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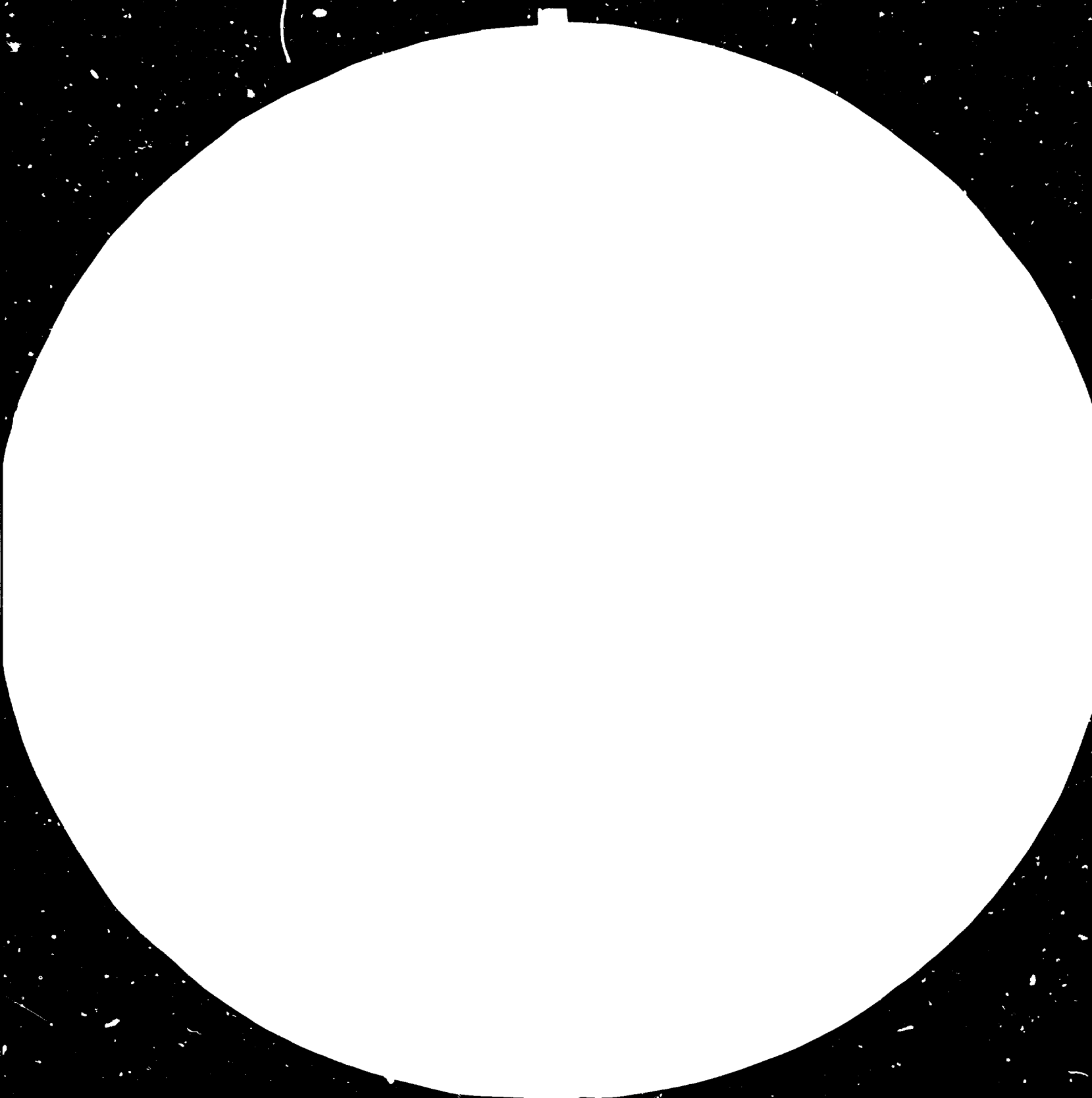

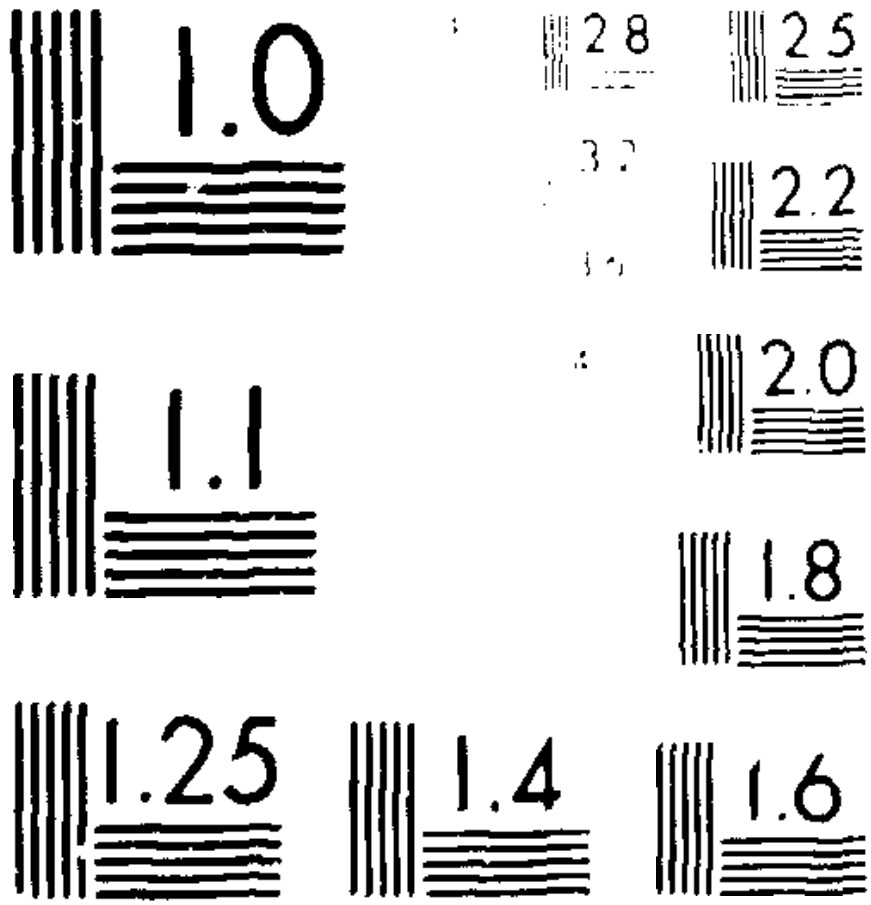

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INDUSTRIAL RESEARCH CENTRE, PHASE II

DP/LIB/77/001

LIBYAN ARAB JAMAHIRIYA

Evaluation report: A tripartite in-depth evaluation*

Prepared for the Government of the Libyan Arab Jamahiriya
by the United Nations Industrial Development Organization
in co-operation with A. H. Berranger, consultant on
behalf of the United Nations Development Programme

United Nations Industrial Development Organization
Vienna

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Summary

The evaluation mission has found that the Phase II project predominantly delivered direct support assistance Through these badly needed direct support activities, however, the project has made definite progress in establishing within the Industrial Research Centre (IRC) a number of industrial development and service capacities.

An active and substantive project management could have increased these institution building results even with the prevailing manpower shortage conditions and without reducing the direct support outputs. As urgent work and difficult operating conditions in the present physical facilities often dictated direct support priorities, IRC management and the project experts needed regular support to keep to the institution building objective. This support, a project management task, has not been given sufficiently. However, the direct support outputs produced in close cooperation with IRC staff have, with minor exceptions, been of high quality and of relevance to national industrial development.

The mission has concluded that in view of the above, the actual balance between direct support and institution building was justified.

The lack of an explicit long term strategy for assisting the IRC in its various stages of development has been a major UNDP/UNIDO shortcoming. In ten years of assistance there was no attempt (except by individual experts) to tailor the assistance to the long term development of the IRC, the projects reacted only to immediate IRC operational needs. Although the IRC has progressed considerably in its development, more assistance is required. In this stage of the Centre's development, different types of assistance are required. In the main technical areas of IRC's activities, long term direct support should be phased out. The basic capacities already established here should be strengthened to a level of independence in basic tasks and possibly supplemented by short-term specialists as

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required for specific new tasks.

Also for the new areas that IRC may expand into, preferably rather short-term institution building with direct support assistance should be given.

