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Training Workshop for Personnel  
Engaged in Standardization

Santiago de Chile, 27 September - 1 October 1971

FINAL REPORT <sup>1/</sup>

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## I.- INTRODUCTION

### Background and Purpose

- 1.- The Industrial Development Board in its Third Session (Vienna, 14 April to 5 May 1969) stressed the importance of standardization and the need to give special attention to this activity in developing countries.
  
- 2.- In order to approach the problems of standardization in developing countries in a more systematic manner, this Workshop was organized for countries of Latin America by the United Nations Industrial Development Organisation (UNIDO) in co-operation with the United Nations Economic Commission for Latin America (ECLA), as a part of a series of training workshops in standardization.
  
- 3.- The overall purpose of this Workshop was to review and discuss:
  - problems involved in the organization and operation of a National Standards Body (NSB);
  - the role of standardization in the countries of Latin America and its contribution to industrial development and export promotion;
  - standards, quality control, certification and the consumer;
  - priorities for standardization activities;
  - basic standards and the adoption of the SI Units;
  - training in standardization;
  - regional standardization;
  - international standardization.

Furthermore, the Workshop provided a forum for the exchange of experience of the participating countries in their standardization activities and their achievements in this field, as well as their plans for the future on one hand, and the experts from developing and developed countries on the other, thereby fulfilling a training function; last but not least, it provided guidelines for possible future work of UNIDO in this field.

Organization

4.- The Training Workshop for Personnel Engaged in Standardization in Latin America was held in Conference Room No. 2 of the ECLA Headquarters in Santiago de Chile from 27 September to 1 October 1971. The Workshop was organized by UNIDO in collaboration with ECLA, as well as with ISO (International Organization for Standardization) and COPANT (Pan American Standards Commission).

5.- Miss Juana Eyzaguirre, Conference Officer of ECLA, and Mr. R. Schmied, Industrial Development Officer, UNIDO, acted as Technical Director and Director of the Workshop, respectively.

6.- The Workshop discussed organizational, procedural, operational, financial and promotional aspects of standardization activities in countries of Latin America. Discussions were based on several papers prepared by the experts and distributed to the participants well ahead of the meeting, as well as on papers presented by participants, and other background material.

7.- The method of work, namely the short presentation of their papers by the experts, exchange of views and utilization of statements by participants on the situation of standardization in their respective countries as case studies proved to be useful and allowed best utilization of available time.

II.- RECOMMENDATIONS

8.- The Workshop unanimously adopted the following Recommendations:

**RECOMMENDATION No. 1**

Considering:

The importance of standardization in the technological and economic development of a country;

It is recommended that:

1. Governments should be asked to keep national standardization institutes constantly informed regarding official national development plans;
2. Governments should provide national standardization institutes with the technical and economic support required for studying the standards which these development plans call for;
3. UNIDO should support this request to Governments.

RECOMMENDATION No. 2

Considering that:

Standardization is an instrument of development, provided it is established through the effective co-operation of the Government, science and technology, together with production and consumption;

It is recommended that:

1. Governments should be approached to secure legislation which, while recognising standardisation as an element of technological and social development, provides that all Government scientific and technological bodies should make the greatest possible technical contribution to national standardization institutes;
2. Governments should recognize and give official support to the standardisation process by laying down all appropriate legal provisions for sustaining it and making effective use of standards.



RECOMMENDATION No. 3

Considering that:

1. The State constitutes the legal authority, regulates the overall development of a country through its development plans and is the main consumer;
2. The State is the only entity capable of giving official sanction and full recognition to standardisation work;
3. It is the task of the State to plan the overall development of the nation;
4. The State should make use of standards for its purchases and for promoting the development of the country;

It is recommended that:

1. The State should recognise a single standardisation institute at the national level;
2. The State should participate technically in standardisation tasks;
3. The State should recognise the national standardisation institute as its advisory agency in matters of development and should adopt the standards promulgated or approved by the institute as the basis on which to make its purchases;
4. The State should contribute to the financing of standardisation work in such a way that this work can develop and grow as required by the Government's plans;
5. The State should recognise the authority of the national standardisation institute to govern itself according to its own statutes, regulations or provisions, without outside interference;
6. The State should finance the activities of the national standardisation institute in regional and international standardisation bodies.

RECOMMENDATION No. 4

Considering that:

The problem of financing is common to all standardization institutes in the continent and that this is in many cases due to ignorance on the part of the sectors which are able to provide the financial resources required;

It is recommended that:

1. National standardization institutes should carry out an active promotion campaign directed towards Governments, producers and consumers, stressing the technical, economic and social advantages of standardization in order to increase the number of those concerned with and making use of standards;
2. An information and promotion campaign should be carried out at the same level concerning the importance and advantages of certification of quality and the mark of compliance with standards;
3. UNIDO should support these activities with action of its own directed towards the Governments of member countries and should co-operate with ECLA in promoting and discussing the ideas of standardization of quality control and marks of compliance with standards.

RECOMMENDATION No. 5

Considering:

The important work carried out by COPANT in the Latin American continent concerning all aspects of the propagation and promotion of standardisation, co-operation in support of national standardisation institutes and the training of specialised personnel;

It is recommended that:

1. COPANT should obtain recognition by the UNITED NATIONS as a non-governmental standardisation organisation;
2. COPANT should be directly invited to participate in all meetings dealing with standardisation problems;
3. ECLA should co-operate in all programmes for the training of personnel and development of standardisation in the continent.

RECOMMENDATION No. 6

Considering that:

International standardization tends to facilitate trade by eliminating non-tariff barriers;

It is recommended that:

1. ISO should give priority to studying recommendations concerning international trade as regards terminology, marks and packaging from the points of view of both size and conditions for the transport of products.

RECOMMENDATION No. 7

Considering that:

1. The total costs of active participation in ISO exceed the economic possibilities of some national standardisation institutes;
2. In general, studies of international scope, owing to their complexity, take longer to complete than the Latin American countries can wait because they are at a stage of transformation which makes it necessary for them to give guidance to their industries concerning standards which must be applied in order to make possible the purchase of equipment for production and quality control, and also the training and selection of personnel, etc.

It is recommended that:

1. ISO should be asked to consider the recommendations of regional bodies in the study of international standards and, when these differ fundamentally from the international standard, take them into account in the ISO recommendation or standard in the manner most appropriate in each instance.
2. UNIDO should take action to make the Members of the United Nations aware of the importance of standardisation in international trade and of the necessity for national standardisation institutes to have adequate resources to enable them to fulfil their obligations in this respect.

RECOMMENDATION No. 8

Considering:

The basic importance of knowledge of quality control for the effective development of standardisation;

It is recommended that:

1. Action should be taken to induce Governments to include the study of quality control in secondary and special university programmes;
2. An intensive campaign should be carried out for the promotion of quality control in all the Latin American countries, in co-ordination with national standardisation institutes;
3. UNIDO, in co-operation with ECLA, should provide the technical and economic assistance required in order to achieve these aims.

RECOMMENDATION No. 9

Considering that:

1. Adequate and timely information is a basic factor in the work of all standardisation institutes;
2. It is necessary to establish appropriate machinery for the dissemination and channelling of scientific and technological information;

It is recommended that:

1. National standardisation institutes should intensify the exchange of their publications as much as possible;
2. Standardisation institutes should set themselves up in their own countries as specialised standardisation information centres to facilitate to the utmost the consultation and dissemination of national foreign and international standards;
3. UNIDO should be asked to publish and disseminate on a large scale works and text books on standardisation and all related matters.

RECOMMENDATION No. 10

Considering that:

Standardisation is already universally recognised as an important instrument in technical, economic and social development and that there are already sufficient scientific and technological works to make possible proper preparation of specialized personnel;

It is recommended that:

1. Governments should be urged to include courses on standardisation at the intermediate, advanced and post-graduate educational levels;
2. National standardisation institutes should co-operate in the preparation, organisation and implementation of these programmes, supplementing them in all instances with the necessary applied and practice work;
3. Applied research directed towards standardisation should be encouraged in the training of professionals;
4. UNIDO should consider the possible co-ordination of the training course programmes of individual organizations for the preparation of personnel specializing in standardisation and should assist national standardisation institutes in carrying out their training programmes;
5. UNIDO, in co-operation with ECLA, should support these requests by stressing the economic importance of standardisation and its direct effects in the application of quality control systems in production.



