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WORKSHOP ON THE ELABORATION OF CONCEPTS
OF TECHNICAL ASSISTANCE PROJECTS BASED
ON THE REGIONAL APPROACH TO STANDARDIZATION,
QUALITY CONTROL AND METROLOGY ACTIVITIES IN
DEVELOPING COUNTRIES

Geneva, Switzerland, 4-6 December 1990

REPORT*

* This document has not been edited.

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A workshop on the elaboration of concepts of technical assistance projects based on the regional approach of standardization, quality control and metrology activities in developing countries (UNIDO project UC/GLO/89/274) was held at the ISO Central Secretariat, 4 - 6 December 1990.

Present :

- UNIDO experts: D. Decubber, A. El-Tawil
- ISO regional liaison officers: H. Lal. G. Hutchinson, B.L. Mwobahe, R.V. Navarrete
- Representatives of regional standardization organizations: Z. Felleke, ARSO, G. Michaud, CEN, P. Benia, COPANT, K. Sinsakul, ASEAN/EEC programme
- Observers: E. Sierra, ITC, G. Whiston, ITC
- UNIDO: K. Stephens
- ISO: R. Oteng, P. Zegers Febres

BACKGROUND

During a meeting held at UNIDO headquarters on 30 June 1988, ISO and UNIDO underlined the need to strengthen the regional approach in quality control and standardization activities in developing countries. The two organizations agreed on a plan of action, and project number UC/GLO/89/274 was formulated and approved.

As called for in the project document, two experts carried out missions to the Indian Ocean islands and Arab countries to review the status of regional activities in the field of quality control including standardization, testing and metrology. Their initial findings and recommendations were reported at a meeting held at the ISO Central Secretariat on 12 November 1990.

AIMS

The aims of the workshop were to exchange experiences and to assess needs for regional, subregional and country action in standardization and quality control, based on the reports of the missions of the two UNIDO experts and the presentations to the workshop by representatives of the regional standards organizations and the ISO regional liaison officers.

The outcome of the workshop was to develop proposals in the form of precise recommendations allowing the elaboration of project concepts, with a view to submitting them to international organizations or donor countries/agencies for their possible financing.

PARTICIPATION

As called for in the project document, participants at the workshop were made up of representatives of the regional standardization bodies, the ISO regional liaison officers, the two UNIDO experts as well as representatives of ISO and UNIDO. Two observers also joined the meeting from the International Trade Centre in Geneva (ITC).

RECOMMENDATIONS FOR THE ELABORATION OF PROJECT PROPOSALS

The workshop deliberations have benefitted from the combined inputs of (1) the expert missions to two intercountry areas and their reports, (2) the presentations and written contributions of representatives of the existing regional programmes, (3) the presentations of the ISO regional liaison officers, and (4) the interventions and discussions of all participants to the workshop. This has resulted in the following recommendations for areas of technical assistance that would be beneficial to pursue in regional areas of the world. These recommendations may form the basis of project proposals prepared by regional bodies, national organizations representing regional interests and other international organizations. Such proposals for technical assistance may also form the basis for seeking sources of funding from (1) the UN system, such as UNDP (intercountry and country programmes, where relevant), UNIDO (UNIDF general and special donor programmes, SIS, etc.); bilateral assistance; or other international programmes such as the World Bank, interregional banks, etc. Individuals and/or groups in key positions need to take the initiative to further identify the specific needs in the areas elaborated below (and others as they arise); initiate and prepare the project proposals in formats compatible with funding sources sought; coordinate with the donor organizations, and the executing agency, in order to implement the technical assistance and obtain the necessary official requests and endorsements. This can be organized by the regional standards bodies where they exist, and/or by the ISO Regional Liaison Officers in other regions.

After lengthy debate a committee was formed to draft a set of recommendations. These recommendations were further discussed by the workshop participants and adopted. They are arranged under five major headings as follows. In addition, proposals specific to particular regions were submitted by representatives of these regions and they are annexed to this report of the workshop.

