

**SIGNATURE PAGE**

Country: **Libyan Arab Jamahiriya**

**UNDAF Outcome(s)/Indicator(s):**  
*(Link to UNDAF outcome, if no UNDAF, leave blank)*

**Expected Outcome(s)/Indicator (s):**  
*(Those that are linked to the project are extracted from the CP and are linked to the SRF/MYFF goal and service line)*

**Strengthened Capacity of the Laboratories of Industrial Research Center to meet the Criteria and Requirements for Accreditation**

**Expected Output(s)/Indicator(s):**  
*(Those that are linked to the project, are extracted from the CP and are linked to the SRF/MYFF goal and service line)*

**IRC Laboratories geared for ISO 17025 Accreditation**

**Implementing partner:**  
*(Designated institution)*

**United Nations Industrial Development Organization (UNIDO)**

**Other Partners:**  
*(Formerly implementing agencies)*

**United Nations Development Programme (UNDP)**

Programme Period: **Feb. 2005 to July 2006**  
 Programme Component: \_\_\_\_\_  
 Project Title: **Industrial Research Center – Laboratory Accreditation Programme**  
 Project Code: \_\_\_\_\_  
 Project Duration: **One year and 6 months**

Total budget: **\$ 359,000.00**  
*(incl. 10 % of AOE)*  
 Allocated resources: \_\_\_\_\_  
 • Government \_\_\_\_\_  
 • Regular \_\_\_\_\_  
 • Other: *(including in-kind contributions)*  
     ○ Donor \_\_\_\_\_  
     ○ Donor \_\_\_\_\_

**Agreed by (Government): Libyan Arab Jamahiriya**

**Agreed by (Implementing partner): UNIDO**

**Agreed by (UNDP):**

*Samuel Aiose 22.03.05*



## **Industrial Research Center: Laboratory Accreditation Programme**

Laboratory accreditation is a procedure by which an accreditation body gives formal recognition of technical competence to the laboratory for specific tests/measurements, based on third party assessment and following international standard (ISO: 17025). Confidence in accreditation is obtained by a transparent system of control over the accredited laboratories and an assurance given by the accreditation body that these laboratories constantly fulfil the accreditation criteria. Therefore, accreditation of laboratory is considered as the first and an essential step for facilitating mutual acceptance of test results for trade and product conformity.

The knowledge and understanding about laboratory accreditation requirements as per ISO 17025 is poor in the IRC. In the fact finding mission, it is observed that document control and record keeping requirements are implemented in the laboratories. IRC Laboratories assessed for the compliance of management and technical requirements of accreditation and found that the aspects of calibration of equipments, availability of CRM/SRM, assuring the quality of analytical results, internal audits, control of nonconforming testing and management review are not at all addressed, while other aspects are understood a little.

The objective of this project is to provide required assistance to the Industrial Research Center's laboratories to meet the criteria and requirements for accreditation. The project will also facilitate in human capacity building by training the laboratory experts in quality management systems, Laboratory Information Management System, operational and application aspects of sophisticated equipments, specialized technical issues and certifying their competence to work as laboratory assessors.

Industrial Research Center's laboratories require accreditation for establishing their analytical competence and acceptance of certificate of analysis issued by them, in the international trade. After accreditation of its laboratories the Industrial Research Center will be in a position to state conformance of the product to the specified requirements, which will have global acceptance. Country will save foreign exchange, which is spent on account of testing from accredited laboratories from outside the country as an importing country's requirement. Country will also have better footing in the event of legal disputes in international trade in case of product conformity assessment as per international standards.

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**Agreed by (Implementing partner): UNIDO**

**Agreed by (UNDP):**

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## ACRONYMS

CRM	Certified Reference Material
GC	Gas Chromatograph
GC/MS	Gas Chromatograph with Mass Spectra
HPLC	High Performance Liquid Chromatograph
IRC	Industrial Research Center
ISO	International Organization for Standardization
LIMS	Laboratory Information Management System
LNCSM	Libyan National Center for Standardization and Metrology
LQMP	Laboratory Quality Management Programme
QA/QC	Quality Assurance/Quality Control
QCC	Quality Coordination Committee
QMS	Quality Management System
PSC	Programme Steering Committee
SRC	Standard Reference Cultures (Microbial)
SRM	Standard Reference Material
UN	United Nations
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
WTO	World Trade Organization
GDP	Gross Domestic Product
PRC	Petroleum Research Center
MRC	Marine Research Center
RMC	Reference Medical Laboratory
BRC	Biotechnology Research Center
PMRC	Polymer Research Center
CRL	Central Research Laboratories
MTC	Mechanical Technology Center
RCREWD	Research Center for Renewable Energies and Water Desalination
TOR	Terms of Reference

# Section I

## Part I. Situation Analysis

The Libyan economy depends primarily upon revenues from the oil sector, which contribute practically all export earnings and about one quarter of GDP. The oil revenues and a small population (5.8 million) give Libya one of the highest per capita GDPs in Africa. In past three years a considerable progress is made by Libya on economic reforms as a part of broader campaign to reintegrate the country into the international fold, which has picked up steam after UN, lifted sanctions in December 2003. Libya faces a long road ahead in liberalizing the socialist-oriented economy. The non-oil manufacturing and construction sectors, which account for 20% of GDP, have expanded from processing mostly agricultural products to include the production of petrochemicals, iron, steel, and aluminum. Climatic conditions and poor soils severely limit agricultural output, and Libya imports about 75% of its food.

Libya has to compete in a highly demanding rules-driven trading system and to be ready to meet increasingly stringent requirements applied to the goods in terms of quality, safety, health and environment. Its inability to do so entails high actual and potential economic and social costs. International standards and conformity assessment systems including accreditation system can play a vital role to improve the economy of the country as they improve the efficiency of production and facilitate the conduct of international trade.

Developing countries do realize the importance of developing suitable responses to deal with globalization at the national, regional and multilateral level. However, in order to optimize the benefits of participating in the multilateral forum, capacity needs to be built in order to empower countries to participate on equal footing with counterparts in the international trade arena. All or most developed countries currently enjoy the trade benefits which flow from national accreditation systems and the greater market access which they allow. The lack of such accreditation programs in developing countries is clearly a key factor, which is preventing their full integration into the established world trading system and thereby stunting their overall economic development. The absence of an accreditation structure has thus been recognized by many developing countries including Libya as a key development priority to be addressed.