RECOMMENDATION No. 11

Considering that:

1. Legal, applied and scientific metrology constitutes a fundamental part of standardisation and that the systems of measures of the Latin American countries must be standardised as a means of ensuring the precision of measurements in science, industry and trade;
2. The International System of Units, which has been legally adopted in many countries and is in the process of being adopted in others, presents unquestionable advantages over the traditional systems of units;

It is recommended that:

1. UNIDO and UNESCO should encourage Governments to lay down the legal provisions required for introducing the International System of Units in all activities, including this system in educational programmes in all levels;
2. UNIDO should encourage and assist Governments in setting up metrological organisations in the Latin American countries by providing the resources required for their establishment and operation.

RECOMMENDATION No. 12

Considering:

The necessity of organizing co-ordinated action with regard to all aspects of the use, effective adoption and propagation of the International System of Units, and to all aspects of metrology;

It is recommended that:

1. UNIDO should organize seminars with those responsible for directing the Latin American metrology organizations;
2. National standardisation institutes should be informed of these meetings and their results;
3. When there is no national metrology organisation, national standardisation institutes should be invited to participate in the seminars.

**RECOMMENDATION No. 13**

**Considering that:**

ISO has decided to promulgate international standards beginning in 1972;

**It is recommended that:**

ISO should assign priority to the promulgation of international standards for magnitudes and units, symbols in general use, nomenclature, testing and interchangeability.

RECOMMENDATION No. 14

Considering that:

In documents in Spanish, the names and initials of international agencies and national standardization institutes are given in varying forms, and that this gives rise to confusion;

It is recommended that:

1. COPANT should prepare a document laying down the names and initials of national, regional and international standardisation bodies in Spanish and Portuguese and submit it for consideration by ISO;
2. ISO should study a document laying down the names of all the national standardization institutes and all the international agencies in various languages, but in which each one would be assigned a single set of initials selected by the agency in question.

RECOMMENDATION No. 15

Considering that:

Standardisation is a factor in the development and promotion of trade;

It is recommended that:

Standardisation work should be taken into account in international meetings concerning country development and the promotion of international trade.

RECOMMENDATION No. 16

Considering that:

The sectoral organizations which are active within the scope of LAFTA, such as ILAFA, AIICA, ALIPLAST, ALAF, etc. benefit from standardisation work;

It is recommended that:

1. These organizations should directly and actively support standardisation work and interest their members in the study and application of national, regional and international standards;
2. These organizations should disseminate information on standardisation activities among their members.

### III.- THE MEETING

#### Opening Session

9.- The Workshop was opened by a welcoming address given by Mr. Roberto Matthews, Director, Industrial Development Division, ECLA, to the participants, experts and observers. An introductory statement was then made by Mr. R. Schmied, UNIDO, after which the Workshop proceeded with the election of the officers.

#### Election of Officers

10.- The Workshop unanimously elected the following officers:

- Chairman: Mr. Hugo Brangier M. (Chile)
- Vice-Chairman: Mr. Armando G. Ammirati (Brasil)
- Rapporteur: Mrs. B. Ghirelli de Ciaburri (COPANT)

#### Attendance

11.- The Workshop was attended by:

- Fourteen participants from the following countries: Argentina, Bolivia, Brasil, Chile, Colombia, Cuba, Ecuador, Guatemala, Mexico, Panama, Paraguay, Peru, Uruguay and Venezuela.
- Six experts from Argentina, Brasil, India, Peru, Switzerland and the United Kingdom.
- Observers from Chile, Venezuela and the U.S. National Bureau of Standards.

#### Agenda

12.- At its first Session, the Workshop unanimously adopted the work programme and agenda with a slight amendment to the former, providing for the afternoon sessions to be from 14:00 to 17:00 instead of 15:00 to 18:00.

### Documentation, Report and Working Language

13.- Documents prepared in Spanish and in English in connection with this Workshop included the following: discussion papers prepared by the experts and distributed to participants in advance of the Workshop, as well as information papers distributed at the Workshop. A list of these documents is given in Annex V. In addition statements were prepared by the participants and distributed at the Workshop; these papers are given in Annex I.

14.- At its closing session, the Workshop, after careful consideration of the draft recommendations submitted by the participants and experts, unanimously approved them as given in chapter II of this Final Report.

15.- Spanish and English were the working languages of the Workshop.

### Closing Session

16.- At its closing session on 1 October 1971, the Workshop was addressed by the experts Mr. W. E. Andrus, representing the U.S. National Bureau of Standards and Mr. R. Matthews, Director of the Industrial Development Division of ECLA. Speaking on behalf of UNIDO, Mr. R. Schmiel expressed great appreciation to ECLA for having kindly agreed to host the Workshop and for providing the facilities and an efficient organization, to the Government of Chile, the participants, the experts, as well as to the Chairman and officers of the meeting for their valuable contribution to the Workshop. The closing statement was made by Mr. Hugo Brangier, Chairman of the Workshop, who, speaking on behalf of the participants, thanked the organisers of the Workshop and the experts.



## STANDARDIZATION IN THE ARGENTINE REPUBLIC

by

Mr. José Wolber, Buenos Aires

### Background

The beginnings of the Argentine Institute for the Rationalisation of Materials go back to the 1930s, when its father, founder and leader was Mr. Marcelino Ceriale, a civil engineer. Mr. Ceriale was able, from the beginning, to attract persons with high qualifications in the pure and applied sciences who co-operated disinterestedly in the setting up and organisation of the Institute because they were convinced of the great importance which the rationalisation of materials would have for the industrial development of our country.

### Organisation

The Argentine Institute for the Rationalisation of Materials, which was founded in 1935 and adopted the initials IRAM by which it is referred to and known both within and outside the Argentine Republic, is a non-governmental non-profit agency which, two years later, became a legal entity. In its administration, management and operation, it enjoys full independence from the national Government and the organisation of entrepreneurs, industrialists, merchants, professional people and workers. This explains the unquestionable prestige which the Institute has acquired in all sectors of production and trade and the unflinching confidence enjoyed by its standards, which are prepared free from outside pressure or influence.

Its general organisation includes the annual Assembly of members, which deals with the report and the general financial balance, purchases, the membership of the Board of Directors, amendments to the statutes and other matters relating to the activities of IRAM.

The Board of Directors directs and administers the Institute and lays down rules for its efficient organisation and operations; it approves standards; it appoints the Director-General and, on his suggestion, the members of the standards committee. The Director-General, who must be a professional person and university graduate, has, among others, the jobs of promoting the rationalisation of materials, setting up the General Standards Committee, the Specialised Committees and the sub-committees

supervising the study of standards and their preparation, maintaining links between IRAM and regional and international standards bodies and directing the awarding of seals of compliance with IRAM standards and certificates of quality.

### Standards

Standards are studied and approved in accordance with regulations which have been laid down. In the first stage, each standard proposed by the administration or by government or private bodies interested in its adoption is dealt with in the specialised sub-committees. Once the preliminary draft has been prepared, it is submitted for public discussion during a waiting period. The draft, with any amendments, is transmitted to the General Committee, which acts as the co-ordinating body and when this Committee has approved it, it goes to the Board of Directors. The Board of Directors will approve the new standard once it has been ascertained that all the requirements laid down in the regulations for consideration of standards have been fulfilled.

There are also IRAM standards which result from the approval of international recommendations or standards by the relevant specialised committees of IRAM and others which arise from joint study with specialised institutes, in accordance with agreements signed by both parties which, once approved, are known as standards of IRAM and the other party, this special condition being clearly specified.

