet the manpower needs for the rapid technological and industrial development of the country.

Table 6.1 shows the number of graduates from the Faculty of Petroleum and Mining Engineering, the Higher Petroleum Institute and the Institute of Petroleum Affairs for the period 1973-1989.

Table 6.1: Number of graduates from some educational Institutions specialising in oil industry, for the period 1973-1989:

Year	Faculty of Pet. and Min. Eng.	Higher Pet. Institute	Institute of Pet. Affairs	total
1973	–	–	28	28
1974	25	–	92	117
1975	25	78	65	168
1976	17	35	–*	52
1977	55	40	116	211
1978	51	78	146	275
1979	45	63	75	183
1980	82	54	98	234
1981	84	52	146	282
1982	38	82	158	278
1983	52	89	163	290
1984	61	72	177	273
1985	47	63	118	232
1986	73	82	133	265
1987	89	79	129	289
1988	78	93	187	308
1989	96	124	196	326

* The Institute changed from a two Years to three years.

Sources: 1. Faculty of Petroleum and Mining Engineering Handbook 1978-1979, Al-Fateh University, Tripoli, Libya.

2. National Academy for Scientific Research, Annual Report 1989, Tripoli libya.

3. Secretary of Planning, Census and Statistics Department. Tripoli, Libya.

6.5 Training Strategies and Policies:

In addition to the educational institutions referred to

above, there are also training strategies sponsored by the oil industry in order to develop employees' proficiency in certain skills. The Libyan Petroleum Law of 1955 imposed the following requirements on the oil industry:

> Provided that the requisite number having
> adequate skill and ability is available,
> the minimum number of Libyan subjects
> employed by the Company in Libya after
> 10 years from the date of commencement
> of operations shall have reached at least
> 75% of the total number of persons employed
> by the Company in Libya. (Clause 18, parag.1)

However, most companies did not succeed in implementing programmes for training and developing nationals in order to qualify them for important positions in the companies' organizational charts. Therefore, attention was paid to the need to develop and train Libyan employees through the general national strategy. According to the Ministry of Labour and Public Services (1977), the general goals of training in the country are as follows:

1. Educating and preparing a large number of employees to be able to work in activities such as housing, agriculture, commerce, industry etc.

2. Training orientation for new employees.

3. Improving the performance of employees.

4. Training those with less education than is needed for the job.

5. Training employees for new jobs.

6. Preparing and improving the administrative leaders.

7. Preparing and improving the leaders of Popular Committees (Management Committees) to be able to perform their job duties well.

8. Discussing administrative problems to

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find the necessary solutions.

9. Educating and preparing employees to replace the non-native employees (expatriates) working in the public organisations [including Oil Industry].

10. Preparing training staff (trainers and consultants) to be able to provide training programmes for employees.

The implementation of these goals in the Libyan Oil Industry has been the subject of legislation including the following:

1. Law No. 5 of 1973 required that each organisation in the country prepare plans and policies for training, to be built on job specifications and qualifications and held in public and private educational and training establishments.

2. The General People's Committee (Council of Ministers) Resolution No. 961 of 1981 dealt with training regulation.

3. The 1981-85 Development Plan chapter IV laid down detailed objectives, strategy and policies for the field of manpower as a whole, including manpower development and training programmes, which can be briefly summarized in the following (ILO, 1982).

* Increasing the contribution of Libyans in executing and administering the Socio-Economic Plans by preparing and training all new entrants to the productive force and by upgrading producers' skills and efficiency.

* Libyanisation of occupations and jobs, for which a time table (was) to be prepared by the concerned sectors, taking into account the time required for skills preparation.

* Restriction for admission to the vocational training centres of the Secretariat (Ministry) of Public Service to applicants with nine years of compulsory general education; also to aim at complete utilisation of the capacity of the

vocational training centres, and to provide
sufficient capable instructors. Those unable to
continue in education for various reasons are
recommended to be enroled in training programme
before working. -

* Introduction of training programmes for
  upgrading skills, establishing financial and
  moral incentives, particularly by introducing
  a new system for incomes, introduction of
  mechanisation in all suitable fields and
  preparation of necessary cadres in this respect
  and introduction of technical education
  programmes for producers to assist in their
  advancement and promotion in employment.

4. The Management Committee of the N.O.C. Decision No.
34/84 concerning the approval of Unified Training and
Development Regulation for the Oil Sector was the first
unified training and development policy in the history of the
Libyan Oil Industry. It was applicable to all staff of the
N.O.C and all Libyan employees working in other oil companies
and projects. Previously, each company had its own personnel
policy, including training guidelines and procedures.

Every administrative unit head was made responsible for
the training and development of employees under his unit,
either during or outside work.

Nominees for training were to have Libyan citizenship, to
be of good character, with appropriate levels of physical
fitness, command of language and so on (N.O.C, 1984).

In regard to the preparation of training and development
plan Article 3 of the said Regulation states that:

Training and development departments in the
sector shall prepare an annual plan for
training and development in co-operation with
the appropriate department, to be put into
operation from the first September to the end
of August every year. The plan shall be

approved by the Company's Committee not later
than the month of June, then it shall be sent
to N.O.C to be decided on prior to the end of
July every year. (N.O.C, 1984)

Each plan was to:

1. Concentrate on training and development
   which may be locally implemented inside or
   outside the company in co-operation with
   educational and training institutes and
   establishments, or through the co-operation or
   exchange of expertise between companies.
   Training abroad shall not be received, except in
   cases when local training is difficult.

2. Clarify the objective of training and
   development for each trainee, e.g. raising the
   standard of performance, increasing of
   production, training on a new system brought
   into work, preparing the trainee for a new
   job by transfer of promotion, or for any
   other objective.

3. Determine the period as allowed by work
   conditions of trainee.

4. Specify training subjects and places (locally and
   abroad).

5. Determine the number of nominees of the plan.

6. Produce an estimated budget for the execution of
   the plan.

7. Be based on comprehensive evaluation of the plan
   for the previous year.

8. Observe the general instructions issued from time
   to time by N.O.C in order to co-ordinate the
   training with necessities and interests of the
   country in general. (Article 4)

In regard to the execution of the plan, the Regulation

states that:

The Training Departments shall undertake the
execution of the plan after being approved by
N.O.C, in co-operation with various appropriate
bodies inside or outside the company.(Article 5)

6.6 Types of Training Provided by the Industry:

6.6.1 Local Training Programmes:

The following training programmes are conducted by the industry inside Libya:

- On-the-job training

This type of training depends on an analysis of the job description and requirements. In order to enable the employee to move from one step to a higher one, he should master a certain group of skills. The duration of training depends on the craft. The trainee's immediate supervisor keeps records of his progress. New employees, who have completed a few months in employment, are recipients of this type of training. The trainee is expected to show initiative, will and self-discipline, and make a conscious effort to absorb, classify and store in his own mind facts, truths and experiences which may enable him to take a more senior position in future.

Heads of section and supervisors are considered on-the-job trainers. However, formal classroom training is sometimes arranged in the industry's training centres located in the operating companies terminals and oilfields, to give the trainee a grounding in the English language, basic science, mathematics, accounting practices and job-related theoretical subjects.

- Accelerated training

Recipients of this type of training are mostly new

employees. It is conducted inside training centres run by the companies, and the employee is a full-time trainee. Qualified trainers are assigned to these centres to give intensive and accelerated training. More than five centres with a total capacity of 500 trainees are currently administered by the production companies. Job-related subjects are offered as well as practical training in the fields of production technology, oil movement operations, instrumentation, electric circuits, general mechanics, vehicle mechanics, general maintenance, welding and machine drawings.

In refinery operations, the Zamia Refinery Company runs a training centre with a capacity of 480 trainees. The centre qualifies and prepares trainees who hold preparatory certificates to meet the needs of both maintenance and operations in the petrochemical plants and refineries. The centre provides tuition in English language and theoretical subjects such as basic science and mathematics, and workshops and laboratories are utilized to prepare and develop refinery operators, oil movement switchers, power plant technicians, laboratory analysts and testers, and operators for different processing units and utilities.

N.O.C also has a training centre, which carries out a number of specialized training programmes such as:

- Drilling, geology and geophysics.
- Reservoir and production engineering.
- Maintenance.

- Supervision, management, finance, warehousing, purchasing and custom clearance.

- Off-the-job training

The Unified Training and Development Regulation states that:

> By off-the-job training is meant full
> time training for which the trainee is freed
> from his normal job. This shall be done
> inside, or outside the company, in an
> institute, training centre, or specialized
> organization or establishment. The training
> should be included in the appropriate
> training plan and aims at promoting the
> employee's capability in his work or
> at developing the same to occupy another
> job. Such training includes groups of
> study and training courses of duration not
> exceeding nine months.(Article 8)

In practice, these intentions are not carried out. A number of employees, including some executives, have not had the opportunity to attend such courses.

- Self-development

In this regard the Regulation states that:

> The sector encourages the personnel to
> promote and develop their scientific and
> practical skill and possibilities by
> enroling them in evening classes,
> universities, institutes and training
> courses according to the personal desire
> of each one, preferably in the same working
> area, provided that training departments
> and appropriate departments shall supervise,
> organise and include that in the annual
> development and training plan. (Article 13)

- Study by correspondence

The Regulation states that:

> Study by correspondence is considered as
> part of self-development and the provisions
> of the articles concerning that in this
> Regulation shall be applied in this
> respect, even if the institute to be
> corresponded with is outside the Jamahiriya.(Art.18)

- Supervisory training

This type of advanced training is designed to increase the efficiency of middle management employees to enable them to carry out their supervisory responsibilities. Specialized seminars and symposia are conducted for this purpose.

Tables 6.2, 6.3,and 6.4 illustrate typical training programmes provided by the Libyan Oil Industry locally.

Table 6.5 shows the number of employees who benefited from local training programmes during 1968, 1978 and 1988.

6.6.2 Scholarships and Training Abroad:

The purpose of scholarship and overseas training is to broaden the knowledge of the employee and to improve his performance and productivity. The programme should be designed to qualify a number of employees to assume jobs with specific requirements, such as a university degree in one of

Table 6.2:   Local Language Programmes Provided at the
              Libyan Oil Industry's Training and Language
              Centres

Title of the Programme	Duration
English Language General (various levels)	3 months
Advanced English Language	4 weeks
Advanced English Language (Reporting)	4 weeks
Advanced Editing & Style Improvement	4 weeks
General English & Typing for Secretaries	4 weeks

Sources:

(1) Ministry of Petroleum, Libyan Oil 1954-1971,
    p. 148.

(2) National Oil Corporation, Information Facts and
    Figures, Prepared by Public Relations Section,
    p.24.

Table 6.3:   Local Training Programmes conducted at the
              Libyan Oil Industry's Training Centres

Type of Trainee	Title of the Programme	Duration
Instrumentation Engineer	Familiarization with Gauging control Instruments.	1month
Petrochemical Engineer	Training on various refining operations.	2months
Chemical Eng.	Training on various analyses of products at Gas Plants.	1month
Supplies & Equipment Technician	Familiarization with various machines & equipment used in oil industry, their classification & holding stock cards for their spares.	3months
Public Relations Employee	Public Relations Activities.	2weeks

Table 6.4: Local Training Programmes Conducted at the
National Institute for Public Administration

Course Title	Nominated Position	Duration
Organization and Operation Methods	Filing Clerk.	8 weeks
Clerical/Typing	Clerk/Typist.	6 weeks
Personnel	Chief Personnel Officer.	4 weeks
Office Administration	Assistant Chief Personnel Officer.	4 weeks
Administration Control	Director of Administration Affairs.	2 weeks

Source: National Oil Corporation, Information Facts and
Figures, op., cit., p.24.

Table 6.5: Number of Employees Receiving Local Training
in 1968, 1978 and 1988

Year	No. of Trainees
1968	1003
1978	2768
1988	5490

Source: (1) F. C. Waddams, The Libyan Oil Industry, Croom
Helm, London, 1980.
(2) N. O. C., Development Features, NOC, Tripoli.

the engineering fields or in business administration and industrial relations. In addition to scholarship programmes, some companies send high-potential employees abroad to receive special training for short periods in different areas of specialization in order to equip them with updated technological and scientific methods which are considered necessary to meet the requirements of their jobs.

In this regard, the Libyan Oil Industry realizes the need to develop its employees to be qualified technically and academically in order to meet the requirements of its operations. Article No.19 of the Unified Training and Development Regulation allows for training outside Libya, in areas where local training is impossible. This type of training is divided into two parts, as follows:

1. Qualification training.
2. Development training.

Article No.20 of the Regulation states that qualification training aims to develop the sectors' employees to fill technical and managerial executive positions and technically intermediate ones. Therefore, this training leads to intermediate, university or higher qualifications. The duration is more than twelve months.

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In regard to development training, the regulation states that it is intended to:

> develop people having scientific
> qualifications and those having long
> practical expertise among those
> scientifically unqualified, in the
> area of their work, with the aim of
> raising their efficiency in productivity,
> changing their jobs, introducing new
> systems of work which require training to
> operate or to familiarizing them with modern
> ways and methods followed by the oil industry.
> This is to be realized by attending
> specialized short-term training courses,
> groups of study, or seminars. The
> duration of training, in this case, is
> from one week to twelve weeks. (Article 21)

Table 6.6 shows the total number of employees sent on training and scholarship abroad in 1968-71 and 1988-91.