The following are the institutions and laboratories in Libya provide the services in the fields of testing and research:

Industrial Research Center (IRC)

Petroleum Research Center (PRC)

Marine Research Center (MRC)

Reference Medical Laboratory (RMC)

Biotechnology Research Center (BRC)

Polymer Research Center (PMRC)

Central Research Laboratories (CRL)

Mechanical Technology Center (MTC)

Research Center for Renewable Energies and Water Desalination (RCREWD)

Industrial Research Center (IRC) is the main center, which was established in way back in 1970 and providing research, technical and testing services to the industry and government. The IRC and its specialized laboratories in the fields of building materials, metallurgy, textile, food and chemicals is playing a significant role and providing analytical services to the government, industry and consumer. One of the major objectives of the IRC is to meet the analytical requirement of the country as per national and international standards. However, for regional and global acceptability the testing laboratories and their accreditation as per international system is a must. It is important that the testing is done competently, by a suitable method with appropriate quality controls, by properly trained people and on properly working and calibrated equipment. The competence in this regard can be ensured by the accreditation of the laboratory as per ISO 17025.

Although the officials in the country know the term of laboratory accreditation but there is a need to make awareness of exactly what is involved as per ISO: 17025. It is also noted that country does not have any accreditation system and calibration facilities to support analytical laboratories and their accreditation. Industrial Research Center has identified following six laboratories for accreditation:

- Chemical Laboratory
- Textile Laboratory
- Food Laboratory
- Building Materials Laboratory
- Metallurgy Laboratory
- Industrial Engineering Laboratory

## **Summary findings of the Preparatory Assistance Mission**

Within the UNIDO's Preparatory Assistance project to Develop Standards, Quality and Laboratory Accreditation Programme in the Libya Arab Jamahiriya, Mr. S.K. Saxena, Laboratory Accreditation Expert visited Tripoli from 5<sup>th</sup> to 11<sup>th</sup> November 2004 under Special Service Agreement (TF/LIB/004/001/11-52). The Expert visited the different laboratories of Industrial Research Center and assessed their adequacy. Accordingly, recommendations are provided on building & infrastructure, equipments and training of testing personnel to meet the requirement of accreditation as per ISO 17025.

### **A) Building and Infrastructure:**

Building and infrastructure of IRC and its laboratories is excellent including its housekeeping. The IRC consists of the following six building blocks:

- Main block, which is occupied mainly by administration, finance and training department.
- Block C1 is completely occupied by geological department and its related laboratories.
- Block C2, the chemical laboratory is housed at ground floor and textile laboratory at first floor.

- Block C3, the food laboratory is housed at ground floor and metallurgy laboratory at first floor.
- Block C4 is occupied by industrial engineering laboratory, which provide the maintenance services to all the laboratories.
- Block D1 is completely occupied by the building materials laboratory.

It was noted that the space in the laboratories is adequate and required environmental conditions are maintained. However, the space management and placing of some of the equipments in the laboratories particularly in food laboratory requires improvement to meet the requirements for accreditation.

### **B) Equipments and Capability**

It was observed that the laboratories at IRC are well equipped with sophisticated equipments and covers most of the testing requirements in the respective fields, which is necessary for analyzing the product conformity as per national and international standards. During the discussion it was revealed that some of the sophisticated equipments are properly utilized, however some of them not at all used since their installation due to lack of training and testing requirement. It was noticed that the CRM and SRM are not available for few equipment. Provision is made to procure the required CRM and SRM under this project, which will depend on scope of accreditation.

### **C) Testing Personnel**

Testing personnel employed in the laboratories are qualified and having rich experience in the respective field. Existing staffing levels are a good mach for throughput and work distribution is also satisfactory. It was observed that staff needs training in both the areas of laboratory quality management system and operational & application aspects of sophisticated equipments.

### **D) Laboratory Quality Management System and Compliance with ISO 17025**

The knowledge and understanding about laboratory accreditation requirements as per ISO 17025 is poor in the IRC. In the fact finding mission, it is observed that document control and record keeping requirements are implemented in the laboratories. IRC Laboratories assessed for the compliance of management and technical requirements of accreditation and found that the aspects of calibration of equipments, availability of CRM/SRM, assuring the quality of analytical results, internal audits, control of nonconforming testing and management review are not at all addressed, while other aspects are understood a little.

### **E) Specific Testing Requirements**

Consultant discussed the specific testing requirements with laboratories to meet the requirement of imported products as per the international standards and found that the following area of testing must be established:

- Analysis of Aflatoxins in Food and feed

- Analysis of coating in side the containers and its migration from packaging material to the food products.

It was noticed that there is no additional equipment is required to establish the above testing facilities, however technical training on these subjects are very much needed. It was also discussed and agreed that to implement Laboratory Information Management System (LIMS) in the laboratories for the better handling of laboratory quality management system and proper documentation required for accreditation.

## **F) Summary of Training Requirements**

In view of the Expert, the key issue, which needs to be addressed immediately, is mainly training in identified areas to improve the existing capabilities of IRC laboratories to meet the requirements of the accreditation. The training requirements can be divided into four main areas as following:

### **I. Laboratory Quality Management system**

- Training on Laboratory Quality Management Systems (based on ISO: 17025).
- Training on Establishment of Quality System as per ISO: 17025
- Training for Laboratory Assessors as per ISO: 17025.
- Training on the following topics e.g. method validation, measurement of uncertainty, statistic for laboratory testing results, internal audit, in-house calibration and QC checks and proficiency testing (PT).

### **II. Technical Training on Specific Sophisticated Equipments**

- Operational and Application Training on HPLC.
- Operational and Application Training on GC.
- Operational and Application Training on GC/MS.
- Operational and Application Training on Flammability Testing

### **III. Training in Specific Areas of Testing**

- Specialized Training in Food Microbiology exclusively to the technical staff working in food microbiology lab.
- Specialized Training on Analysis of Aflatoxins in Food and feed to the selected technical staff.
- Specialized Training on Analysis of coating inside the Containers and its migration from packaging material to the food products, for selected technical staff.

### **IV. Training on LIMS**

- Training on implementation of LIMS in the IRC laboratories.

The expert also recommends developing a pool of trained laboratory accreditation experts in the country for guiding, monitoring and assisting the laboratories for accreditation and its maintenance as per ISO 17025.

The detailed Industrial Research Centre (IRC) Laboratories Assessment Report is available with the UNDP, Libya and UNIDO (PTC/ITP and PCF/ARB).

Given the significance to the above facts, Libya has requested UNDP to assist in the accreditation of the laboratories of Industrial Research Center.

## **Intended Beneficiaries**

The followings are the intended beneficiaries under this project:

1. **Industrial Research Center and its laboratories in the specified field:** Under this project the laboratory staff will be trained on Quality Management System, laboratory accreditation criteria and its requirements as per ISO 17025; laboratory experts will be trained as laboratory assessors and training will also be given on handling of advanced laboratory information management system (LIMS) and its benefits in maintaining the laboratory quality management system. Accreditation of IRC's laboratories will have the better recognition of IRC at national and international level, more public and industry acceptance and better support in the event of legal challenge.
2. **Libyan National Center for Standardization and Metrology (LNCSM):** Under this project selected officials of LNCSM will be trained as laboratory assessor and on LIMS. These trained officials of LNCSM will play an important role in accreditation of laboratories by the national accreditation body to be established by the LNCSM in near future.
3. **Exporters, importers and traders including export-oriented industries:** They will save their foreign exchange, spent on account of testing from accredited laboratories from outside the country as importers' requirements for product conformity.