Thirdly, an area that has not been assisted up to now, the management of the IRC itself could require specialist assistance in areas like information systems, staff development, mission definition, planning, programming and budgeting, etc. Any future assistance should be include quick response to emerging needs in these areas.

1. INTRODUCTION

The project "Assistance to the Industrial Research Centre (IRC), phase II" (DP/LIB/77/001) was approved in June 1977 with the immediate objective of strengthening the IRC. United Nations Development Programme (UNDP) assistance had been provided since 1972, also in order to strengthen the IRC which had then been in existence for only 2 years.

The executing agency is the United Nations Industrial Development Organization (UNIDO), Division of Industrial Operations, Institutional Infrastructure Branch. This project, planned for 4 years, was actually completed in 1982. It was then decided to proceed with a one year Preparatory Assistance Phase (DP/LIB/82/003) in order not to interrupt the availability of experts whose direct support was considered "absolutely essential" and because of the need "to review, analyse and assess in depth the scope of future technical assistance to the IRC".

This evaluation was carried out to review the results achieved by the project since its inception. Findings and recommendations of this evaluation were also to serve in the preparation of the Project Document for the next phase (III) of assistance to IRC. Of particular concern to the evaluation was the balance between direct support and institution building efforts and the effect this has had on the capacity and statement of development of the IRC today.

The evaluation mission took place in Tripoli from March 11 to 22 and was carried out by Mr. Alain Berranger, Consultant, UNDP, and Mr. Adrie de Groot, Associate Industrial Development Officer, UNIDO. It was preceded by a UNIDO Consultant in R + D Management, Mr. Richard H. Westergaard, who arrived in Tripoli on February 27, for three weeks, to assist in formulating the objectives, scope and inputs of Phase III, as well as to participate with the UNDP and UNIDO representatives in drafting the new Project Document.

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The Jamahiriya authorities did not participate formally in the evaluation team.

Terms of reference for the evaluation mission as well as the job description for the R + D management consultant are given in full in Annexes 1 and 2.

The mission visited the new IRC complex under completion in Tajura, met with all the experts and consulted with most of the Directors of the IRC (for complete list, see Annex 3). The mission also reviewed all the relevant project documentation (Annex 4) as well as a representative sample of IRC's feasibility studies and other reports (Annex 5).

The mission followed, as closely as possible, the evaluation procedures described in Chapter 3470 of the PPM "Guidelines on Project Evaluation" contained in UNDP/OFM/VI, Section 4 (September 1973). They were used as applicable and modified by the instructions of UNDP/PROG/FIELD/150 (September 1982). For more information concerning the industrial development situation in Libya, and for a very detailed discussion of the capabilities of the IRC in each detailed activity, we would like to refer to the report of Mr. Westergaard.

The mission acknowledges the co-operation of all the personnel from the UNDP office in Tripoli who have assisted in its execution as well as the kind help provided by the project staff. Special acknowledgements are addressed to all the Directors of the IRC for their time and interest in answering our queries, showing us the new Tajura facilities and sharing with us their views on the actual operations and future development of the IRC. This and their appraisals of UNIDO's contribution to the IRC were very useful in completing this report as well as the Phase III Project Document.

2. PROJECT FORMULATION

As Phase I of this project was completed in 1977, making it difficult for a pertinent review, as well as designed under pre-PPM guidelines that did not require a detailed description of project outputs, this evaluation of project formulation will be limited to Phase II of the project, as expressed in the project document for DP/LIB/77/001, and as implemented to date, including the Preparatory Assistance for Phase III.

2.1 Development Objective

The development objective is stated as "the industrialization of the country according to Government planning". This statement is obviously explicit in that it relates the project to the industrialization of the Libyan Arab Jamahiriya, but a more precise objective could have been formulated. It does not describe the conditions which would constitute a verifiable achievement of the development objective. This at any rate is often difficult to accomplish.

As the IRC is concerned by law with promoting the national economy with respect to all industrial research aspects and is regarded as the key organ for the implementation of the Development Plan in this field, a more appropriate development objective could have been: to attain the industrial investment and production levels necessary to meet the long term planned industrial targets as stated in the First Five-Year Transformation Plan (1976-1980). This development objective is verifiable (In the Jamahiriya, the Secretariat of Planning as a preliminary five-year "transformation" planning exercise, estimates the implementation ratios of key macroeconomic targets planned in the preceding transformation plan).

2.2 Project function

The main weakness of the project formulation is that it has not made clear the function of the project. The primary function mentioned on the

cover page of the project document is "Industrial Services" which is not one of the standard functions and rather undescriptive anyway. The section on "Immediate Objectives" clearly indicates that institution building is a main function of the project: "institutional strengthening...to further improve capabilities...". It is added that "the project aims to strengthen IRC's capabilities...and to provide services...as required by the Secretary of Industry...". Clearly, direct support is also identified as an important function of the project. A more appropriate primary function could perhaps have been stated as "Institution Building cum Direct Support".

2.3 Immediate objectives

The immediate objective of the project is stated as "the institutional strengthening of IRC in order to further improve its capabilities for providing...specifically...:

- industrial techno-economic and feasibility studies;
- sectoral and sub-sectoral industrial planning;
- services in these areas as required by Secretariat of Industry and other Government organizations;
- increase in the level of technological R + D and of technical consultancy services to industry;
- ... industrial administration and management consultancy service(s)...."

The general statement of immediate objectives is relevant. The main weaknesses of this objective are: (i) it encompasses the bulk of IRC's mission and activities without recognizing that such institution-building across the board would take a much longer time to achieve than the approved project lifetime. This is particularly the case for such a young institution as the IRC, working up to now with acute qualified management and technical manpower shortages and in sub-standard offices and laboratory research facilities;

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(ii) it does not express the achievement levels in objectively verifiable form (also no baseline data have been given). In fact, the project formulation has been deficient in that it did not develop a longer term strategy beyond the duration of this phase. This is particularly needed in projects designed to assist in setting up industrial research and service institutes (IRSIs), a process that is generally recognized to make a minimum of 20 years in developing countries.

2.4 Background and justification

The evaluation team feels the background and justification given in the project document are more than adequate. Key factors are well identified and cross-referenced to national plans. The need for the project is well established, although the order of priority of rapid industrialization as a development objective could have been discussed more precisely.

2.5 Project Outputs

The project outputs identified in the project document (page 5) are related pricipally to the outputs and the programme of activities of the IRC itself:

(a) 1. An increase in the quantity of feasibility studies and economic appraisals of industrial projects.

2. An increase in the quantity of industrial planning studies at the sectoral and sub-sectoral level.

(b) 1. Identification of local raw materials suitable for industrial manufacturing use, the development and demonstration of related manufacturing and applications technologies, and the commercial introduction of such technologies.

2. Technological consultancy services to different industrial enterprises and factories as requested.

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3. Non routine chemical analyses of new materials and products, as requested by industry or public organizations.
4. Introduction to industry of different quality control methods.
5. A comprehensive, substantive report by each technological expert covering as far as possible the status of particular technology in the country of the experts' field of specialization.

(c) 1. Same as above for each industrial management expert.
2. A manual on industrial cost accounting practices, on factory maintenance and maintenance practices, as appropriate to the concrete, for instance needs.
3. Introduction of a suitable cost accounting system to industrial enterprises or factories of the government's choice.
4. Various types of industrial management consultancy services, to different industrial enterprises, or factories, as requested.

Outputs a, and a2 could be understood as institution building outputs (increase in capacity) or as direct support (adding experts so that the more studies are done during the project).

Outputs b1, b4, c3, c4 are clearly direct support outputs, they refer directly to the outputs of the IRC, not to the capacity of the IRC to produce these outputs.

Outputs b5, c and c2 can be seen as institution building outputs, they refer to a survey of the present situation in Libya in various fields and to the production of methods, procedures, and guidelines for IRC use.

The outputs do not adequately reflect the primary function as per the project (immediate) objective of institution building, nor do they show the difference between this technical assistance project and its outputs and the IRC and IRC outputs.

In so far as outputs are in terms of institutional capacity, no

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reference basis and no achievement targets are given.

The outputs (and also the activities) did not recognize the situation that although (some of) the experts were critically required to direct support of the operations, this was to have an institution building component built in. No reference was made to existing IRC capacities or building up these capacities in the framework of a long term multiphased IRC development strategy.