### Resources

The Institute for the Rationalisation of Materials is financed primarily out of resources resulting from the following:

- (a) Membership fees;
- (b) Sale of IRAM standards;
- (c) Advertising in its publications and in the catalogue of standards;
- (d) Special contributions (Secretariat of State for Industry and Domestic Trade, Secretariat for Foreign Trade, National Development Bank, National Institute of Industrial Technology, etc.);
- (e) Miscellaneous income (certifications, work by experts, courses).

### Dissemination

Application of IRAM standards is becoming increasingly widespread in government and private circles and knowledge of these standards is spreading thanks to the unflagging, efficient, serious and uninterrupted activity carried on by the

Institute for the Rationalization of Materials during the nearly 40 years of its existence. It should be pointed out that the outstanding work of the Director-General, Mrs. Beatrice Ghirelli de Ciaburri, has been, and is, an essential factor in the superior work accomplished, the prestige achieved and the universal respect enjoyed by the Institute.

#### Application of standardization

A Decree of 1957, which is still in force, stipulates that, for government purchases, offers of materials, products, parts and whole pieces of equipment must meet the relevant IRAM standards in order to qualify for consideration.

Some examples of compulsory application are the following:

The Directorate-General of Plant Health (Ministry of Agriculture) has ruled that products to combat plant and animal pests may be sold only if they meet the specifications of the relevant IRAM standards.

The Secretariat of State for Industry and Domestic Trade has stipulated that slaked hydraulic lime, air-slaked lime and natural hydraulic lime must meet the specifications laid down in IRAM standards with regard to their physical and chemical properties, packaging and labelling.

The Secretariat of Public Works has decided that users of containers for cargo transport must demonstrate that those containers meet the relevant IRAM standards.

Standards have been prepared by the IRAM committees in co-operation with other institutions which require these standards for dealing with matters specifically relating to their activities. Some of these institutions are: IAP (Argentine Petroleum Institute), AATTC (Argentine Association of Textile Chemists and Colourists), CID (Documentary Research Centre of the National Institute of Industrial Technology), CALFU (Argentine Fire Fighting Committee), IAQC (Argentine Quality Control Institute).

In the field of private activities, the application of IRAM standards is not compulsory, but use of these standards is steadily becoming more widespread. The establishment in the country, beginning 20 years ago, of automobile factories (22 at one time and 9 at present, with an annual production of more than 200,000 vehicles), demanding strict compliance with standards from the mechanical workshops and parts manufacturers supplying them has made an important contribution to this development. The experience with compulsory standardization has convinced these manufacturers of its advantages and they have become accustomed to applying standards even for work unrelated to the automotive industry.

Most of the requests for quality analysis and technical tests received by the National Institute of Industrial Technology (INTI) refer to IRAM standards, with AFNOR standards in second place and BSI and other standards (DIN, AFNOR, UMS, etc.) much less frequent.

#### Seal of compliance with standards

IRAM has established a service for granting the seal of compliance with IRAM standards to articles which meet the specifications and requirements of the relevant standard or standards and fulfil the conditions of the law established for this purpose.

The article covered must be produced by domestic industry; the manufacturing systems must ensure constant uniform quality; comparison of the products with the prototypes supplied to IRAM must be made possible in order to obtain the seal.

The seal service is composed of the technical committees and a secretariat.

The technical committee determines whether the article submitted meets the requirements for the seal and the secretariat is responsible for making periodic inspections of the article at the factory and in the market.

The relevant fees will be fixed in the contract. The recipient may not apply the seal to products also manufactured by him but not covered by the contract.

Last year, 12 seals of compliance with IRAM standards were granted.

#### Certificate of quality

The certification of quality with reference in particular to the export of industrial products is a problem which has long been of concern to the Government and the organisations of industrialists, the leading chambers of commerce, the National Institute of Industrial Technology (INTI) and the Institute for the Rationalization of Materials (IRAM). Some chambers of manufacturers attend to quality certification at the request of their members. Also, certification by the competent departments of the Ministry of Agriculture is compulsory for the export of certain foodstuffs, as is certification of other products by the relevant government agencies.

It appears probable that official regulations will be laid down in the near future governing the conditions and requirements for certificates of declared quality and the standards which must be met by the laboratories granting those certificates. In addition, it will be decided which institutions - among them the National Institute of Industrial Technology - will be made responsible for verifying the technical know-how, equipment, instruments and other conditions attesting to the qualification of the laboratories granting the certificate to carry out the task efficiently with respect to the product or products for which they have been authorized to do so.

Among the points under discussion on which the parties consulted maintain immutable positions are the following: nature of the certificate (compulsory or voluntary), State intervention in the system (broad or limited to disseminating information on it in foreign countries and promoting its utilization), guarantee of the correctness of the certificate (vouched for individually by a chamber or jointly by all the industrial and commercial institutions).

On the other hand, there is agreement on the following: the methods of analysis and testing must be absolutely uniform for every article, independent of the authorized laboratory carrying them out, and the certificate must guarantee the purchaser that the merchandise supplied exactly corresponds to what he has asked for.

#### Weights and measures

One of the first laws passed by the National Congress, Law No. 52, adopted the decimal metric system of weights and measures for the Argentine Republic more than 100 years ago.

A later law, passed in 1877, made utilization of this system compulsory and prohibited the use of weights and measures of any other system. It should be pointed out that our country was one of the 19 countries signing the Convention du mètre (Metric Convention) in 1875. A decree of 1877 regulating implementation of the law specified that "the units of the decimal metric system shall correspond to the definitions adopted by the International Bureau of Weights and Measures and the international conferences approved by the Argentine Republic".

The century-long use of the metric system in the daily life of the people, its teaching in the schools along with the ABCs and its exclusive use have deeply ingrained it into the national mentality.

The very few exceptions, such as the measurement of pipes and valves in English inches, which is traditional, do not alter the above assertion.

The body which for a century has been responsible for implementing the law and the decrees regulating its implementation has been, under various names, the present Department of Weights and Measures of the Ministry of Industry and Trade. Its work has been primarily oriented towards metrological aspects of commercial transactions, with the objective of protecting the interests and the health of purchasers and consumers. Therefore, control, verification and checking primarily relates to instruments measuring weight, length and volume.

A legislative bill is now being considered which will make adoption of the International System of Units (SI) recommended by the General Conference on Weights and Measures compulsory throughout the country (the National Constitution, which dates from 1853, empowers the Federal Government to legislate on weights and measures), with the addition of a few units not included in the SI (time: minute, hour and day; plane angle: sexagesimal degree, minute and second); this system will be known as the Argentine legal metric system. Since the new system is the decimal metric system, as logically developed to bring it into line with progress in science, technology, industry and trade, the introduction of the SI is not expected to present any difficulty for the general population.

The proposed legislative bill contemplates the need to broaden and expand metrological activities as required by the application of the new system and industrial progress. For this purpose, the Department of Weights and Measures, mentioned above, will participate in the National Metrological Service, together with the National Metrological Commission and the National Institute of Industrial Technology (INTI).

The National Metrological Commission, which will be set up under the regulations pertaining to the law, will be the metrological advisory body to the State and will co-ordinate the activities of the National Metrological Service. It will be responsible for maintaining the Government's links with international metrological bodies.

INTI would be the body implementing the law with regard to basic metrology and standard measures (functions which will not interfere with its normal activities in support of industry). The service for the calibration of instruments not covered by regulations will be established, with centres located in the most important areas of industrial development in the country.

The present Division of Weights and Measures would be elevated to the National Office of Legal Metrology and would be the body implementing the law with regard to instruments covered by regulations and compliance with its general provisions.

The existence of a legal instrument such as that outlined is expected to provide a solid foundation for solving the metrological problems which are so closely linked with the economic, scientific and technical development of our country.

#### Training in standardisation and quality control

##### Argentine Quality Control Institute

The body which has been conducting courses on quality control with the most continuity and specific concern with the subject is the Argentine Quality Control Institute, which was established about 14 years ago with the help of the knowledge of specialists on the subject with long experience in IRAN.

