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RESTRICTED

ORGANIZATION AND ADMINISTRATION OF INDUSTRIAL STANDARDIZATION,  
QUALITY CONTROL AND METROLOGY ACTIVITIES  
IS/RAF/75/009,  
MANO RIVER UNION,

Terminal report

Prepared for the Mano River Union Secretariat  
by the United Nations Industrial Development Organization,  
executing agency for the United Nations Development Programme

Based on the work of Vaclav Skala, expert in standardization,  
quality control and metrology

United Nations Industrial Development Organization  
Vienna

id. 77-4685

Explanatory notes

Reference to dollars (\$) are to United States dollars, unless otherwise stated.

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**ABSTRACT**

This is the terminal report of the expert on the project "Organization and Administration of Industrial Standardization, Quality Control and Metrology" (IS/RAF/75/009). The Mano River Union (Liberia and Sierra Leone) requested the United Nations Industrial Development Organization (UNIDO) for the services of the expert in order to co-ordinate activities in these fields between the two States. The expert was assigned to the Mano River Union Secretariat at Freetown for six months, starting 15 July 1976. His terms of reference, as indicated in the job description, were: to assist the Mano River Union in its preparatory work towards the establishment and operation of a Mano River Union organization for standardization, quality control and metrology.

An assessment of the existing situation in the two States indicated that limited activities had been carried out in the pertinent fields. On the basis of this assessment the expert recommended that steps be taken in the period 1977-1980:

(a) To establish the Mano River Union Bureau of Standards de facto in 1977;

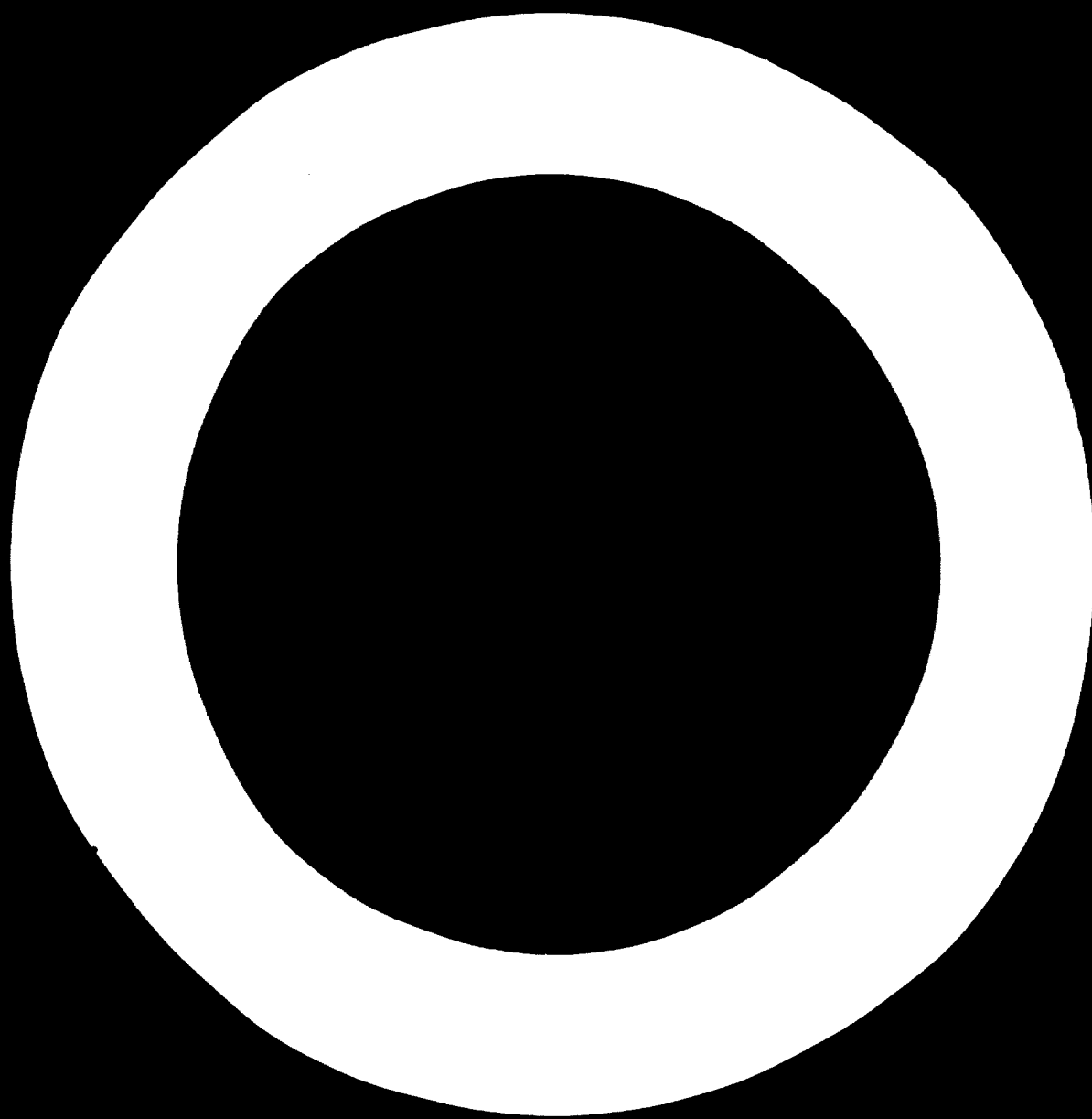
(b) To initiate a long-term programme of activities, based on the legal aspects of the Mano River Union Declaration of 1973 and on objectives outlined and approved by the Union's decision-making bodies.

The programme for further activities was based on the following main objectives:

(a) The establishment of the Mano River Union Bureau of Standards, and preparatory work during 1977 (see "Organization and administration of industrial standardization, quality control and metrology activities: Organizational master programme for Mano River Union Bureau of Standards for 1977" (see annex I, para. 10);

(b) The introduction of a system of implementation of standardization, metrology and quality control activities which would entail planning and management;

(c) The systematic implementation and management of long-term objectives in the period 1978-1980, and, in respect of metrication, 1981.



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## INTRODUCTION

This is the terminal report of the expert on the project "Organization and Administration of Industrial Standardization, Quality Control and Metrology" (IS/RAF/75/009). The project, which was financed under the Special Industrial Services programme, was requested by the Mano River Union (Liberia and Sierra Leone). The project document was signed by the United Nations Development Programme (UNDP) on 15 March 1975 and by the United Nations Industrial Development Organization (UNIDO) on 2 April 1975. The expert's assignment began in July 1976 and ended in January 1977. The counterpart agency was the Mano River Union Secretariat.

### Project background

At the request of the Governments of Liberia and Sierra Leone an interdisciplinary mission drawn from the United Nations Conference on Trade and Development (UNCTAD), United Nations Industrial Development Organization (UNIDO) and Food and Agriculture Organization of the United Nations (FAO) in 1972 formulated a blueprint for co-operation between the two States in various industrial activities including industrial standardization, metrology and quality control (UNCTAD No. TE/65-GE.78-42384).