## **Part II. Strategy**

The foremost objective of the UNIDO intervention is the fulfillment of all the requirements, in subsequent stages, for the accreditation of the IRC Laboratories according to ISO17025. The accreditation is that the laboratory shall establish, implement and maintain a quality system appropriate to the scope of its activities and shall document its policies, systems, programmes, procedures and instructions, which should be communicated to, understood by, available to and implemented by appropriate personnel. It is also necessary that laboratory shall ensure the competence of all who operates equipments, evaluate the results and authorized to sign the certificate of analysis.

**Having the above in mind, the UNIDO intervention within this project will focus on the following:**

1. Building-up the appropriate skills and internationally recognized capacity at the IRC in the areas of quality management, test procedures and laboratory accreditation by organizing a series of comprehensive **in-house programmes and selected external training**.
2. Provision of **Advisory Services** for guiding, coordinating, coaching and monitoring the activities aiming at the preparation of the six laboratories towards accreditation;
3. Coordinating the **Accreditation** process in the selected laboratories.

### **1. In-house and External Training Programmes**

Two series of trainings will be organized at the IRC. The first of the series will cover all issues related to the implementation of Quality Management systems for Laboratories including International Management Standards, Tools and Methodologies. The Second set will include specialized training programmes for enhancing specific analysis methodologies and command of sophisticated laboratory equipments and instrumentation. In addition, external training in sophisticated equipment will be organized in accredited laboratories in the region.

#### **1.1 Laboratory Quality Management Training Programme**

The main objective of the programme is to build-up the indigenous competences for designing and implementing internationally recognized quality management systems in the Libyan analytical and testing laboratories; therefore important issues to address are:

- Create awareness about the process, importance and benefits of laboratory accreditation and enhance the understanding of the standards and requirements of the accreditation process (based on ISO: 17025), among laboratory personnel and top management of the IRC.
- Train relevant staff of IRC and its specified laboratories for establishing and implementation of quality assurance system in the center and laboratories.
- Train a pool of IRC experienced laboratory technical staff in the methodologies and tools required for the successful implementation of QMS according to ISO17025, in particular.
- Training on method validation; estimation of measurement of uncertainty; traceability of chemicals and testing measurements; statistical data management, introducing in-house quality control checks, conducting proficiency testing and in-house calibration.
- Training of technical personnel from the Laboratories, Information and Training Department of IRC as internal auditors according to ISO 17025.

## **1.2 In-house Specialized Training Programme**

- Provide specific training on operation and applications of sophisticated equipments to the designated laboratory personnel, mainly in:
  - 1.2.1 Operational and Application Training on HPLC to the selected technical staff (two weeks).
  - 1.2.2 Operational and Application Training on GC to the selected technical staff (two weeks).
  - 1.2.3 Operational and Application Training on GC/MS to the selected technical staff (two weeks).
  - 1.2.4 Specialized Training on Analysis of Aflotoxins in Food and Feed to the selected technical staff (four weeks)
  - 1.2.5 Specialized Training on Pesticide Residues Analysis to the selected technical staff (four weeks).
- Provide advanced training on design and implementation of Laboratory Information Management System (LIMS/Six weeks).

## **2. Advisory Services**

Provision of **Advisory Services** for guiding, coordinating, coaching and monitoring the activities aiming at the preparation of the six laboratories for accreditation.

## **3. Coordination and coaching** in all the stages of the process of Accreditation

## **Part III. Project Activities and Plan of Action**

### **Activity 1: Establish and maintain a project coordinating and reporting mechanism**

- a) Upon approval of the project a Project Steering Committee (PSC) to be established with representatives from UNIDO, UNDP and a selected top manager of the IRC.
- b) At the operational level, a **Quality Coordination Committee (QCC)** should be established at the IRC. The Committee should include representatives of the Administration, Training, Information Departments and the Directors of Laboratories of the IRC.
- c) The **Quality Coordination Committee** should immediately proceed with the nomination of an IRC **Quality Manager Coordinator** and **Quality Managers** in each of the six Laboratories.

**Responsible:** UNIDO, UNDP Libya and IRC top management

**Activity 2: Organization of In-house Laboratory Quality Management Programme (LQMP)**

- a) **Comprehensive gap analysis of six laboratories** – environmental conditions, equipment gap, skill gap, layout gap – and to develop detailed work plan based on actual needs.
- b) **One week training programme on implementation of QMS according to ISO 17025** - The training is mainly oriented to the members of the IRC Quality Coordination Committee and will include ISO 17025 Standards; Managerial, Functional and Technical requirements; Documentation; Scope of Standards; Review Mechanisms; The Accreditation process and relationship between ISO 17025 and ISO 9000(2000), test methods, test validation, environmental conditions.
- c) **Four weeks of training on technical Implementation of ISO 17025**  
The training will address the Quality Manager Coordinator, Quality Laboratory Managers and selected technical staff and it will include:
  - c.1 Quality Control and Quality Assurance for Laboratories
  - c.2 Method Validation
  - c.2 Estimation of Measurement of Uncertainty
  - c.3 Traceability in Chemical and Testing Measurements
  - c.4 Statistical Evaluation and Management of Testing Results
  - c.5 Proficiency Testing (Internal and External)
- d) **One week training on ISO 17025 as Internal Auditors.**  
The training will address the Quality Manager Coordinator, Quality Laboratory Managers and selected technical staff in auditing techniques and procedures including designing planning and reporting audits.

**Responsible:** UNIDO and Programme Steering Committee

**Activity 3: Organization of In-house Instrumentation Training and External Training**

Specialized and advanced hands-on technical training activities in handling and operating sophisticated equipments will be organized with the participation of the designated staff in:

- a) Operational and Application Training on HPLC (two weeks).
- b) Operational and Application Training on GC including Quality Control in GC (two weeks).

- c) Operational and Application Training on GC/MS (two weeks).

IRC possesses all the above equipments and the training will optimize the utilization of the equipment for conducting relevant tests.

**Responsible:** UNIDO, Quality Coordination Committee and QM Managers.

**Activity 4: Specialized In-house Technical Training and External Training**

- a) Pesticide Residues Analysis (four weeks).
- b) Specialized Training on Analysis of Aflotoxins in Food (four weeks).