The courses which are held cover the following:

- (1) Quality control for workers, foremen and inspectors. Three of these courses, each running for a total of 30 hours, are held each year.
- (2) Quality control for industrial technicians and recently graduated engineers. This course is divided into two sections, namely quality control I, which runs for a total of 40 hours and is offered four times a year, and quality control II and statistical methods, which runs for a total of 30 class hours and is offered twice a year.
- (3) Industrial experimentation (experiment planning), for persons with the educational background described under (2). The course runs for 30 hours and is offered once a year.
- (4) Quality control administration. The course runs for 40 class hours and is offered once a year.
- (5) Metrology course for professionals at the level described under (2), which runs for 40 class hours once a year.

Professionals who satisfactorily complete all the courses mentioned are awarded certificates of ability as quality control technicians. This is not an official professional title.

### CIME

One of the centres under the National Institute of Industrial Technology, the Centre for Research on Methods and Techniques for Small-Scale and Medium-Sized Enterprises (CIME), in addition to co-operating with these enterprises in improving their productivity (selection of raw materials, most appropriate technologies, administrative re-organisation, utilization of by-products, market research and other relevant factors), plans, prepares and conducts courses which provide training in most of the methods of analysis and testing techniques used in the laboratories of INTI and its research centres. Parallel to these courses, there are courses on administration, industrial maintenance, costs, marketing, project evaluation, industrial organisation, computing, etc.

Its training service offers series of courses in the federal capital and the provinces of Córdoba and Santa Fe.

The course on quality control is conducted by university graduates engaging in this speciality in large Argentine enterprises. The educational pre-requisite is secondary level mathematics. The course prepares students to establish a practical statistical quality control system. The course runs for 36 hours and is offered once a year.

### Institutions of higher education

In the Argentine universities, the following might be mentioned:

At the University of Buenos Aires (national), statistics (with reference to quality control) are taught at the Faculty of Industrial Engineering.

At the University of Rosario (Province of Santa Fe), a course is offered which confers the title of mathematical statistician on those who complete it.

At the Universidad Argentina de la Empresa (private), a two-month course on statistical quality control is offered in the course of studies for a degree (Licenciado) in organisation of production.



Other bodies

Some private bodies also organise courses on quality control.

INTIPLAST, which is related to the Chamber of the Plastics Industry, offers a training course on quality control as applied to plastics.

IDEA (Institute for the Development of Executives in Argentina) sponsors a quality control course which runs for 18 hours and is offered once or twice a year, depending on demand.

SADOI (Argentine Industrial Organisation Corporation) also offers training courses on quality control and related subjects.

THE BOLIVIAN DIRECTORATE-GENERAL  
OF STANDARDS AND TECHNOLOGY

by

Mr. Julio Prado S.

The Bolivian Directorate-General of Standards and Technology (DGST) is a technical agency subordinate to the Ministry of Industry and Trade which deals with standardisation and technological research. Its field of action comprises primarily the following:

- Industry,
- Trade,
- Education,
- Language,
- Science and
- Engineering,

and is aimed at rationalizing the systems used in the life of the country, protecting the health and life of the people and safeguarding the consumer against poor quality and ineffective products through advice and technical and economic control.

Consequently, it prepares drafts relating to standardization and technology with the participation of interested public and private bodies on the basis of international standards in force and research studies of its own which are suited to the needs of the country.

As a body subordinate to the Ministry of Industry and Trade, it receives a part of the budget, allocated in advance. The budget support granted by the Government through the National Treasury covers:

- Staff services,
- Materials and equipment,
- Transport.

However, this financing does not cover absolute necessities of the Directorate-General of Standards and Technology such as:

- Contracting of experts,
- Organisation of seminars on standardisation and quality control,
- Expenses entailed by the printing of standards,

- Auxiliary office equipment,
- Special laboratory equipment,
- Expenses for international travel, meetings and agreements concerning standardisation,
- Contribution to ISO,
- Its own premises.

In order to enable it to fulfil the purposes for which it was set up, DQNT is divided into three departments, namely Standards, Technology and Laboratories, and] the sub-divisions required for the operation of an organisation of this nature.

The functions entrusted to the various divisions are described below.

#### Department of Standards

This Department is concerned primarily with the preparation of technical standards and quality control and certification. For this purpose, 21 standardisation committees, with more than 100 specialized sub-committees have been set up, with the participation in principle of approximately 250 technicians representing production, the consumer and the State, since standards cannot be laid down unilaterally.

This is the first time that there has been a standardisation body in Bolivia, and we consider the establishment of this body to be a step of the utmost importance for the economic and industrial development of our country. We must therefore conduct a campaign to arouse the interest of both those professionally concerned and the public at large and to give them the guidance they need.

It is clearly symptomatic that, although Bolivia has a law dating from 1893 adopting the decimal metric system, a number of units of the most diverse origin are used internally. Our organisation, being aware of the importance of this matter, decided to set up a standardisation committee devoted to the study of units, symbols, conversion, etc. Since the country does not have an office of weights and measures, this committee is now studying the adoption of the International System of Units (SI) and other similar ones.

As regards training and quality control, the necessary steps are being taken in co-operation with the Technical Secretariat of the Pan-American Standards Commission (COPANT) to organise a seminar on standardisation. The seminar is planned for mid-November, and Mrs. Beatriz G. de Ciaburri, General Secretary of COPANT, has been invited to take part by delivering a series of lectures. The members of DQNT will also participate by delivering lectures. These courses will be specially designed for medium-level technicians and professionals.

The first course in quality control is now being planned and confirmation is being awaited from the experts invited to take part.

In order to improve its operation, the Department of Standards is divided into two divisions: the Standards Preparation Division and the Standards Control Division.

The STANDARDS PREPARATION DIVISION is responsible primarily for preparing technical standards for dimensions, quality, testing methods, etc. The work of the standardisation committees takes place in the context of this Division, which has personnel trained in the various branches of engineering.

This Division deals with matters inseparably related to standardisation such as the fixing of priorities, establishment of committees, circulation of standards, etc.

The STANDARDS CONTROL DIVISION constitutes the link between the Departments of Standards and Laboratories.

Its specific function is to supervise compliance with compulsory standards and encourage compliance with voluntary standards, checking such compliance whenever necessary.

A campaign aimed at bringing about quality control by the industries themselves will be conducted by the Division. In its work, it uses universal methods and coordinates the tests which must be performed for certification of quality with the Department of Laboratories.

It prepares reports on compliance with standards in force which serve as a basis for the granting of certificates or seals of quality to industrialists. Since it is in direct contact with industry, it can evaluate the effectiveness and/or application of given standards.

#### Department of Technology

This Department carries out studies on transfer of technology and technical and economic studies on the specific opportunities for setting up industrial enterprises in all fields; it provides enterprises which are already established with technical and economic advice on optimizing their production. As an aid to its operation it has an Advisory Services and Research Division which analyses the background information required for technological research.

The technical and economic research in question is carried out by working groups with the participation of the public, private and semi-private sectors and universities interested in technology, with the greatest attention being paid to problems of national priority.

The Advisory Services and Research Division is divided into the following sections in order to enable it co-operate efficiently with the working parties mentioned above:

- Chemistry Section,
- Physics Section,
- Building Section,
- Agricultural and Stock-breeding Products Section and
- Economic Analysis Section.

#### Department of Laboratories

This Department selects and classifies articles for purposes of standardisation and does laboratory work to investigate the characteristics and components of industrial products from the technological point of view.

It co-ordinates its work and co-operates with all the laboratories in the country by advising on testing procedures for technical standards to be prepared. It also carries out metrological research and strict continuing control of the standard weights and measures of the municipalities of the country, certification of measures used in the laboratories in the country after comparison with international standard weights and measures.

#### Consultative Council

Independent of the three departments mentioned above, there is a Consultative Council which is presided over by the Director-General of Standards and Technology and made up of the department heads, the chief of administration and the legal adviser. The Consultative Council is responsible primarily for advising the Directorate-General on the following matters:

- Approval of preliminary draft standards,
- Granting of seals of quality,
- Granting of certificates of quality,
- Operation of the standardisation committees,
- Operation of the working party,
- Administrative operation,
- Economic operation,
- Legal matters and public relations.