The Mano River Union Secretariat, a joint body with the main aim of providing co-operation between Liberia and Sierra Leone, requested that UNIDO sponsor an adviser to review the scope of activities in standardization, metrology and quality control and to assist thereafter in matters of practical implementation. In response to this request, UNIDO assigned an expert for a period of six months beginning July 1976. The purpose of his mission was to assist in preparatory work leading to the establishment and operation of a Mano River Union organization for standardization, metrology and quality control.

In general, the expert was to be concerned with:

- (a) Preliminary considerations and objectives;
- (b) Assessment of the existing situation;
- (c) Identification and planning;
- (d) Legal aspects of objectives;
- (e) Strategy, tactics and recommendations.

Specifically, the expert was expected:

- (a) To review and assess the requirements for industrial standardization, quality control and metrology in the light of the general objectives of the economic and industrial development of the Mano River Union and of its member States, and to assist them in defining their immediate and long-term needs in these fields;
- (b) To assist the Union and its member States in determining their priorities in standardization, quality control and metrology to be covered in a recommended programme;
- (c) To visit various existing institutions and testing laboratories to assess their capabilities and facilities for standardization, quality control and metrology;
- (d) To assist in drawing up a development programme that would cover the long-term and immediate requirements of the Union and its member States in standardization, quality control and metrology, including assistance in:
  - (i) Drafting the necessary legislation covering the establishment and implementation of these activities;
  - (ii) Defining the appropriate organizational and administrative structures;
  - (iii) Recommending appropriate institutions for the technical back-stopping of these and other related activities;
  - (iv) Defining the staff, equipment and other facilities for the successful realization of the programme;
- (e) To recommend follow-up action to be undertaken by the Secretariat of the Union in collaboration with the UNDP/UNIDO and other external programmes.

The existing situation in both Liberia and Sierra Leone and the planning for three to four years was discussed by a joint working group of specialists in September 1976 (see annex I, para. 3).

Taking account of the recommendations approved by the working group, the Secretariat has prepared a report, which is a basic document for draft "Recommendations, implementation measures and resolutions on standardization, metrology and quality control activities" (see annex I, paras. 4 and 5). The draft was discussed and endorsed by the Union Ministerial Council at its third session on 26 November 1976 (see annex I, para. 6).

Liberia and Sierra Leone then agreed to co-operate in undertaking further activities relating to standardization, metrology and quality control and in implementing resolutions establishing the Mano River Union Bureau of Standards. The Bureau was approved by the Ministerial Council of the Mano River Union.



The Union Commission on Industry and Trade was to elaborate in detail the functions and objectives of the Bureau, taking into consideration the report of the working group on standardization, quality control and metrology.

One pertinent point was stressed during the discussion: that the assistance of the expert (or experts) in respect of standardization, metrology and quality control might accelerate the progress in all work. With this in mind, the expert suggests that any assistance will be advantageous, particularly during the initial period of the change-over to the metric system and the implementation of long-term objectives.

As regards the existing situation in Liberia, a Division of Standards was created in 1972 in the Ministry of Commerce, Industry and Transportation, charged with carrying out standardization, weights and measures, standard specification and testing and quality control activities. In the area of standardization, the implementation of some of the recommendations outlined by UNIDO expert Ahmad Geneidy (see annex I, para.1) has not brought the required results. The Division is mainly engaged in the inspection of products intended for export, in checking the quality at the industrial level in various plants and factories and in preventing sales of sub-standard products. Only eight so-called "national standards", however, exist and these are mainly related to the production of gasoline. Standardization is known only to a few large manufacturing enterprises. The Division's staff which so far totals nine persons, is capable, however, of increasing the effective role standardization could play in the industrial sector.

In the area of metrology, the only legal units used in Liberia are those of the Imperial System. Regulations are at present effective only in the calibration of fuel pumps, gasoline trucks and scales in commercial usage. In commercial enterprises some operate according to the metric and others to the Imperial System, or a mixture of both. In 1974, a draft report on metrication was prepared by the Ministry of Commerce, Industry and Transportation and submitted to the Committee of the House for action, but there have been no results so far.

In the area of quality control, testing facilities in Liberia are very limited. It is nearly impossible to conduct regular tests on produce or commodities. The effective power of the State is limited to some of the local products. The State has testing facilities at the national level to verify the quality of imports. Lack of skilled staff is another reason why the incentives of Dr. Geneidy's report still await full implementation.

In Sierra Leone, at the beginning of July 1976, the name of the Department of Weights and Measures in the Ministry of Trade and Industry was changed to Division of Standards; so far, no standardization activities have been carried out. Some agriculture products for export are subject to control before shipment in accordance with the Agriculture Act [Cap. 185] Law - The Produce [Inspection] Rules of 1966. These Rules are in fact specifications and are considered to be some sort of standard, although limited. Large enterprises produce their goods, mainly under licence, according to standards similar to those of the country of origin. But local products manufactured mainly under monopoly conditions are inadequate in quality. The authorities have a keen interest in action that could improve this situation. The Division of Standards has a staff of two officers dealing mostly with problems of weights and measures. Another two officers are still in training in the United Kingdom. Unless additional staff and facilities are allocated, activities will remain limited.

In the field of metrology all but a few measurements are according to the Imperial System; those in metric apply to imported products. Weights and measures matters are based on Act No. 22 (1961), Weights and Measures Act. The Division of Standards is responsible for the control of equipment for measurements of length, weight and capacity in the territory of Sierra Leone. Master calibres and standards already used were approved by the Government. The change-over to the metric system was approved by the Government of Sierra Leone in 1972. Despite a few meetings carried out by the National Metrication Committee, the metric system has still to be put into effect.

Only certain factories apply quality control. The Government has no institution or laboratory to check the quality or to make tests. Therefore, some local products are rather poor in quality, especially those produced by monopolies. In view of the proposed increase of the intra-Union trade, the authorities are eager to support all steps that could improve the situation.

In general the full-scale implementation of ideas and objectives regarding standardization, metrology and quality control, despite a few positive results already achieved by both States, is still pending. The main present objective is the establishment of the Mano River Union Bureau of Standards de facto and strengthening its co-bodies, the National Bureaux of Standards in Liberia and in Sierra Leone. It will be easier to ensure full implementation of long-term objectives if this is done in 1977 as suggested.

A separate project for the initiation and strengthening of standardization and quality control was undertaken in 1973 by Dr. Ahmed Geneidy, UNIDO expert (see annex I, para. 1). The project was proposed for further extension (3 years) but has not yet been approved by United Nations agencies, thus most of its well-oriented proposals are in delay.

Many aspects of Dr. Geneidy's conclusions and recommendations are included in the proposed proposals for the Mano River Union Bureau of Standards activities. The programme, which is modest and responds to local conditions, awaits full implementation which might be accelerated with assistance of some experts.