3. Project implementation

3.1 Nature of activities

Activities, as they were actually executed, are reviewed in the same order they were described in the project document (page 6):

(a) 1. Undertaking needed techno-economic + feasibility studies

This responsibility, which rests with the Technical and Economic Department, is assumed principally by sub-contracting the execution of feasibility studies to international consulting firms (Borghi + Baldo, Consisto, etc.), as opposed to executing in-house. There are many valid reasons for IRC having chosen this method:

i) The rapid industrialization development scenario chosen by the Jamahiriya requires an early overview of all major industrial sectors and sub-sectors that could be the subject of potential investments.

ii) The large amount of feasibility studies required by the rapid industrialization scheme represents a peak workload over too short a period of time to attempt to staff up to that level.

iii) Although the IRC fully realizes that a larger national content is the execution of feasibility studies is desirable for self-development and the training of nationals, the urgent wide-front all-sector investigation approach needed to implement the rapid industrialization prevented such an approach. Furthermore, managerial and technical manpower shortages in the Jamahiriya precluded such an approach right from the start.

iv) To acquire a maximum of technological, marketing operations and economic know-how as a long term data base for the IRC.

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v) Commissioning of feasibility studies implies the carrying out of the following activities, which took up all the human resources (nationals, UNIDO experts, other expatriates) available to the IRC:

- Identification of strategic areas to investigate
- Definition of scope of work and terms of reference
- Establishment of long/short lists of qualified consulting firms
- Preparation of proposal or tender conditions
- Organisation of call for tenders or proposals
- Proposal or tender evaluation
- Negotiations and contract award
- Assisting in data collection
- Monitoring study progress
- Reviewing drafts and final reports
- Terminating the assignment.

All these activities were carried out during Phase II of the project with evident success requiring close cooperation between IRC staff and UNIDO experts. It is particularly interesting for the evaluation team to note the mode of operation within the IRC regarding feasibility studies, because through the various project committees, it partly makes use of matrix organization methods, a very effective approach when a small number of staff have to handle a large number of diversified tasks. Finally it should be noted that these feasibility studies were completed in such fine detail that updating will be easily done in-house with foreign inputs limited to proprietary or latest developed technologies.

(a) 2. Assessing industrial development opportunities based on indigenous raw materials

This activity was also carried out with much success by the IRC using the same approach of sub-contracting and limiting

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the work of IRC staff to strategic tasks, laboratory tests and desk work. The same mode of operation as for feasibility studies was used.

Two features are worth mentioning here:

i) The high level of integration between the Geology and Mining Department and the Technical and Economic Department, particularly with the Building Materials Research Section.

ii) A systematic approach ensuring sectoral and regional (municipalities in the Jamahiriya) coverage of the resource base, a review and ranking of all possible industrial developments, including domestic and export market analysis and a selection of the top opportunities, limiting detailed feasibility studies to only those selected.

(a) 3. Carrying out industrial planning studies

Same remarks as for (a) 1 and (a) 2.

(b) 1. Carrying out applied R + D

This activity was limited to product R + D in building materials (expanded clays, lightweight aggregates, sand lime bricks) and foods (biscuits, dates, fruit juice).

(b) 2. Testing, analysis and quality control activities

In food processing and textiles the testing, analysis and quality control activities were mainly performed by IRC staff. A good in-house capacity was established in cooperation with the project experts. In the other laboratories these activities were implemented under severe lack of counterpart availability and with limited effect in on-the-job training by UNIDO's expert (post 04). This was easily counterbalanced in the view of IRC's management by his excellent contribution in direct

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support areas. This was verified by the evaluation team. The IRC established in the Jamahiriya in these fields of laboratory activity a very good name.

(b) 3. Procurement and installation of additional laboratory equipment

UNIDO's expert (post 04) activities were carried out well beyond the call of professional duty, including the performance of technician and even craftsman's tasks, absolutely vital to the maintenance of the laboratories. Implementation was restrained by shortage of spare parts.

(b) 4. Installation and commissioning of pilot plants

Activities in this field were limited to trials, in the Jamahiriya to laboratory and bench-scale trials, and abroad for pilot plant and industrial scale trials. This is one activity that is targeted for the near future in some areas (food processing). The IRC did not build pilot plants, instead such tests whenever required were done abroad.

(b) 5. Industrial technical information and support needs of industrial plants

Activities were strongly limited because of small physical facilities on one hand (insufficient library, no access to on-line data banks, very limited reproduction facilities) and lack of qualified, experienced manpower on the other.

(b) 6. Same as (b) 2.

(c) 1. Industrial management consultancy services.

Industrial management expert and industrial cost accounting expert were said to have been otherwise fully occupied or performed poorly. However, through excellent task force organisation and cooperation between IRC staff and experts/expatriates,

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and good managerial ability by the section directors involved, it is apparent to the evaluation team that an operating capability has now been acquired by the IRC in this field. The high quality of the diagnostic study for the Souk-El-Khamis cement plant supports this finding. The problem in the future will be one of capacity, which is at present very limited and totally insufficient for present and future demand for diagnostic studies and consultancy services.

Furthermore, IRC staff having completed the diagnostic study is in a good position to assist from time to time with implementation of their recommendations or even just to monitor progress. This aspect has not yet been investigated in detail by IRC.

(c) 2. Consultancy services in production engineering and plant machinery maintenance

UNIDO Expert (08) performed satisfactorily. Same remarks as (c) 1 as to the future but actual level of capability is very low. Actual in-plant work done has been very limited.

(c) 3. Q/C systems into practice at factories

This activity was limited to advice, assistance and trouble-shooting, mainly in food processing plants. In ... cases the expert was involved in these activities.

3.2 Training activities

Although trained staff is not explicitly identified as part of the output, training is included in the list of activities as "oriented towards the improvement of the expertise and skills of the national staff", broken down in four different types:

(1) On-the-job training

(2) Fellowships programmes

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(3) Training courses and lectures

(4) Preparation of local staff for collective in-plant training programmes.

These training activities are important overall to institution building which is based, sine qua non, on well trained human resources. In general, all four training activities are desirable but it is not clear if they were all to be implemented during Phase II of the project. Although the above list of training activities was given in the prodoc, the implementation of these was never designed and/or programmed. During project implementation little explicit attention was paid to training aspects.

3.3 Project inputs

3.3.1 UNDP Personnel inputs

	Budgeted	Actual	% Change
Work/months	332	529.9	+ 64.6
US $	1,481,200	3,506,531	+136.7
US $ per w/m	4,600	6,617	+ 43.8

Long term experts were used much more intensively than planned and short term consultants, budgeted at 34 months, only implemented 20.5 months of work:

	Budgeted	Actual	% Change
Short term consultants	34	20.5	(39.7)
Long term experts	288	509.4	+ 76

3.3.2 Government cost-sharing contribution

(US $)	Budgeted (Project Document)	Actual (after revision "M")	Actual/Budget (%)
Government cost-sharing	386,400	1,737,708	+349.7

3.3.3 Government inputs

(a) The supply of these inputs (staff, office space, laboratory space, equipment) suffered due to the inadequacy of the

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present IRC facilities. Improvements were not undertaken pending the completion of the new very large facilities at Tajura.

(b) The supply of operating funds has been partly inadequate due to procurement difficulties in spare parts and recently to budgetary restraints.

3.3.4 Other UNDP Support

Administrative support was adequately supplied. Fellowships were not used by the IRC. A project car was supplied and is still being used. A new car was supplied under the Preparatory Assistance budget.

3.4 Project management

Project management was effectively supplied by the IRC in a diffuse manner as national staff, UNIDO experts and other expatriates were knit into one single operating organisation. IRC management staff has not really appreciated the difference between project management of the institution building UNDP/UNIDO project and IRC management. UNIDO project administration was handled by the Project Co-ordinator supposedly using 25% of his time for this; in practice he has had to spend 100% of his time.

Under these circumstances it would have beer advisable to appoint an administrative assistant. It seems excessive to have to spend over $400,000 for 6 years of relatively simple project administration; this represents 11.6% of the total expert inputs without actual project management (besides administration). IRC's management clearly indicated to the evaluation team that they would have preferred to

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use the Project Coordinator as an expert in industrial management, but appreciate the project administration by one expert in order to minimise the tasks of the other experts in this area.