Tables 6.7 and 6.8 show the distribution of employees on training and scholarship in the U.K during 1988 - 1990 by companies and by course titles, while Tables 6.9 and 6.10 show the number of employees sent on training and scholarship during 1988 - 1991 to different parts of the world by companies and by place of training:

Table 6.6: Number of Employees on Training and
Scholarship Abroad during: 1968-71 and
1988-91

| | No. of Trainees | |
	1968-71	1988-91
Training	*568	**322
Scholarship	*168	**168

Source: * F. C. Waddams, The Libyan Oil Industry, op.,
cit., p.297.

** Umm Al-Jawabi Oil Service Co. LTD., London.

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Table 6.7: Distribution of Libyan Oil Industry
Employees on Training and Scholarship in
the U.K During: 1988-1990 (by companies)

Company	No. of Trainees
AGIP	15
AZZAWIA	3
AGOCO	17
BREGA MARKETING	9
GAS PROJECT	1
JOWFE	1
NAFTCAT	1
NAPETCO	8
NOC	9
PRC	21
PTQI	1
RASCO	35
STC	2
TOBRUK REFINERY	7
VEBA	10
WAHA	35
ZUEITINA	26
TOTAL	201

Source: Umm Al-Jawabi Oil Service Co. Ltd. London.

Table 6.8:   Distribution of Libyan Oil Industry
              Employees on Training and Scholarship
              in the U.K During: 1988 -1990
                  (by Course Title)

Course Title	No. of Trainees
English Language	47
Geology	21
Geophysics	4
Petroleum Engineering	10
Resource Engineering	34
Corrosion	24
Health & Safety	10
Mechanical Engineering	9
Chemical Engineering	6
Civil Engineering	6
Accounting & Finance	4
Statistics	1
Chemistry	2
Instrumentation	3
Electrical Engineering	4
Drilling	4
Production Engineering	2
Physics	2
Business Administration	3
Computing	5
TOTAL	201

Source: Umm Al-Jawabi Oil Service Co. Ltd., London.

Table 6.9:   Distribution   of   Libyan   Oil   Industry
             Employees   on   Training   and   Scholarship
             Abroad During: 1988 – 1991 (by Companies)

Company	No. of Trainees
AGIP	22
AGOCO	50
AZZAWIA	16
BREGA	16
GAS PROJECT	2
NAPETCO	46
NAFCAT	1
NOC	18
NWD	1
PRC	26
PTQI	3
RASCO	78
SIDRA	1
SIRTE	38
STC	5
VEBA	21
WAHA	96
ZUEITINA	50
TOTAL	490

Source: Umm Al-Jawabi Oil Service Co. Ltd., London.

Table 6.10:   Distribution of Libyan Oil Industry
                Employees on Training and Scholarship
                Abroad During: 1988 -1991
                (by Place of Training)

Place of Training	No. of Trainees
Austria	11
Canada	52
Cyprus	3
Egypt	2
Holland	5
Hungary	2
Ireland	50
Pakistan	2
Turkey	17
U.K	346
TOTAL	490

Source: Umm Al-Jawabi Oil Service Co. Ltd., London

6.7 The Assumptions Underlying Training Strategies and Policies:

From the foregoing review of the current training policies and practices in the Libyan Oil Industry one can examine, in the light of the theoretical framework previously presented, the assumptions underlying Libyan training strategies and policies in recent years. In this section, we argue that some of these assumptions are questionable, and explore the policy implications of this clash between official perceptions and reality. In particular, Libya's skill problem is at least as much one of low demand for skills, as one of inadequate supply.

What are the beliefs that have underpinned policy developments in Libya as a whole? Analysis of the official policy statements, reviewed early, reveals a series of inter-linked views. The main ones have been:

a)   that training and development act as key determinants of economic success, at all levels of national economy and individual industry or sector;

b)   that Libya, and in particular its oil industry, increasingly will require a labour-force consisting of highly educated, skilled, flexible and autonomous workers;

c)   following on from this, a belief that Libya's industries and oil in particular will require a highly educated and trained workforce at all levels;

d)   that employment and promotion opportunities ought to be strongly influenced by formal skills and qualifications;

e)   that control of training should be vested with the concerned companies within the oil sector, upon whom falls primary responsibility for deciding the nature and volume of training that is required.

We consider each of these assumptions in turn.

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6.7.1 The Link Between Training and Economic Success:

What evidence is there to support the notion that levels of training affect economic performance? Beyond a commonsense belief of long standing that this must be so, the evidence is patchy. At the level of national economy, there is no lack of evidence that Libya still needs more highly-qualified and skilled workforce to be able to manage its natural resources and in particular, oil, the cornerstone of the economy, more efficiently and to cope with the demands of running highly technological and sophisticated industrial establishments.

6.7.2 The Nature of Libya's Future Work, Occupational Structure and Training Strategy:

The next two assumptions are interlinked: first, that the future of work in Libya will increasingly require highly-educated and skilled, flexible, autonomous workers; and, following on from this, a belief that Libya's industries and oil in particular, will require a highly-educated and trained workforce at all levels. These assumptions are reflected in this study and in Chapters 4 & 5 in particular.

It has been a commonplace assertion during the years following the discovery of oil that Libya needs effective socio-economic development plans to make the benefits of oil revenue available to Libyan society and in the form of economic and social progress. Efforts have been made to tackle the skill shortage. A major feature of the official

prescription for socio-economic development of the country has been the tendency to allocate a huge amount of oil revenues to education, housing, roads and transport and later, to setting up well developed industrial establishments, further developing the oil industry, based upon high quality, technologically-advanced production. Coupled with this have been frequent references to the altering structure of employment and training strategies. The acute shortage of skilled and high qualified and trained manpower at all levels and in most key positions in the industrial sector, such as oil, are constant themes in official policy statements, but as yet there appears to have been no effective strategy to tackle this major problem.

Just how realistic are these presumptions? It is undoubtedly true that there have been very significant structural shifts in employment in Libya. In the pre-oil era, as previously mentioned, 80 per cent of the population worked in the agriculture sector and by 1985, that figure had fallen to 16.8 per cent. In broad terms, there has been a sustained and dramatic decline in the number of people employed in agriculture and the number employed in petroleum, mining, manufacturing, electricity, gas, water and construction in 1980 exceeded 33.4%. However, most technical and core functions are still occupied by expatriates. This can be seen as a failure of the government to put more practical training and development strategies that make training and development of nationals more effective and consider it as a real

investment in the country's intellectual capital and part of the product development process. Training is one of the key ways for countries to communicate their culture and values to their people and it can be used by industry and any other sector as a part of an incentive package or motivation to increase work productivity.

The composition of the workforce in Libya, in terms of skills and qualifications, has been altered, with considerable growth in "high level" occupations, particularly the professions. This has coincided with an increase in the number of people within the workforce holding qualifications. Projections of future skill demand appear to show a continued need for more high qualified and well-trained personnel to occupy the core functions of industry, and oil in particular, and to replace the expatriates to meet the target of the Libyanization programme. Therefore, more attention should be given to the important role of manpower training and development in this respect.

The foregoing discussion brings us to the fact that Libya's oil industry will require a highly-qualified and trained personnel at all levels to be able to play the required role in the socio-economic development of the country.

From this study, it appears that the Libyan oil industry's training and development strategy and current

training policies and practices are insufficient to train its employees adequately. Although efforts are being made, they are not enough to help to maintain a well-planned strategy for manpower training and development. Neither the current policies nor the practices that are in use will effectively overcome the existing skill shortages. The theory presented in previous chapters, and review of training policies and practices worldwide, show that the success of an industry depends on acquiring a skilled and well-trained workforce, and that this should largely be achieved by well-planned internal and external training and development programmes. On the evidence so far, Libya's oil industry seems to fall short in this respect.

Internal training, and on-the-job training in particular, should be considered the main course of action to be taken by the Libyan Oil Industry to solve its current problems, specifically in developing technical skills. It must be made much more attractive to the recipients, as what is currently provided needs improvement in its purpose and direction.

6.7.3 The Influence of Past Deficiencies on Perceived Payoffs:

An individual's capacity to perceive the benefits of training is structured by levels of prior educational qualification and the degree to which the receipt of training has already figured in his/her working life. Hence, those most in need of training, because they have to date received very little, are often the least likely to perceive it as being of

value. In the absence of access to a well-developed internal labour market for many manual and semi-skilled employees, such beliefs may be well-founded. Training aims, as it is revealed in this study, - to increase 'the capacity of individual, or group of individuals, to deal with problems, undertaken new tasks, and assume greater responsibilities. As such, sooner or later, it is likely to disturb existing hierarchies and power relationships within the workplace. Discussion of attitudes towards training has tended to focus on the proposition that its benefits have not been fully appreciated. Perhaps one element of the problem is quite the reverse. Perhaps the lack of greater investment in training stems, at least in part, from a very real appreciation by some managers, and other sections of the Libyan Oil Industry, of the disadvantages that can accrue from having better educated and trained employees.

6.7.4 The Libyan Oil industry's Perspective on Investment in Training:

Many companies within the Libyan Oil Industry see training not as an investment, but as cost. However, to the extent that training is treated as investment, as revealed in the theoretical part of this study, and in the review of oil companies' training policies and practices worldwide, it is but one of a range of possible solution to skill shortages-others include recruitment, changes in payment systems, or investing in technology. It would seem logical that attempts be made, however informally, to weigh the relative costs and advantages of each option.

If the return on training is relatively uncertain, or difficult to forecast, the case for spending on training may be harder to sustain. This is perhaps one of the problems of the Libyan Oil Industry. Indeed, the inability to calculate returns on investment in training might help breed a culture which reinforces the tendency to think of training not as an investment, but rather as a cost.(Mayhew,1991)

6.7.5 The Primacy of Libya's Oil Industry in Training:

The final assumption underpinning the training is that the views of the concerned companies within Libya's oil sector should be afforded primacy within it. The institutional structure that the National Oil Corporation (N.O.C) has erected to facilitate and oversee the training and development programmes thus hinges upon the action and abilities of the oil companies concerned.

Review of the Libyan Oil Industrys' policy (Regulations) suggests that it is based on an assumption that managers in the industry have access to a set of techniques, knowledge and skills that are not available to other sectors in the country, and that possession of these attributes makes them uniquely qualified to solve a series of deep-seated structural problems in the industry's training and development programmes, which does not appear to be as most of them are not good trainers.

During a period of more than 25 years the Libyan Oil Industry has not increased its efforts or spent adequately on well planned training and development schemes to meet the industry's operational requirements and the country's need to control its main natural resource. More generally the evidence that is available tends to cast doubt on the idea that the industry management, taken as a whole, constitutes an elite capable on its own of fundamental transformation of training and development provision. Most of the industry's managers are often poorly educated and trained. The general training record of the sector companies is, by international standards, relatively poor. Indeed, Libya's oil industry managers' perceptions of the value of training are part of the problem which they are now being expected to solve single-handedly.

We do not suggest that all the industry's managers are incompetent or are poor trainers. X Esso Libya inc., for example, is the leader in its field, and its training has both benefited the oil sector and helped to Libyanize a number of managerial positions in the sector. The problem is that the variation in performance between the best and the worst Libyan oil companies is extremely wide and most of them are not in the class as international companies.

We would also argue that this situation is caused by a series of deeply-rooted and inter-related forces within the industry' structure - forces which constrain the choices open to management. Many of the decisions made by oil companies

about skills and employee development, which at first sight appear illogical and damaging to the long-term interests of the industry, are in fact logical responses to the forces acting upon the industry's management, namely the political situation imposed by the authoritarian regime and its intervention in the industry's operational process. As an example, the government regime imposed in 1970s a decision that no scholarships or training abroad should be allowed, even though the local industry did not have the capacity to take over the training burden. Also this happened when a pressure was made on the industry to carry out an intensive Libyanisation programme.

The weakness of personnel management is another set of structural factors, reflecting the distinctive historical legacy of Libya's industrial relations system and the attitudes it has spawned toward the management of employment relationships. Many companies within the oil industry in Libya lack the types of sophisticated personnel management systems necessary to maintain a systematic approach to manpower training and development and utilisation of workers' abilities. Moreover, a significant proportion of the oil companies offer their employees extremely limited opportunity for progression. It is noticeable that those companies that have offered such opportunities have normally done so simply one part of a broader shift to very different models of industrial relations and personnel management used in the country, which stress commitment, trust, good communication

between management and employees.

6.8 Conclusions:

The training policies and practices currently in use in Libya's oil industry have been founded on the underlying assumption that it is weakness in the supply of skills, rather than weakness in demand, that is the root of Libya's difficulties. During the 1980s training and development policy of the oil industry in Libya was dominated by attempts to maintain a unified training strategy, in the belief that if only supply could be boosted, demand would take care of itself; However, such has not proved to be the case.