#### Summary of official arrangements

The expert was assigned to the Mano River Union Secretariat at Freetown, Sierra Leone, to assist in preparing for the establishment and operation of a Mano River Union organization for standardization, metrology and quality control activities. The expert took up his duties on 15 July 1976.

The expert's activities were guided by the Mano River Union Declaration of 1973, in which it is proclaimed:

"... that the aims and objectives of the Union shall be ... to expand trade by the elimination of all barriers to mutual trade; and that ... this can best be accomplished by active collaboration and mutual assistance in matters of common interest in economic, social, technical, scientific and administrative fields ..."

Resulting from the assignment and activities, an extension of the project would be beneficial to the Mano River Union as a whole. (See annex I, para. 9.)

## I. FINDINGS

The stage has been reached in Liberia and Sierra Leone at which activities in standardization, metrology and quality control could move forward rapidly since the general climate is favourable to change at the present time. In particular, attention is focused on the change-over to the metric system as a part of implementing legal and industrial metrology. With the development of new industry together with the improvement and expansion of the existing industrial sector, there is a great need for further strengthening activities within the proposed Mano River Union Bureau of Standards and its co-partners, the present Bureaux of Standards in Liberia and Sierra Leone.

### Standardization

On the basis of studies conducted within various governmental and industrial bodies, the expert emphasizes in his reports the importance of organizing the Mano River Union Bureau of Standards and the National Bureaux of Standards in Liberia and Sierra Leone. He has defined their proper functions, has clarified their relations with existing departments and divisions of the various ministries, has proposed some basic functions and has suggested how the administration responding to the Bureaux activities should be carried out. The expert has suggested closer co-operation with all relevant sectors within the intra-Union economy.

### Metrology

Activities in this field are limited because of lack of proper standards (basic etalons). Although an essential programme of weights and measures and the change-over to the metric system has been accepted, there is no one qualified to direct these activities. The change-over to another system of units is not easy and it will take three to five years to accomplish the proposed plan of operation.

### Quality control

There are no activities in this field owing to the lack of testing facilities. Before starting any major project, the establishment of testing and quality control laboratories would be necessary. It would be premature to define what kind of quality control tests should be conducted. Should quality control and testing run properly and efficiently, technical standards and legal metrology are the basic requirements before activities can be initiated.

Priority, therefore, is given to standardization and metrology, at least during the initial period of the extension of the project.

Legal provisions are necessary when organizing institutional machinery to formulate intra-Union national activities in all three respects. The law will secure measures of implementation, acceptance and conformity and will express the will of the State. Except for the act already formulated relating to weights and measures and allied activities and partly dealing with pre-shipment control, no laws have been enacted. The most important seems to be an act to amend the weights and measures law in both States. Before the mission was completed, suggestions were given to the law officers on what kind of legislative measures should be taken in this respect in 1977.

The finance will be partly secured by Governments of the two States, but this will apply mainly to activities that are, or will be, directly supervised by the administration or executive. It will most probably be too difficult to cover all expenditures in connection with the proposed objectives and their implementation. Thus, United Nations participation would be important, particularly in financing the extension of the project and possibly in the purchase of some equipment and devices, overseas training for local staff and payment of experts.

As Liberia and Sierra Leone are striving for economic development and increased world trade, mostly through their own resources, it is necessary to support their progress. Standardization, metrology and quality control are simple tools and, when properly utilized, they rapidly increase the common standard of living. Any assistance in this kind of activity is desirable.

## RECOMMENDATIONS

### Proposals for the extension of technical assistance

It is recommended that the original proposals be intensified and expanded into a larger project. The main reason for such a step is that the Mano River Union member States have recently published a programme for further co-operation. This involves the improvement and expansion of existing industry and mining activities and the increase of output in agriculture and forestry. Development of industries, which will play the predominant role in the growth of GNP, is closely associated with future activities of Mano River Union Bureau of Standards. The industrialization programme in particular will require the greater use of experts in co-operating with local counterparts.

In the initial stage (1978) the reference to legal metrology and metrication is important since many of the products exported and, indeed, those now imported originate in countries using the metric system or in the process of converting to it. Consequently, with the increased international movement towards the metric system, any further delay in the programme of metrication would be economically damaging to the Mano River Union economy.

This factor is particularly relevant in view of the rapidly rising costs of specialized equipment now in use in the field of international legal metrology, weights and measures. In addition, many countries will not accept products unless they conform to the recognized standards and codes of practice. The long-term objectives of the project are intended, therefore, to assist the Mano River Union in strengthening and expanding its activities and facilities so that its industrial sector can be more effective.

The technical assistance to the project will increase confidence in the level of the testing and the competence of the new staff in carrying out the programme of work with industries and other relevant sectors of the economies of the member States. It will help to provide adequate on-the-spot training of local personnel preparing them for the long-term plans of the Mano Union.

### Short-term plans

Recent (1977) activities relating to standardization, quality control and metrology are outlined in the expert's report on the "Organizational master programme for the Mano River Union Bureau of Standards for 1977" (annex I, para. 10). The immediate objectives of the project are:

(a) To establish de facto the Mano River Union Bureau of Standards with the main aim of co-ordinating developments in the areas of standardization, metrology and quality control within the member States;

(b) To provide personnel and facilities, even in limited number;

(c) To prepare a comprehensive programme for activities in detail; all particulars are obtainable in the background papers, prepared by the expert during his mission in 1976 and endorsed by the authorities of the Union (see annex I, para. 7);

(d) To inform the general public and industry, mining, agriculture and commerce of these activities through the mass media;

(e) To organize technical committees for the elaboration of standards;

(f) To start metrological activities, particularly in respect of the change-over to the metric system;

(g) To train local counterparts and to advise industry, mining, commerce and agricultural enterprises as well as other relevant sectors within the intra-Union economy;

(h) To participate in related international activities.

For the effectiveness of the project it will be important to establish good communications between the Mano River Union Bureau of Standards and the international agencies concerned, thus sparing time and finance. The key individuals for establishing the proper channels of communication of whatever kind would certainly be the Director of the Mano River Union Bureau of Standards and the Directors of National Bureaux of Standards in Liberia and Sierra Leone. The active support of various ministries will be essential.

Among the priorities of the Project Manager, those of special importance are:

(a) Establishment of the Mano River Union Committee on Metrication; the change-over to the metric system with the creation of weights and measures units in the various ministries of the member States;

(b) Immediate recruitment of staff;

(c) Ordering of equipment and devices related to the SI system in accordance with requirements;

(d) Accommodation for the Mano River Union Bureau of Standards, inclusive of inventory and transport facilities;

(e) Legislation for a new system of weights and measures as well as for metrication (provided that a short law is passed through Parliament, revisions or regulations can be drafted for such a system so that they are completed by the time the act becomes law);

(f) Work towards establishment of technical committees on standardization to observe matters of special interest with the view to elaborating intra-union standards.