## THE BRAZILIAN TECHNICAL STANDARDS ASSOCIATION

by

Mr. Armando Ammirati, Rio de Janeiro

The Brazilian Technical Standards Association (ABNT) is the body responsible for preparing Brazilian technical standards.

ABNT is a private non-profit society founded in September 1940.

This Association has four categories of members, namely associated organizations, patrons, collective members and individual members. The members of the latter three categories contribute financially to the support of ABNT.

Despite the fact that its staff of engineers is small and that it encountered difficulties in the first twenty years of its existence, ABNT's work can be considered very good.

The stage which ABNT has now reached in its development can be attributed to the efforts of its officials and the understanding for the importance of technical standards shown by industrialists, consumers and persons who have recently been in positions of authority in the Brazilian Government.

ABNT had published the following standards as of 31 August 1971:

- 475 specifications,
- 252 standards,
- 740 testing methods,
- 185 prototypes,
- 100 terminologies and glossaries
- 60 compilations of symbols.

Several standards are still in the process of printing and others are under discussion in study committees.

The standardization work of ABNT is divided among the following Brazilian committees:

- CB-1 Mining and metallurgy,
- CB-2 Civil construction,
- CB-3 Electricity (electrical engineering, electronics and lighting),
- CB-4 Mechanical engineering,
- CB-5 Automobiles, lorries, tractors, similar vehicles and motor vehicle parts,
- CB-6 Railway equipment and materials,
- CB-7 Shipbuilding,
- CB-8 Aeronautics and air transport,
- CB-9 Fuels (including nuclear fuels),
- CB-10 Chemicals, petrochemicals, pharmaceuticals,
- CB-11 Raw materials and vegetable and animal products,
- CB-12 Agriculture, stock-breeding and implements,
- CB-13 Foodstuffs and beverages,
- CB-14 Finance, banking, insurance, trade, administration and documentation,
- CB-15 Hotel trade, furniture, decoration, etc.,
- CB-16 Transport and traffic,
- CB-17 Textiles,
- CB-18 Cement, concrete and aggregates,
- CB-19 Refractories.

The method used by ABNT to produce the best standards as quickly as possible is outlined below.

1. A working party or a technical expert is asked to prepare a basic text for the standard.
2. This basic text is distributed to producers, consumers, technological institutes and inspection firms and, if appropriate, designers and installation engineers for examination and criticism.
3. A study committee composed of representatives of the bodies mentioned under point 2 is appointed.
4. Normally, the study committee holds weekly or fortnightly four or eight-hour meetings for discussion, or else meets once a month for two consecutive eight-hour days. Sometimes a one-week seminar is organised to analyse a group of standards or a very comprehensive standard.

5. Whenever possible, the basic texts are founded on ISO or COPANT recommendations.
6. Recently, work has taken place in the context of broad pre-established programmes. Programmes in the fields of iron and steel, mechanical engineering and electronics are already well established and others are getting under way in the fields of electrical engineering, non-ferrous metals, etc. Each of these averages 50 to 100 hours. Work has also been done in other less important programmes with an average of approximately ten standards each.

One of the difficulties which we have encountered in standardization work in our country is the presence of enterprises with origins in Europe, North America or the United Kingdom which manufacture their products in accordance with the technical standards of their countries of origin, and we therefore find the same product produced in metric and British system dimensions.

However, the International System of units has been made official in our country.

Full standardization in the metric system would mean that some enterprises would lose a great deal of money invested in equipment.

In view of this fact, a shift must be made gradually to the International System in the context of a well-designed programme. In this way, standardisation is being oriented in a way which seeks to circumvent the problem in question.

Another activity which ABNT has been engaging in and is trying to expand is the granting of "marks of compliance". For this purpose, a Mark of Compliance Department was recently approved and set up. The Department will award this mark to producers applying for it. It will have a team of technical staff to carry out the necessary inspections.



**MONOGRAPH ON STANDARDIZATION  
REPUBLIC OF CHILE**

by

**Mr. Hugo Brangier M.  
Santiago, Chile**

**1. STANDARDIZATION BODIES**

The organisation responsible for preparing standards in Chile is the National Institute of Technological Research and Standardisation (INDITECNOR), which was established in 1944. There are also other institutions which are authorised to lay down their own standards.

**1.1 General organisation**

INDITECNOR is a private corporation which has been declared an advisory body to the State with regard to all standardisation matters. Under its statutes, this corporation is made up of corporate members, active members and donating members. The corporate members are the founding bodies of the Institute or others which the Board of the Institute agrees to admit at any time. The active members are bodies named by the Board which co-operate in achieving the aims of the Institute. The donating members are individuals or legal entities which make donations in cash or in kind.

The Institute is directed by a Board and a Director elected by the Board.

The Board is made up of representatives of the ministries, universities, associations of industrialists, State enterprises, corporations and delegates elected by the active and corporate members. The Board determines the general policy of the Institute.

**1.2 Organisation of technical operations**

INDITECNOR is headed by the Director and divided into the following departments: Administration, Standardisation and Technical Services.

The draft standards are studied by technical committees, approved by the Director and considered by the Board for approval as Chilean standards, then are made official by the relevant ministries.

### 1.3 Financing

The financing of the Institute is broken down as follows: (for 1971):

|   |             |
|---|-------------|
| (a) Directly by the State   | 7 per cent  |
| (b) Rendering of services and sale of standards                                     | 7 per cent  |
| (c) Standardisation agreements  | 17 per cent |
| (d) Contributions of INDITECNOR members   | 11 per cent |
| (e) Production Development Corporation<br>(State corporation, member of INDITECNOR) | 57 per cent |

### 1.4 Situation with regard to the application of standards

The application of standards is voluntary in the private sector. Once standards have been made official, their use is compulsory in government agencies and for exports.

The application of standards in the government sector is partial owing to the small number of standards and in addition to the ignorance of some officials concerning the existence of standards.

## 2. SYSTEM OF CERTIFICATION AND MARK OF COMPLIANCE

### 2.1 General organisation

INDITECNOR is the body responsible for administering the mark of compliance with standards and there are regulations for the application of this mark; to date, there has been no occasion to award it, since it has not been applied for.

There are regulations for certification, and certificates have been granted by batch for several years; this service has been expanding.

### 2.2 Type of promotion

There has been no systematic promotion of the mark of compliance and certification. Action along these lines has been undertaken in the last year to interest some State corporations in requiring certificates of compliance with standards for their purchases.

## 3. SYSTEM OF WEIGHTS AND MEASURES

### 3.1 System of measures in force

The decimal metric system is compulsory under legislation which has been in force for 130 years.

In some enterprises, the British system is used owing to the origin of the equipment.

### 3.2 Decision on whether to adopt the International System (SI)

The International System has not yet been legally adopted, but standardisation work has been carried out on this subject and the units in question are being incorporated into the standards being considered. It is planned to consider new legislation in place of the current law.

### 3.3 Office of weights and measures

In Chile there is no national office of weights and measures. The city governments have some authority to control the instruments used in the sale of goods. In addition, INDITECNOR provides instrument calibration services, but on a very small scale. Universities also provide some service in this field.

### 3.4 Standards published in the SI system

The basic standards in SI units are being studied. A list of these is attached.

### 3.5 Services which the country can offer

Chile is not in a position to offer metrological services.

## 4. TRAINING IN STANDARDIZATION AND QUALITY CONTROL

### 4.1 Standardization

There are no regular courses on standardization. In 1968, there was a course financed by OAS and sponsored by INDITECNOR which was conducted by a Spanish expert.

### 4.2 Quality control

Since 1969, INDITECNOR has been conducting quality control courses.

These courses take place at two levels:

- (a) Course for engineers, for which a minimum level of the fourth year of university or its technical equivalent is required;
- (b) Course for inspectors and medium-level cadres for which a minimum level of the fourth year of humanities (secondary education) or its technical equivalent is required.