It follows that attempts to boost the supply of training and development without simultaneously tackling those structural characteristics within the sector that limit demand for higher levels of education and skill run the risk of creating a situation where the returns from training will be inadequate - to the individual, to the industry, and to the society as a whole. Does this mean that current training policies and practices in Libya's oil industry are doomed to failure? The answer to this question depends on how one chooses to define the overall thrust of the Libyan oil industry training and development strategy. If the aim is to provide a systematic training system that meets, more or less adequately, the current needs of the industry, then success may be possible. If, on the other hand, the policy objectives are more ambitious and the provision of levels of training are

to be equal to those in other oil producing countries, levels
which could support the general transformation of the Libyan
economy towards high-skill, high-productivity and real control
of Libya's natural resources, then the prospects for success
are much less rosy. This what we will find out in the
following chapters.

Chapter Seven

Chapter Seven

PRESENTATION AND ANALYSIS OF
QUESTIONNAIRE DATA

7.1 <u>Introduction</u>:

This chapter presents the analysis of data obtained by administering a questionnaire to a sample of trainees from the Libyan Oil Industry who received training in the U.K.

The questionnaire was divided into two parts:

Part One:

1. Questions 1 to 5 requested some personal

   information: company for which the respondent

   works; job title; total years of work experience;

   educational level attained; the main functions of

   the current job.

2. Question 6 concerned the training received

   by respondents during employment with the

   company.

Part Two:

1. Question 7 dealt with training received in the

   U.K.

2. Questions 8 & 9 were concerned with whether or

   not the training corresponded to the respondent's

   expectation and whether or not it was directly

   applicable to his job.

3. Question 10 asked respondents to rate on a five

   point scale, certain aspects of training,of which

items 1 to 13 dealt mainly with the content of
the training programmes.

4. Question 11 requested the respondent to state
   his overall feelings about the training
   programme.

5. Question 12 requested the respondent to state
   whether the training was worth its costs and
   his time away from his normal job duties.

6. Question 13 asked the respondent whether he
   would recommend this type of training to his
   peers or colleagues.

7. Questions 14 to 17 asked respondents to rate
   the effectiveness of the training programmes in
   terms of practicality, thoroughness and its
   relevance to the respondent's job, whether they
   broadened his knowledge and upgraded his skills
   and whether or not the instruction methods were
   effective.

8. Questions 18 and 19 were concerned with the
   quality and quantity of the training materials
   and assignments.

9. Questions 20 and 21 aimed to determine the
   respondents' satisfaction with the facilities and
   services as well as with the organisation and co-
   ordination of the training programmes.

10. The last question (22) of the questionnaire
    invited the respondents to make any other
    comments they might wish about the training they
    had undergone.

7.2 Personal Information:

Table 7.1 shows the distribution frequency and percentage of trainees according to position, years of experience, educational level, main functions of the current job and training received during work employment.

The table 7.1 reveals the following:

a)   65 per cent of the trainees worked in non-supervisory positions, while only 35 per cent held supervisory jobs. This suggests that the Libyan Oil Industry would need to increase efforts to train and develop its qualified manpower in order to achieve the objectives of Libyanisation of supervisory posts.

b)   With regard to work experience, the table shows that 60 per cent of the respondents had less the 5 years of work experience, 33.75 per cent had between 6 to 10 years of experience, and only 6.25 per cent had been working for more than 10 years. This indicates that the Libyan Oil Industry does not recognise that training and development is a continuous process for all people employed, to assure optimum utilization of human resources.

c)   In regard to the educational level, it was found that 88.75 per cent of the respondents held a university qualification. Thus, it can be seen that a large number or those employees sent for training were well qualified academically.

Table 7.1: Distribution of Frequency and Percentage of
Responses to Question No. 2-5

	Frequency	%
a) <u>Position</u>		
Supervisory	28	35
Non-Supervisory	52	65
Total	80	100
===		
b) <u>Years of Experience</u>		
less than 5 years	48	60
From 6 to 10 years	27	33.75
More than 10 years	5	6.25
Total	80	100
===		
c) <u>Educational Level</u>		
University degree	71	88.75
Non-Univer.degree	9	11.25
Total	80	100
===		
d) <u>Main Job Functions</u>		
Supervisory duties	28	35
Normal job duties	52	65
Total	80	100
===		

7.3 Training Received During Employment:

Table 7.2 shows that 63.75 per cent of the respondents had received no training during their employment with the Libyan Oil Industry and only 36.25 per cent of them had received training.

Table 7.2: Distribution of Frequency of Percentage of Responses to Question No.6

Category	Frequency	%
Received Training	29	36.25
Received No Training	51	63.75
Total	80	100

The finding that almost two-thirds of the sample had not received training while employed in the Libyan Oil Industry is a cause for concern, suggesting that skill training and personal development may be receiving inadequate attention.

7.4 Content of Training Attended in the U.K.

a) Presentation and usefulness of the training:

Table 7.3 indicates the following in regard to the presentation and content of the programmes attended in the U.K.:

a)   51.25 per cent of the respondents found them very well presented and thorough, while 48.75 per cent found them very poorly presented and superficial.

b)   53,75 per cent of the respondents felt that they had learned a great deal from the training they attended, but 38.75 per cent gave no response, and a

Table 7.3: Distribution of Frequency and Percentage of
Responses to Question No. 7

Content & Presentation of the Training	Frequency	%
a) Training was found:		
* Very well presented and thorough.	41	51.25
* Poorly presented and superficial.	39	48.75
Total	80	100
b) Trainee learned:		
* A very great deal.	43	53.75
* Nothing.	6	7.50
* No response.	31	38.75
Total	80	100
c) For the current job, training is:		
* Extremely useful.	45	56.25
* Completely useless.	7	8.75
* No response.	28	35
Total	80	100
d) Training objectives were:		
* Achieved.	45	56.25
* Not achieved.	9	11.25
* No response.	26	32.5
Total	80	100

small proportion claimed to have learned nothing at
all.

c) 56.25 per cent of the respondents found the training
useful in their current jobs, but 35 per cent gave
no response in this particular regards.

d) 56.25 per cent of the sample felt that training
objectives were achieved, 32.5 per cent gave no
response and 11.25 felt that training objectives
were not achieved.

It is of concern that little more than half the sample
gave favourable responses to the above questions, and that
there were so many non-responses, which may have indicated
some degree of dissatisfaction or uncertainty.

In order to achieve its planned objectives, training
needs to be carefully planned and prepared, and effectively
implemented and supervised. It appears that this may not have
been the case for the programmes in question.

b) Training correspondence to expectations and applicability to the current job:

Table 7.4 shows that little more than half (51.25) the
respondents believed that their training met with their
expectations, and only 48.75 per cent responded that all parts
of the programme were directly applicable to their jobs. This
clearly points to a lack of attention to determing trainees'
needs, which as we saw in an earlier chapter, is an essential
part of effective training. Failure to carry out needs
assessment may lead to wasted time and resources, and to

Table 7.4: Distribution of Frequency and Percentage of
Responses to Question Nos. 8 & 9

Category	Frequency	%
a) Training Programme:		
* Corresponded to trainee's expectations	41	51.25
* Did not corresponded.	21	26.25
* No responses.	18	22.5
Total	80	100
b) Which part of the programme will be directly applicable to the job.		
* All.	39	48.75
* Part of it.	24	30
* No response.	17	21.25
Total	80	100

disillusion and frustration on the part of employees.

7.5 Role of Appropriate Training in Improving Work Performance:

In regard to the response to question No.10 where the focus was on the role of appropriate training in helping to improve work performance and increase employees' productivity in general, Table 7.5 shows that a large percentage of respondents expressed the view that appropriate training is capable of bringing improvement in the following areas: productivity; job performance; time management; job responsibilities and job achievement. In response to item 1 to 3 of the question, the largest number of respondents indicated responses in the "agree" category (ranging from 61.25% to 73.75%), while a smaller percentage of respondents (17.5% to 33.75%) responded in the "strongly agree" category. The smallest percentage of respondents (3.75% to 6.25%) responded in the "disagree" category, while a somewhat larger percentage (3.75% to 10%) responded as "undecided".

7.6 Company Efforts in Training Process:

Items 4, 5 and 6 of question 10 concerned respondents' views about the role of the company in training for its employees. Table 7.5 reveals that only 43.75 per cent of the respondents expressed average confidence in the efforts of the Libyan Oil Industry toward determining training needs, while 52.5 per cent indicated that they either disagreed or were undecided about this. Regarding the role of the Libyan Oil industry in providing an effective environment for training, only 36.25 per cent of the respondents believed that the

industry had been effective in doing this, while 57.5 per cent of those surveyed disagreed or were undecided about the effectiveness of the Libyan Oil Industry in this regard.

7.7 Relationships Between Employees:

In response to item 7 of the same question (No.10) concerning the relationship between the employee and his work team, 41.25 per cent of the respondents indicated that they had a strong relationship, 47.5 per cent reported that they had a moderate relationship and 11.25 per cent indicated that they had a weak relationship or no relationship with their work team.

7.8 Supervisor's Responsibility and Usefulness of Training:

In response to item 8 in regard to "more responsibility" Table 7.5 shows that 41.25 per cent of the respondents reported a feeling of pride with regard to increased responsibility, while 51.25 per cent reported that no increase in their sense of pride when accepting more responsibility. At the same time, a small number of respondents showed a desire to accept more responsibility but on certain conditions.

38.75 per cent of the respondents felt that they could implement change (item 9), but with care; 52.50% per cent of the respondents explained that in order to make change they would need help from their supervisor of manager who, in most cases, was not capable of assisting them in improving their performance by identifying new ways and effective skills needed to performing their duties. On the other hand, less than 4 per cent of the respondents stated that they were not

Table 7.5: Distribution of Frequency and Percentage of
Responses to Question No.10

Area Covered by Question items	Frequency and Percentage of Responses to each item of the Question				
	SA	A	UN	D	SD
1. Right training will help to improve work performance.	27 (33.75)	53 (66.25)	–	–	–
2.					
a) Training helps one to accomplish more.	23 (28.75)	49 (61.25)	8 (10)	–	–
b) Training helps one to learn better ways of doing job tasks.	18 (22.50)	57 (71.25)	5 (6.25)	–	–
c) Training helps making effective use of time.	14 (17.50)	59 (73.75)	4 (5)	3 (3.75)	–
d) Training helps people to understand job Responsibilities.	19 (23.75)	53 (66.25)	3 (3.75)	5 (6.25)	–
3. Training received was very important in contributing to the achievement of objectives.	23 (28.75)	51 (63.75)	6 (7.5)		
4. The area of training was convenient.	5 (6.25)	31 (38.75)	29 (36.25)	6 (7.5)	9 (11.25)
5. The company made a successful effort to determine trainee trainees' training needs.	– –	35 (43.75)	11 (13.75)	31 (38.75)	3 (3.75)
6. The company prepared an effective environment for training.	– –	29 (36.25)	39 (48.75)	7 (8.75)	5 (6.25)
7. Trainee has good relationship with his own team.	33 (41.25)	38 (47.5)	6 (7.5)	3 (3.75)	– –

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Table 7.5:   (Cont'd)   .   .

8. More responsibility   6   33   27   14   —
    makes trainee proud   (7.5) (41.25) (33.75)(17.5)   —
    of the work he is doing.

9. To implement change   4   31   37   5   3
    in the job is very   (5) (38.75)(46.25) (6.25)(3.75)
    important.

10. Training helps to
    know the requirements
    of company work and   19   47   9   5   —
    assist in providing   (23.75) (58.75) (11.25)(6.25)   —
    high quality of
    performance.

11. Trainee must get
    assistance from
    the supervisor to   16   37   12   15   —
    understand work   (20) (46.25)   (15)(18.75)   —
    instructions.

12. Trainee must get   ·   19   35   13   13   —
    encouragement   (23.75) (43.75) (16.25)(16.26)   —
    from the supervisor
    to increase the
    productivity.

13. Trainee must get
    what he needs   43   29   8   —   —
    easily and in a   (53.75) (36.25)   (10)   —   —
    short time to be
    more productive.

able of implementing any kind of change.

In response to item 10 of the question, 58.75 per cent of the respondents agreed that training helps the trainee to know the requirements of the work and also assists in providing high quality performance, while only 17.5 per cent of them believed that training does not help in this way.

Item 11, 12 and 13 dealt with the supervisor or manager and his ability to advise and support employees. The responses indicated that the supervisor has an important role in assisting employees in doing their job tasks properly.

7.9 Effectiveness of Training:

In response to Question No.11 which asked the respondent to state his general feelings about the training programme he attended in the U.K., the following comments were fairly representative of the spectrum of feeling or opinion:

- It is a good training programme.
- This training programme is very useful for improving knowledge.
- Not bad, could be better.
- Satisfactory.
- It covers a wide area within a short period of time.
- The programme is very important for managers. It helps the person to see a wider horizon for his job. It helps mangers to do their job more effectively and efficiently. However, business policies and practices in the Western world are different from ours.

In response to question No.12 regarding whether the

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trainee felt that the training programme was worthwhile in
terms of its cost and his time away from normal job duties, of
the 80 total respondents, 52.5 per cent said YES, while 47.5
per cent said No or were undecided (see Table 7.6).

In response to Question No.13 in regard to whether the
trainee would recommend this type of training programme to his
peers or colleagues, 53.75 per cent of the respondents said
YES and 46,25 per cent said NO or were undecided, as seen in
(Table 7.7).