### Long-term plans

To carry out an active and effective work programme, the following is recommended:

(a) In addition to the Director of the Mano River Union Bureau of Standards, additional personnel should be recruited to ensure that activities shall be carried out in accordance with the programme in the Department of Metrology (with the metric system); the Department of Standards (departments of planning, administration, research and training as well as a department of quality control will be established later);

(b) Close co-ordination should be maintained between the activities of the Mano River Bureau of Standards and its partners, the National Bureau of Standards in Liberia and Sierra Leone, in order to ensure the direction of the new organization;

(c) UNDP, the United Nations specialized agencies and other sources should be contacted to request assistance in securing experts, equipment for weights and measures testing and for verification of various industrial and other standards (etalons, calibres) either in natura or in the form of financial contribution;

(d) Arrangements with regard to training and fellowships for new members of the Bureau staff, especially for the proposed departments (heads of department);

(e) In order to assist and implement the more intensive programme of work, it is recommended that greater use be made of international expertise. The recommendations contained in "The report of the United Nations Interdisciplinary mission to review the scope for interregional and international co-operation between Sierra Leone and Liberia" (see UNCTAD/Te/65-GE.73-42384) should be followed up and further elaborated.

It is recommended that the following specific fields should be covered by the recruitment of:

(a) A project manager to administer the overall activities, with particular attention to problems of standardization, for a period of 24 months;

(b) An expert in legal metrology to manage the initial steps in the change-over to the metric system, for a period of 18 months;

(c) An expert in industrial metrology and quality assurance to carry out these activities, for a period of 18 months.

For the job descriptions of these posts, see annex VII.

Besides the proposed training for the Director of the Mano River Union Bureau of Standards in 1977, it is recommended that he be given another short-term (three to four months) fellowship training in industrial engineering covering such activities as the elaboration of standards (principles and system), practice in laboratory testing, engineering research, physical laboratory and in general administration in the subjects concerned. The main reason for such training is to provide the head of the Bureau with a general concept of how its daily activities might be organized.



For the proposed head of the Department of Standardization a four-month fellowship is recommended in 1978 in case the expert (Project Manager with access to standardization) is recruited for 24 months, in order to provide him with practical training in the routine of standardization activities.

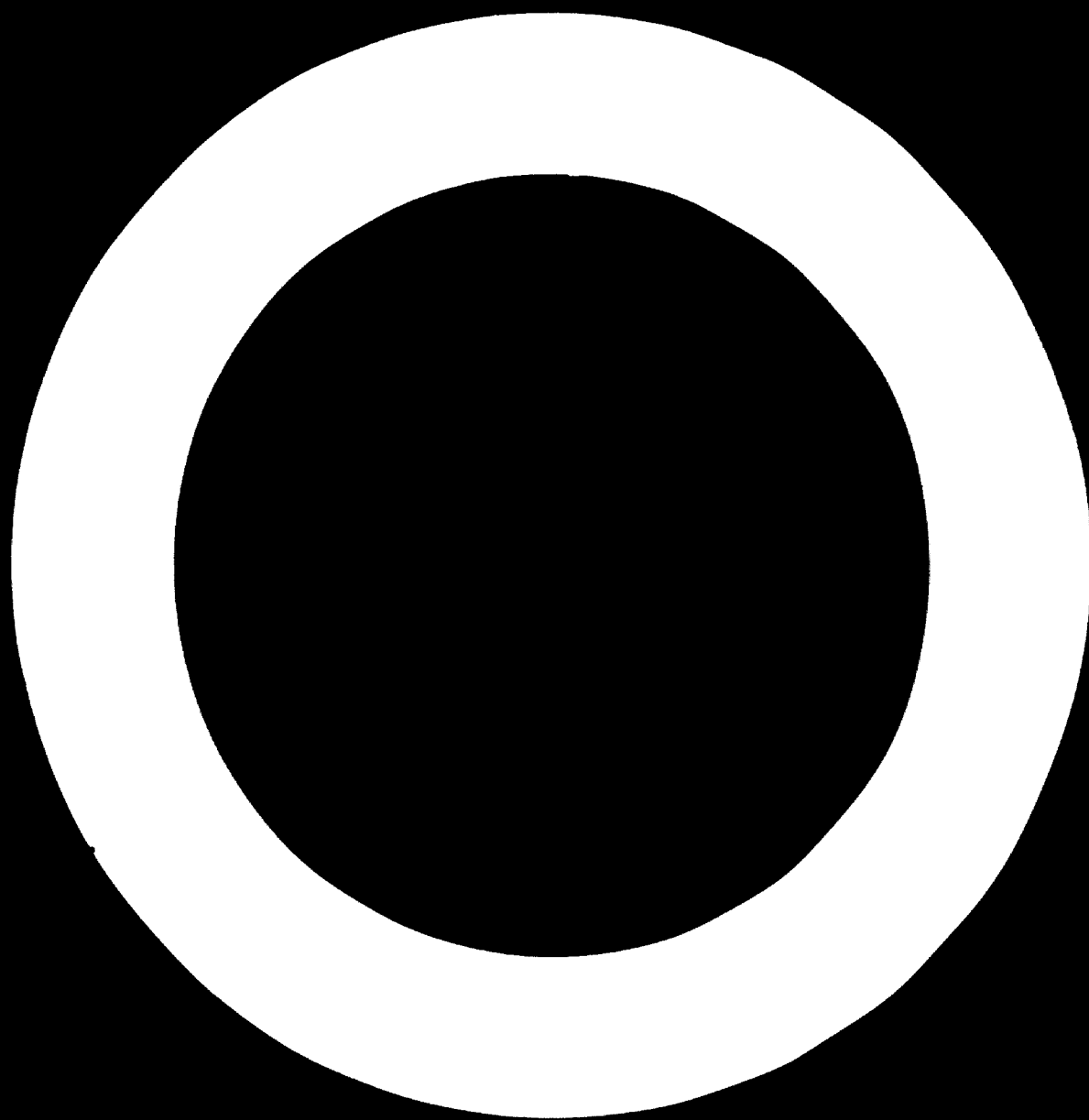
When new members of the staff are appointed to the Mano River Bureau of Standards, they should have the opportunity to receive some kind of fellowship training focused on their respective fields. Such training would start in 1979 and continue in 1980. The award of a short-term fellowship will be decided according to the situation. Meanwhile arrangements are under way for such fellowships for specialists from other developing countries as well.

As regards the financial aspects, figures and financial data might be used from the report prepared in 1973 by Ahmad Geneidy (annex I, para. 1), increased by 10 to 15% to make allowance for the world inflation. The list of equipment in this report will fit the purposes of the Mano River Union Bureau of Standards activities. Some verification will be necessary but this could be done when the project starts. (See annex VIII.)

### III. CONCLUSIONS

In order to safeguard the large funds invested and to be invested in industry, to promote exports, to protect the consumer and to make valuable contributions to the intra-Union economy as whole, it will be essential to adopt standardization, metrology and eventually quality control as an intra-Union technical policy. Now is the right time to have this introduced in the member States because their industrial development is still at the "take-off" stage. The initiation of such activities would avoid a haphazard growth of industries.