IRC's management perceives clearly the role of UNIDO as direct support in Phase II and direct support + increasing the capabilities of IRC staff in Phase III. IRC's management does not fully appreciate what UNIDO could offer them beyond direct support and staff training by individual experts. Nobody has adequately explained the concept of assistance in institution building. For now, their image of UNDP/UNIDO is partly one of a bureaucracy that is slow in recruiting, requires frequent and lengthy reports and makes other annoying requests such as evaluations, tripartite reviews, consultant's missions, etc., not of a partner in institution building.

Project reporting in general did not reflect the true contribution of the project. Expert reports were repetitive, lengthy, formal, prepared individually without comments from the coordinator. To be fair, some experts' terminal reports are excellent. Why were some of the recommendations not followed up? Was it because of lack of resources at IRC or because its management did not agree with them? What role the project coordinator did play in this process of follow up could not clearly be identified but the recommendations should have been brought to IRC's attention more often and in a more consistent and active way.

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The above questions should not have to be asked at the project terminal evaluation. Given the lack of formal project management agreed to in the project document by all parties what special care was taken by UNDP or UNIDO to monitor this situation and keep it under control? What lessons can be learned for Phase III design and implementation?

Two elements of the solution come to surface:

(i) Strong and effective project management by a UNIDO expert, capable of gaining the full confidence of his counterparts and convincing them slowly but surely, beyond the language and cultural barriers, of the benefits of more systematic institute and project management (staffing, directing, controlling, evaluating and planning). The evaluation team does not say that management is easy, it does say it can work under any socio-politico-cultural environment if the concepts are explained, understood, and adapted to local conditions.

(ii) Strong support by the local UNDP office and strong backstopping by UNIDO in Vienna because conditions, being difficult in Tripoli, as well as the subtle balance between support and institution building in the project with so much day to day pressure on production of IRC outputs, require such special attention.

If this project management is unavailable or impossible to find, particularly if local integration on cultural and social grounds is a pre-requisite as it seems, or in addition to the above a different and original formula could be found, possibly:

i) A national director with support from a UNIDO administrative

assistant (not preferred at present by the IRC)

ii) The use of a high level management consultant on a part time basis.

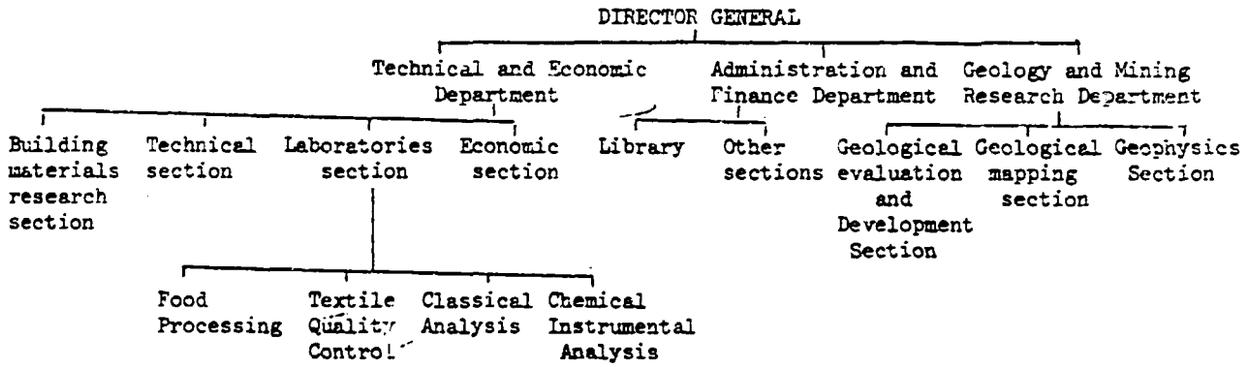
iii) A fact-finding mission to foreign industrial research centres by IRC's management, to witness the benefits of properly applied management techniques, including the use of computers in management, library and information systems possibly leading to a twinning arrangement. This has already been under consideration for some time and should at any rate be done for a variety of reasons (establishing relations, identifying possibilities for assistance, etc.).

4. Project Results

In view of the fact that, as described before both "direct support" and "institution building" assistance was implemented under the projects, the results will be reviewed by section for each of the two categories. It is possible that the following list of results is not complete, certainly for the Phase I project it was difficult to obtain data. In order to group the results and facilitate understanding, the organisation of the IRC is discussed first.

4.1 The Industrial Research Centre

The IRC consists at present of three departments that are subdivided in sections. The laboratory section is subdivided in four parts:



With the exception of two experts (economic geology and technical information and documentation), all project activities were concentrated in the Technical and Economic department.

4.2 The laboratories sections

Textile quality control laboratory

In 1977 the Laboratory staff consisted of the head (B. Sc. level) and two trained technicians. The laboratory was equipped with basic equipment working on about 100 m^2. At present the staff consists of the same laboratory head, 4 other professional staff (most new) and 3 technicians. The equipment was expanded to a level where almost all standard textile tests

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can be done. After the move to the new premises (about 1500 m^2 available for the textile laboratory only) the laboratory will be fully equippped also for some R + D purposes. The very few available staff was trained on the job in the normal functioning of the laboratory. Some formal training was done also for outside trainees. Notes on laboratory and testing procedures as well as two different complete course descriptions were prepared. The laboratory is able to handle the present tests and workload (supported by the other laboratory units if required). The main task is Quality Control testing for a wide range of textile fibres, yarns and cloths (approximately 100 assignments for 1000-1500 tests per year). The head of the laboratory serves on outside committees for textile standards and specifications and for the study of Quality and Development of the National Textile Industry.

During the project the UNIDO expert and his counterparts, apart from the above described routine work, participated in two diagnostic surveys of the national textile industry, carried out two detailed raw material application investigations, participated in feasibility study appraisals, preparation of long term development plans and in establishing a national textile standards system.

The food processing laboratory

At the beginning of the project (phase II) the laboratory staff consisted of 7 professionals and 1 or 2 technicians.

It was mainly working on routine quality control and selected surveys of the industry. At present the staff consists of 10 professionals plus 3 in the micro-biology laboratory with a well qualified head (M.Sc.) as well as 2 technicians. Its equipment is considered sufficient, certainly after the additions in the new complex (facilities of the other laboratories can be used when needed). The routine quality control has been taken over by

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a special laboratory of the Secretariat of economy and the functions of the IRC laboratory now are mainly non-routine. Special analysis, technical assistance to the food processing industries, research and development, surveys and sector planning and appraisal of food industry projects are the main functions.

The project expert gave some formal lectures to train the laboratory staff but this was stopped when the laboratory started the technical assistance programme to factories. The main training has been "on-the-job". The expert also prepared operational recommendations for the laboratory, most of which have been implemented.

During the project the expert provided "direct support" by preparing diagnostic and development studies together with his counterparts covering all plants in several sub-sectors (dairy, cereals, fish canning, soft drinks, macaroni), providing trouble shooting services to several plants, performing some R + D (product development) and by participating in food industry project appraisals.

Other laboratories (Classical Analysis and Instrumental Chemical Analysis)

Apart from the above mentioned laboratories a raw material laboratory existed with few staff. Apparently most of the equipment was not working, no workshop nor repair staff was available.

At present, all major equipment (except one for lack of spares) is working, an equipped workshop for maintenance and repair is installed. The workshop is staffed by 2 engineers and 3 technicians and the laboratories by 2 professionals and 2 technicians in instrumental chemical analysis and 5 and 6 respectively in chemical analysis. The expert (in instrumental chemical analysis) has given lectures (unsuccessful as trainees soon stayed away) and laboratory practical training, both to IRC staff and to

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laboratory staff of other (factory) laboratories. The IRC management has not been happy with the extent to which the (any) counterparts were trained to take over at least some tasks, the laboratories depend to a high extent on the expert, both as no trained counterparts are available and still to keep the equipment in order.

This is probably related to th fact that the expert has been very active and busy with repairing equipment, reorganising and expanding the laboratories and a workshop, and with actual analysis work and this all not only for IRC but also for other laboratories. This certainly has helped the IRC laboratories in establishing a good name. The laboratories are now as well organised as facilities permit, they are however certainly not (yet) fully established and independent.

4.3 The Building Materials Section

The Section was established in 1976 and one could say that the beginning of phase II coincided with this. At the beginning there was no local staff except for one technician, the activities consisted mainly of testing of cement and bricks for the small local production that existed at that time. After the appointment of a counterpart (now head of the section) the situation improved.