In regard to the rating of the effectiveness of the
training programme attended, Table 7.8 reveals the following:

a. Practical value: 67.5% rated training as average or
   below average, while only 23.75% said it was above
   average.

b. Thoroughness: 68.75% rated training as average or
   below average and 21.25% claimed it was above average.

c. New ideas gained: 67.5% gave their training as average
   or below average rating and 28.75 rated it above
   average.

d. Helpful to self-development: 67.5% rated training as
   average or below average. 17.5% said it was poor and
   only 13.75% said it was above average.

e. Relevance to the job: 62.5% rated their training as
   average or below average, 16.25% as above average and
   15% rated it as poor.

Table 7.6: Distribution of Frequency and Percentage of
Responses to Question No. 12

The Question	Frequency and Percentage of Responses to the Question					
	YES	%	NO	%	Undecided	%
Do you feel that the training programme was worthwhile in terms of its cost and your time away from your normal job duties?	42	52.5	18	22.5	20	25

Table 7.7: Distribution of Frequency and Percentage of
Responses to Question No. 13

The Question	Frequency and Percentage of Responses to the Question					
	YES	%	NO	%	Undecided	%
Would you recommend this type of training programme to your peers or colleagues?	43	53.75	19	23.75	18	22.5

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Table 7.8: Distribution of Frequency and Percentage of
Responses to Question No. 14

Rating the effectiveness of training.	Frequency and Percentage of Responses to the Question									
	5	%	4	%	3	%	2	%	1	%
a.Practical value.	3	3.75	19	23.75	45	56.25	9	11.25	4	5
b.Thoroughness.	6	7.5	17	21.25	42	52.5	13	16.25	2	2.5
c.New ideas gained.	2	2.5	23	28.75	47	58.75	7	8.75	1	1.25
d.Helpful for self-development.	1	1.25	11	13,75	45	56.25	9	11.25	14	17.5
e.Relevance to job.	5	6.25	13	16.25	43	53.75	7	8.75	12	15

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Codes: 5 = Outstanding.
          4 = Above Average.
          3 = Average.
          2 = Below Average.
          1 = Poor.

Table 7.9 illustrates respondents' rating of the quality of the content of the training programme received in terms of its value to the trainee in broading his knowledge and upgrading his skills (Question No.15). It indicates that 43.75 per cent of the respondents believed that training was valuable, 38.75 per cent were undecided and 13.75 stated it had little or no value.

Table 7.10 shows the respondents' answers to Question No.16 which requested them to rate the training programme's instructions in terms of teaching effectiveness and ability to convey ideas. It reveals that 46.25 per cent of the sample stated that they were effective, 36.25 per cent gave a neutral response and 16.25 per cent stated that instructions were ineffective.

Table 7.11 presents the responses to question No. 17 in regard to the effectiveness of methods of teaching and training. Laboratory and demonstration were most highly rated, 73.75 per cent of the respondents considering them to be effective methods. This may be related to the technical nature of most trainees' work. Lectures and workshops came in joint second place, being favoured by 53.75 per cent of respondents, and seminars in fourth place with 51.25 per cent. Discussion and presentation were considered in the fifth place as the percentage of favourable responses was 48.75. Case study comes in sixth place, being favoured by 46.25 of respondents. The table also shows that games and video tapes were considered uninteresting and ineffective methods by 61.25% and 57.5% respondents respectively.

Table 7.9: Distribution of Frequency and Percentage of
Responses Question No. 15

The Question					Frequency and Percentage of Responses to the Question					
	5	%	4	%	3	%	2	%	1	%
How can you rate the CONTENT of the training programme in terms of its value toyou in broading your knowledge and upgrading your skills?	3	3.75	35	43.75	31	38.75	8	10	3	3.75

Codes:	5 = Very Valuable
	4 = Valuable
	3 = Undecided
	2 = Little Valuable
	1 = NotValuabe.

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Table 7.10: Distribution of Frequency and Percentage of
Responses to Question No. 16

The Question					Frequency and Percentage of Responses to the Question					
	5	%	4	%	3	%	2	%	1	%
How can you rate the training programme's instructions in terms of its TEACHING EFFECTIVENESS (getting ideas across).	37	46.25	29	36.25	13	16.25	1	1.25	-	-

Codes:	5 = Extremely Effective
	4 = Effective
	3 = Neutral
	2 = Somewhat Ineffective
	1 = Extremely Ineffective

Table 7.11: Distribution of Frequency and Percentage of
Responses to Question No. 17

The Question			Frequency and Percentage of Responses to the Question			
	Effective	%	Ineffective	%	No Response	%
Which of the following teaching methods did you find effective?						
* Lecture	43	53.75	29	36.25	8	10
* Seminar	41	51.25	33	41.25	6	7.5
* Discussion & Presentation	39	48.75	25	31,25	16	20
* Laboratory & Demonstration	59	73.75	17	21.25	4	5
* Games	8	10	49	61.25	23	28.75
* Video Tapes	29	36.25	46	57.5	5	6.25
* Workshop	43	53.75	13	16.75	24	30
* Case Study	37	46.25	11	13.75	32	40
* Role-Playing	19	23.75	18	22.5	43	53.75

7.10 Trainees' Satisfaction with the Training Facilities and Organisation:

In response to Question No. 18 in regard the respondents' satisfaction with the quality of their training materials and assignments, Table 7.12 shows that 33.75 per cent of respondents were satisfied. 11.25 per cent were neutral, 43.75 per cent were dissatisfied and 8.75 per cent were very dissatisfied. This indicates that more effort has to be made to correct this particular deficiency in order to make training serve its purpose.

Table 7.13 presents the respondents' feelings toward the quantity of training materials and assignments (Question No.19). It shows that 48.75 per cent of the sample stated that the quantity of training materials and assignments were just right, while 46.25 per cent considered that there were fewer, or far fewer resources and assignments than there should be.

In response to Question No. 20, Table 7.14 shows how the respondents felt about the facilities and services of the attended training. It indicates that 43.75 per cent were dissatisfied, 36.25 were neutral and only 13.75 per cent expressed that they were satisfied.

Table 7.15 shows how the respondents rated the organisation and coordination of their training programmes (Question No. 21). Of 80 respondents, 18.75 per cent stated that the organisation and coordination of their training were more than adequate and 45 per cent stated that they were adequate, but 36.25 per cent felt that they were less than

Table 7.12: Distribution of Frequency and Percentage of
Responses to Question No. 18

The Question	Frequency and Percentage of Responses to the Question									
	5	%	4	%	3	%	2	%	1	%
How satisfied are you with the QUALITY of training materials and assignments?	2	2.5	27	33.75	9	11.25	35	43.75	7	8.75

Codes:	5 = Very Satisfied
	4 = Satisfied
	3 = Neutral
	2 = Dissatisfied
	1 = Very Dissatisfied

Table 7.13: Distribution of Frequency and Percentage of
Responses to Question No. 19

The Question	Frequency and Percentage of Responses to the Question									
	5	%	4	%	3	%	2	%	1	%
What are your feelings about the QUANTITY of training materials and assignments?	1	1.25	3	3.75	39	48.75	34	42.5	3	3.75

Codes:	5 = Far more than there should be
	4 = More than there should be
	3 = Just right
	2 = Less than there should be
	1 = Far less than there should be

Table 7.14: Distribution of Frequency and Percentage of Responses to Question No. 20

The Question	Frequency and Percentage of Responses to the Question									
	5	%	4	%	3	%	2	%	1	%
How satisfied are you with training facilities and services?	-	-	11	13.75	29	36.25	35	43.75	5	6.25

Codes: 5 = Very Satisfied
        4 = Satisfied
        3 = Neutral
        2 = Dissatisfied
        1 = Very Dissatisfied

Table 7.15: Distribution of Frequency and Percentage of Responses to Question No. 21

The Question	Frequency and Percentage of Responses to the Question									
	5	%	4	%	3	%	2	%	1	%
How do you rate the organisation and co-ordination of the training programme?	2	2.5	15	18.75	36	45	29	36.25	1	1.25

Codes: 5 = Excellent (everything runs perfectly)
        4 = More than Adequate
        3 = Adequate
        2 = Less than Adequate
        1 = Terrible, too much confusion

adequate.

Respondents were given the opportunity to express their views and add any further comments they felt necessary (Question No. 22). Examples of some respondents' opinions and suggestions are summarised as follows:

- The training is useful, especially the practical work, but the time is not sufficient for this sort of training.

- There is room for improvement in the organizing company agent in the U.K., namely, Umm Al-Jawaby. More discipline in trainee's course paperwork and follow up is required.

- The time given for the training programme was not enough.

- More course material was needed to cover the whole study area.

- To some extent, I benefited from the training I received, but I would recommend that an effort be made to improve it.

- The course is excellent, but it would be better if conducted in U.S.A or Canada where the methods of teaching are more effective.

7.11 Conclusion:

The findings presented in this chapter suggest that the Libyan Oil Industry has done comparatively little to carry out a successful training practice. Although it may be said to satify minimum industrial training requirements, the training

appears to fall short of the ideal put forward in current government and industry policies. The following weaknesses in training were detailed:

1. It is not an integral part of the industry operations;

2. It has a low priority and is, at best, a peripheral management responsibility;

3. Employees are largely not well placed in appropriate training institutions abroad;

4. Employees receive little help from their supervisors as regards how to do the job properly.

5. Management development is practically non-existent and the training officer/co-ordinator, if any, is inappropriately placed in the hierarchy to advise or take any active part in training.

6. More attention is paid to the formulation of written training policy statements and plans than to the actual training management.

7. This unstructured training relies, in most cases, on personal relationship with the supervisor or the like, rather than on the quality of the trainee or the need for training.

The costs of inadequate training are difficult to estimate and control, because they are hidden in loss of the industry's production time, poor utilisation of its human resources and labour turnover.

In contrast to this unstructured approach, systematic training is an important ingredient in an industry's manpower strategy and is a sound business investment. Systematic training, as it has been revealed in this study, can be briefly defined as the process of:

1. Identifying what training is needed;

2. Planning appropriate programmes to meet this need;

3. Implementing the training and ensuring that employees are assisted to acquire the skills and knowledge they need in the most efficient manner;

4. Evaluating as far as possible the effectiveness of the training programmes and satisfying the training requirements.

These four training appoaches need to be applied in Libya's oil industry to improve its training practices to cover:

a) training at the level of the industry.

b) training for specific occupations.

c) training of individuals at all levels in the industry, from members of the management committees to the newly-recruited and long-servicing employees.

Chapter Eight

Chapter Eight

FINDINGS, CONCLUSION AND RECOMMENDATIONS

8.1 Introduction:

This chapter presents a summary of the study and its main findings. Conclusions are drawn and a number of recommendations put forward with a view to improving training and development programmes in the Libyan Oil Industry.

8.2 Summary of the Study:

When oil was discovered in Libya, its economy transformed from an economy that was entirely dependent on foreign aid to a capital surplus economy. Since Libya has been exporting its crude oil, the oil industry has become the dominant industry in the economy and the country had used oil revenues to carry out ambitious social and economic development plans which started in early 1963, when an aggressive attitude was adopted toward developing the national economy. However, socio-economic development or transformation implies the interaction at all levels of people and their skills with the resources of the country. In Libya, the shortage of suitably qualified indigenous manpower imposes major constraints on the implementation and execution of the development projects. Thus, the need for well-qualified and skilled manpower is considered a most important issue, especially for the Libyan Oil Industry, which must pay attention to this matter if it is to play its required role in the socio-economic development of the country.

The Libyan oil industry is very much a production

industry. Nevertheless, virtually any profession one could think of comes within its scope. It is, however, having to change its management ethos from one of public service pure and simple to one embracing also competition and profit. With regard to the industry's manpower training and development needs, three questions have to be answered:

First: What are the needs?

Second: How could those needs be satisfied?

Third: By whom should the needs be satisfied?

In respect of the first question a vast array of manpower training and development needs can be identified. These fall into three categories:

First: Knowledge, information and concepts;

Second: Procedural undertaking or scientific management;

Third: Management skills.

To meet these needs, it is essential to look at whatever techniques and resources are available, whether from inside or outside the industry. In respect of the latter, it is not the intention to use internal resources to duplicate what is already being done externally, but rather to look at what value could be added to what is already going on.

One problems that has been highlighted in this study is that in Libya, there is lack of communication between industry and education and a failure to explore opportunities of possible mutual benefit such as were discussed in Chapter . They should grasp such opportunities, therefore, and try to make something of benefit to both the industry and educational

institutions as a whole. In view of the rapid changes taking place in the Libyan economy, and especially in the structure of employment, educators and trainers need to respond to these changes.

It must be taken into consideration that the Libyan Oil Industry has undergone a most dramatic and fundamental change, technically, from simple production of crude oil and gas to production of petrochemical products from large petrochemical complexes. It is experiencing rapid technological change, and philosophically and organisationally changing from a slow, cumbersone giant to one which is much more vigorous in the market place.

The Libyan Oil Industry has about 33,600 employees distributed amongst the producing, processing, marketing, distributing and service companies. The industry must regard human resources as the most important element in the whole production process. Therefore, full attention should be paid to the preparation and execution of continued and varied educational and training programmes. This is in addition to improving living and work conditions to increase efficiency and productivity in order to upgrade the skills of indigenous personnel to make them capable of replacing the expatriates who currently occupy a disproportionately high number of the core positions of the industry.