By pre-planning standardization, metrology and a change-over to the metric system, industrial development will be positively affected without the necessity for costly changes. The economic gains that can be achieved by planning the aforementioned activities can be considerable to the ultra-Union economy. (See project outlined in annex IX.)



Annex I

DOCUMENTS RELATED TO THE PROJECT

1. "Final report on standardization and quality control in Liberia", Ahmad Geneidy, UNIDO expert, Monrovia, April 1973
2. "Report of the Sub-Committee on Standards and Metrology in Sierra Leone and Liberia", Mano River Union Secretariat, Monrovia, February 1974
3. "Background paper on standardization, metrology and quality control activities", prepared by Vaclav Skala, UNIDO expert, Mano River Union Secretariat, Freetown, September 1976 (MRU/T/SMQC/1 of 2/9/1976)
4. "Report of the second meeting of the Working Group on Standardization, Metrology and Quality Control Activities", Mano River Union Secretariat, Freetown, October 1976 (MRU/TT/SMQC/1 of 5/10/1976)
5. "Recommendations, implementation measures and resolutions on standardization, metrology and quality control activities", submitted by the Mano River Union Secretariat to the Union Standing Committee, Monrovia, November 1976 (MRU/SC.III/16 of 2/11/1976)
6. "Report of the third ordinary meeting of the Union Standing Committee", prepared by the Mano River Union Secretariat, Monrovia, November 1976 (MRU/MC.III/3 - MRU/SC/3 of 18/11/1976)
7. "Resolution XXXIX (3rd), Co-operation in Trade and Industry, Part C.3 - Standardization - Implementation of Resolution Establishing a Union Bureau of Standards", prepared by the Mano River Union Secretariat, Monrovia, November 1976 (MRU/MC/3 of 26/11/1976)
8. Preliminary report for UNIDO: project findings and recommendations, Vaclav Skala, UNIDO expert, Freetown, 25 August 1976
9. "Application to the Embassy of the USSR in Sierra Leone for technical assistance in standardization, metrology and quality control activities during 1977", Mano River Union Secretariat, Freetown, September 1976 (DSG-1817/H-10/76 of 9/9/1976)
10. "Organization and administration of industrial standardization, quality control and metrology activities: organizational master programme for Mano River Union Bureau of Standards for 1977", Vaclav Skala, UNIDO expert, Freetown, 16 December 1976

Annex II

**MEETINGS, CONFERENCES AND SEMINARS CONDUCTED/ATTENDED BY THE  
EXPERT DURING HIS ASSIGNMENT**

1. Meeting of Joint Working Group on Industry and Trade, Mano River Union Secretariat, Freetown, 19-21 July 1976 (24 participants)
2. Meeting of Union Commission on Industry and Trade (proposals for further activities in industry), Monrovia, 28-30 July 1976 (14 participants)
3. Meeting of National Committee on Metrication, Ministry of Trade and Industry of Sierra Leone, Freetown, 18 August 1976 (12 participants)
4. Meeting of the Sub-Committee on the Proposals on Metrication in the Educational System, Ministry of Education, Social Welfare and Rural Development of Sierra Leone, 25 August 1976 (7 participants)
5. Meeting of Working Group on Standardization, Metrology and Quality Control, Mano River Union Secretariat, Freetown, 27-28 September 1976 (22 participants)
6. Meeting of Sierra Leone Institution of Engineers - Panel discussion "Metrication", Freetown, 25 October 1976 (19 participants)
7. Meeting of Union Standing Committee (discussion about draft-proposition on standardization, metrology and quality control activities), Monrovia, 15-19 November 1976 (28 participants)
8. Meeting of Union Ministerial Council (discussion and endorsement of draft proposition on standardization, metrology and quality control activities), Monrovia, 24-26 November 1976 (20 participants)

Annex III

ORGANIZATIONAL CHART OF THE PROPOSED MANO RIVER UNION BUREAU OF STANDARDS

Director		Department of Planning and Administration	Department of Research and Training	Department of Standards (elaboration of standards)	Department of Metrology (weights and measures)	Department of Quality Control and Testing
Activities						
Legislation		Laboratory centres and facilities	Specification of standards	Weights and measures	Certification schemes	
Planning		Training and courses	Technical committees <sup>a/</sup>	Laboratory for testing and calibration	Quality control and testing	
Administration		Fellowships	Foodstuffs, metal products, chemicals, building materials, export commodities	Primary stations	Pre-shipment of foodstuffs, metal products, building materials, chemical products, export commodities	
Personnel matters		Public education	Standards implementation	Legal metrology	Regional offices	
Transport		Foreign relations		Regional offices	Laboratory	
Library and archives		Workshops and seminars		Metrication <sup>b/</sup>		
Other services		Meetings of specialists				
Programmes for implementation						

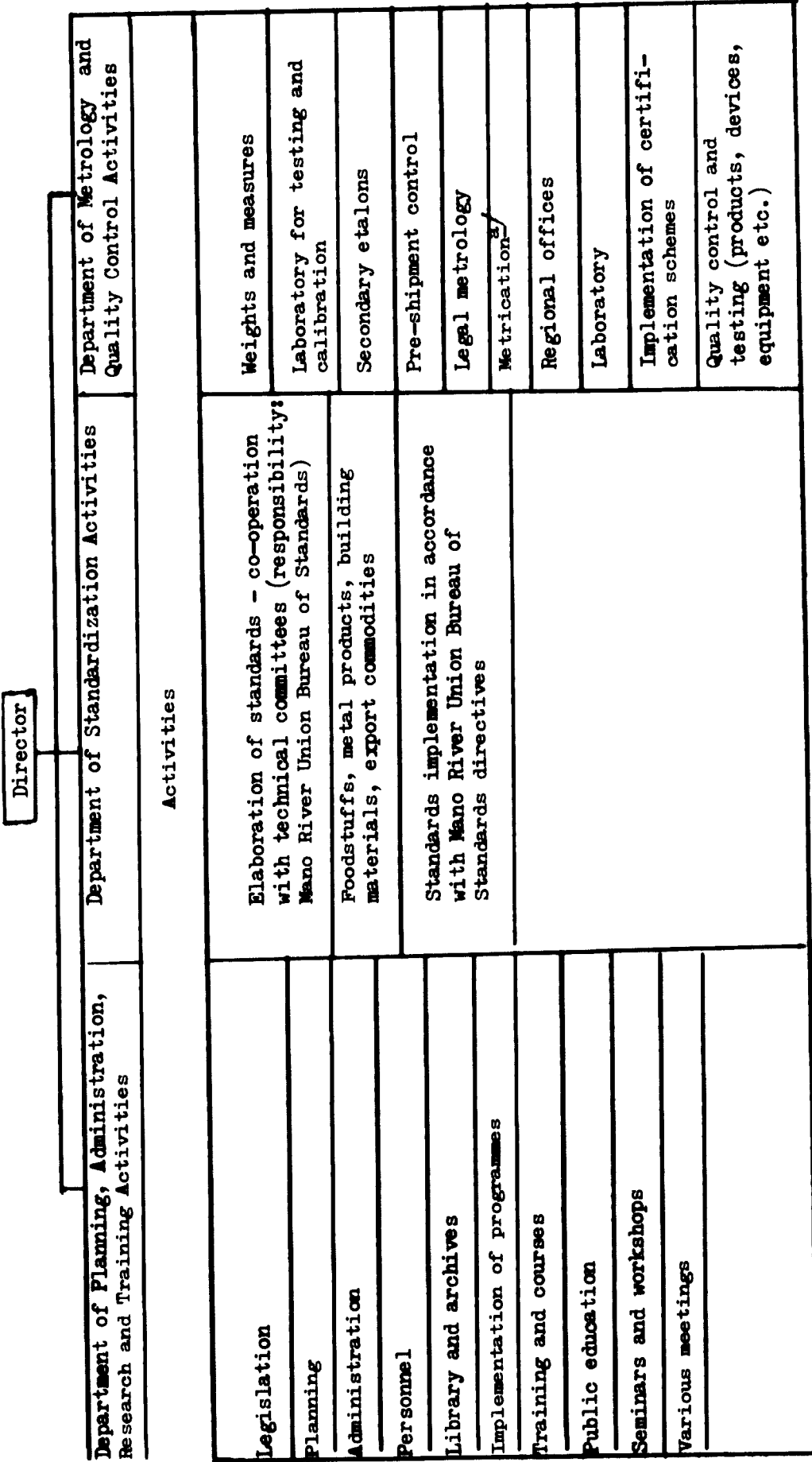
Note: The Department of Planning and Administration might be combined into one department with the Department of Research and Training.