The number of courses held is shown below.

| <u>COURSES</u>                                   | <u>YEARS</u> |             |             | <u>Total</u> |
|--|--------------|-------------|-------------|--------------|
|  | <u>1969</u>  | <u>1970</u> | <u>1971</u> |              |
| Engineers  | 1            | 3           | 4           | 8            |
| Inspectors and middle-level<br>supervisory staff | -            | 5           | 7           | 125          |

In addition, three quality control courses intended for professionals in the building industry, one course for technical advisers and one zero-defect course were given in 1971.

TECHNICAL STANDARDIZATION, QUALITY CONTROL AND  
SYSTEM OF WEIGHTS AND MEASURES IN COLOMBIA

by

Mr. Javier Henao Londoño, Bogota

1. ORGANIZATION OF STANDARDIZATION IN COLOMBIA

- 1.1 The Colombian Technical Standards Institute (ICONTEC) is a private corporation organized in accordance with civil law and is a legal entity. Under decree No. 767 of 1964, in which the Government recognised ICONTEC as its advisory body, the management of all matters relating to standards at the national level and extensions of those matters at the international level is centralised in ICONTEC.
- 1.2 The Institute derives 80 per cent of its income from voluntary contributions by the private sector made in the form of membership fees and the remaining 20 per cent from special services and contributions by the national Government.
- 1.3 The process of study of the technical standards comprises the following stages:
  - 1.3.1 Collection of background information, investigation of the problems involved in each subject and preparation of an outline standard. This phase is carried out directly by standardisation engineers belonging to ICONTEC.
  - 1.3.2 Discussion of the outline standard in a sub-committee with the participation of all interested sectors.
  - 1.3.3 A public survey in which the text of the preliminary draft approved by the sub-committee is widely disseminated and the opinions, observations and comments of individuals or legal entities which have not taken part in the previous stages are obtained.
  - 1.3.4 Preparation of a draft carried out directly by the sub-committee on the basis of the various observations received and the practical results of the application of the preliminary draft during the period of the public survey.
  - 1.3.5 Approval of the draft through a system of written votes in which the members of the committees among which the study of standardisation matters is distributed take part.

1.3.6 Administrative and technical analysis of the draft by a technical council and approval of it as a Colombian standard provided it meets all the requirements laid down in internal regulations established by the Board of Directors of the Institute for that purpose.

1.3.7 Lastly, ratification of the technical standards by the Board of Directors, the highest authority of the Institute.

1.4 ICONTEC has been working according to this pattern since 1964. This work can be summed up in the following figures:

|  |      |
|--|------|
| Technical standards adopted              | 509  |
| Technical standards being studied        | 520  |
| Technical committees                     | 27   |
| Specialized sub-committees               | 75   |
| Members of committees and sub-committees | 1731 |

## 2. LEGAL ASPECTS OF TECHNICAL STANDARDIZATION IN COLOMBIA

2.1 The Government of Colombia has worked in the field of technical standardisation by laying down a number of legal provisions, some before the establishment of ICONTEC and most as a result of the work and accumulated experience of this body. The activity of the State in this field is guided by the following philosophy.

2.1.1 In so far as technical standardization is a process which consists in studying and applying formulae for the purpose of achieving optimum overall economy, it is of national interest, and the sectors of production, consumption and technology should participate in it.

2.1.2 In so far as the quality of a product is one of the most important and positive results of standardization and is at the same time essentially a responsibility of the manufacturer, an obligation rests with the latter to take part in the standardization process.

2.1.3 In so far as the final objective of technical standardisation is also protection of the consumer and a strengthening of the economy of the country, the Government has a duty to take an active part in it, promote it and lay down specific rules to ensure that it is used to the best advantage.

2.2 A draft statute or decree on standardisation, quality control and weights and measures is now with the Government. The main features of this draft are described below.

2.2.1 Official standards are those adopted as such by the Government for the purpose of requiring compliance with them in bidding, submission of offers or quotation of prices for purchases made by the individual government agencies. Private organisations which carry on negotiations with the State must comply with them and the State must require this compliance.

2.2.2 Compulsory standards are all those which lay down the official system of weights and measures, those which are related to materials, procedures or products that affect the life, safety or physical integrity of individuals and those which, in the judgement of the Government itself, will benefit the economy of the country or the public interest. Compliance with these standards is compulsory in all governmental or private transactions carried out in the territory of the Republic.

2.2.3 Standards not included in the two above-mentioned classifications are voluntary. The new statute establishes special incentives to encourage industrialists to use this type of standard in order to rationalise their production, increase productivity and improve the quality of their products.

2.2.4 The statute lays down a more flexible process for making the technical standards adopted by ICOSTEC official.

2.2.5 With regard to export products, the statute stipulates that all producers must comply with Colombian technical standards unless the foreign purchaser requires different standards and the national exporter demonstrates that he is complying with them. On this legal foundation, a process is established for the certification of export products which is compulsory and covers those articles whose quality is of particular significance in international trade, with the purpose of establishing a good image for Colombian products in foreign markets.

2.2.6 A system of manufacturing licences issued by the Superintendency of Industry and Trade is laid down for all products which fall under the system of compulsory technical standards.

2.2.7 Lastly, the new official statute contains clear and specific legislation on weights and measures based on the full application of the International System of units (SI) in Colombia.

### 3. SEAL OF COMPLIANCE WITH STANDARDS

The Colombian Institute of Technical Standards adopted regulations on this matter after having made an exhaustive study of the systems being used in highly developed countries and in other developing countries. The regulations in force are based on the principles laid down in international recommendation ISO R 189.

3.1 The seal of compliance with ICONTEC standards, which will be converted into an official seal of quality under the provisions of the new statute referred to in part 2 of this monograph has barely started to be used in Colombia. There is at present one factory producing polyvinyl chloride (PVC) tubes to which the seal of compliance with Colombian standard 382 has been awarded. The Institute is proceeding with studies for the introduction of the seal for other products whose manufacturers have already applied for it and have fulfilled the initial requirements set forth in the regulations.

### 4. ADOPTION OF THE INTERNATIONAL SYSTEM OF WEIGHTS AND MEASURES

4.1 The anarchy in Colombia concerning the application of units of measure can be said to have arisen in 1905 when the legislative authority approved law No. 33, under which the metric system was made compulsory for the Government and the private sector remained free to use any system.

This law can be justified in the light of the period in which it was promulgated, but there is no justification for the fact that it has remained in force for more than 60 years. Thanks to action initiated by the Colombian Institute of Technical Standards, the Government, exercising authority explicitly granted by the National Constitution, published Decree No. 1731 in 1967, making the International System of units compulsory in the territory of the Republic and fixing a period of four years for its gradual adoption by means of successive regulations. In the Decree in question, the Government designates ICONTEC as its advisory body responsible for studying the various regulations regarding the matter.



Owing to the complexity of these studies, it has been necessary to request the Government to grant an extension of the period stipulated in Decree No. 1731, mentioned above.

5. GENERAL ASPECTS OF QUALITY CONTROL IN COLOMBIA

As in most Latin American countries, quality control has been gaining in importance in recent years in Colombia, but it is still in its initial stages and lagging far behind the rapid development of industrialization in the country.

In view of the great importance of quality control, especially in the field of foreign trade, ICONTEC has maintained close links with the Superintendency of Industry and Trade and with the Export Promotion Fund of the Bank of the Republic for the purpose of holding special courses on quality control and providing advice to individual national enterprises which require this service.

Thanks to steps taken by the Institute, the Government has established a National Metrology and Quality Control Service which will have all the facilities and equipment required to provide in the very near future all the technical assistance needed by national industry in this field.

ICONTEC has organized a Quality Control Department which is advising industrial enterprises and, in particular, governmental and semi-governmental agencies. This service, which is constantly expanding, will acquire its full importance when the national Government promulgates the new statute mentioned in this monograph.

## STANDARDIZATION IN CUBA

by

Mr. Franklin Gomez

The national organization responsible for the administration, planning, execution and control of standardisation activities in Cuba is the Directorate of Standards and Metrology, which represents the country in ISO, IEC and OIML. Its work is based on the annual standardization plan and follows the guidelines fixed by the economic agencies of the country; all the relevant ministries and enterprises participate in it. The plan is implemented by industrial bodies and research centres, with the food and construction industries being foremost. The technical committee method is used for carrying out much of the work.