**Responsible:** UNIDO and Quality Coordination Committee

**Activity 5: Advanced training in design and development of LIMS at the IRC.**

- a) Review and assessment of ongoing activities (two weeks).
- b) Training on design improvement and development of most appropriate system (four weeks).

**Responsible:** UNIDO and the Quality Coordination Committee

**Activity 6: Implementation of ISO 17025 at the Selected Laboratories of IRC.**

- a) UNIDO Monitoring and technical field visits
- b) Technical advisory and coaching services including on-line consultations on the progress of the implementation (2,0 m/m)
- c) Technical translation of documentation
- d) Equipment and instrument calibration
- e) Procurement of SRC, CRM and SRM
- f) Technical accreditation pre-assessment

**Responsible:** UNIDO and the Quality Coordination Committee

**Activity 7: Support in the Accreditation Process of the selected IRC laboratories**

- a) Assistance in the Selection of Accreditation Body
- b) Advisory and Monitoring of Accreditation Exercise
- c) Accreditation of selected tests by the Accreditation Body

**Responsible:** UNIDO and the Programme Steering Committee

**TENTATIVE PLAN OF ACTION**

		2005 <sup>1</sup>												2006						
Weeks	Activities	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J
	Approval of the Project		*																	
	ACTIVITY ONE : Project Coordinating mechanism		→	→																
2	ACTIVITY TWO LQMP Training		→	→	→	→	→	→	→	→	→	→	→							
1.0	Quality Management Systems (QMS) and ISO17025			X	X															
4.0	ISO 17025 Management and Technical Implementation.			XX	XX	XX														
1.0	ISO 17025 Auditors						X	X												
	ACTIVITY Three Instrumentation Training				→	→	→	→	→	→	→	→	→							
2.0	Training on HPLC					X		X												
2.0	Training on GC					X	X													
2.0	Training on GC/MS							X		X	X									
4.0	ACTIVITY Four Specialized Technical Training								→	→	→	→	→							
4.0	Pesticide Residue Analysis									X	X									
4.0	Aflotoxin									X	X	X								
5.0	ACTIVITY FIVE (LIMS)								→	→	→	→	→							
2.0	Review of ongoing program								X	X										
4.0	Design and Development									X	X	X								
5.0	ACTIVITY Six ADVISORY SERVICES – ISO 17025 Implementation								→	→	→	→	→							
4.0	UNIDO Monitoring and Management	X							X				X						X	X
3.0	ISO 17025 Management								X	X			X							
3.0	ISO 17025 Technical									X	X	X								
	CALIBRATION, and International Agreements								→	→	→	→	→							
	Reference Material Procurement								→	→	→	→	→							
1.0	Pre –assessment												X		X					
7.0	ACTIVITY SEVEN ACCREDITATION								→	→	→	→	→							
	Pre-assessment and Selection of Scope								X											
	Application support												X							
	Monitoring												X					X		
	ACCREDITATION																		XX	X

1) Plan of action is based on expected approval of the project in February 2005

## **Part IV. Management Arrangements**

This project will be executed at IRC and implemented by UNIDO with the support of UNDP country office. The IRC provides the necessary support to the project and will release the selected officials for training at IRC. The UNIDO will be responsible for achieving the desired results outlined in the project through the effective management and use of funds. The UNDP will make available necessary funds for the project.

### **Role & Responsibility of Parties**

UNIDO as the executing agency for the project will be primarily responsible for the planning and overall management of the project activities, reporting, accounting, selection and supervision of national and international experts, equipment purchasing, subcontracting, monitoring and evaluation of the project. UNIDO will be accountable to UNDP for the production of outputs and achievements of project objectives.

UNDP approves project activities and work plan, advise in selecting other beneficiaries at different stages of the project if appropriate, ensures appropriate supervision and other support services including financial and oversight of the project.

IRC appoints a senior official as project coordinator with the authority and resources to coordinate the project activities. IRC provides the infrastructure, venue for training and support services during the implementation of the project and release of officials for training and implementation of quality assurance system in the specified laboratories at the center.

## **Part V. Objectives/Outputs and Linkages to Ongoing Activities**

### **Objective:**

The objective of this project is to provide required assistance to the Industrial Research Center's laboratories to meet the criteria and requirements for accreditation. The project will also facilitate in human capacity building by training the laboratory experts in quality Laboratory Information Management System and certifying their competence in operational and application aspects of sophisticated equipments and specialized technical issues to work as laboratory assessor.

### **Outputs:**

- 1. Established Program Coordination: Programme Steering Committee and Quality Coordination (QCC) Committee.** UNIDO and the UNDP in consultation with the all stakeholders will set-up a Programme Steering Committee for programme coordination and its monitoring.

**2. Qualified IRC staff trained in QMS at different levels in accordance with ISO 17025.**

- (a) Training on Laboratory Quality Management Systems (based on ISO: 17025) to all stakeholders

The training for all stakeholders would focus on: Create awareness about the process, importance and benefits of laboratory accreditation (based on ISO: 17025) among laboratories and policy makers; Understanding of requirements of accreditation. Understanding of global scenario of laboratory accreditation; Review the understanding level of trainees (One week, 20 participants).

- (b) Training on Establishment of Quality System as per ISO: 17025 to all laboratory heads & their deputies and lab director

The laboratory heads training would focus on: Understanding of management requirements of laboratory accreditation (based on ISO: 17025); Understanding of technical requirements of laboratory accreditation; Understanding of: Method validation, Measurement of uncertainty, Internal audit, In-house calibration, QC checks and PT, How to prepare and write the documentation for accreditation (Four weeks, 15 participants).

- c) Training laboratory assessors for conducting laboratory assessment as per ISO: 17025.

The internal auditors training would focus on: understanding the purpose and objectives of the audit (based on ISO: 17025); understanding of audit techniques of laboratory (based on ISO: 17025). How to prepare and write audit documents and reports. Review the understanding level of trainees on the above subject. Conduct exam of the trainees as per international guidelines to certify their competence as laboratory assessor (One week, 15 participants).

**3. Qualified IRC staff trained in core-sophisticated instruments (in cooperation with PTC/AGR).**

Operational and application training to the selected laboratory staff on the following sophisticated instruments: HPLC; GC; GC/MS. The activities would include: Review the current status of the equipment and assess the requirement of expendable equipments & chemicals to provide the necessary training; provide detailed operational training of the equipment including troubleshooting and routine care and maintenance of the equipment;

Provide application training in detail keeping in view of maximum utilization of the equipment with regards to the accreditation; evaluate the competence of the trainees with respect to equipment operation and sample analysis.