1. Standardization

To achieve harmonization of standards at the national, regional and international levels, programmes should be implemented to strengthen the standardization activities in the developing regions including the following elements:

1.1 Establishing or strengthening of regional standards harmonization activities based on the following principles should be considered:

1.1.1 To adopt International Standards whenever they exist and are suitable for application in the region.

1.1.2 To give priority to establishing regional standards that facilitate economic integration of the region and facilitate trade with other regions.

1.1.3 To promote exchange of information on new proposals and draft standards between the countries of the region and with other regions of the world.

1.1.4 To promote transparency by applying ISO rules for numbering of national/regional standards based on international standards.

1.2 Strengthening participation in International Standardization activities at the policy-making and technical committee levels.

1.3 Providing training in standardization activities at the level of national standards bodies, company standards, governmental regulatory bodies and state purchasing agencies.

1.4 Promoting and sensitizing of the importance of standards for the producers, consumers, trade, governmental agencies and departments.

1.5 Devising methods and, when necessary, providing equipment for speeding up the preparation of standards.

1.6 Providing assistance and, when necessary, equipment for the printing of standards, catalogues, bulletins and handbooks at the national and regional levels.

2. Standards information

2.1 Of universal recognition during the deliberations of the workshop was the fact that standardizing bodies throughout the world share a common need for INFORMATION - and for a systematic approach to the management of that information. Hence, a need exists for software and compatible computer systems for this "SQM-IMS"^(a) function.

Software has already been developed by some regional and national standardizing bodies, with the assistance of international agencies (e.g. ITC, UNESCO and UNIDO) or bilateral agencies (e.g. Canadian, French, British). In almost all cases, "ISONET compatibility" has been an objective; yet there are major hardware and software barriers to the exchange of data between the different systems. This approach has in some instances resulted in:

- costly replication of development work
- unnecessary variation between systems and, hence, undesirable barriers to the exchange of information.

2.2 It is recommended that regional bodies, and/or groups of nations request technical assistance in the form of a project that will result in the cooperation of related international organizations, such as ISO, UNIDO and ITC, to accomplish the following:

(1) assess the principal SQM-IMS systems now available, and agree on an optimized approach to the development of ISONET-compatible software and compatible hardware, that:

- is "user friendly"
- can be run on a wide range of PC's
- can readily input data from existing PC databases (e.g. ARSO-DIS)
- provides the type and form of information necessary for standardization, metrology and quality programmes.

(2) develop the necessary software^(b) (or refine existing software) and documentation.

(a) SQM = Standardization and quality management
IMS = Information management system

(b) This software must cover the SQM-IMS needs as a whole, and not merely the "bibliographic database" component (e.g. an "Organization's" database and an "Enquiries" database must be included).

(3) make the software available globally, together with:

- advice on hardware selection and procurement
- assistance to NSBs, etc., on the setting up of SQM-IMS (integrated, as appropriate, with the user's other computer operations, such as DTP and wordprocessing)
- on-going refinement and trouble-shooting, as necessary.

(4) provide training and, where necessary, equipment in documentation and information systems.

3. Maintenance and calibrations

3.1 It is recognized that reliable measuring and testing capabilities should be available in industries and the testing and certification bodies and that developing countries, especially small and distant ones, are experiencing considerable difficulties in providing the necessary support for these capabilities in terms of maintenance and calibration/traceability to recognized measurement standards. It is also recognized that the provision of calibration and maintenance equipment together with the necessary environmental conditions and highly trained personnel needed for their operation is costly and it would, therefore, be advisable to organize this activity at the regional level with one concentrated facility in one of the countries of the region or with a small number of distributed facilities that complement each other in the countries of the region (e.g. a mechanical facility in one country, and an electrical/ electronic facility in another, and so on),

3.2 To identify the particular needs of any region in this field, a detailed survey should be carried out of the needs and existing facilities in the region. After this survey, it would be possible to decide on the necessary strengthening of the existing facilities or the establishment of new ones and the coordination arrangements that are needed to insure that full use is made by users in the region of the regional capabilities for maintenance and calibration.