An experiment worthy of note is the work in connexion with the selection and simplification of assortments of import goods, although this does not take place on the basis of standards.

The activities of the Directorate of Standards and Metrology are financed by the State through an annual budget for those activities.

Compliance with national standards, known as NC, is compulsory, although the system for punishing failure to comply has not been established.

Up to the end of 1971, 450 Cuban standards had been approved.

The Directorate of Standards and Metrology has a staff of 210, of whom 62 are employed in standardization and 114 in metrology.

Organizational measures to develop a system of certification and marks of compliance have been taken only in the sugar industry.

During the Spanish colonial period, the decimal metric system was established in Cuba, but with the growth of United States domination and trade with the United Kingdom a system of measures developed which may be described as Anglo-American combined with some measures peculiar to the country and to the decimal metric system. As part of the revolutionary process, two laws have been passed which approve the exclusive use of the decimal metric system, which has been adopted although measures from the earlier period do persist, and introduction of the international system (SI) is now under consideration.

Standards are published in the decimal metric system, but the first 20 metrological standards, which are now being printed, use the SI with the necessary equivalents.

At present, the standards issued by the Directorate of Standardisation are reviewed by the Directorate of Metrology.

We have a metrology laboratory which has carried out work primarily on four measures, namely weight, length, pressure and volume. It also has repair shops for instruments for measuring weight, length and electricity.

The metrology laboratory provides verification services to organisations in the economy, particularly in the sugar and foodstuffs industries.

This Directorate advises on the purchase of measuring instruments to be imported and on the organisation of metrological work in general.

Specific seminars and courses on metrology and quality control are conducted in accordance with the requirements of the sectors which are going to work in this field.

We maintain relations with the Ministry of Education in advising for the most part technological institutes on our specialities.

## TECHNICAL STANDARDIZATION IN ECUADOR

by

Raul Estrada

### 1. BACKGROUND

Over the past decade the Republic of Ecuador has been encouraging industrial and commercial development by adopting a policy of industrial promotion and easy credit and establishing institutions to give technical assistance to industry, undertake basic studies and help market the national output at home and abroad.

For 10 years Ecuadorian industry has been experiencing serious difficulty in achieving acceptable yields in cost-benefit terms, because of the lack of technical standards as a basis for the rationalization of industrial production.

Finally, on 28 August 1970, the Government of Ecuador issued executive Decree No. 357 setting up the Ecuadorian Standardization Institute (INEN), with the basic task of "drawing up technical standards to define the characteristics of materials, intermediate products and finished goods sold in Ecuador and laying down methods of testing, inspection, analysis, measurement, classification and description for such materials, products and goods".

### 2. ORGANIZATION

The best international experience has been drawn upon in order to ensure that the Institute is organized in the flexible and functional way necessary if it is to carry out its task.

#### 2.1 Governing Council

The members of the Governing Council are as follows:

The Director of Industrial Development in the Ministry of Production, who acts as Chairman;

A representative of the Institute of Foreign Trade and Integration;

A representative of the Ministry of Public Works;

A representative of the Ministry of Health;

A representative of the polytechnic colleges;

A representative of producers, appointed by the Chambers of Industry and Agriculture;

A representative of consumers.

The Technical Director of the Institute acts as Secretary of the Council.

The Governing Council is the body responsible for laying down the Institute's general policy, supervising its administrative and technical work, approving Ecuadorian technical standards and suggesting to the Ministry concerned that they should be officially adopted as compulsory or optional, whichever is appropriate.

## 2.2 Technical Directorate

The Technical Directorate is responsible for the proper functioning and organization of the Institute and for the preparation of the various technical standards, through the Institute's technical staff and the various technical committees organized to draw up such standards in each particular field of science and technology.

## 2.3 Technical committees and specialized sub-committees

The technical standards committees are composed of representatives of the appropriate production sector, consumers and the general interest and representatives of the various government bodies and professional organizations.

The technical committees are subdivided in their turn into specialised sub-committees to deal with the preparation of technical standards in more specific fields; the three principal sectors concerned with technical standardisation are also represented on the sub-committees.

The committees and sub-committees each have their own officers, consisting of:

The Chairman,

The Vice-Chairman,

The Secretary.

The Secretary is the Institute's expert or technical specialist responsible for the specific matters with which the committee or sub-committee is concerned.

The following technical committees and specialised sub-committees have been set up by the Ecuadorian Standardization Institute:

### Committees

1. Basic Units - Weights and Measures
2. Quality Control
3. Iron and Steel

4. Non-ferrous Metallurgy
5. Electrical Engineering and Electronics
6. Textiles
7. Foodstuffs
8. Alcoholic Beverages
9. Agriculture
10. Chemicals
11. Paints and Varnishes
12. Paper and Cardboard
13. Chemical Products for Agricultural Use
14. Plastics
15. Non-metallic Mineral Products
16. Wood, Charcoal and Wood Manufactures
17. Hides and Skins
18. Surface-Active Agents
19. Building
20. Rubber
21. Petrochemicals
22. Petroleum and By-products
23. Health and Safety
24. Metal-working

### 3. PREPARATION OF ECUADORIAN STANDARDS

Ecuadorian technical standards are drawn up on the basis of the best international experience, with the full knowledge and participation of representatives of producers, consumers and the general interest. They go through the following stages:

**Proposal:** Request for the preparation of a technical standard, accompanied by sufficient information for the preparation of an outline;

**Outline:** Document prepared by the Institute as a basis for the preparation of a preliminary draft;

**Preliminary draft:** Outline approved by the committee or sub-committee and sent out for public discussion;

**Draft:** Preliminary draft approved by the Technical Standards Committee after a period of public discussion;

Ecuadorian technical standard: Draft approved by the Governing Council and issued by the Secretary of State concerned;

Emergency technical standard: Draft adopted by the Governing Council on an emergency basis;

Provisional technical standard: Draft adopted by the Governing Council;

Period of public discussion: Period during which the Institute submits the preliminary drafts prepared by the sub-committees or committees for comment by the bodies or persons concerned.

The Governing Council of the Institute decides in each case whether a standard is to be approved as compulsory or optional.

#### 4. SEAL OF COMPLIANCE WITH THE INSTITUTE'S TECHNICAL STANDARDS

The seal is awarded by contract between the Institute and the producer, in accordance with regulations laying down the requirements to be met by the product and the general system of control to be applied by the Institute, which is established by the Governing Council in order to protect the seal's reputation, as a matter of public interest.

The purpose of awarding the seal, which is a common practice in many countries, is to give the consumer a permanent guarantee of the quality of the products he buys, and to afford the producer a number of advantages, which may be summed up as follows:

A bigger national market, because the permanent guarantee of quality makes his products more reliable;

International acceptance for his products, because it creates and fosters complete confidence among foreign buyers;

Elimination of unfair competition;

Encouragement of more effective advertising.

#### 5. CERTIFICATE OF CONFORMITY WITH THE INSTITUTE'S TECHNICAL STANDARDS, BY CONSEQUENT

This certificate serves as a passport for export goods. It is awarded by the Institute after verification of the quality of the consignment to be exported through standard sampling procedures laid down by the Institute.



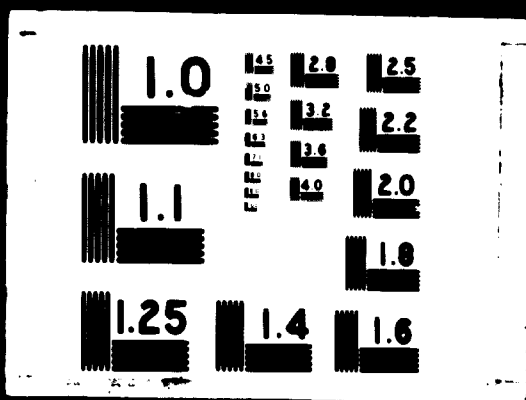
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An agreement can be signed with the Institute by which it delegates the responsibility to the producer himself, under a procedure for verification and control very similar to that for the seal of compliance.