At present, the section has the following main tasks: identify from geological reports raw materials that present an industrial opportunity, test the materials, do laboratory scale tests of the production, arrange for an industrial scale test, do or sub-contract a pre-feasibility study, sub-contract the main feasibility study and co-operate with contractor. Furthermore the section is active in national standardization of building materials. Recently it has also been involved in diagnostic studies of existing production operations. The section is now staffed by 4 professionals (2 expatriates) and three technicians. It is considered that the section

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head is now able to take over an important part of the experts' task. The main training has taken place by working together closely (also in committees). The capacity at the moment (in volume terms) is not yet sufficient.

The expert together with his counterparts in the section have been involved in the above described activities for a number of products up to and including the detailed feasibility study (special cements, sand-lime bricks, cellular gas concrete, refractory materials, lightweight aggregates etc.). Several of the projects are now under implementation (sand lime bricks, cellular gas concrete). The section played an important role participating in a recent excellent diagnostic study of a cement plant. The recommendations made are now under consideration by the plant and the authorities.

4.4 Technical studies and economic sections

These are treated here together. This has been done as the sections work together on virtually all their activities. In the beginning of the Phase II project the sections consisted of 6 professionals. Only few studies were done, and some of the feasibility studies were done after the investment decision had been taken.

At present the sections are involved in preparation of opportunity studies, regional, sectoral and sub-sectoral development studies, pre-feasibility studies, some relatively simple feasibility studies and sub-contracting of major studies. An important activity is the analysis and discussions with the subcontractor as many studies go through two or three drafts before IRC accepts them as final. Further, the sections play an important role in the increasing advisory services to industry.

The section can almost handle the present workload (although the comments on studies are frequently delayed due to the high workload). The quality of studies done by the IRC or in cooperation with sub-contractors has generally been very high. The project has played a key role in devel-

opment of standard IRC methodologies for pre-investment and planning studies (that are also prescribed to sub-contractors). The gradually growing group of counterparts was trained in basic principles (market, technical and location analysis, discounted cash flow analysis, sensitivity analysis, etc.) and by close association with the experts in conducting all the work (including diagnostic studies).

The staff at present consists of 6 professionals and 3 research assistants in the economic department and 4 professionals in the technical department.

During the project (phase II) the experts with their counterparts prepared or were preparing (as per late 1982):

- one national industrial survey
- one "industrial planning perspective"
- 4 regional industrial development studies
- 14 sub-sectoral/branch development studies
- 72 feasibility studies (42 completed).

While the IRC involvement in the first 4 groups was very important, the main feasibility studies were and are being done by outside consultants. IRC involvement in these was important in the initiation and often pre-feasibility stages while they were also involved in discussions of draft reports and appraisal of the projects. The quality of final studies was very much increased by this process. At present the IRC is getting further into the feasibility studies themselves (up to 35% participation in some cases).

4.5 Geology and Mining Research Department

As only 1 man-year of assistance was given to this department and no clear picture could be obtained on the use of this input from the IRC, this will not be discussed in depth. The assignment had a pure direct

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support nature, no training has been reported by the expert, and the work has been highly specialised, no judgement on the technical quality could be made. The IRC was not enthusiastic about the expert.

4.6 Administration and Finance Department.

The project was in this department only active in the Library (a two-year assignment of an expert in Technical Information and Documentation). The main result was a thorough reorganisation of the library system, lists of books and magazines to be acquired and recommendations and procedures concerning management and administration of the library. At the moment, there is no well trained librarian available (The IRC sent 2 staff abroad for advanced professional training but on completion of the training, they did not return). Definitely more assistance will be required in this area.

4.7 Utilisation of direct support results (outputs).

As senior IRC staff chairs, or participates in a large number of committees concerned with different aspects of industrial development in the Jemahiriya (project implementation committees, plastics coordination and implementation committee, standards committees, etc.), there does not seem to be a problem with getting studies and findings to the decision-makers. A number of projects for which feasibility studies were prepared by or for the IRC have continued to implementation. In other cases studies already done were modified with important improvements (the plans for the Sirt petro-chemical complex were modified so that different feedstocks could be used). Some sub-sectoral studies were used as a basis for national plans. Many studies are still under consideration (many were only prepared recently) while some showed that the projects in question were not feasible and these were apparently not implemented.

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Overall the IRC has been satisfied with the technical quality of the project inputs (expertise only). Indeed the authorities stated that this high quality was important and that this was the reason for using UNDP/UNIDO for these inputs. They made clear, however, that not all experts had been able to transfer their knowledge to the national staff.

4.7 Results versus Immediate Objectives.

The immediate objectives only give "strengthening" of capabilities and capacities without specifying to what level or without describing these capabilities/capacities in terms of quantity and quality of manpower, equipment, procedures, etc. The mission is convinced that the project has definitely strengthened the institute overall as well as in almost all the listed activities/functions through a variety of ways. The immediate objectives as defined in the project document have therefore been achieved.

In view of the vagueness of the immediate (project) objectives this statement needs some qualification. As described in this chapter, the Technical and Economic Department of the IRC and its sections were definitely strengthened. A number of counterparts were trained, mainly "on-the-job". This training has not yet been sufficient to make the Institute independent, both as the national staff have not yet achieved the desired level and as the number of staff trained has been insufficient. In most sections, working procedures and standards, as well as methodologies for own and sub-contracted work were developed and are in general use, and the Institute has established itself in the national industrial development system with a good name. At this stage, however, the Institute cannot perform all its functions with the same quality without the support of technical assistance.

This full self-sufficiency clearly could not yet have been achieved, the Institute is only a little over 10 years old and its duties have been and are rapidly expanding.

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5. IRC future development plans

5.1 Introduction

The IRC expects to start the move to the new facilities in Tajura within two months. These facilities, with a total floor space of 31,000 sq.m. include ample laboratories including new equipment, an auditorium, extensive library facilities, a large office building and a number of service units (printing, workshops, archives, etc.) as well as about 60-100 staff apartments. This move will mark the beginning of a new phase in IRC's development, during which the staff is expected to increase from the present 169 to about 700 eventually. When this target can be reached is difficult to estimate, but IRC management has made clear that they expect, at least initially, a rapid expansion of the staff. The numbers in the following sections are only indicative, the Geological and Mining Research Department will not be discussed.

5.2 Laboratories Section

(a) Food Laboratories (including micro-biology). According to the expert no significant expansion of the professional staff is required but the number of trained technicians should increase from 2 to probably 4-5. The skills of the staff should be upgraded considerably to make the laboratory fully independent.

(b) Textile Laboratory. In the long term a minimum total staff of 24 is said to be needed. Probably a majority should be technician level as a lot of routine testing is required. The newly recruited should be well trained before the laboratory will be able to operate independently.

(d) Other laboratories. Also here a large increase is foreseen. In total, including the electronical/mechanical workshop, to about 50 staff. Several should be trained to a rather high level in order

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to head and manage these sections while the others should receive at least basic training. Certainly several highly trained and skilled workshop staff for maintenance of the equipment will be needed (3-4 engineers and 3-4 technicians).

In the short to medium term, new areas for laboratory applied research are expected to include plastic raw materials and plastic products testing, leather, metallography and electrophysical but it is advisable not to initiate these activities too early.

5.3 Building materials section

In the future the section is likely to expand its testing and R + D activities in the areas of acoustics (special laboratory is now available), fire resistability of building materials, thermal properties of materials, quality improvement of products and reduction of energy cost in production. In a few years a reduction of activities related to new projects is expected, as well as a large increase in diagnostic studies and advise to existing industry.

Professional staff should expand to about 12 experienced professionals and about 10 more junior staff. About 6-10 technicians will be needed.

5.4 Technical studies and Economic Sections

The activities and tasks of these sections will not change very much. However, a very strong shift in emphasis, away from pre-investment activities for new projects to expansion projects, and a very large increase in diagnostic and management advisory services is very likely. The staff should increase accordingly. A figure of up to 70 management consultants has been targeted by SWECO (the consultant that planned the new facilities) so that these sections will have at least about 100 professional staff in total at full maturity.

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5.5 Other activities

The IRC could start activities in other areas. Electronic repair and maintenance has been mentioned, as well as metallography and electrophysical laboratories. Also bio-technology and micro-processor application could be new areas. One should, however, be careful not to overstretch the scarce professional resources. Certainly the library and information services should be strongly improved both in qualified staff and resources (links with external data banks for instance). It is also likely that the IRC will in the future establish an internal training facility, both for training and upgrading of IRC staff in their specialist knowledge, but also for instance in technical English, availability and use of information sources, computer programming, etc.