In-house Training			External Training
Instrument:	Number of trained staff:	Duration:	Selected staff will be sent to one of the accredited laboratories in the region for one month extended period of training. In addition, a trainer's programme will be instituted in the second phase of this project.
High Performance Liquid Chromatograph (HPLC)	4	2 weeks	
Gas Chromatograph (GC)	4	2 weeks	
Gas Chromatograph with Mass Spectra(GC/MS)	4	2 weeks	

#### 4. IRC Personnel trained in specialized technical issues (in cooperation with PTC/AGR)

Training in Pesticide Residue Analysis and Aflotoxins, it includes: detail understanding of each topic and its implications with regards to laboratory accreditation; Discuss relevant examples; Conduct the relevant exercises in the laboratory along with the staff for clear understanding of the issues (Two weeks, 10 participants).

In-house Training			External Training
Technical issue:	Number of trained staff:	Duration:	Selected staff will be sent to one of the accredited laboratories in the region for one month extended period of training. In addition, a trainer's programme
Pesticide Residue Analysis	4	4 weeks	

Analysis of Aflatoxin in Food	4	4 weeks	will be instituted in the second phase of this project.
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**5. Qualified IRC staff trained in implementation of LIMS**

Provide training about LIMS and its benefits and advantages in maintaining accreditation. Training on design improvement, implement the LIMS and provide the necessary operational training (Six weeks, 20 participants).

**6. Selected Laboratories of IRC prepared for Accreditation**

Advisory Services for International Laboratory Accreditation by coordinating all the project activities and providing inputs at all the stages of the project. In addition, evaluate the progress at all the stages of the project and assist in identification of appropriate experts and laboratory accreditation agency.

**7. Assisted in accreditation of selected IRC Laboratories**

Initiate pre-assessment of the laboratories and define the scope of accreditation and to provide support for laboratory accreditation application filing by monitoring the process. At present, there are no on-going activities in the field of Laboratory Accreditation at the IRC.

**Part VI. Monitoring and Evaluation**

UNDP/UNIDO are responsible for monitoring and evaluation of the project. An annual progress report and at the end project implementation report will be prepared by UNIDO. The same will be reviewed by the UNDP.

**Part VII. Legal Context**

This project shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Libyan Arab Jamahiriya and UNDP.

As in all the agreements between the Libyan Arab Jamahiriya and UNDP, the programme document referred to in the Standard Basic agreement shall be the main instrument governing the conduct and performance of the experts.

The following type of revisions may be made to this programme document with the signature of the UNDP Resident Representative only, provided he or she is assured that the other parties involved in the programme have no objections to the proposed changes:

(i) Revision in, or addition of, any of the annexes of the programme document

(ii) Revisions, which do not involve significant changes in the immediate objectives, outputs or activities of programme, but are caused by the rearrangements of inputs already agreed to or by cost increases due to inflation.

(iii) Mandatory annual revisions, which rephase the delivery of, agreed programme inputs, or reflect increased expert or other cost due to inflation, or take into account agency expenditure flexibility

**Annual Workplan 2005**

**Project Number:** .....

**Project Title:** IRC – Laboratory Accreditation Programme

Dept. ID	Expected Output	Key Activities	Timeframe				Resp. Partner	Planned Budget *			
			Q 1	Q 2	Q 3	Q 4		Fund	Don or	Budget Description	Amount US\$
	Programme Coordination: Programme Steering Committee (SC) and Quality Coordination (QCC) Committee established	<b>Activity 1:</b> Establish and maintain a project coordinating and reporting mechanism	x				UNIDO			71400 Consultancy 1.5 m/m.	20,000
							UNIDO			72100 UNIDO Technical Mission.	12,000
Sub total											32,000
	IRC staff trained in QMS according to ISO 17025	<b>Activity 2:</b> Organization of In-house Laboratory Quality Management Program (6 weeks) (LQMP)	x	x			UNIDO /SC			71400 Consultancy Service. 0.8 m/m	12,000
			x	x			UNIDO /SC			71300 /Subcontract.	60,000
Sub total											72,000
Dept. ID	Expected Output	Key Activities	Timeframe				Resp. Partner	Planned Budget			
			Q 1	Q 2	Q 3	Q 4		Fund	Don or	Budget Description	Amount US\$
	Qualified IRC staff trained in core sophisticated instruments	<b>Activity 3:</b> Organization of In-house and External Instrumentation Training (6 weeks)					UNIDO /QCC			71400 Consultancy 2 m/m	28,000
										One month external training	7,000
Sub-total											35,000
	IRC Personnel trained in specialized technical issues	<b>Activity 4.</b> Specialized In-house and external Technical Training (8 weeks)					UNIDO /QCC			71400 Consultancy 2 m/m.	26,000
										One month external training	7,000
Sub total											33,000

\* Separate UNIDO budget sheet is attached.

**Annual Workplan 2005**

**Project Number:** .....

**Project Title:** : IRC – Laboratory Accreditation Programme

Dept. ID	Expected Output	Key Activities	Timeframe				Resp. Partner	Planned Budget			
			Q 1	Q 2	Q 3	Q 4		Fund	Don or	Budget Description	Amount
	IRC staff trained in implementation of LIMS	<b>Activity 5: <u>Advanced Training in design and development of a LIMS at the IRC (6 weeks)</u></b>				x	UNIDO and QCC			71400 Consultancy . 1,6 m/m	24,000
Sub-total											24,000
	Selected Laboratories of IRC prepared for Accreditation	<b>Activity 6 Implementation of ISO 17025 program at the Selected Laboratories of IRC</b>			x	x	QC C			71400 Consultancy 1,0 m/m.	14000
				x	x	QC C			71300 Calibration Services .	20,000	
				x	x	QC C			73400 Expendable equipment. (SRC, CRM and SRM)	30,000	
				x	x	QC C			74500 Miscl. (Translation and reporting)	10,000	
				x	x				UNIDO Monitoring	10,000	
Sub total											84,000

**Annual Workplan 2006**

**Project Number:** .....

**Project Title:** : IRC – Laboratory Accreditation Programme

Dept. ID	Expected Output	Key Activities	Timeframe				Resp. Partner	Planned Budget			
			Q 1	Q 2	Q 3	Q 4		Fund	Don or	Budget Description	Amount
	Selected Laboratories of IRC prepared for Accreditation	<b>Activity 6 Implementation of ISO 17025 program at the Selected Laboratories of IRC</b>	x	x			UNIDO / SC			71400 Consultancy . 1,8 m/m	24,000
			x	x						UNIDO Monitoring	10,000
Sub-total											34,000
	Accreditation of the IRC Laboratories	<b>Activity 7: Support in the Accreditation Process of the selected IRC laboratories</b>	x	x			UNIDO / SC			71400 Subcontract	40,000
			x	x						74500 Miscl.	5,000
Sub total											45,000
<b>Total</b>											359,000 (incl. 10 % of AOE costs)

**Annex-1**  
**TORs of Consultant in Laboratory Accreditation (related to output 1) Activity undertook within the preparatory assistance project TF/LIB/004/001/11-52 – Cost to be reimbursed by UNDP to UNIDO from this main project fund.**

UNIDO is providing technical assistance to overcome market entry barriers by developing country capacities related to standards, metrology, testing, quality and conformity assessment. Based on a contribution from UNDP, a preparatory assistance project in this area has been approved. The preparatory phase 1 of this intervention is to carry out up-stream studies to strengthen the institutional capacities. The main project would provide further technical assistance in the field of standards, metrology and testing.