A parallel activity applicable to existing testing facilities as a whole is to establish arrangements for third party verification to ensure that the testing (and metrology) laboratories are actually capable of performing reliable testing work in given fields.

These arrangements could be established at the national level and linked together by a regional arrangement if this is warranted by the number and size of national testing facilities. Otherwise, they could be established directly at the regional level, if the number and size of the testing facilities in individual countries is too small to warrant an individual laboratory accreditation arrangement in each country.

4. Quality principles and techniques

It is universally recognized that quality of products is one of the main factors that could enable developing countries to become competitive in the "mega markets" of Europe, North America and Asia.

To achieve quality of products, quality practitioners in developing countries should become familiar with recognized quality principles and techniques. This can be realized through extensive quality training programmes as detailed below.

4.1 When developing training programmes in the fields of quality the following principles:

- Training in quality related matters should be considered as a continuous process.
- Local or regional quality instructors should be prepared to achieve self reliance and to ensure continuity of training.
- Training material should be prepared in local languages.
- Feedback on the training activity should be obtained by monitoring the actual impact of the training on overall quality.

4.2 A recommended framework for training in quality related matters is given below:

- Stage 1 - general awareness

Regional seminars given by consultants to sensitize economic partners (standardization bodies, ministries, public and private enterprises, consumers) to quality philosophy, systems and techniques. These seminars should stress the total quality management approach.

At the end of each seminar a certain number of candidates for training as instructors should be chosen for more extensive training.

NB: The candidates should have practical professional experience in order to be able to translate the theory they will get in the training courses into practice and to be able to implement specific training programmes for the several industries to which they will be assigned.

- Stage 2 - in-depth training

Theory on quality philosophy, systems and techniques could be given by consultants to the instructors in the region, but it is important that the prospective instructors also visit similar industries and institutions in developed and developing countries.

- Stage 3 - implementation

Each trained instructor could follow up as an advisor, a certain number of companies where he or she would carry out an assessment of the quality situation and propose and implement a programme for improving quality.

- Stage 4 - follow-up

The instructors should report the progress made to a "follow-up panel" which should adjust the project, provide additional help and propose its extension to other interested industries.

5. Harmonization of conformity assessment and certification

Regional standardization bodies (where existent) and, otherwise, groups of countries with common interests, should consider the mutual recognition of national certification systems and test results in order to promote the elimination of trade barriers, facilitate regional commercial exchanges (within and outside the region), promote the sharing of facilities and capabilities and cooperate on information, technical assistance, etc. Where necessary, technical assistance may be sought to develop the programme of mutual recognition and

exchange.

This may be achieved through harmonization of certification systems and procedures, mutual recognition of test results, sharing of test facilities, inter-comparisons of measurements, programmes of laboratory accreditation, recognition of national conformity quality marks, establishment of regional certification systems based on appropriate standards, and a regional quality mark.

OTHER PROJECT REPORTS

As part of the referenced project activities two expert missions were conducted in two regions, namely the Arab Region and the Indian Ocean Islands Region. Reports on the surveys conducted in these regions are available upon request.

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EAST AND SOUTH-EAST ASIA REGION

As discussed in the RLO meeting of May 1989, the following have been identified by countries in the region as priority areas for training, technical advisory assistance and, where appropriate, equipment grants, that would all require multilateral assistance:

- a) Establishment of mutual recognition programmes for test laboratories, test reports and certification marks;
- b) Pre-shipment inspection and quality control;
- c) Metrology and product quality certification;
- d) Electronic linkages of NSBs with international data bases on standards and technical regulations;
- e) Internship and personnel exchanges among NSBs within the East and South-East Asia region; (Asean countries to offer training assistance);
- f) Standards promotion;
- g) Preparation of export inspection manual;
- h) Establishment of data base on products which are subject to import controls by countries in the region; and
- i) Institution of a mechanism for the exchange of information on standardization projects in progress and supporting research and investigation studies.
- j) Intensification of the promotion and implementation of ISO 9000 series
- k) Intensified participation in international standardization activities.

Regional coordination was deemed important for the effective implementation of regional activities. Hence, the feasibility of designating and operating a regional focal point, was identified as an area for investigation.