a/ There could be only one technical committee with various working groups.

b/ Only during the period of the change-over to the metric system.

Annex IV

ORGANIZATIONAL CHART OF THE PROPOSED NATIONAL BUREAU OF STANDARDS IN LIBERIA AND SIERRA LEONE



Note: The Department of Standardization could be combined in one department with the Department of Research, Planning, Administration and Training Activities.

a/ Only during the period of the change-over to the metric system.

Annex V

ORGANIZATION OF NATIONAL STANDARDS BUREAUX (DECEMBER 1976)

Liberia National Bureau of Standards (Division of Standards, Ministry of  
Commerce, Industry and Transportation)

Director	Mr. Lartey
Assistant Director	Mr. Kaneh
Standards Officer	Mr. Kollie
Standards Officer	Mrs. van Golan
Inspector	Mr. Nimely
Inspector	Mr. Capehant
Inspector	Mr. Wisseh
Inspector	Mr. Gibson

Sierra Leone National Bureau of Standards (Division of Standards, Ministry of  
Trade and Industry)

Officer in charge	Mr. During
Inspector	

Note: No other staff was available at the end of 1976.



Annex VI

COMPANIES AND CORPORATIONS CAPABLE OF CO-OPERATING WITH THE MANO RIVER  
UNION BUREAU OF STANDARDS (IN TESTING, ON TECHNICAL COMMITTEES,  
IN STANDARDS ELABORATION ETC.)

Foodstuffs, provisions, vegetables, beverages

Liberia

Mesurado Group of Companies  
P.O. Box 142, Monrovia

Guinness Liberia Ino.  
P.O. Box 514, Monrovia

The Abi Jaoudi and Azar Trading Corp.  
P.O. Box 36, Monrovia

Food Specialities Liberia Ino.  
P.O. Box 439, Monrovia

Rasamny Brothers Corp.  
P.O. Box 104, Monrovia

T. Choithram and Sons (Liberia) Ino.  
P.O. Box 245, Monrovia

Monrovia Tobacco Corp.  
P.O. Box 1922, Monrovia

Supermarket Supply Company  
P.O. Box 539, Monrovia

University of Liberia  
Monrovia

Sierra Leone

National Confectionary Company Ltd (NATCO)  
P.O. Box 26, Freetown

Sierra Leone Brewery Ltd  
Freetown

Shareen's Supermarket  
Goderich Street, Freetown

Cold Storage Supermarket  
Freetown

Feed Mill Products Ltd  
P.O. Box 982, Freetown

Sierra Leone Enterprises Ltd  
P.O. Box 643, Freetown

University of Sierra Leone,  
Fourah Bay College  
Freetown

Metal and allied products

Liberia

Liberia Tractor and Equipment Co. (LIBTRACTO)  
P.O. Box 299, Monrovia

Liberian Office Equipment Corp.  
P.O. Box 744, Monrovia

CATCO (Consolidated Africa Trading Corp.)  
P.O. Box 70, Monrovia

Decker and Co.  
P.O. Box 553, Monrovia

Rasamny Brothers Corp.  
P.O. Box 104, Monrovia

Blackwood-Hodge  
P.O. Box 105, Monrovia

Sierra Leone

Werner Christlieb Ltd  
P.O. Box 793, Freetown

Holman Brothers Ltd  
P.O. Box 465, Freetown

Metal Beds and Spring Co. Ltd  
54, Kelsey Road, Freetown

Brewo Motors  
Freetown

Air-Cold Engineering Ltd  
P.O. Box 1416, Freetown

Chemical and allied products

Liberia

British Petroleum (West Africa) Ltd  
P.O. Box 609, Monrovia

Mesurado Group of Companies  
P.O. Box 142, Monrovia

West Brand Corp.  
P.O. Box 87, Monrovia

Sierra Leone

Bata Shoe Company Sierra Leone Ltd  
P.O. Box 111, Freetown

Sierra Leone Oxygen Factory Ltd  
P.O. Box 584, Freetown

G.B. Ollivant Division of United African  
Company of Sierra Leone Ltd  
Rawdon Street, Freetown

M.M. Corporation (Sierra Leone) Ltd  
P.O. Box 1369, Freetown

Sierra Leone Paint Ltd  
P.O. Box 1350, Freetown

Simon Abond and Sons  
P.O. Box 488, Freetown

Sierra Leone Suitcase Factory Ltd  
Kissy Dookyard, Freetown

Paterson Zochonis and Co., Ltd  
P.O. Box 72, Freetown

Sierra Leone Knitting Mills Ltd  
P.O. Box 809, Freetown

AGIP (Sierra Leone) Ltd  
P.O. Box 752, Freetown

Chanrai Industries  
Rawdon Street, Freetown

Building materials and timber products

Liberia

Oubbits Liberia, Inc.  
P.O. Box 502, Monrovia

Liberia Tractor and Equipment Co. (LIBTRACO)  
P.O. Box 299, Monrovia

METCO  
P.O. Box 357, Monrovia

Cestos Nimba Corporation  
P.O. Box 1916, Monrovia

MEZBAU Inc.  
P.O. Box 1023, Monrovia

CEMENCO (Liberia Cement Corp.)  
P.O. Box 150, Monrovia

University of Liberia  
Monrovia

Sierra Leone

Kankil's Building Materials  
P.O. Box 171, Bo

International Furniture Co., Ltd  
New Road, Allen Town, Freetown

Sierra Leone Forest Industries Corp.  
Kenema, Eastern Province

University of Sierra Leone  
Fourah Bay College  
Freetown

E. Davis and Co., Engineering Company  
Freetown

Products for export (imported products)