Within that frame focus will lie on:

1. Assess competence of existing Industrial Research Laboratories (IRC) for carrying out the tests, covering following:
  - a) Building and infrastructure.
  - b) Adequacy of test equipment and in case of deficiencies, identify additional equipment required, giving their specifications, approximate cost and likely suppliers.
  - c) Assess the skill level of testing personnel and give recommendation about further training required.
  - d) Assess the quality management systems being followed in the laboratories. Give recommendation about further work to obtain accreditation as per ISO 17025.
2. Since laboratories are also to test imported products, give recommendations about the additional test equipment which may be required to check compliance with international standards.
3. Prepare consolidated assessment report.
4. Prepare inputs for project documents to strengthen the capacity of IRC.

Duration: 0.8w/m

Qualifications: University Degree in Chemistry/Microbiology/Engineering. At least 10years experience in laboratory testing, laboratory management, quality systems and accreditation of laboratories. Experience in working with international organizations is desirable.

## **Annex-2**

### **TORs of Consultant in Standards and Metrology (related to output 1) Activity undertook within the preparatory assistance project TF/LIB/004/001/11-51 – Cost to be reimbursed by UNDP to UNIDO from this main project fund.**

UNIDO is providing technical assistance to overcome market entry barriers by developing country capacities related to standards, metrology, testing, quality and conformity assessment. Based on a contribution from UNDP, a preparatory assistance project in this area has been approved. The preparatory phase 1 of this intervention is to carry out up-stream studies to strengthen the institutional capacities. The main project would provide further technical assistance in the field of standards, metrology and testing.

Within that frame the consultant will undertake the following tasks:

1. Assess the infrastructure, equipment, and staff capacities of LNCSM
2. Assess the present status of standard institutions, in terms of standards development and dissemination, and in particular the TBT/SPS enquiry points
3. Elaborate a plan of action for the year 2005 to 2006 including training, equipment need to reach the level of best practices available
4. Prepare a report outlining the present metrology laboratory status of LNCSM, and the capacity development needs, providing details of equipment, expertise and training inputs needed
5. Prepare inputs for project document to address the capacity gaps based on the UNDP format
6. Prepare consolidated assessment report together

Duration: 0.7/m

Qualification: University degree or equivalent qualification related to engineering/science and a higher degree related to instrumentation/metrology. At least 15 years of progressive professional experience related to developing and managing standards and metrology institutions.

**Annex-3**  
**TORs of International Expert/Trainer – QMS ISO 17025**  
**(related to output 2)**

The expert will conduct the training on laboratory quality management system based on ISO: 17025 to all the stakeholders to create awareness about the process, importance and benefits of laboratory accreditation (based on ISO: 17025).

The expert will work under the overall supervision of UNIDO and in coordination with SC and the QCC. The expert will address the following aspects:

1. Global scenario of laboratory accreditation and its impact on international trade.
2. Importance and benefits of laboratory accreditation.
3. Laboratory quality management system as per ISO: 17025 in its comparison with ISO 9000 (2000)
4. Requirements for laboratory accreditation.
5. Process of Laboratory accreditation.
6. Maintenance of laboratory accreditation.
7. Prepare the training manual
8. Conduct the relevant exercises

Prepare the report of the mission and the detailed training program including all the necessary lectures and training documents.

Duration: 0.8 m/m

Qualification: University degree in science/Engineering. At least 10 years experience in providing training, laboratory accreditation and thorough internationally recognized knowledge of ISO: 17025. Rich experience in working with national/international accreditation or training body. Experience in working with international organization is desirable.

## **Annex-4**

### **TORs of subcontractor – Training in ISO 17025 Technical Requirements and Laboratory Assessors (related to output 2)**

The subcontractor will conduct the training on management and technical requirements for laboratory accreditation based on ISO: 17025 to all the nominated technical staff. They will also provide the training on how to prepare and write the necessary documents required for accreditation such as quality manual, system procedures, work instructions etc.

The subcontractor will work under the overall supervision of UNIDO and in coordination with QCC. They will address the following aspects:

1. Comprehensive gap analysis of six laboratories
2. Management requirements for accreditation as per ISO: 17025
3. Technical requirements for accreditation as per ISO: 17025
4. Preparation and writing of necessary documents required for accreditation
5. Issue, approval and amendment in the documents
6. Conducting internal audits and management review meetings
7. Maintenance of laboratory records
8. Prepare the quality manual (Case Study)
9. Conduct the relevant exercises
10. Evaluate the performance of the participants and provide an internationally recognized certificate

The subcontractor will conduct specific training on the following subjects:

I. Method validation:

- Selection of the method
- Acceptability of Method
- ISO Guidelines for Method Validation
- EURACHEM Guide for Method Validation
- Method Validation by Collaborative Trial
- In house Validation of Method
- Statistical Analysis for method validation

II. Measurement of uncertainty:

- Defining Uncertainty of Measurement
- Process of Estimating Uncertainty measurement
- Identification of Sources
- Quantification of the Sources of Uncertainty
- Calculating uncertainties of Measurement
- Probability, Terms, Symbols and Equations

- EURACHEM Approach to Combining Uncertainties
- Uncertainty in Practice- Laboratory Example
- Method validation as a source of uncertainty information
- Reporting Uncertainty and Compliance with Specifications
- Uncertainty Measurement in Microbiological Measurements

III. Internal audit:

- Audit Terminology
- Objectives of Internal Audit
- Organization of Internal Audit
- Planning of Audit
- Checklist for Audit
- Implementation of Internal Audit
- Follow up of Corrective Actions
- Records and Reports of Internal Audit
- Additional Unscheduled Audits
- Formats of Internal Audit

IV. In-house calibration:

- Calibration Methods,
- Traceability
- Accuracy, Precision, Reproducibility and Repeatability
- CRM/SRM
- Factors affecting Calibration
- Acceptance/Rejection Criteria

V. QC checks and PT:

- Basic Concepts of IQC
- Scope of the Internal Quality Control Guidelines
- Internal Quality Control and Uncertainty
- Internal Quality Control Checks
- Procedure of Inter- Laboratory Comparisons
- Elements of Proficiency Testing
- Organization of PT
- Example: Assigned value, Target Value, and calculation of Z score

**Laboratory Assessors:**

The subcontractor will conduct the laboratory assessor course based on ISO: 17025 to all the nominated technical staff. They will also conduct an exam of the trainees as per international guidelines to certify their competence as a laboratory assessor.