Manpower training and development in the Libyan Oil Industry aims to raise the level of competence and efficiency of the employees, both technically and administratively. This

ensures awareness and familiarisation with technological developments, methods and work systems applied in the oil industry at an international level.

To achieve this goal, training programmes are adopted to meet the diverse requirements in different fields. The programmes concentrate on technical aspects that have a direct relationship with the production process, such as maintenance, production, reservoir engineering, exploration etc.

On-the-job training is the principle method used in developing and training the national employees of the Libyan Oil Industry. This is supported by seminars and theoretical and practical symposia.

Economic pressure is forcing the Libyan Oil Industry, like other economic sectors, to reduce costs. Training needs to be cost effective, and closely identified to the industry's needs. Training needs to be flexible, to meet individuals' needs and to satisfy the industry's needs. Questions of output and quality must not be ignored and the practical benefits of training activities should be considered carefully.

The question then arises, what could the educational and training institutions offer in respect of the industry's needs?

The relevant educational and training institutes, the university in particular, need to be flexible enough to meet

industry's requirements. If they are unable to do so,the oil industry in Libya will no doubt continue to make its own provision, buying in learning and training. packages (it has the finance but needs a proper strategy) where its own internal expertise is inadequate. However, it would be preferable if effective communications, co-ordination and collaboration could be established between the Libyan Oil Industry and the educational and training institutes. Have they realised the scope and quality of the industry's needs? What could they offer, relevant to those needs? How much of what they have to offer can be delivered through various methods, including open learning models?

Libyan educational and training institutions have to stay in the real world. They have to understand that the oil industry is about results, it is about achieving a certain performance and above all, it is about playing the required role in the socio-economic development of the Libyan society.

The main purpose of this study was to identify the strengths and weaknesses of the current policies and practices of the Libyan Oil Industry in training and developing its employees, with a view to recommending ways to correct the deficiencies of the current practices in this regard. This would enable the Libya's dominant economic sector to meet its future manpower training and development needs in the light of its operational requirements and objectives. In order to achieve this desirable goal, the following steps have been taken:

1. A review of official documents in regard to manpower

planning, education, training and development, including a description of the Libyan Oil Industry's manpower training and development policies and practices and training programmes currently provided.

2. Distribution and collection of questionnaires to survey the perceptions of a sample of Libyan Oil industry employees receiving training in the U.K.

3. A review of literature on manpower training and development, including a description of manpower training and development policies and practices in the oil industry, both at the international level and in developing countries.

9.2.1 Official Documents:

The review of official documents included: (1) the laws and legislations enacted by the Libyan government which dealt with manpower training and development; (2) important strategies and plans, decisions and regulations issued on manpower training and development and the current and future needs of the Libyan Oil Industry in the area of training and development of its employees locally and abroad. The documents reviewed included a study conducted by the staff of Garyounis University in Benghazi on Labour Turnover in the Libyan Oil Industry and the Libyan Oil Sector's training and development Plan'85.

8.2.2 Questionnaire Data:

A questionnaire was developed as a result of a review of the literature relevant to the study. The questionnaire

focused on the following issues:

1. The importance of and need for training.

2. Determining who needs training.

3. Successful training techniques.

4. Qualifications of trainer.

5. The role of the training department.

6. Why evaluation is needed.

The questionnaire was used to obtain information about training in the U.K. provided by the Libyan Oil Industry for its employees. The questionnaire was distributed to 101 trainees representing different oil companies and establishments within the Libyan Oil Industry, as well as different training fields and specialisations. 83 responses (82% of the questionnaires) were returned, of which 80 were properly completed. The respondents noted useful ideas which could be taken into consideration when planning and preparing training programmes. All the information and the data obtained were analysed and considered,with a view to improving training and development programmes provided by the Libyan Oil Industry.

8.2.3 <u>A Review of Related Literature</u>:

A review was conducted of previous research in the field of industrial training and development, including the training policies and practices of the oil industry, particularly multinational oil enterprises, both internationally and in some developing countries. The literature revealed a widespread recognition of the value of manpower training and development, on the part of writers in the field of training,

trainers, supervisors and the trainees themselves. Many
experts emphasise the importance of selecting the right
trainer for the training programmes and providing an
appropriately designed and equipped training environment. The
required elements of a systematic approach to training design,
implementation and evaluation were also discussed.

The studies reviewed maintained that effective training
can change the attitudes of the trainee and improve his job
performance. In order to make the trainee more involved in
the training process, all possible efforts must be taken to
make the training time a positive experience. Importance is
attached to the trainer's role and its relation to the success
or failure of a training programme. Attention was drawn to
the attributes which a trainer should have to make a training
programme successful, including experience, knowledge and
skills. Training studies also noted the importance of
identifying training needs and the trainee's duties,
experience and qualifications. The roles of the top
management, the training department and the supervisors were
reviewed and considered. Finally, the review of literature
indicated the need for effective evaluation of training
programmes.

In reviewing and analysing training policies and
practices in oil industry undertaken by some well known
multinational enterprises as well as those practised by the
oil sector in some developing countries, it was demonstrated
that the scope and nature of manpower training and development
programmes in these countries are closely related to the state

of their economic and social development. Training practices of the multinational enterprises in the oil industry are primarily concerned with manpower development and efforts and funds are allocated to achieve planned . targets so that training meets trainees' needs and prepares them to perform their duties more effectively, and to cope with rapid technological change. In addition, an important aim of training policies and practices in developing countries is to achieve localisation or indigenisation. Such a policy has been vigorously pursued by many such countries, including Libya. This requires that these countries should give more emphasis to types of training that address the operational implications of new technology, as well as on the quality of the personnel and their productivity levels.

It is worth noting that the policies and practices undertaken by the multinational enterprises are far superior to those currently being practised in the Libyan Oil Industry. This is because those enterprises are aware of the scientific and technological knowledge required in this valuable, highly developed industry and its sophisticated operational requirements, derived from the well-developed educational systems in the countries of origin of these multinational enterprises. This implies that Libya, as a developing country, should put more emphasis on its manpower education and training in order to achieve the economic and social development objectives of Libyan society and to enable the Oil Industry to play its role in this respect.

8.3 <u>Findings</u>:

Based upon review, and analysis of the data collected from the sources referred to earlier, the following major findings emerge :

1. There is no master plan for manpower training and development in the country to be taken as a guidance when training policies are to be drawn.

2. There is a need for experienced people in the field of manpower training and development in all economic and industrial sectors in the country, and in the oil industry in particular.

3. Trainees do not get feedback related to their participation in the training process, which makes them unwilling to participate in the training process.

4. Most companies do not require their new employees to receive orientation training before they start their duties, which suggests that these companies are unaware of the importance of training and employees may not have sufficient experience to perform their duties in an acceptable way.

5. Most managers and supervisors lack knowledge and efficiency in their work which can cause difficulty in providing on-the-job training.

6. Most respondents to questionnaires stated that their managers or supervisors were not capable of providing them

with the skills and knowledge they need.

7. No effective studies have been carried out by the university in the areas of manpower planning, training and development, graduate employment etc.

8. There is no co-ordination or collaboration between the Libyan Oil Industry and the university, in particular in the fields of manpower training and development and many other aspects of services. This lack of liaison between these two responsible bodies has an adverse impact on the quality of qualified personnel suitable to this most valuable industry in the country.

9. Too often, training currently provided for the Libyan Oil Industry's employees is not closely relevant to the trainees' job tasks, and does not meet their needs for career development.

10. The match between the training needs and the training possibilities of the oil industry in Libya was far from perfect at the very outset. Today there is still lacking an operationalised, national education policy for the sector, other than the nominal imperative requiring the industry itself to meet the proper standards of qualifications and skills. This lack of good public educational strategy for the oil industry, in particular, has some implications for the future supply of specialised and well-trained personnel needed for the rapid expansion and advanced process technology of its operations.

11. There is a need for the oil industry in Libya to respond to the new challenges of the 1990s by a broad emphasis on training, retraining and developing its employees at all levels to adapt to changes.

12. Rapid technological change drives industries to constantly update and rethink their training strategies. The Oil Industry in Libya should regularly review and, if necessary, update its training strategy and policies to meet changed circumstances.

13. Demographic trends in Libya require the retraining of existing employees which should be well recognised.

14. Supervisors need to be more aware of their duties to assist their subordinates in developing their careers, improving their work performance and enabling them to accept increased responsibility.

15. In providing training programmes outside Libya, the industry should look closely at different business practices in order to be able to apply those which are suited to the Libyan environment and business practices, so that training is valued and worth its costs.

8.4 Conclusions:

As a result of the review of official documents, questionnaire data and review of related literature, the following conclusions were drawn:

1. There is an urgent need for a master plan in the country to organise and supervise training programmes for employees in different economic sectors based on each sectors' operational structure need and requirements.

2. There is a need for a more systematic approach to training and developing employees in the oil industry.

3. Training programmes should be designed after identifying training needs.

4. Training should be in the area of job duties.

5. Trainees should work in the area in which they received training.

6. Top management should attend and receive training in their major field activities and work duties.

7. Managers and supervisors should attend training programmes to improve their performance and increase their knowledge and skills to assist employees in performing their work tasks well.

8. There is an urgent need for improvement in the training departments and to provide them with expert people to run them effectively and efficiently.

9. There is an urgent need to establish a central training unit to be responsible for planning, organising,

controlling and supervising training policies and plans on a national level. It is also necessary to set up training units in each economic sector, including the oil industry.

10. The university should be given all the necessary means and facilities to play its required role in manpower training and development and to take part in the country's industrial and economical development strategies and plan. It could do this by establishing strong and close relationships and collaboration with industry.

11. Training centres should be improved and provided with all the equipment needed for the training process to increase its effectiveness.

12. Training should be available for all employees of different categories, to including adults and the less educated.

13. The element of motivation should be used with the trainee in a productive way.

14. Training programmes should be evaluated an a regular basis.

15. Trainees should feel comfortable and gain a sense of value from their training experience.

16. Training policies should be supported by all employees. This is very important since training can be

futile if there is no commitment on the part of those being trained.

17. Attention should be paid to ways of gaining employees' acceptance of training. For example, no training should be embarked upon without the most careful briefing. Trainees should never be left to find out for themselves what the purpose of the training programme is, what will be expected of them and what will be the trainer's involvement.

8.5 Recommendations:

In the light of the findings and conclusions referred to above, the following recommendations may be adopted to improve training and development strategies, plans , policies and training programmes currently provided by the Libyan Oil Industry:

1. As the availability of more qualified personnel is crucial for a rational development of Libyas' oil and gas resources, the educational system must have the capacity to meet the demand for personnel with higher education and thereby qualify the required personnel for oil industry employment.

2. As the shortage of skilled manpower in the Libyan Oil Industry has continued for many years and has been compounded by military conscription and redeployment of qualified personnel to other work on a surplus basis, the industry should carry out an extensive, well-planned training programme to develop its employees to replace expatriates, especially

those who still occupy the core functions, if Libyanisation is to be achieved.

3. Training for the Libyan Oil Industry's employees should be conceived as a continuous and long-term process, available to employees at various stages in their careers.

4. The industry should consider the qualitative improvements required (methodology, policy, teaching equipment, resources etc.) to increase the efficiency of the existing training programmes and provisions.

5. The industry should also investigate how vocational training could contribute to alleviating the particularly arduous conditions prevailing in certain activities (drilling at sea, for example).

6. A cooperative and coordinated effort within the Libyan Oil Industry for better-prepared strategies, plans and policies for manpower planning, training and development will enable the industry to undertake these activities on a more rational and logical basis.

7. A review should be conducted of the existing methodology of manpower planning to achieve an effective way of implementing and improving the procedure. This will lead to a better utilisation of the Libyan Oil Industry's human resources.

8. Consideration should be given to establishing more

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capable central units responsible for training and developing Libya's human resources, in order that the country should achieve real control of its natural resources and to enable the oil industry to cope with rapid technological change.

9. Consideration should be given to the specific training needs of the Libyan Oil Industry, which are likely to fall in the following main areas:

a) Specific skills for the new tasks within the industry's sphere of operations;

b) Systems skills covering information requirements;

c) Diagnostic skills for identifying training problems, their causes and their solutions;

d) Interpersonal skills for communicating with and motivating others;

e) Development of individuals' aptitudes to equip them for any changing circumstances.

10. Managers and supervisors in the Libyan Oil Industry should be able to understand the changes required and to assess their implications for the information and training needs of the workforce. The emphasis should be on the broadening of skills so both individuals and teams become multi-functional.

11. Managers and supervisors in the Libyan Oil Industry should be able to define the industry's operational objectives; determine training needed to achieve these objectives; financially appraise the options and make the subsequent management decisions on the best action to take; monitor performance improvement; and measure the benefits and

returns of training.

12. Managers and supervisors must keep abreast of new technology.

13. The supervisor should realize that his position makes him an ideal choice as a trainer of his subordinates.

14. Demand for appropriate training schemes should be tackled as a matter of urgency.

15. Universities should be made aware of national needs in sufficient time to enable them to plan the required courses and facilities.

16. Universities' doors should be opened to external students in a way that does not affect their work requirements and they should be able to proceed to higher external degrees, undertaking research related to their work functions.

17. Each industry should ascertain more accurately than at present, its total and classified requirements of manpower, notify the appropriate authorities and collaborates with them in the provision, education and training of the required personnel. Such an estimate should cover annual demands for not less than four years to provide a basis for future intake and the provision of the appropriate educational and training facilities.