Liberia

United States Trading Co.  
P.O. Box 140, Monrovia

Jos. Hansen and Soehne (Liberia) Ltd  
P.O. Box 28, Monrovia

Yonnis Bros. and Co., Inc.  
P.O. Box 97, Monrovia

Sierra Leone

Khalil Bahsson  
P.O. Box 639, Freetown

Simonius Visoher (IDC) Ltd  
P.O. Box 197, Kenema, Eastern Province

HOEKS (Sierra Leone) Ltd  
P.O. Box 357, Freetown

N. Bamieh and Co.  
P.O. Box 958, Freetown

Annex VII

JOB DESCRIPTIONS FOR EXPERTS FOR THE PROPOSED PROJECT

- Post title: Project Manager, standardization, metrology (metrication) and quality control activities (with special emphasis on standardization)
- Duration: 24 months
- Date required: 1 July 1978
- Duty station: Freetown (or the locality at which the Mano River Union Bureau of Standards will be situated), with possible travelling in Sierra Leone and Liberia
- Purpose of project: To assist the Mano River union in its work towards the establishment and operation of a Mano River Union Bureau of Standards and of National Bureaux of Standards in Liberia and Sierra Leone for standardization, metrology and quality control activities.
- Duties: The expert would be attached to the Mano River Union Bureau of Standards and would work with industrial, governmental and other organizations within Union member States. Besides his duties as a project manager he would be expected:
- (a) To assist National Bureaux of Standards in member States in establishing technical committees on standardization as recommended in the programme of implementation;
  - (b) To co-operate in nomination of working groups responsible for evaluation of draft standards;
  - (c) To transmit know-how to local specialists in the pertinent areas;
  - (d) To co-operate in survey, analysis and evaluation of draft standards being prepared by working groups;
  - (e) To assist in the training of counterparts in standardization, metrology and quality control;
  - (f) To recommend follow-up activities to be undertaken by the Mano River Union Bureau of Standards after the conclusion of the project.
- In general, the project manager (also the expert in standardization) would assume overall responsibility for organization, planning and step-by-step implementation of the project's incentives. Reasonable knowledge of metrology and quality control activities advantageous.
- Qualifications: University degree or equivalent in engineering, technology, law or business management, with professional experience in the organization and management of industrial standardization, metrology and quality control activities at national/international level. Experience in developing countries desirable and of importance.

Language:

English

Background  
information:

Mano River Union (Liberia and Sierra Leone) established a Mano River Union Bureau of Standards with the main objectives of organizing further activities in standardization, metrology and quality control in both member States. A UNIDO expert in 1976 prepared a programme for activities from 1978 till 1980.

During 1977 the main task for the Mano River Union Secretariat is to establish the Mano River Union Bureau of Standards de facto; the project will then start with effect from 1 July 1978 in order to implement its long-term objectives, i.e.:

- (a) To implement principles of industrial standardization, metrology and quality control within all relevant sectors of the intra-Union economy;
- (b) To achieve the efficient utilization of natural resources based on the activities mentioned;
- (c) To increase the productivity and production output through such activities;
- (d) To strengthen industrial, commercial, agricultural and other important activities, emphasizing as the main target productivity, costs and quality of products and goods;
- (e) To improve the quality and reliability of products and services and to protect the health, safety and interest of the public;
- (f) To improve the intra-Union/national economies through the utilization of natural resources of local origin, strengthening of intra-Union industries, control of imports and wider promotion of commodities and products for export.

**Post title:** Expert in legal metrology (with special focus on activities in the change-over to the metric system)

**Duration:** 18 months

**Date required:** 1 October 1978

**Duty stations:** Freetown (or where the Mano River Union Bureau of Standards will be situated), with travelling in Sierra Leone and Liberia.

**Purpose of the project:** To assist the Mano River Union Bureau of Standards in its work towards the change-over to the metric system in Union member States.

**Duties:** The expert would be attached to the Mano River Union Bureau of Standards and would work with the relevant industrial, governmental and other organizations within Union member states. He would be expected:

- (a) To participate in preparatory work for legislation covering the change-over to metric; this was expected to be done during 1977 by the member States legislative bodies;
- (b) To assist in purchases of equipment and devices related to the implemented SI system;
- (c) To organize activities in various sectors of the intra-Union economy to assure the smooth change-over at the initial stage;
- (d) To assist in the training activities of national specialists in member States in the field of legal metrology and the SI system;
- (e) To co-operate with all relevant bodies in member States to assure the proper implementation of the change-over to the metric system.

In general, the expert would, under the supervision of the project manager, assist the Mano River Union Bureau of Standards and National Bureaux of Standards in Liberia and Sierra Leone in the change-over to the metric system, in the organization, planning and operation of basic standards (etalons) and laboratory, advising regional officers and implementing a comprehensive system for the calibration and stamping of weights and measures.

**Qualifications:** University or college degree in engineering or technology, with professional experiences in metrology at the national/international level. Experience in developing countries desirable. Senior civil servant advantageous.

**Language:** English

**Post titles:** Expert in applied metrology and quality assurance

**Durations:** 18 months

**Date required:** 1 October 1978

**Duty stations:** Freetown (or locality in which the Mano River Union Bureau of Standards will be situated), with travelling in Sierra Leone and Liberia.

**Purpose of the project:** To assist the Mano River Union in strengthening intra-Union industrial metrology and quality assurance in the Union member States.

**Duties:** The expert will be attached to the Mano River Union Bureau of Standards and will co-operate with the relevant industrial, governmental and other organizations in the member States. He will be expected:

- (a) To participate in legislative matters relating to the full-scale implementation of legal metrology and quality assurance;
- (b) To organize activities related to applied metrology and quality assurance;
- (c) To advise in methods of utilizing new equipment and devices for determining weights and measures;
- (d) To co-operate in matters related to the change-over to the metric system (SI system);
- (e) To assist in the training of national personnel in industrial metrology and quality assurance/quality control.

In general the expert would under the supervision of the project manager assist the Mano River Union Bureau of Standards and the National Bureaux of Standards in Liberia and Sierra Leone in the planning and organization of programmes related to industrial metrology.

**Qualifications:** University or college degree in engineering or applied physical sciences and professional experience in metrology at the national/international level. Experience in developing countries desirable. Senior civil servant would be an advantage. Knowledge of problems of quality control would be important.