They will address the following aspects:

1. Understanding of laboratory audit techniques and its objectives as per ISO: 17025
2. Preparation of records for laboratory audit.
3. Conducting the laboratory audit.
4. Presenting the findings of laboratory audit.
5. Address the issue of independence and conflict of interest during laboratory audit
6. Conduct the relevant exercises
7. Presentation of Case Studies
8. Conduct the exam for the trainees to certify their competence as laboratory assessor with an internationally recognized certificate.

Prepare the report of the mission and detailed training program including all the required seminar documentation including description of exercises.

## **Annex-5**

### **TORs of International Expert on HPLC (related to output 3)**

The individual expert will review the status of the equipment and conduct the operational and application training on HPLC for nominated laboratory staff.

Individual expert will address the following:

- Components of the Equipment
- Operation
- Performance Checks and QA/QC
- Calibration
- Control Charts
- Applications
- Experiment Planning
- Interpretation of Analytical data
- Routine Maintenance

They will also evaluate the competence of the trainees with regards to their suitability for operation and sample analysis by the said equipment.

Prepare the report of the mission.

The experts will work under the overall supervision of UNIDO and in coordination with the Programme Steering Committee.

Duration: 0.7m/m

Qualification: University degree in science/Engineering. At least 10years experience in operation and handling of the equipment, laboratory experience and providing training on the equipment. Experience in working with international organization is desirable.

## **Annex-6**

### **TORs of International Expert on GC (related to output 3)**

The individual expert will review the status of the equipment and conduct the operational and application training on GC for nominated laboratory staff.

Individual expert will address the following:

- Components of the Equipment
- Operation
- Performance Checks and QA/QC
- Calibration
- Control Charts
- Applications
- Experiment Planning
- Interpretation of Analytical data
- Routine Maintenance

They will also evaluate the competence of the trainees with regards to their suitability for operation and sample analysis by the said equipment.

Prepare the report of the mission.

The experts will work under the overall supervision of UNIDO and in coordination with the Programme Steering Committee.

Duration: 0.7m/m

Qualification: University degree in science/Engineering. At least 10years experience in operation and handling of the equipment, laboratory experience and providing training on the equipment. Experience in working with international organization is desirable.

## **Annex-7**

### **TORs of International Expert on GC/MS (related to output 3)**

The individual expert will review the status of the equipment and conduct the operational and application training on the following equipment for nominated laboratory staff.

Individual expert will address the following:

- Components of the Equipment
- Operation
- Performance Checks and QA/QC
- Calibration
- Control Charts
- Applications
- Experiment Planning
- Interpretation of Analytical data
- Routine Maintenance

They will also evaluate the competence of the trainees with regards to their suitability for operation and sample analysis by the said equipment.

Prepare the report of the mission.

The experts will work under the overall supervision of UNIDO and in coordination with the Programme Steering Committee.

Duration: 0.6m/m

Qualification: University degree in science/Engineering. At least 10years experience in operation and handling of the equipment, laboratory experience and providing training on the equipment. Experience in working with international organization is desirable.

## **Annex-8**

### **TORs of International Expert on Food Analysis (Aflatoxin/related to output 4)**

The expert will evaluate the laboratory capabilities for the carrying out the analysis of Aflatoxins in food products with regards to the laboratory accreditation. He will conduct the training on analysis of Aflatoxins in food products as per international test methods and will develop good laboratory practices to be adopted in food laboratory with respect to aflatoxin analysis.

The experts will work under the overall supervision of UNIDO and in coordination with project advisor. He will address the following aspects:

- Reviewing the current capability of food laboratory with regards to aflatoxin analysis and making recommendations for improvement.
- Prepare a list of necessary chemicals and minor equipments to be purchased.
- Preparing guidelines on Good Laboratory Practices (GLP) to be adopted in food laboratory with regards to the aflatoxin analysis.
- Required specific laboratories facilities precautions in handling aflatoxin
- Occurrence and Toxicity of Aflatoxins
- Limits and regulations of Aflatoxins in different countries
- Conducting in service training on aflatoxin analysis in food and feed samples.
- Provide advice on reporting the results of laboratory analysis and evaluate the competence of trainees.

Prepare the report of the mission including training program and relevant training material.

Duration: 1 m/m

Qualification: University degree in food science/chemistry. At least 10years experience in aflatoxin analysis in food and feed samples, good laboratory practices, analytical quality assurance systems, providing training and through knowledge of ISO: 17025. Experience in working with international organization is desirable.

## **Annex-9**

### **TORs of International Expert in Pesticide Residue Analysis (related to output 4)**

The expert will evaluate the laboratory capabilities for the carrying out the analysis of coating material in side the Containers and its migration from packaging material in to food samples with regards to the laboratory accreditation field. He will conduct the training on the subject as per international test methods.

The experts will work under the overall supervision of UNIDO and in coordination with the Programme Steering Committee. He will address the following aspects:

- Application of Good Practices in Pesticide Residue Analysis
- Establish and implement appropriate QA/QC
- Implications of combined uncertainty of the results in testing compliance with MRLs
- Detremination of Pesticide Residues with various techniques using HPLC, GC and GC/MS
- Planning of experimental programs
- Provide advice on reporting the results of laboratory analysis and evaluate the competence of trainees

Prepare the report of the mission including detailed 5-days training program and relevant training materials.

Duration: 1 m/m

Qualifications: Advanced University degree in food science /chemistry. Proven and adequate experience in analysis of Pesticide Analysis, analytical quality assurance systems, providing training and through knowledge of ISO: 17025. Experience in working with international organization is desirable.

## **Annex-10**

### **TORs of International LIMS Expert (related to output 5)**

The expert will initially provide the training about LIMS and its benefits and advantages in maintaining accreditation. He will prepare a project proposal for its implementation. He will implement the LIMS and provide the necessary operational training.

The expert will work under the overall supervision of UNIDO and in coordination with the Programme Steering Committee. He will address the following aspects:

- Quality system documents handling through LIMS
- Sample registration system through LIMS.
- Report preparation, approval and issue through LIMS
- Analytical data handling and maintaining its confidentiality.
- Prepare instruction manuals in handling the LIMS
- Prepare a trouble shooting manual for LIMS
- Provide the provision of supervision checks
- Prepare the report of the mission including a design of the LIMS

Duration: 1,6 m/m

Qualification: University degree in Information Technology. Adequate experience in implementing LIMS in analytical laboratory, providing training and basic knowledge of requirements of laboratory accreditation as per ISO: 17025. Experience in working with international organization is desirable.