ARSO PROJECT PROPOSALS FOR THE DECADE 1991 - 2000

A. PROJECT PROPOSAL I: ESTABLISHMENT AND DEVELOPMENT OF NATIONAL STANDARDS BODIES (NSBs) IN AFRICAN COUNTRIES

A.1 Immediate objectives

A.1.1 Immediate objective 1

Initiation and development of national machineries for standardization, quality control, certification and metrology activities in 34 African countries which do not have National Standards Bodies (NSBs).

A.1.1.1 Outputs

- (a) Technical reports on the state and development of standardization, quality control, certification and metrology practices in 34 African countries.
- (b) Country project documents for initiation and development of standardization, quality control, certification and metrology activities in 34 African countries.
- (c) Guides and manuals on operations of National Standards Bodies (NSBs).

A.1.1.2 Activities

- (a) Conduct surveys on the state of standardization, quality control, certification and metrology activities in 34 African countries without NSBs.
- (b) Carry out sensitization missions to 34 African countries.
- (c) Provide technical advisory services on the initiation and operations of an integrated national standards programme for each country.
- (d) Formulate country project documents for the initiation and development of standardization, quality control, certification and metrology activities in 34 African countries.

A.1.2 Immediate objective 2
Improvement of the capacities and capabilities of selected existing National Standards Bodies in Africa.

A.1.2.1 Outputs

- a) Technical reports on the situation and assessment of the operations of selected NSBs.
- b) Country project documents for improvement of the capacities and capabilities of selected NSBs.

A.1.2.2 Activities

- a) Conduct surveys on the capacities and capabilities of selected NSBs.
- b) Formulate country project documents for improvement of the capacities and capabilities of selected NSBs.

A.2 Inputs

- i) International consultants and experts
- ii) Travel and mission costs
- iii) Training
- iv) Equipment
- v) Printing

A.3 Estimated Project Budget

Consultants and experts	US\$ 1 100 000
Experts travel	500 000
Group trainings and fellowships	800 000
Subcontracts (Printing)	300 000
Equipment	400 000
Miscellaneous	<u>200 000</u>
Total	US\$ 3 300 000

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B. PROJECT PROPOSAL II: DEVELOPMENT OF REGIONAL STANDARDS AND QUALITY MANAGEMENT SYSTEMS FOR SELECTED INDUSTRIAL SECTORS

B.1 Immediate Objectives

B.1.1 Immediate objective 1

Development of a number of African Regional Standards (ARS) in the following priority industrial sectors:

- Food-processing industries
- Basic chemical industries
- Fertilizers
- Pharmaceuticals
- Building materials
- Iron and steel industries
- Engineering industries
- Agricultural machinery and equipment industries
- Road and rail transport equipment industries
- Energy equipment

B.1.1.1 Output

Published African Regional Standards (ARS) covering the selected priority industrial sectors.

B.1.1.2 Activities

- (a) Identification of priority industrial sectors and products of interest for standardization within the priority industrial sectors.
- (b) Convening of Expert Group Meeting of ARSO Technical Committees to elaborate Draft African Regional Standards.
- (c) Editing and processing of the Draft African Regional Standards.
- (b) Printing and issuance of published African Regional Standards for use and application in individual African countries and the region.

B.1.2 Immediate objective 2

Development and issuance of quality manuals and training materials for the selected industrial priority sectors.

B.1.2.1 Output

Published quality manuals and training material for the selected industrial sectors for use of industry and African countries.

B.1.2.2 Activities

- (a) Conduct surveys of selected industrial sectors.
- (b) Elaboration of quality manuals and training material.
- (c) Printing and issuance of quality manuals and training material.

B.1.3 Immediate objective 3

Operationalization of an ARSO Certification System (ARSO-CERT) for assuring the quality of goods and services.

B.1.3.1 Outputs

- a) Accredited national certification bodies.
- b) Institution of ARSO Certification Mark.
- c) Improved quality of goods and services.
- d) Increased trade in industrial goods and services.