**Language:** English



Annex VIII

FINANCIAL DATA RELATING TO ASSISTANCE REQUESTED (in 1,000 dollars)

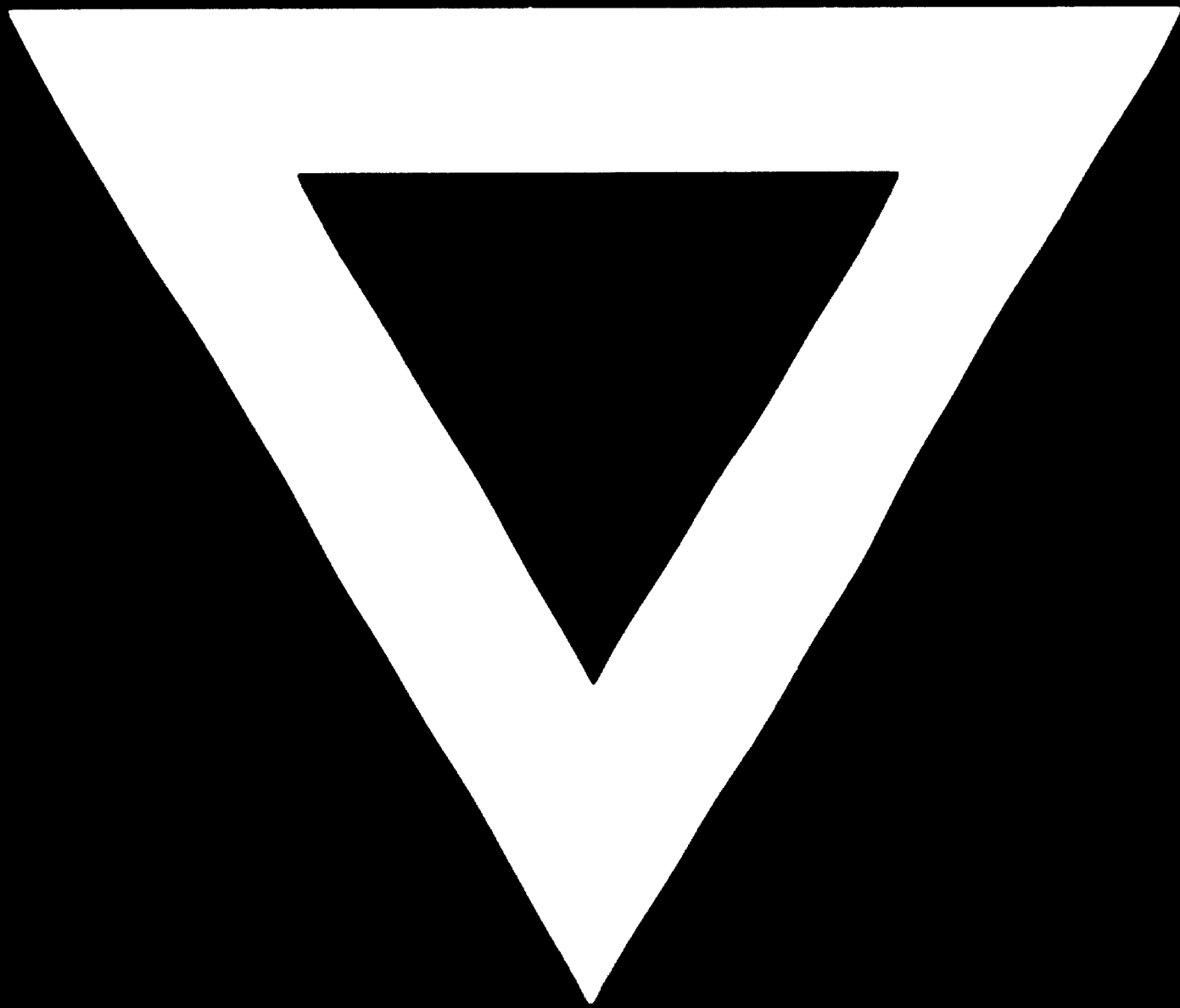
Description	1978		1979		1980		Total	
	m/m	8	m/m	8	m/m	8	m/m	8
<b>Project personnel:</b>								
Project manager	6	15	12	30	6	15	24	60
Expert in legal metrology	3	6	12	24	3	6	18	36
Expert in industrial metrology	<u>3</u>	<u>6</u>	<u>12</u>	<u>24</u>	<u>3</u>	<u>6</u>	<u>18</u>	<u>36</u>
Total experts	12	27	36	78	12	27	60	132
<b>Fellowships:</b>								
Director of Mano River Bureau of Standards	4	8					4	8
Head of the Department of Standardization	4	8					4	8
Other specialists	—	—	<u>12</u>	<u>24</u>	<u>12</u>	<u>24</u>	<u>24</u>	<u>48</u>
Total fellowships	8	16	12	24	12	24	32	64
Equipment and devices for metrology activities:		40		80		30		150
Miscellaneous	—	<u>6</u>	—	<u>12</u>	—	<u>6</u>	—	<u>24</u>
Grand Total	20	89	48	194	24	87	92	370

Annex IX

WORK PROGRAMME: EXTENSION PROPOSALS FOR 1975-1980  
(Standardization, metrology and metrication, quality control, fellowships)

Description of activities to be conducted	1975										1976									
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
Work programme covered by participation of project manager	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Work programme covered by expert for legal metrology											X	X	X	X	X	X	X	X	X	X
Work programme covered by expert for industrial metrology and quality assurance											X	X	X	X	X	X	X	X	X	X
Work programme for standardization:																				
(a) Convening of technical committee(s) on standardization											X	X	X	X	X	X	X	X	X	X
(b) Industrial survey and analyses of results											X	X	X	X	X	X	X	X	X	X
(c) Associated work and training of local specialists											X	X	X	X	X	X	X	X	X	X
(d) Preparation of draft standards specification											X	X	X	X	X	X	X	X	X	X
(e) Elaboration of draft standards, conversion of existing standards to metric											X	X	X	X	X	X	X	X	X	X
Work programme for metrication (change-over to metric):																				
(a) Legislation (including preparatory work in 1977)											X	X	X	X	X	X	X	X	X	X
(b) Organizational activities (metric cells in sectors)											X	X	X	X	X	X	X	X	X	X
(c) Purchases of primary calibres (standards, etalons)											X	X	X	X	X	X	X	X	X	X
(d) Start of change-over to metric in some sectors											X	X	X	X	X	X	X	X	X	X
(e) Commencement of the new law for SI system																				
Work programme in applied metrology and quality assurance (also weights and measures):																				
(a) Revised laws and legislation											X	X	X	X	X	X	X	X	X	X
(b) Training of local personnel in various sectors											X	X	X	X	X	X	X	X	X	X
(c) Securing and preparation of premises											X	X	X	X	X	X	X	X	X	X
(d) Obtaining equipment and devices for metric system											X	X	X	X	X	X	X	X	X	X
(e) Survey and check-ups of weights and measures based on metric system											X	X	X	X	X	X	X	X	X	X
Fellowships:																				
(a) Director of Mano River Union Bureau of Standards											X	X	X	X	X	X	X	X	X	X
(b) Head of Department of Standards											X	X	X	X	X	X	X	X	X	X

**C-722**



**79.01.15**