## **Annex-11**

### **TORs of International Laboratory Accreditation Expert (related to output 6)**

The expert will coordinate all the project activities:

- He will provide inputs at all the stages of the project
- Review the functioning of Experts
- He will evaluate the progress at all the stages of the project
- Evaluation of the course material and training program
- He will assist in identification of experts required to implement the project.

The expert will work under the overall supervision of UNIDO

Prepare the report of each mission including corrective actions and preventive actions.  
Recommendations and plan of actions for improvement

Duration: 2.8 m

Qualification: University Degree in Chemistry/Microbiology/Engineering. At least 10 years experience in laboratory testing, laboratory management, quality systems and accreditation of laboratories. Experience in working with international organizations is desirable.

## **Annex-12**

### **TORs of Subcontractor for Calibration Service (related to output 7)**

#### **Background:**

Laboratory accreditation is a procedure by which an accreditation body gives formal recognition of technical competence to the laboratory for specific tests/measurements, based on third party assessment and following international standard (ISO: 17025). Confidence in accreditation is obtained by a transparent system of control over the accredited laboratories and an assurance given by the accreditation body that these laboratories constantly fulfil the accreditation criteria. Therefore, accreditation of laboratory is considered as the first and an essential step for facilitating mutual acceptance of test results for trade and product conformity.

The knowledge and understanding about laboratory accreditation requirements as per ISO 17025 is poor in the IRC. In the fact finding mission, it is observed that document control and record keeping requirements are implemented in the laboratories. IRC Laboratories assessed for the compliance of management and technical requirements of accreditation and found that the aspects of calibration of equipments, availability of CRM/SRM, assuring the quality of analytical results, internal audits, control of nonconforming testing and management review are not at all addressed, while other aspects are understood a little.

The objective of this project is to provide required assistance to the Industrial Research Center's laboratories to meet the criteria and requirements for accreditation. The project will also facilitate in human capacity building by training the laboratory experts in quality management systems, Laboratory Information Management System, operational and application aspects of sophisticated equipments, specialized technical issues and certifying their competence to work as laboratory assessors.

Industrial Research Center's laboratories require accreditation for establishing their analytical competence and acceptance of certificate of analysis issued by them, in the international trade. After accreditation of its laboratories the Industrial Research Center will be in a position to state conformance of the product to the specified requirements, which will have global acceptance. Country will save foreign exchange, which is spent on account of testing from accredited laboratories from outside the country as an importing country's requirement. Country will also have better footing in the event of legal disputes in international trade in case of product conformity assessment as per international standards.

#### **1. Purpose:**

Calibration of equipments/instruments in selected laboratories of IRC against the requirements of ISO/IEC Guide is required for the Laboratory Accreditation.

**2. Activities:**

The subcontract arrangement is required to carry out the following activities/tasks:

- 1.) Calibration of selected equipments/instruments of IRC laboratories
- 2.) Maintain complete record of calibration
- 3.) Issue certificate of calibration

**3. Period:**

The target made for calibration is during the last quarter of 2005.

**4. Reports:**

The subcontracted party shall submit a full and formal report on the details and results of the work conducted including the issuance of instruments of recognition (certificates of calibration), where warranted.

## **Annex-13**

### **TORs of Subcontractor to Support Accreditation (related output 7)**

#### **Background:**

Laboratory accreditation is a procedure by which an accreditation body gives formal recognition of technical competence to the laboratory for specific tests/measurements, based on third party assessment and following international standard (ISO: 17025). Confidence in accreditation is obtained by a transparent system of control over the accredited laboratories and an assurance given by the accreditation body that these laboratories constantly fulfil the accreditation criteria. Therefore, accreditation of laboratory is considered as the first and an essential step for facilitating mutual acceptance of test results for trade and product conformity.

The knowledge and understanding about laboratory accreditation requirements as per ISO 17025 is poor in the IRC. In the fact finding mission, it is observed that document control and record keeping requirements are implemented in the laboratories. IRC Laboratories assessed for the compliance of management and technical requirements of accreditation and found that the aspects of calibration of equipments, availability of CRM/SRM, assuring the quality of analytical results, internal audits, control of nonconforming testing and management review are not at all addressed, while other aspects are understood a little.

The objective of this project is to provide required assistance to the Industrial Research Center's laboratories to meet the criteria and requirements for accreditation. The project will also facilitate in human capacity building by training the laboratory experts in quality management systems, Laboratory Information Management System, operational and application aspects of sophisticated equipments, specialized technical issues and certifying their competence to work as laboratory assessors.

Industrial Research Center's laboratories require accreditation for establishing their analytical competence and acceptance of certificate of analysis issued by them, in the international trade. After accreditation of its laboratories the Industrial Research Center will be in a position to state conformance of the product to the specified requirements, which will have global acceptance. Country will save foreign exchange, which is spent on account of testing from accredited laboratories from outside the country as an importing country's requirement. Country will also have better footing in the event of legal disputes in international trade in case of product conformity assessment as per international standards.

#### **1 Purpose:**

Accreditation of selected laboratories operated by IRC. Against the requirements of ISO/IEC Guide 25 by an internationally recognized laboratory accreditation body

so that testing performed by the laboratory would be internationally acceptable. The accreditation body is required to have a Mutual Recognition Agreement (MRA) with the European Co-operation for Accreditation (EA).

**5. Activities:**

The subcontract arrangement is required to carry out the following activities/tasks:

- (i) Document review of the Quality Manuals and Laboratory Operations Manuals
- (ii) Conduct on-site assessments
- (iii) Report assessment findings
- (iv) Review corrective actions (where required)
- (v) Issue Certificates of Accreditation (if warranted).

**6. Period:**

The subcontract is to commence when an application for accreditation has been submitted. The target date for on-site assessments is during the first quarter of 2006.

**7. Reports:**

The subcontracted party shall submit a full and formal report on the details and results of the work conducted including the issuance of instruments of recognition (certificates of accreditation), where warranted.

**Annex-14  
UNIDO Budget**

**INDUSTRIAL RESEARCH CENTER  
Laboratory Accreditation Programme**

**UNIDO BUDGET**

<b>Budget Line</b>	<b>Allotment Line (T)</b>	<b>2005</b>	<b>2006</b>	<b>Total</b>
11-50	Short-term international	124,000	24,000	<b>148,000</b>
16-00	Other Personnel Costs	22,000	10,000	<b>32,000</b>
21-00	Subcontracts	80,000	40,000	<b>120,000</b>
32-00	Study Tour	14,000		<b>14,000</b>
45-00	Equipment	30,000		<b>30,000</b>
51-00	Sundries	10,000	5,000	<b>15,000</b>
<b>Total</b>		<b>280,000</b>	<b>79,000</b>	<b>359,000</b> (incl. 10 % AOE)

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