18. Industrial companies should develop their relations with universities and other educational institutes to facilitate:

[a] Exchange of staff for an agreed period.

[b] Vocational training in their works and field plants for senior students, with dual supervision and evaluation.

{c} Research and consultation by universities' staff.

Appendices

SURVEY Of LIBYAN EMPLOYEES' PERCEPTIONS
ON THEIR TRAINING IN THE U.K.

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Dear Participant

The researcher is undertaking a study on training policies and practices in the Libyan Oil Industry for a Ph.D research degree at the University of Hull in the U.K.

As a part of the research, the enclosed questionnaire is intended to collect some necessary information about training provided in the U.K., to study the existing practices of training abroad and to identify the difficulties encountered in the process in order to make some recommendations for improvement in the existing programmes.

Most of the items in this questionnaire ask for your opinions. Please be assured that whatever information you give will be kept strictly confidential and will be treated and used for the purpose of the research study. Your co-operation, by completing this questionnaire, will provide evidence of the opinions of trainees about the current practices of training abroad and hopefully influence inprovements in the future.

Thank you for your attention.

R.Y.Zubi

11 Fort Road
Northolt
Middlesex
UB5 5HH

Note:
1. Some questions ask for open-ended answers. Please be as brief as you can, giving important details only.

2. Some items are statements that have a five-point scale as those from"strongly agree" to "strongly disagree". Please choose the response that most closely reflects your opinion.

QUESTIONNAIRE

SURVEY OF LIBYAN EMPLOYEES' PERCEPTIONS
ON
THEIR TRAINING PROGRAMMES IN THE U.K.

PART ONE: PERSONAL INFORMATION

1. Company ....

2. Position: (Please tick the appropriate choice).

   Supervisory   ( )

   Non-supervisory   ( )

3. Total years of experience: (Please tick the appropriate choice).

   5   years or below   ( )

   6-10   years   ( )

   10   years or more   ( )

4. Educational level attained: (Please tick the appropriate choice).

   University degree   ( )

   Non-University degree   ( )

5. Main job functions: (Please tick the appropriate choice).

   Supervisory duties   ( )

   Normal job duties   ( )

PART TWO: <u>PERCEPTIONS SURVEY</u>

<u>Training received during employment:</u>

6. Have you received training during your employment?
   (Please tick the appropriate choice).

Yes	( )
No	( )

<u>Content of training attended in the U.K.:</u>

a) Presentation and usefulness of the current training:

7. This part of the questionnaire is concerned with your training in the U.K. Would you give feedback to its content and presentation in regard to the following: (Please tick the appropriate choice)

   a) I have found the training:

   * Very well presented and through   ( )
   * Very poorly presented and superficial
     touched.   ( )

   b) I have learned from this training:

   * A very great deal   . ( )
   * Nothing   ( )

   c) For me, in my current job, this training has been:

   * Extremely useful   ( )
   * Completely useless   ( )

   d) I have found that the training objectives were:

   * Achieved   ( )
   * Not achieved   ( )

b) Training correspondence to trainees' expectations and direct applicability to the job:

8. How far has the training corresponded to your expectations?
   (Please tick the appropriate choice).

   * Corresponded   ( )
   * Not corresponded   ( )

9. Which part of the training will be directly applicable in your job?

   * All   ( )
   * Part of it   ( )

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Role of training in improving work performance:

10. The following five-point scale is for your opinion on certain aspects of the attended training. Please indicate how strongly you agree or disagree with each statement by ticking the choice that is most closely reflects your opinion:

SA = Strongly agree
A = Agree
UN = Undecided
D = Disagree
SD = Strongly disagree

1) The right training programme would help me to improve work performance.

SA ( )   A ( )   UN ( )   D ( )   SD ( )

2) The training programme offered by the company helps me to:

* Accomplish more.

SA ( )   A ( )   UN ( )   D ( )   SD ( )

* Learn new or better ways of doing my job tasks.

SA ( )   A ( )   UN ( )   D ( )   SD ( )

* Make better use of my time.

SA ( )   A ( )   UN ( )   D ( )   SD ( )

* Help me to understand my responsibilities.

SA ( )   A (.)   UN ( )   D ( )   SD ( )

3) The training I have received was a very important element in my contribution to the objectives we are responsible for.

SA ( )   A ( )   UN ( )   D ( )   SD ( )

Company efforts in training process:

4) The area where I took the training was convenient.

   SA ( )   A ( )   UN ( )   D ( )   SD ( )

5) The company I work for makes a successful effort to determine my training needs.

   SA ( )   A ( )   UN ( )   D ( )   SD ( )

6) The company prepares an effective environment for the training.

   SA ( )   A ( )   UN ( )   D ( )   SD ( )

Relationships between employees:

7) I have a good relationship with my work team.

   SA ( )   A ( )   UN ( )   D ( )   SD ( )

Supervisor's responsibility and usefulness of training:

8) More responsibility makes me proud of the work I do.

   SA ( )   A ( )   UN ( )   D ( )   SD ( )

9) To implement change in my job is very important.

   SA ( )   A ( )   UN ( )   D ( )   SD ( )

10) The training helps me to know the requirements of the company work and the working process well enough to assist me in providing high quality performance.

   SA ( )   A ( )   UN ( )   D ( )   SD ( )

11) I must get assistance from my supervisor to understand the work instructions.

   SA ( )   A ( )   UN ( )   D ( )   SD ( )

12) I must get encouragement from my supervisor to increase the productivity.

   SA ( )   A ( )   Un ( )   D ( )   SD ( )

13) I must meet my needs easily and in short time to be more productive.

   SA ( )   A ( )   UN ( )   D ( )   SD ( )

Effectiveness of training:

11. Briefly state your overall feelings about the programme:

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12. Do you feel that the training programme was worthwile in terms of its cost and your time away from your normal job duties? (Please tick the appropriate choice)

   YES ( )   NO   ( )   UNDECIDED   ( )

13. Would you recommend this type of training programme to your peers or colleagues? (Please tick the appropriate choice)

   YES ( )   NO   ( )   UNDECIDED   ( )

14. Rate the training programme using the following codes:

> 5 = Outstanding
> 4 = Above average
> 3 = Average
> 2 = Below average
> 1 = Poor

a. Practical value   ( )
b. Thoroughness   ( )
c. New ideas gained   ( )
d. Helpful to self-development   ( )
e. Relevance to job   ( )

15. How do you rate the CONTENT of the training programme
    in terms of its value to you in broading your knowledge
    and upgrading your skills? (Please tick the appropriate
    choice).

* Very valuable   ( )
* Valuable   ( )
* Undecided   ( )
* Little value   ( )
* No value   ( )

16. How do you rate the training programmes' instructions in
    terms of TEACHING EFFECTIVENESS (getting ideas
    across)? (Please tick the appropriate choice).

* Extremely effective   ( )
* Effective   ( )
* Neutral   ( )
* Somewhat ineffective   ( )
* Extremely ineffective   ( )

17. Which of the following teaching methods did you find
    effective? (Please tick the appropriate choice).

Lecture	( )	Seminar	( )
Discussion & Presentation			( )
Demonstration	( )	Games	( )
Video Tapes	( )	Workshop	( )
Case study	( )	Role-Playing	( )

Trainees' satisfaction with the training facilities and organisation:

18. How satisfied were you with the QUALITY of training
    materials and assignments? (Please tick the appropriate
    choice).

    * Very satisfied   ( )
    * Satisfied   ( )
    * Neutral   ( )
    * Dissatisfied   ( )
    * Very Dissatisfied   ( )

19. What are your feelings about the QUANTITY of training
    materials and assignments? (Please tick the appropriate
    choice).

    * Far more than there should be   ( )
    * More than there should be   ( )
    * Just right   ( )
    * Less than there should be   ( )
    * Far less than there should be   ( )

20. How satisfied are you with the training facilities and
    services? (Please tick the appropriate choice).

    * Very satisfied   ( )
    * Satisfied   ( )
    * Neutral   ( )
    * Dissatisfied   ( )
    * Very dissatisfied   ( )

21. How do you rate the organisation and co-operation of the
    training programme? (Please tick the appropriate choice).

    * Excellent (everything runs perfectly) ( )
    * More than adequate   ( )
    * Adequate   ( )
    * Less than adequate   ( )
    * Terrible, too much confusion   ( )

22. Do you have any further comments about the training
    programme you attended ?

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            Thank you for your co-operation

            _____
            _____

Bibliography

BIBLIOGRAPHY

AL-WATTARI ABDUL AZIZ,(1979),"Manpower Use and Requirements in OAPEC States" in: M. Abdel-Fadil, (ed.), Papers on the Economics of Oil: A Producer's View, Published for the State of Kuwait on behalf of the Organization of Arab Petroleum Exporting Countries (OAPEC) by Oxford University Press, U.K.

ATTIGA, ALI A.,(1981) "Crossing the Energy Bridge" , in: M. W. Khouja, The Challeng of Energy: Policies in the Making", (Energy Resources and Policies of the Middle East and North Africa), Longman Group Limited, U. K.

BAHRAIN PETROLEUM COMPANY (Bapco), (1984), "Training and Development Course Information, Bapco, the State of Bahrain.

BALAZI O. M.,(1973),"Human Resources Development: the Case of Libya", Unpublished Ph.D thesis, Texas Tech. University, U. S.

BEN-OMRAN A. M. & H. M. KRESHMAN,(1984),"The Training Needs in the Libyan Energy Sector", in: OPEC Bulletin, March, 1984.

BEST J., (1981) " Research in Education", Prentice-Hall Inc., New Jersey.

BIRKS J. S. & SINCLAIR C. A.,(1978),"The International Migration Project: Country Case Study: Libyan Arab Jamahiriya", The University of Durham, Department of Economics.

---------------------------------,(1979),"Migration for Employment Project, The Kingdom of Saudi Arabia and the Libyan Arab Jamahiriya: The Key Countries of Employment", World Employment Programme Research, Working Papers, (Provisional Draft WEP 2-26/WP 39), I.L.O., Geneva.

-------------------------------,(1980),"Arab Manpower: The Crisis of Development",Croom Helm, London.

-------------------------------,(1980),"International Migration and Development in the Arab Region", A World Employment Programme Study, Published with the Financial Support of the United Nations Funds for Population Activities, I. L. O., Geneva.

-------------------------------, (1984),"Libya: Problems of A Rentier State", in: Richard Lawless & Allan Findlay, (eds.), North Africa:

Contemporary Politics and Economic Development, Croom Helm.

————— & RIMMER J. A.,(1984),"Developing Education Systems in the Oil of Arabian: Conflicts of Purpose and Focus", (Occasional Paper Series No. 21, Manpower and Migration Series No.3), Centre for Middleastern and Islamic Studies, University of Durham, England.

BLIN KEITH W., (et al), (1986), "International Petroleum Exploration and Exploitation Agreements: Legal, Economic and Policy Aspects", Euromoney Publications Plc., London.

BLOOMER GORDON,(1985),"Linking School and Industry: A Survey of Current Practice", in: Educational Research, Vol. 27, No. 2, January, 1985.

BLUNSAN TERRANCE,(1968),"Libya: The Country and Its People", Queen Anne Press.

BORG W. & GALL M., (1983), "Educational Research", Longman, New York.

BRITISH PETROLEUM (B.P), (1958), "Our Industry: An Introduction to the Petroleum Industry for the Use of Members of Staff, 3rd ed., The British Petroleum Company Limited.

BRITISH PETROLEUM (B.P), (1977), "Our Industry Petroleum", The British Petroleum Company, London.

BRUCHER F. J. & BALDWIN G.,(1959)," The Role of Education and Training Policy in Economic Growth", in: George B. Baldwin (ed), Manpower Development in the Middle East: Paper and Conclusion from the Middle East Conference on Training and Manpower Development, Tehran.

BUBTANA ABDULLA R.,(1977),"The Libyan System of Higher Education: A Research for Other Alternatives, Garyounis University, Research Centre, Benghazi, Libya.

BURGESS TYRRELL,(1985),"New Laws for Post-School Education" in: Higher Education Review, Vol.18, No.1.

CASTLEY R. & ALFTHAM T.,(1986),"Training for Industrial Development: How Governments Can Help?", International Labour Review, Vol. 125, No. 5.

CHRUDEN H. J. & SHERMAN Jr. A. W., (1980), "Personnel Management: The Utilization of Human Resources", South-Western Publishing Co., Ohaio, U. S. A.

------------------------------------, (1984), "Managing Human Resources", (Seventh edition), South - Western Publishing Co., U. S. A.

COMBE LODGE REPORT, (1982), "Industrial Training and Education in a Time of Uncertainty", The Further Education Staff College, Vol. 15, No. 6.

COMBE LODGE REPORT, (1983), "Initial Skill Training in Engineering", The Further Education Staff College, Vol. 16, No. 6.

CONELY PHILIP C.,(1981),"Mirrors of the Mind: Personal Construct-Theory in the Training of Adult Educators", Department of Adult & Higher Education, University of Manchester, (monograph).

COOMBS PHILIP L., (1973), " Should One Develop Non-Formal Education?", in: Prospects, Vol. 111, No. 3.