5.6 Administration and Finance Department

It can be expected that this department will also increase its staff. Up to 25% of the total staff of an IRSI can be allocated to these areas. In view of the dramatic expansion of the IRC, both with facilities and staff, it is likely that many or all of the existing management procedures and systems will have to be revised and expanded. The performance of this department can have a strong impact on the performance of the Institute as a whole, both positive and negative. It can be expected that the IRC will request some specialist assistance in these areas of institute management.

5.7 Workshops and maintenance

This area will require prompt attention by IRC's management as soon as the new Centre becomes operational. The first year will be critical for learning from the building contractor who has a one year operation and maintenance contract. It is vital that technician and maintenance staff is recruited immediately.

6. Conclusions and recommendations

6.1 Conclusions

6.1.1 Contribution of UNIDO to the development of IRC

The major contribution has been to date in the direct support of IRC's main functions: (i) laboratory services, (ii) planning, commissioning, monitoring and inter-facing with foreign consultants on feasibility studies, sectoral/regional planning and (iii) participation in successful diagnostic studies of a cement plant.

Secondary contributions, nonetheless important, have also been made in institution building areas:

(i) Counterpart on-the-job training has met with definite success in food and textile laboratories as well as in building materials applied research and techno-economic feasibility and planning studies. Training has been insufficient in chemical instrumental analysis.

(ii) As a result of direct support, abovementioned on-the-job training as well as development of procedures, methods, etc., definite progress has been achieved in institution building.

Finally, unplanned ad hoc contributions in a multitude of areas have been supplied by the UNIDO project, for instance quality control and problem solving in critical situations, advice on equipment specifications, repair of equipment of IRC and other laboratories, ordering and commissioning for the new IRC Tajura Complex.

6.1.2 Problems associated with direct support

Direct support activities and outputs of experts have been so needed and useful that the UNIDO staff is highly integrated in the IRC organization, as well as with other expatriates directly on contract to IRC. Consequently, suggestions of direct support withdrawal in the cases

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of very long term experts having accumulated several years of duty, and sometimes over 6 years, meet with natural resistance as they are almost considered permanent staff. However, as the organization moves to its new premises, removing present problems in crowding of facilities and offering interesting career prospects to new graduates, time has come to put more emphasis on training of counterparts and on other aspects of institution building, also if required in new areas of applied research as well as on management (consulting) assistance in the administration, finance, human resources and organization components of the IRC. This move to the new IRC Tajura facilities, which coincides with the start-up of the Phase III UNIDO Project, represents a unique opportunity for UNDP/UNIDO to change the functional emphasis of assistance. Furthermore, the Director of the Technical and Economic Department, (where the bulk of UNIDO's assistance has been given) has clearly expressed, during the evaluation mission, that Phase III emphasis should be on training. This will provide a good start to the new phase.

6.1.3 Institution building in the new facilities

A host of management as well as operations and maintenance problems will quickly surface as the IRC organization moves to the new facilities and expands rapidly. Present IRC management is of high quality as well as high potential, but limited to less than 10 managers, most of them having limited industrial, research or management experience. Assistance in the early years of the new complex will be definitely required and UNDP/UNIDO can and should allocate some of the project assistance to this area.

6.1.4 Project management and administration

This situation is found unsatisfactory by the evaluation team, not just in the project's implementation but also in its formulation. There is a major design weakness when a project is formulated without clearly

identifying what is a project manager, who is performing this role and what are his functions. It is not a solution to just make provision for the administrative function and to designate one of the experts as project co-ordinator. Administration and coordination are small tasks of project management (albeit time consuming).

The evaluation mission has reached the conclusion that the project administration functions were reasonably well discharged by the project coordinator. The evaluation team has also reached the rather obvious conclusion that project management functions were not discharged because there was no project manager. This, in the view of the mission is not simply a question of semantics, it has to do with the everyday practice of management.

A project manager should actually "backstop" the individual expert, point out if the functional emphasis is too much on direct support and not sufficient on institution building and assist them in finding practical ways of doing this. A project manager's task is also to convince the cooperating organisation (here the IRC) of those facts, and to try to assist them in the organisational development of their institute. More tasks could be illustrated but these adequately make the point for this project. It may be noted, however, that this project is not alone in experiencing this kind of problem, project management as explained above is a demanding task, requiring good cooperation and adaptation to the local situation.

6.1.5 Reporting

Reporting in general has been seen and done as a routine, a burden or a constraint, rather than the occasion to review progress, make constructive criticism and recommendations. The evaluation mission received without sollicitation three concise, quickly written reports by experts, full of clear descriptions of the project problems and ideas on how to solve them. Such short to-the-point reports must be sollicited by the project manager

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and serve to monitor and improve the progress of the project as well as keep all the parties well informed. It would have allowed for meaningful project modifications as they were required along the way. This also would have demonstrated to the IRC management, the dynamic nature of a technical assistance project and the benefits of good project management.

6.2 Recommendations

6.2.1 Project orientation during Phase III

In order to progress in this long term institution building effort, emphasis must gradually move from direct support to a more indirect but in the end more effective type of assistance which should make the IRC independent of outside assistance. In addition to the technical areas this could include:

- IRC mission definition and adaptation
- institute planning, programming and budgeting
- financial and accounting management
- human resources and organization development
- operations and maintenance
- marketing and public relations
- information systems and other computer applications

Obviously all of this assistance is not necessarily to be given in Phase III only, nor can UNIDO be expected to provide it all. For Phase III the following areas are recommended in addition to continuation of the process of building up the four sections of the Technical and Economic Department:

- Organization and management advisory services to the IRC related to the start-up of the new facilities and the rapid expansion of staff
- Direct support as needed in new laboratories as they come on stream during the next four years

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- Technical information systems and start-up of computer applications.

Other areas of development mentioned above could be persued further after the end of this project.

This general recommendation leads to the more specific ones contained in the following sections.

6.2.2 Bridging Phase II and Phase III activities

A. Experts in Building materials textile laboratory and instrumental chemical analysis, having met with success in direct support and institution strengthening in their respective modules, should be included in Phase III activities, but only for a limited period to:

i) complete on-going projects/activities

ii) plan on orderly and rational withdrawal by 1985, at the latest, to allow for fine tuning in counterpart training, to train the additional staff members expected to be hired early in Phase III, and transfer to nationals their direct support function which should no longer be justified nor required when the IRC staff in these sections will be large and experienced enough.

B. The Project co-ordinator. A full fledged Project Manager should be recruited, preferably with a background in research and service management and/or experience in in-service staff training. It is strongly advisable to recruit a new expert for this post in order to facilitate the break with established habits and practices. If necessary, project administration should be handled by an administrative assistant. The Project Manager should be able to make a good part of his time available for other activities, for instance diagnostic studies. He should also maintain a close relation with IRC management to ensure adequate follow up of recommendations and stimulate IRC's development.

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6.2.3 UNDP/UNIDO local and headquarters support.

A. It is critical that the future Project Manager of the UNIDO project, as well as the other experts feel that they, when necessary, have strong allies in the local UNDP office, from whom they can secure precious advice when facing difficult problems in the project operations or in his relations with his counterpart. Again the balance between direct support and institution building is critical and could lead to problems in these areas. The Resident Representative and his staff should make available such support in a generous way, as well as the use of contacts they may have in the Government, beyond the reach of the Project Manager, to support the optimal implementation of the project.

B. UNIDO's backstopping must also be supportive and quick in recruiting (including possibly a stand-by contract with an international consulting organization for urgent short term specialists) as well as able to give practical feed-back on substance of reports and other substantive and administrative matters. It is important that, in order to be able to do this, regular tripartite reviews are held with participation from UNIDO headquarters. On the occasion of these reviews, progress in institution building terms should be discussed as well as the workplan for the next period including needs for short term consultants, long term experts. etc.

6.2.4 UNDP/UNIDO institution building assistance to the IRC

The language and cultural differences as well as the original development strategy promoted in the Jamahiriya require the adaptation of UNDP/UNIDO's assistance to local conditions. Specifically, management and institutional practices have to be adapted. This requires a long term development in the explanation and slow introduction of management, marketing and research practices in the case of such a large long term institution building project which requires carefully considered step-by-

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step progression from direct support to the more indirect capability building just at the right moment. This approach requires a facility with local language, cultural and developmental conditioning not given to just any project manager. This requires that special conditions be given to the following factors in recruiting the project managers.