B.1.3.2 Activities

- a) Providing of technical advice on the institution and operation of certification activities in accordance with ARSO Certification Rules.
- b) Setting up panels of assessors.
- c) Assessing of national certification bodies.
- d) Accrediting of national certification bodies.
- e) Awarding of ARSO Certification Mark.

B.1.4 Immediate objective 4

Operation of bilingual regional training of trainers workshops in quality management.

B.1.4.1 Outputs

- (a) Trainers in quality management.
- (b) Workshop technical reports and resource material.

B.1.4.2 Activities

- (a) Operating regional training workshops.
- (b) Preparation of reports of training workshops and compilation of resource material.
- (c) Printing and issuance of workshop reports and resource material.

B.2 Inputs

- (i) International consultants and experts
- (ii) Travel and mission costs
- (iii) Expert meetings and training
- (iv) Equipment
- (v) Printing
- (vi) Sundry

B.3 Estimated Project Budget

Consultants and experts	US\$ 1 300 000
Experts travel	500 000
Expert Group Meetings and Workshops	900 000
Subcontract (Printing)	800 000
Equipment	300 000
Miscellaneous	<u>200 000</u>
Total	<u>US\$ 4 000 000</u>

C. PROJECT PROPOSAL III: OPERATION OF A REGIONAL METROLOGY PROGRAMME FOR AFRICA

C.1 Immediate objectives

C.1.1 Immediate objective 1

Operationalization of an ARSO Network of Testing, Metrology and Instrumentation Centres (ARSO-TMICNET) for promoting co-operation arrangements between member States in using and sharing metrology facilities available in the region.

C.1.1.1 Outputs

- a) Accredited national metrology and instrumentation centres.
- b) Calibrated national measurement standards.
- c) Group measurement intercomparison programmes in identified areas of metrology.

C.1.1.2 Activities

- a) Setting up of panels of assessors.
- b) Assessment of national metrology and instrumentation centres.
- c) Accreditation of national metrology and instrumentation centres.
- d) Identification of national measurement standards requiring calibration.
- e) Identification of calibration centres.
- f) Calibration of national measurement standards.
- g) Preparation of modalities for calibration.
- h) Operation of intercomparison programmes.

C.1.2 Immediate objective 2

Training of technical personnel of ARSO member States in the field of metrology and in the operation of ARSO-TMICNET.

C.1.2.1 Outputs

- a) Trained personnel of member States to carry out the technical functions of metrology and activities of ARSO-TMICNET.
- b) Workshop technical reports and resource material.

C.1.2.2 Activities

- a) Preparation and editing of workshop resource material.
- b) Preparation of workshop reports.
- c) Printing and publication of workshop resource material and reports.

C.1.3 Immediate objective 3

Development of African Regional Standards and preparation of guides and other technical documents needed for the operation of national metrology centres in the region.

C.1.3.1 Outputs

- a) Published African Regional Standards in the field of metrology.
- b) Published guides and other technical documents in the field of metrology.

C.1.3.2 Activities

- a) Identification of the subjects and areas for development of African Regional Standards and guides
- b) Convening of Expert Group Meeting of ARSO Technical Committee on Basic and General Standards (ARSO/TCT) to elaborate Draft African Regional Standards.
- c) Preparation of guides.

C.1.4 Immediate objective 4

Provision of technical advisory services for setting up or improvement of national metrology services of ARSO member States.

C.1.4.1 Output

Technical advice to member States on legislative requirements and organizational set up of a national metrology service, laboratory design and selection of metrology equipment.

C.1.4.2 Activities

- a) Expert missions to member States.
- b) Logistic support in the form of draft legislation, technical guides and information on sources of equipment and price factors.

C.2 Inputs

- a) International consultants and experts.
- b) Travel and mission costs.
- c) Expert meetings and training.
- d) Equipment.
- e) Printing.

C.3 Estimated Project Budget

Consultants and experts	US\$	900 000
Experts travel		500 000
Expert Group Meetings and Workshops		500 000
Subcontracts (Printing)		300 000
Equipment		350 000
Miscellaneous		150 000
Total	US\$	<u>2 700 000</u>

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