CRAIG ROBERT L. & LESTER R BITTEL (eds),(1967),"Training and Development Handbook", McGraw-Hill, New York.

CUNNINGHAM K. S. & W. C. RADFORD,(1963),"Training The Administrator: A Study with Special Reference to Education", Australian Council for Educational Research.

DAMACHI UKANDI G.,(1978),"Theories of Management and the Executive in the Developing World", The MacMillan Press Ltd.

D'AMBROSIO UBIRATAN,(1986),"Options for Science Education and Research with a View Towards Development", (Review Article), in: International Review of Education, Vol. 32, No. 1, 1986.

DAVIES IVOR K., (1973), "Training in an Age of Change", in: Ivor Davies K., (ed.), The Organization of Training, MacGraw-Hill Book Company (U.K.) Limited.

DE MARCO ROLAND REINALD,(1972),"The Italianization of African Natives: Government Native Education in the Italian Colonies 1890-1937",(Bureau of Publications Teachers College, Columbia University, New York, 1943), First AMS edition Published in 1972, AMS Press Inc., [Ph.D. thesis].

DE MOURA CASTRO CLAUDIO & ANTONIO CABRAL DE ANDRADE,(1990), "Supply and Demand Mismatches in Training: Can Anything Be Done?", in: International Labour Review, Vol. 129, No. 3.

DENOVA CHARLES C., (1971), "Establishing A Training Function",

Englwood Cliffs, N. J. : Educational Technology Publication, Inc.

DEVERELL C. S., (1979), "Management Studies: Questions and Suggested Answers", (Second Edition), GEE & Co., (Publisher) Limited, U. K.

———————— (1985-), "Business Administration and Management", AGEE Publication from Van Nostrand Reinhold, (U. K.).

DEWEY JOHN, (1916), "Democracy and Education", The MacMillan Co., New York.

DODD BERNARD, (1967), "Programmed Instructions for Industrial Training", Heinmann, London.

————————, (1973), "Allocating and Arranging Resources for Learning", in: Ivor K. Davies (ed.), The Organization of Training, MacGraw-Hill Book Company (U. K.) Limited.

EAST ROGER, (ed.), (1985), "Keesing's Record of World Events", Longman, Vol. XXX1, NO. 2, 1985.

————————, (1986), "Keesing's Record of World Events", Longman, Vol. XXXII, No. 2, 1986.

————————, (1987), "Keesing's Record of World Events", Longman, Vol. XXIII, No. 6, 1987.

————————, (1988), "Keesing's Record of World Events", Longman, Vol. XXXIV, No. 5, 1988.

ECONOMIC BULLETIN FOR EUROPE, THE JOURNAL OF THE UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE, (1988), "Management Training Programmes and Methods", (Highlights of the United Nations ECE Symposium on Management Training Programmes and Methods: Implications of New Technologies, Geneva, Switzerland, 17-19 November 1987), Published by Pergamon Press for the United Nations, Vol, 40, No.2.

ECONOMIST (THE), (1984), "The World in Figure, "Libya"", The Economist, 1984.

EL-FATHALY OMAR I. & Chackerian Richard, (1977) "Political Development and Bureaucracy in Libya", Lexington Books, Lexington, Mass., U.S.A.

———————————— & PALMER MONTE, (1980), "Political Development and Social Changes in Libya", Lexington Books, Lexington, Mass., U.S.A.

EL-JEHAIMI T, et al, (1980), "Labour Turnover in the Libyan Oil Industry", Research Centre, Garyounis University, Benghazi.

EL-MALLAKH   RAGAEI,(1969),"The   Economics   of Rapid Growth:
                Libya", in: <u>Middle East Journal</u>, Vol. 23.

EL-SAKKA HAFS OMAR,(1965),"<u>Libya: Adult Education (Sept. 1956-
                June 1964)</u>", UNESCO, Paris.

ENGINEERING   COUNCIL (the), (1988), "<u>The Key.Technologies: Some
                Implications for Education and Training</u>",
                The   Further   Education   Unit   and   The
                Engineering Council, U. K.

ENGLEHART M., (1972), "<u>Methods of Educational Research</u>", Rand
                McNally and Co.

ERICH W. BETHMANN,(1963),"<u>Basic Facts on Libya</u>", American
                Friends of the Middle East, Inc. AFME.

EVANS N.,   (1985),"<u>Post-Education Society: Recognising Adult
                as Learners</u>", Croom Helm.

EVAN JOHN,   (1986),"<u>OPEC, Its Members States and the World of
                Energy Market</u>",   A Keesing's   Reference
                Publication, Longman Group, U. K.

EWING A. F.,(1968),"<u>Industry in Africa</u>", Oxford University
                Press, London.

FARLEY RAWLE,(1971),"<u>Planning for Development in Libya: The
                Exceptional Economy   in the   Developing
                World</u>", Prager Publishers.

FEDERATION OF BRITISH INDUSTRIES,(1963),"<u>Management Education
                and Training Needs of Industry</u>", A Report
                by FBI Working Party.

FINDLAY ALLEN,(1979),"<u>International Migration Project: Topic
                Working   Paper, Special   Dimensions   of
                Tunisian Emigration to Libya</u>", University
                of Durham.

FINEGOLD DAVID & SOSKICE DAVID,(1988),"The Failure of Training
                in Britain: Analysis and Prescription",
                in: <u>Oxford Review of Economic and Policy</u>,
                Vol. 4, No.3.

FIRGANI M. A,(1983),"<u>The Libyan Arab Jamahiriya</u>", Darf.,
                Publication Ltd., London.

FOX JOHN & JOSEPH MUTAUGIRA,(1985),"The Overseas Training of
                Adult   Eductors: An   Evaluation   of
                Programmes in Africa and the U.K. Some
                Emerging   Themes",   in: <u>International
                Journal of Educational Development</u>, Vol.
                5, No. 3.

GEORGE ALLAN,   (1986),"Libya: Drastic Fall in Oil Revenues",
                in: <u>Petroleum Economist</u>,   Vol. L III,
                No.6.

GHADAR FARIBORZ, (1977), "The Evaluation of OAPEC Strategy", Lexington Books, D. C., Heath and Company.

GHANEM SHUKRI, (1970),"The Role of Oil in the Economic Development of Libya", in: Arab Oil Review.

——————————, (1975),"The Pricing of Libyan Crude Oil", Adams Publishing House, Valletta, Malta.

GLEESON DENIS & GEORGE MARDLE,(1980),"Further Education or Training?: A Case Study in the Theory and Practice of Day-Release Education", Routledge & Kegan Paul.

GOLDSTEIN IRWIN I., (1974), "Training: Program Development and Evaluation", Wadsworth Publishing Company Inc., Belmont, California, U. S. A.

GRAIG ROBERT L., (1976), "Training Development Handbook", McGraw-Hill.

GRANT J. VALARIE & SMITH GEOFF, (1984), "Personnel Administratrion and Industrial Relations", Longman, 3rd. edition.

GUMMED AMEN ALI,(1979),"High Level Manpower Requirements for Economic Development in Libya", Unpublished Ph.D thesis, Oklahoma State University.

HAJJAJI SALEM ALI,(1967),"The New Libya: A Geographical, Social, Economical and Political Study", Government Primary Press, Tripoli, Libya.

HARBISON F. & MYERS C. A.,(1965),"Manpower and Education: Country Studies in Economic Development", McGraw-Hill, U. S. A.

HARTLEY JAMES, (1973), "Evaluating the Effectiveness of Training", in: Ivor K. Davies (ed.), The Organization of Training, op., cit.

HARTSHORN J. E.,(1962),"Oil Companies and Governments: An Account of International Oil Industry in its Political Environment", Faber and Faber, London.

——————————,(1971),"From Tripoli to Tehran and Back: The Size and Meaning of the Oil Game", in: World Today, Vol. 27, No. 7, July, 1971.

HELFGOTT ROY B., (1973), "Multinational Corporation and Manpower Utilization in Developing Nations, in: The Journal of Developing Area, 7 (January 1973).

HESS LEE & SPERRY LEN, (1973), "The Psychology of the Trainee as a learner", in: Personnel Journal,

HIGGINS BENJAMIN,(1953),"The Economic and Social Development of Libya", A Report Prepared for the Government of Libya, United Nations Technical Assistance Programme ST/TTA/K/Libya/3, New York: United Nations.

HILOWITZ J.,(1983),"Tracer Studies as Tools for Identifying Training Needs: An Evaluation", Meeting of Experts on Methods of Training Needs Assessment, Turin, Italy, 26 September - 1 October 1983, Training Policies Branch, Training Department, International Labour Organisation (I.L.O), Geneva.

HOSSAIN KAMAL, (1979),"Law and Policy in Petroleum Development: Changing Relations between Transnationals and Governments", A Comparative Study Sponsored by the Commonwealth Secretariat, Nichols Publishing Company, New York, U. S. A.

HUDSON E "HENRY", (1973), " A Practical Approach to the Planning of Training", in: Ivor K. Davies, The Organization of Training, op., cit.

HUSSAIN ABDULLA & AHMED SAYD OMAR,(1971),"The Role of Government in Backing the National Petroleum Companies", in: Arab Oil Review, May/August, 1971.

I. L. O., (1951), "Vocational Training in Latin America", I.L.O, Geneva.

--------, (1960), "Labour Survey of North Africa", I. L. O., Geneva.

--------, (1961), "Report to the Government of Libya on the Technical and Clerical Training Centre Tripoli", I. L. O., Geneva.

--------, (1963), "Report on an ILO Contribution to Training Programmes for Labour Administration Officials in Iraq, Jordan, Libya and Syria", I. L. O., Geneva.

--------, (1966), "Report to the Government of Libya on Vocational Training", I. L. O., Geneva.

--------, (1967), "Human Resources for Industrial Development: Some Aspects of Policy and Planning", I. L. O., Geneva.

--------, (1970), "Report to the Government of Libya on Co-operative Education and Training", I.L.O., Geneva.

————, (1971), Regular Programme of Technical Assistance, "Report to the Government of Libya on Workers' Education", I. L. O., Geneva.

————, (1973), "Multinational Enterprises and Social Policy", I.L.O., Geneva.

————, (1974), "Action of the I. L. .O : Problems and Prospects", Report of the Director - General, 59th. Sesson, I. L. O., Geneva.

————, (1974), "The Role of University in Workers' Education", I. L. O., Geneva.

————, (1975), "Vocational Training and Retraining in Mines other than Coal Mines", Programme of Industrial Activities, (The Third Tripartite Technical Meeting for Mines other than Coal Mines), I. L. O., Geneva.

————, (1976), "The Impact of Multinational Enterprises on Employment and Training", I.L.O., Geneva.

————, (1977), "Social and Labour Practices of MNE's in the Petroleum Industry", I. L. O., Geneva.

————, (1979), "Ten Years of Training (France, Federal Republic of Germany, United Kingdom)", I. L. O., Geneva.

————, (1979), "Manpower Assessment and Planning Projects in Arab Region: Current Issues and Perspectives", A Review Conducted with the Support of UNDP, I. L. O., Geneva.

————, (1980), "Training: Challenge of the 1980s", Report of the Director-General, I. L. O., Geneva.

————, (1980), "The Training of Nationals as Technicians and Workers in the Petroleum Industry of Developing Countries, Including Continuous Training and Retraining in the Light of Technological Progress", I.L.O., Programme of Industrial Activities, Petroleum Committee, Report II, Ninth Session, Geneva.

————, (1980),"Working Conditions and Working Environment in the Petroleum Industry Including Offshore Activities", I. L. O., Programme of Industrial Activities, Report III of the Petroleum Committee, Ninth Session, Geneva.

————, (1981), "Multinationals' Training Practices and Development", I. L. O., Geneva.

————, (1982), "Industrial Vocational Training Scheme

301

(Phase III) LIB/79/01, Project Finding and Recommendations", Report Prepared for the Government of the S.P. Libyan A.J. by the International Labour Organisation, (Confidential Documet), I.L.O., Geneva.

----------, (1982), "Employment and Manpower Information in Developing Countries: A Training Guide", I.L.O., Geneva.

----------, (1984), "Social and Labour Practices of Multinational Enterprises in the Textiles, Clothing and Footwear Industries", I.L.O., Geneva.

----------, (1984), "Social and Economic Effects of Petroleum Development Programmes", Consultant's Report, Prepared for I. L. O. by NORCONSULTM, I. L. O., Sept., 1984.

----------, (1985), "World Labour Report 2", I.L.O., Geneva.

----------, (1985), "Manpower Planning and Development in the Petroleum Industry", Sectoral Activities Programme, Petroleum Committee, Report III, Tenth Sesson, I. L. O., Geneva,1986.

----------, (1986), "Occupational Safety and Health and the Working Environment in the Petroleum Industry", Sectoral Activities Programme, Petroleum Committee, Report II, Tenth Session, Geneva, 1985, I. L. O.

----------, (1987), "Consolidated Texts of Conclusions and Resolutions Adopted by the Petroleum Committee at Its First Ten Sessions, 1947 - 1986", I. L. O., Geneva.

INDUSTRIAL TRAINING ACT (THE), (1964).,"Section 2".

INDUSTRIAL TRAINING ACT (THE), (1973).