- knowledge of the Arabic language and culture
- knowledge of UNIDO's capacities and of UNDP practices
- knowledge of Socialist developmental approach.

6.2.5 Intensify use of short term consultants

To decrease the reliance of IRC on "permanent" experts, more short term consultants for well defined short tasks should be used.

LIST OF ANNEXES

Draft Terms of Reference

Subject: LIB/82/003 - Assistance to the Industrial Research Centre, Phase III

I. Background Information

1. The economy of Libya has been going through dynamic and massive transformation as a result of its oil-based revenues. The industrial sector has been given special priority through large and very large-scale investments within the National Development Plans of 1972-1975, 1976-1980. The Secretariat of Industry plays a key role in this industrialization process as it is responsible among others, for sectoral and sub-sectoral industrial planning; undertaking and commissioning of feasibility, technoeconomic and market studies; awarding of contractors for, and supervising the implementation of industrial project, operating and administering public sector industries. Within the framework of the Secretariat of Industry, the Industrial Research Centre (IRC) was established in 1970 to take charge of a wide range of the above responsibilities, namely;

(a) Techno-economic feasibility and market studies; sectoral and sub-sectoral industrial surveys and planning;

(b) Quality control, standardization; technological research and development; technological consultancy services to industries and to the Government;

(c) Administrative and management consultancy services to industries and the Government.

2. At the request of the Government, UNDP/UNIDO have been providing technical assistance to IRC since 1970 through projects LIB/69/512 - Assistance to IRC Phase I and LIB/77/001 - Assistance to IRC Phase II. The primary aim of this assistance is to strengthen the institutional capability of IRC. The Phase II project has been completed in June 1982, and a Phase III (LIB/82/003) has started to operate since July 1982. In order to assess the overall achievement of the projects under Phases I and II, and to assess the soundness of objectives and approach of the Phase III project, it has been agreed by all parties concerned to undertake a project evaluation.

II. Purpose of the Mission

3. In accordance with provisions contained in Chapter 3470 of the Policies and Procedures Manual (PPM) and the relevant guidelines described in the attached documents on Project Monitoring, Evaluation and Duration - UNDP/PROG/FIELD/150 of 30 September 1982, the primary purpose of the evaluation mission are:

(a) To evaluate the achievements and effectiveness of the projects under Phase I and II, specifically:-

(i) Assess the achievements of the project against the set objectives and targets and expected outputs;

(ii) Examine the extent to which the results/outputs achieved by the project have contributed towards the building up of the institutional capability of IRC and subsequently, towards the overall industrialization of Libya;

(iii) Identify and assess the factors which facilitated the achievements of the project's objectives as well as those factors that impeded the fulfillment of those objectives.

(b) In examining the design of the project LIB/82/003 - Assistance to IRC, Phase III, the mission should review the layout and design of the Project Document and ascertain that it presents clear and precise objectives and outputs that are quantified with target completion dates to the extent possible.

4. As part of the above tasks, the mission is also requested to:

(a) review all technical reports produced so far by the projects, with the view to analyze critically the actual needs of the industry as regards the services expected from IRC;

(b) determine the role the IRC is called upon to play in the overall system of industrialization process and industrial support institutions of the country;

(c) assess the actual technical capabilities of the functional substantive divisions of IRC related to the major areas of:

(i) survey and study capabilities (feasibility, techno-economic, market sectoral and sub-sectoral studies);

(ii) technological, administrative and management consultancy services;

(iii) applied research and development activities.

(The mission will need to examine the follow-up actions taken by the Government and the industries with regard to investment studies; and to assess the impact of the consultancy services upon the improvement of productivity and management practices at production plants level).

(d) to assess the receptiveness of IRC by industries and the Goverment in all the three major groups of activities listed in (iii) above;

(e) to review thoroughly all problematic factors such as institutional framework, human resources and capabilities, organizational set up and functional linkages with industries which have been hampering the efficient operation of IRC;

(f) to assess the results achieved by the techical assistance projects pointing out the progress or lack of progress with regard to the building up of IRC institutional capabilities and credibility;

(g) to identify constraints faced by the projects, particularly with regard to the involvement and training of national counterpart personnel;

(h) to define the actual purpose, scope and approach of further technical assistance to be provided to the IRC within the framework of the Phase III project; and

(i) to suggest the time frame when IRC would be in a position to operate efficiently and effectively without further external technical assistance.

III. Composition of the Mission

The mission will be composed of the following:

- representative(s) of UNDP, team leader
- one representative of UNIDO
- representative(s) of the Government.

IV. Consultations in the Field

The mission will maintain close liaison with the UNDP Resident Representative in Libya, the concerned agencies of the Government, the project national and international personnel, and the industries.

Although the mission should feel free to discuss with the authorities concerned all matters relevant to its assignment, it is not authorized to make any commitments on behalf of UNDP or UNIDO.

V. Time-table and Report of the Mission

The UNDP consultant will receive briefings at UNDP Headquarters on February, on his way to Tripoli, Libya. Upon arrival in Tripoli, the mission will be briefed by UNDP Resident Representative, who will also provide the necessary substantive and administrative support. The mission will endeavour to complete its work within two weeks, starting February 198[illegible]. Upon completion of its work, it will be debriefed by the UNDP Resident Representative and by the Substantive Division at UNIDO Headquarters, Vienna.

The mission will complete its report in Libya and discuss its findings, conclusions and recommendations with the Government. If the report cannot be finalized in the field, the mission will leave behind with the Resident Representative a draft of its report.

The final version of the report will be submitted simultaneously to UNDP and UNIDO Headquarters, which, in agreement, will transmit the report to the Government of Libya through the Resident Representative.

Annex 2

UNITED NATIONS

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

UNIDO

Project in the Socialist People's Libyan Arab Jamahiriya

DP/LIB/82/003/11-51/313.K

JOB DESCRIPTION

Post title	Consultant in Research and Development Management
Duration	One month
Date required	As soon as possible
Duty station	Tripoli, Libya with travel within the country
Purpose of project	The main purpose of the mission is to formulate the objectives of the Third Phase of the Technical Assistance Project and to determine the scope and inputs required. The ultimate objective of technical assistance to the Industrial Research Centre (IRC) is to strengthen its scientific and research capabilities by means of the establishment of a capacity within the IRC to formulate and implement independently national programmes and policies in the field of industrial research. Consequently, IRC's efficiency in providing techno-economic and technical services to the growing industries of the country will be upgraded.
Duties	It is expected that during his assignment, in close co-operation with the national authorities concerned, the consultant will undertake the following:

1. Determine the role the IRC is called upon to play in the overall system of the industrial institutions of the country with the purpose of increasing its contribution to the acceleration of the industrialization of the country:
2. assess the results achieved by the technical assistance project with special consideration given to those project activities which directly contribute towards strengthening research and advisory activities of the IRC;

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

Project Personnel Recruitment Section, Division of Industrial Operations

3. work out and formulate the requirements for further technical assistance to be provided to the IRC in order to strengthen its capability to meet the demands of the national economy in the light of the targets put forward by the Second Five Year Transformation Plan;

4. formulate a preliminary draft project document for the Third Phase of the Technical Assistance Project.

It is also expected that on the basis of his findings the consultant will prepare a technical report which will be discussed by all parties concerned (UNIDO/UNDP and government authorities), at an evaluation meeting. The meeting will be held at a later stage of the consultant's assignment with the purpose of determining the scope and directions of future technical assistance to the IRC and to work out the basic concepts of the Project Document for the Third Phase to be started on 1 July 1983.

Language: Preferably Arabic with some knowledge of English

Qualifications: Higher university degree or equivalent with extensive experience in different aspects of industrial development such as planning and programming, evaluation and financing of industrial projects and industrial research and development.

Like in any other developing country the Socialist People's Libyan Arab Jamahiriya is facing immense challenge in organizing its resources and making decisions affecting industrial development in order to meet the expanding requirements of the national economy.

The Jamahiriya aims at increasing the country's industrial output in diversified fields over the next decades, and consequently new industrial investments are on the qay on a massive scale.

The process of industrial growth at various stages of development raises a variety of problems. Their solution, therefore, requires a wide diversity of knowledge, experience, expertise and know-how. Because of the vital need for rapid industrialization, it becomes necessary to avail of the specialized know-how and expertise of the international experts.