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT,(1960), "Annex XXVIII, Memorandum on Educational Organization in Libya Under Italian Administration, Submitted by the Representative of Italy on Council for Libya", in: IBRD, The Economic Development of Libya", Report of the Bank's Mission to Libya, The John Hopkins, Baltimore.

----------,(1963), "The Economic Development of Libya", Report of a Mission Organized by IBRD at the request of the Government of Libya, (2nd Printing),The John Hopkins Press, Baltimore, U. S. A.

INTERNATIONAL CONGRESS OF UNIVERSITY ADULT EDUCATION,(1972), "The Role of Universities in the Education

of Adults", European Conference,Edinbrugh, Scotland.

JENNINGS B.,(1985),"The Education of Adults in Britain: A Study of Organisation, Finance and Policy", Newland Paper No. 10, University of Hull, Department of Adult and Continuing Education.

KADRI Y., (1986), "Educational Aims and Policies of 3 Arab Countries and Socialist Political Options", Unpublished Ph.D thesis, University of Durham.

KALLEN D., (1987), "Failure and Underachievement in Education: The New Illiterates", in:Prospects,UNESCO, Vol. XVII, No. 2.

KERLINGER F.,(1964)"Foundation of Behavioural Research", Holt, Rinehart and Winston Inc., New York.

KHADER B. C.,(1987),"Libyan Oil and Money", in: Bichara Khader and Bashir El-Wifat (eds) The Economic Development of Libya, Croom Helm, London.

KHADDURI MAJID,(1963),"Modern Libya: A Study in Political Development", The Johns Hopkins Press, Baltimore.

KHALIDI ISMAIL RAGHIB,(1956),"Constitutional Development in Libya", Khayat's College Book Co-operative, Beirut, Lebanon.

KHASAWNIH SAMI A., (1986), "Science Policy in the Arab World", in: International Review of Education, Vol. 32, No. 1.

KHOUJA M. W., (1981),"The Challenge of Energy: Policies in Making", (Energy Resources and Policies of the Middle East and North Africa), Longman Group Limited, U. K.

KING DAVID, (1964),"Training Within the Organisation: A Study of Company Policy and Procedures for the Systematic Training of Operators and Supervisors", Tavistoc Publication, U. K.

KINGDOM OF LIBYA, MINISTRY OF EDUCATION,(1966),"Education and The First Economic & Social Development Plan 1963-1968", Ministry of Education, Tripoli, Libya.

KINGDOM OF LIBYA, MINISTRY OF PLANNING AND DEVELOPMENT,"Five Year Economic and Social Develpment Plan, 1963 - 1968", Ministry of Planning and Development, Tripoli, Libya.

KINGDOM OF LIBYA, MINISTRY OF EDUCATION,(1966),"The Development of Education in Libya",

(Document No. 1), Ministry of Culture and Information Press, Tripoli, Libya.

LEWIS C. G. (ed.), (1969),"Manpower Planning: A Bibliography", The English University Press, Ltd.

LIBYAN PETROLEUM LAW No. 25 OF 1955, The Second Schedule, Clause 18, Paragraphs: 1 & 2.

LIBYAN ARAB REPUBLIC, MINISTRY OF PETROLEUM,"Libyan Oil 1954-1971", Ministry of Petroleum, Tripoli, Libya.

----------------------,(1971),Industrial Vocational Training Scheme (LIB. 7), Technical Report No.1, "The Development of Industrial Vocational Training Activities", I. L. O., Geneva.

----------------------, MINISTRY OF EDUCATION, PLANNING AND FOLLOW-UP DEPARTMENT,(1974),"Dirasa Tarikhiya 'an Tatawwur al-Ta'lim fi al-Jumhuriya al-'Arabia al-Libiya min 'Ahd al-'uthmani ila Waqtina ilhader",(A Historical Study on the Development of Education in the Libyan Arab Republic from the Time of the Ottoman Occupation to the Present Time), Ministry of Education, Tripoli, Libya.

LIBYAN NATIONAL OIL CORPORATION, (1982),"Libyan Oil Sector Development Plan'85", L.N.O.C., Tripoli.

----------------------------------,(1984),"Unified Training & Development Regulation for Oil Sector", L.N.O.C., Tripoli, Libya.

------------------------------,(1990),"The Oil Industry in the Great Jamahiriya: Achievements Despite Challenges", L. N. O. C., Tripoli.

LONG HUeY B.,(1987),"New Perspectives on the Education of Adults in the United States", Croom Helm Ltd., U.K.

LYONS RAYMOND F.,(1977),"Personnel Policy and The Training of Administrative and Planning Personnel for Education in Developing Countries", (Seminar Paper), A Contribution to IIEP/SIDA Seminar on "Changing Needs for Training in Education Planning and Administration", 27 Sept./Oct., 1976, (International Institute for Educational Planning (IIEP), UESCO.

MABRO R., (1970), "Labour Supplies and Labour Stability: A Case-Study of the Oil Industry in Libya" in: Bulletin of the Oxford University, Institute of Economic & Statistics, Vol. 32, 1970.

MACKAY K. H.,(1984),"Estimates of Manpower Requirements and Manpower Availability in the World Petroleum Industry 1980-2000 and Their Implications", in: Proceedings of the 11th. World Petroleum Congress, Vol. 5, Training, Environment, Conservation, Health, Finance, Supply and Demand, Chechester, John Wiley & Sons.

MACKENZIE & JONES R.,(1985),"Universities and Industry: New Opportunities from Collaboration with UK Universities and Polytechnics", Special Report No. 213, The Economist Intelligence Unit (EIU) Publications Ltd.

MANGUM GARTH L.,(1965),"Manpower Revolution: Its Policy Consequences", Anchor Books.

MANSFIELD D.,(1978),"Libya: Check to Production Build Up", Petroleum Economist, Vol. XLV, No. 9, Sept., 1978.

MARIUS K. DEEB & MARY JANE DEEB, (1982),"Libya Since the Revolution: Aspects of Social and Political Development", Praeger.

MARSDEN LUCY,(1986),"Manpower Matters: Overcoming Professional Skill Shortages", Journal of General Management, Vol. 12, No. 1.

MAYHEW K., (1991)," Training - The Problem for Employers", Employment Institute Economic Report, Vol.5, No.10.

McLACHLAN K. S.,(1982),"Development of the Libyan Oil Industry", in: Allan J. A. (ed), Libya Since Independence, Croom Helm, London.

MIDDLE EAST & NORTH AFRICA (THE),(1984-85),"Libya: The S. P. Libyan A. J.", (31st. edition), European Publications Limited.

MIDDLE EAST ECONOMIC SURVEY,(1988),"Libya Starts Production from Offshore Bouri Field", Vol. XXXI, No. 47, 29 August, 1988.

MINISTRY OF LABOUR AND PUBLIC SERVICE,(1977),"Study on the Administrative System in Libya", Ministry of Labour and Public Service, Tripoli, Libya.

NOULY J., (1970), "The Science of Educational Research", Van Ostrand Reinhold Company, New YorK.

O. E. C. D.,(1983), "The Future of Vocational Education and Training", O. E. C. D., Paris.

PATTEN Jr. THOMAS H.,(1971),"Manpower Planning and the Development of Human Resources", John

Wiley & Sons, Inc., U. S A.

PATTISON JOHN G.,(1984),"Socio-Political and Cultural Factors Affecting Foreign Language Policy in Revolutionary Libya", Unpublished M. Phil Dissertation, University of London .

PAPPER ALLAN D. ,(1984),"Managing the Training and Development Function", Gower Publishing Compan Limited.

PEDLER M., BURGOYNE J., AND BOYDELL T., (1978)," A Manager's Guide to Self-Development", McGraw Hill, Maidenhead.

PETERS R., & WHITE J.,(1969),"The Philosopher's Contribution to Educational Research", in: Educational Philosophy and Theory, Vol. 1.

PRASAD, et al,(1963),"The Economic Development of Libya", Report of a Mission Organised by MBRD, John Hopkins Press, Baltimore, U. S. A.

RAE LESLIE, (1986),"The Skills of Human Relations Training: A Guide for Managers and Practitioners", Gower Publishing Company Limited.

ROBERT KENNETH R.,(1985), "A Handbook of Training Management", (2nd. ed.), Kogan Page Ltd., U. K.

ROBINSON K. R., (1985)," A Handbook of Training Management", (2nd ed.),Kogan Page Ltd., U.K.

SAX G., (1979), "Foundation of Educational Research", Prentice-Hall Inc., New Jersey.

SAYEGH KAMAL S,(1968),"Oil and Arab Regional Development", Praeger Special Studies in International Economic and Development, Fredrick A. Praeger, Publishers Inc., U. S. A.

SAYIGH YUSIF A.,(1983)"Arab Oil Policies in the 1970s: Opportunity and Responsibility", Croom Helm, U. K.

SHEPHERD ANDREW,(1988),"Training Process Control Tasks in the Chemical Industry", Unpublished Ph. D thesis, Hull University.

SHIRLY-SMITH K.,(1968),"Guide to Programmed Techniques in Industrial Training", Gower Press, U. K.

SHNEIR CRAIG ERIC,(1974),"Training and Development Programs: What Learning Theory and Research Have to Offer?", in: Personnel Journal, April, 1974.

S. P. LIBYAN ARAB J., GARYOUNIS UNIVERSITY,(1980)"Labour Turnover in the Libyan Oil Industry:

Findings", A project sponsored by the National Oil Corporation, Garyounis University, Research Centre, Benghazi, Libya.

S. P. LIBYAN ARAB J., GENERAL PEOPLE'S COMMITTEE FOR EDUCATION,(1982),"Proposal of the New Educational Structure", Secretariat of Education Press, Tripoli.

S. P. LIBYAN ARAB J.,(1982),"The Socio-Economic Transformation Plan 1981-85: A Summary of Development Prospects and Priorities and Opportunities for British Firms", Unpublished Report Study), Committee for Middle Eastern Trade "COMET".

S. P. LIBYAN ARAB J., SECRETARIAT OF PLANNING,(1983),"Training Guide on Manpower Planning", Directorate General of Demography and Manpower Planning, Tripoli, Libya.

S. P. LIBYAN ARAB J., SECRETARIAT OF GENERAL PEOPLE'S COMMITTEE FOR EDUCATION,(1983),"Dirasa 'an Siyasat al liqna' asha'abyia 'al 'amma lilta'aleem bil Jamahiriya wa Jahudeha wa Tata'llu'atiha fi al fatra min 1977/78 ila 1982/83", (A Study on the Policy of the General People's Committee for Education: Its Practice and Prospects from 1977/78 to 1982/83), Secretariat of Education, Tripoli, Libya.

S. P. LIBYAN ARAB J., SECRETARIAT OF INSTRUCTION, NATIONAL COMMISSION FOR EDUCATION, CULTURE AND SCIENCE,(1984),"Report on Education Development 1981-83", Presented by the International Conference on Education, 39th. Session, (Prepared by the Educational Research and Documentation Centre, Tripoli, Sept., 1984).

S. P. LIBYAN ARAB J., SECRETARIAT OF PLANNING,(1985), "Economical and Social Accomplishment in the 15 Years of September Revolution 1970 - 1984", Secretariat of Planning, Tripoli, Libya.

S. P. LIBYAN ARAB J., SECRETARIAT OF INSTRUCTION, (1984), "Report on Educational Development 1981-1983",Secretariat of Instruction, National Commission for Education, Culture and Science, Tripoli, Libya.

STAINER GARETH,(1971),"Manpower Planning: The Management of Human Resources", William Heinemann Ltd., London.

TAYLOR   NANCY,(1966),"Selecting   and   Training   the   Training
          Officer",   Institute   of   Personnel
          Management (IMP).

TERRY G., & THOMAS Jr.,   with MARSHAL A. R.,   (1977),"Interna-
          tional Directory of Education",Kogan Page,
          London.

TINSLEY J.   D.,(1987),"Open Tec", in: Colin Frint (ed.),
          Changing   Education,   Stanley   Thornes
          (Publishers) Ltd.

TORRINGTON DEREK & WEIGHTMAN JANE,(1985),"The Business of
          Management", Prentice-Hall International.

TRAVERS R., (1958),"An Introduction to Educational Research",
          MacMillan Co., Inc., New York.

UNESCO,   (1978),   "Terminology of Technical and
          Vocational Education", Ibedata, UNESCO.

UNIVERSITY COUNCIL FOR ADULT EDUCATION,(1970)"University Adult
          Education in the Later Twentieth Century,
          A Statement submitted to the Committee on
          Adult Education, University Council for
          Adult Education (UCAE).

WADDAMS FRANK   C.,(1980),"The Libyan Oil Industry", Croom Helm
          Ltd., London.

WATSON   CHARLES   E.,(1987),"Management Development   Through
          Training",   Addison-Wesley   Publishing
          Company, Inc.

WEXLEY KENNETH N., & LUTHAM GARY P.,(1981),"Developing and
          Training Human Resources in Organisation",
          Scott, Foresman and Company, U. S. A.

WEDLEY   CHARLES   WILLIAM,(1971),"Manpower   Policies   for
          Development Planning in Libya: With
          Special   Reference   to   Agriculture,
          Petroleum and Education", Unpublished Ph.D
          thesis, Columbia University, U.S.A.

YOUSRY   SAMIR,(1988),"Human Resources and the Transfer of
          Technology", in: OAPEC Monthly Bulletin,
          Viewpoint, December.