The Authorities of the Jamahiriya continue to put heavy emphasis on industrialization to achieve the development targets put forward in the Second Five Year Transformation Plan (1981-1985). It provides a substantial share of more than 20 per cent of the total investment allocation for the expansion and growth of this sector.

The Industrial Research Centre (IRC) is the main national institution dealing with industry. The IRC is an instrument for the implementation of the industrial development strategy of Libya. It provides know-how to all Agencies and Secretariats which are related to industry, in order to increase the use of the industrial potential of Libya and to improve the quality of locally manufactured products.

The main part of the activities of the IRC consists of (pre-) feasibility studies and laboratory research in the diverse fields of competency. In the future, however, additional tasks will more and more be found in providing operational services and offering advice to industries in order to improve the (production-) efficiency in industries, the quality of the products and the managerial and administrative systems. In addition, the IRC is requested to carry out analysis and tests which are connected with the development of new products and/or improvement of existing products as well as to undertake geological research work. The Centre has also to train its own personnel in order to develop the necessary expertise for carrying out functions in the technical field as well as in the field of "economics" (feasibility studies).

UNDP/UNIDO technical assistance is being provided to the Industrial Research Centre (IRC) since 1972 when the project DP/LIB/69/512 became operational. It was continued until 1977 when a new phase of the project was approved and became operational. This phase of the project terminated in mid 1982.

The technical assistance has been delivered to strengthen IRC capebilities in various fields of its activities as well as to provide direct support to the industries in the preparation of feasibility studies, reviews and advisory services.

At the present stage of development of IRC in conjunction with the implementation of the Second Five Year Transformation Plan it appears to be necessary to intensify its activities in providing techno-economic and technical services to the growing industries with the ultimate target of achieving IRC self-reliance in all fields of its competence. Therefore continuation of UNDP/UNIDO technical assistance to IRC is absolutely essential at the present stage as well as for the next four-five years. However, in view of the rather diversified and complicated scope of activities of the IRC it is feasible now to review, analyse and assess in depth the scope of future technical assistance required in order to create a sound basis for formulation of a new phase of the UNDP/UNIDO technical assistance.

ANNEX 3

LIST OF PERSONS CONSULTED

UNDP Office, Tripoli

Mr. Ahmed Dhakkar, Resident Representative

Mr. Ahmed Bashin, Deputy Resident Representative

Mr. Aldo Sicignano, Assistant Resident Representative

Mr. Harry Van der Burg, JPO

UNDP Headquarters, New York

Mr. Kyaw Lwin Hla, Area Officer, Regional Bureau for Arab States

Mr. Anton Nikolov, Regional Bureau for Arab States

UNIDO Headquarters, Vienna

Mr. Andrej Konstantinov, Industrial Development Officer, DIO/INFR

Mr. Guiseppe Papuli, Industrial Development Officer, PC/DEV

Project Staff

Mr. C.P. Misra, Project Co-ordinator

Mr. M. Balasubramanian, Industrial Planner

Mr. K. P. Kacher, Building Materials Expert

Mr. R.T. Thampy, Chemical Engineer/Plastics Expert

Mr. F. A. Shah, Feasibility Studies Expert

Mr. M. Ferlan, Petro-chemical Industry Expert

Mr. Z. L. Halmos, Expert in Instrumental Chemical Analysis

IRC Staff

Mr. Taher El Bishti, Director, Technical and Economic Department

Mr. Bashir Fenaish, Director, Administration and Finance Section

Mr. Ali Habishi, Director, Technical Studies Section

Mr. Al Amin M. Hawisa, Chief of Laboratories Section

Mr. Assidique Zindah, Director, Building Materials Research Section

ANNEX 4

LIST OF DOCUMENTS REVIEWED BY THE EVALUATION MISSION

Project Specific

1. Draft report by R. Westergaard, Consultant in Research and Development Management, DP/LIB/82/003/11-51/313.K, Tripoli, March 1983.
2. Tender Drawings (partial) of Tajura's Industrial Research Centre under construction, SWECO Engineers, Sweden (during site visit).
3. Project progress reports, covering the period January 1977 through December 1982.
4. Project document LIB/77/001, May 1977.
5. Report of the Administrator DP/PROJECTS/3970, July 1982.
6. Preparatory Assistance Document, LIB/82/003, September 1982.
7. Terminal Report, O.P.Misra, Project Co-ordinator DP/LIB/77/001, undated.
8. Terminal Report, M.V.Srinivasulu, Production Engineering and Maintenance Expert, DP/LIB/77/001/11-09/31.3.A., undated.
9. Terminal Report, Serge Conquy, Market Analyst, DP/LIB/77/001/11-14/31.3.J September 1982.
10. Final Report, Velimir Vardjan, Consultant in Industrial Economics, February 1983.
11. Progress Report for the period July-December 1982, Zoltan L. Halmos, Expert in Instrumental Chemical Analysis, DP/LIB/82/003.
12. Terminal Report, Viktor R. Zemanek, Economic Geology, Expert, September 1982.
13. Minutes of the Tripartite Reviews on LIB/77/001; Industrial Research Centre, Phase II, held on 13 December 1978, UNDP, Tripoli.
14. Project LIB/69/512, UNIDO's assistance to IRC, Terminal assessment report by the Resident Representative, December 1976.
15. UNIDO Internal Evaluation System, Project Evaluation Report, Assistance to the IRC, Project DP/LIB/77/001, September 1982.

(Annex 4 Cont'd)

16. Libyan Arab Republic, Industrial Research Centre, New IRC Premises Project, Part I:1, Project definition and organization, Final Report, November 1975, SWECO, Swedish Consulting Group.

17. id, Organizational manual:1. Organization charts; 2. Job Description 3. Operating procedures.

18. Terminal Report, J.L. Isles, Expert in Quality Control for Textiles Materials, DP/LIB/77/001/11-04/08, November 1982

19. Terminal Report, A.G.M. Sjostrom, Expert in Food Processing, December 1982.

General

a) Libyan Arab Jamahiriya

20. - The Socio-Economic Transformation Plan 1390-1394 F.D.P. (1981-1985 A.D.), The General People's Committee for Planning Socialist People's Libyan Arab Jamahiriya, Part I, including section on Industry (Heavy and Light)

21. - Summary of the Socio-Economic Transformation Plan, Secretariate of Planning, 1390-1394 F.D.P., 1981-1985 A.D.

22. - Preliminary Review of the Implementation of the Five-year Transformation Plan 1976-1980, Secretariate of Planning, SPLAJ, August 1980.

23. - Draft Annual Plan 1982, The General People's Committee for Planning, SPLAJ, February 1982.

24. - SPLAJ, Sec. of Planning, Development prospects, 1980-2000 Vol.1 overall aspects of development, August 1979.

b) PNUD/UNIDO

25. UNDP/PROG/96, UNDP/PROG/FIELD/150, UNDP/PROG/HQTRS/152 on Project Monitoring, Evaluation and Duration.

26. PPM 3470, Policies and procedures on project evaluation

27. Draft Supplementary Guidelines for the evaluation of the UNDP Country-Programme (Including the evaluation of Industrial Projects).

28. UNDP 63400-4, Guidelines on project implementation, Programme Policy Division, Headquarters, New York.

29. UNDP 63400-2, Guidelines on project formulation, Programme Policy Division, Headequarters, New York.

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31. The Socialist People's Libyan Arab Jamahiriya, Country Industrial Development Profile, Division for Industrial Studies, Regional and Country Studies Branch, UNIDO/15.295, March 1982.

ANNEX 5

SELECTED SAMPLE OF IRC'S STUDIES CONSULTED BY THE EVALUATION MISSION

1. Feasibility study of the Electrical and Electronic Industry, Electrical Water Heaters Project, Detailed Techno-Economic Study, Part 1: Technical Study (Books 1 and 2), Part 2: Economic Study (Books 1 and 2), Borghi e Baldo, ingg. S.P.A.

2. Feasibility Study of the Electrical and Electronic Industry, Market Study, Volume V : Survey of the Electrical and Electronic Sector/ Investment Opportunities, Book 2 : Prefeasibility analysis and ranking, Borghi e Baldo ingg. S.P.A.

3. Detailed Feasibility Study on the Production of Expanded Lightweight Aggregates in SELAJ, Executive Summary, Consito S.P.A. 1981,RT NO. 498-627.

4. Diagnostic Study for Cement Plant of General Souk El-Khamis Company for Cement and Building Materials, IRC, Technical and Economic Department, Building Materials Research Section, 1982.