#### 6. TECHNICAL STANDARDIZATION AND THE CARTAGENA AGREEMENT

Technical standardisation is one of the most effective means of regularising international trade and stabilizing prices. It has therefore been given priority attention by the Cartagena Agreement countries.

A very flexible system of subregional technical standardization is in the process of being worked out, with the participation of the five countries, which will lead to the adoption of Andean technical standards, as the most effective instruments for promoting subregional trade.

It is well known that differences in technical standards can constitute a non-tariff barrier to international trade, which makes itself felt as customs tariffs are reduced. This problem has arisen in the European Free Trade Area and the Central American Common Market. The system of subregional technical standardization is thus one of the best ways of making the Cartagena Agreement effective.

#### 7. ACTIVITIES

The Institute's first step was to organize a body of technical staff qualified to work on the preparation of technical standards. There were unfortunately no specialized personnel available in this field and the Institute's first months of operation were therefore used to train technical personnel

It was able to take advantage of two training fellowships in Buenos Aires and one in the Soviet Union, and others have been requested from various organisations.

One of the most troublesome initial difficulties was the lack of specialist scientific and technical documentation, particularly the lack of other countries' technical standards to serve as a reference in the preparation of the Ecuadorian standards. Through the co-operation of the standards institutes in Colombia, Chile, Argentina and other countries, the Institute now has a small collection of standards, but it needs institutional co-operation in order to complete its documentation.

One of the basic activities which the Institute proposed to undertake as an initial step in the process of technical standardization in Ecuador was action to unify the systems of weights and measures used in the country, which, being of very various origin, introduce an element of chaos which causes great problems for industry and education. The Institute has drafted a Weights and Measures Act which will shortly be passed into law. Under this Act, Ecuador is adopting the International System of Units (SI) as the official system throughout the country.

For the practical application of the SI system, the Institute has drawn up plans for a basic metrology laboratory, which will have all necessary experimental facilities for the control of weights and measures throughout the country. It is expected that this laboratory will be in operation by November, since the equipment in question is already on its way.

The fact that Ecuador is not sufficiently well prepared either at the level of the industrial enterprise or of the consumer to understand and use the technical standards properly has made it necessary for the Institute to start an information campaign covering wide sections of the population.

To this end the Institute has held an extensive series of scientific and technological information seminars aimed at the most important sectors of Ecuadorian industry and has published all the lectures given in the form of information bulletins.

About 800 persons have attended these seminars, representing all fields of activity in the country, both private and public.

Technical standardization activities have been organized in accordance with a programme of priorities designed to meet the country's most pressing development needs, bearing in mind the immediate opportunities for exporting Ecuadorian goods under the Cartagena Agreement. The most needy cases among industry producing for domestic consumption have also been taken into consideration and given priority.

The Institute has succeeded in getting together a highly select group of specialists, industrialists, officials and so on from the sectors of production, consumption and the general interest, who make up the various technical committees and amount to some 300 persons.

The most important fields in which standards have already been developed to the draft level are the following: almost all branches of the food industry, almost all branches of the building industry, metal-working, textiles, etc.

In the short time it has been in existence, the Institute has succeeded in making itself known to the great majority of organizations and persons, both through the television programmes in which it has taken part and through the large number of articles published about its work.

GUATEMALA: GUATEMALAN STANDARDS COMMISSION

by

Mr. J. Joaquín Bayer

1. General organization

The Guatemalan Standards Commission (COGUANOR) is composed of a Board of Directors, an Executive Secretary and several technical working groups.

The Board of Directors is made up of a representative of the Ministry of Economic Affairs who acts as Chairman, six full members and their alternates appointed, respectively, by the Ministry of Public Health and Welfare, the Ministry of Labour and Social Security, the Chamber of Industry, the Chamber of Commerce, the Association of Engineers and the General Association of Farmers. An official of the Standardization Division of the Central American Research Institute for Industry (ICAITI) also sits on the Board of Directors as an adviser, with the right to speak but without a vote. The Board of Directors meets at least twice a month.

2. Functions of the Board of Directors

The Board of Directors is responsible for laying down policy and guiding work on all aspects of standardization, as well as fixing priorities for the preparation and study of new standards by the technical working parties.

It also has to maintain relations with ICAITI, international standardisation bodies and bodies in other countries engaging in the study and laying down of standards.

3. Functions of the Executive Secretary

The Executive Secretary of COGUANOR is an official appointed by the Ministry of Economic Affairs and his functions lie in both co-ordination and implementation.

4. Functions of the technical working parties (GTT)

COGUANOR has a number of technical working parties which are set up as need arises. They are made up of representatives of producers, consumers and middle-men. Sometimes representatives of certain users or public service bodies such as a city government, electric power enterprise, university, ministry, etc. also belong to these working parties. There is a representative of ICAITI in every working party as an adviser, with the right to speak and to vote.

5. Financing

The budget of COQUANOR is part of the general budget of the Ministry of Economic Affairs and it therefore has no other source of finance.

Its budget is extremely small and hence does not permit it to carry on activities in keeping with the needs and requirements of industrial activities in the country.

6. Situation with regard to the application of standards

The standards fall into two categories, namely those which are recommended and those which are compulsory. The former are quality standards relating to the production and sale of goods; they are voluntary for industry and trade in the products concerned, but are compulsory for the State, government bodies and decentralized autonomous bodies, which may not purchase the products in question if they do not adhere to the standards and specifications laid down.

Standards are compulsory if they relate to weights and measures, foods, medicaments, buildings, and in general anything concerning safety and the preservation of property, health and life.

Both the recommended and the compulsory standards, after adoption by COQUANOR, are transmitted to the Executive Branch through the Ministry of Economic Affairs for final approval by government resolution and publication in the Official Gazette within a period of no more than 30 days. If the Executive Branch has reasons for not approving a standard or considering that a standard approved as recommended should be compulsory or vice versa, it returns the standard to the Commission for reconsideration, again through the Ministry of Economic Affairs, with a statement of its reasons.

The Commission always endeavours to ensure that the standards adopted are parallel to and can be co-ordinated and consolidated with those of other Central American countries so as to facilitate trade in materials and products within the region to the utmost.

COQUANOR also proposes to the Ministry of Economic Affairs as national standards those prepared by ICAITI which it considers desirable, retaining the symbols, numbering and text of the standards in question.

If in a given instance COGUANOR must study and issue a standard for a product which is considered peculiar to the country, it submits the proposed standard prepared for consideration by the Standardization Division of ICAITI for study and analysis. That Division issues a report on the question giving its comments and the reasons for its conclusions as to the advisability of issuing the text as a Guatemalan standard.

7. System of certification and mark of compliance with standards

COGUANOR is not yet active in this field.

8. System of weights and measures

Although use of the system known as the decimal metric system, to the exclusion of all others, has been compulsory throughout the Republic for nearly a century, no concrete provisions have thus far been laid down to make the use of this system uniform throughout the country.

In Guatemala, many British and Spanish and some local units of measure are used.

Recently, the Weights and Measures Committee of COGUANOR prepared a document requesting the Government to issue a law and its relevant regulations on weights and measures which would provide for the establishment of a national metrology service under the Ministry of Economic Affairs.

COGUANOR has agreed to include the International System of Units in all the standards which it publishes.

9. Training in standardisation and quality control

No type of training is offered in standardisation or quality control.

PANAMANIAN INDUSTRIAL AND TECHNICAL STANDARDS COMMISSION

by

Mr. Pedro O. Vasquez, Panama

I. ORGANIZATION AND FUNCTIONS

The Panamanian Industrial and Technical Standards Commission (COPANIT) was set up under the Ministry of Trade and Industry by Decree No. 282 of 1970 which defined its objectives as follows:

1. To study, prepare, draft and propose to the Ministry of Trade and Industry for adoption industrial and technical standards drawn up in accordance with the provisions of the Decree;
2. To promote the application of industrial and technical standards in the Republic of Panama;
3. To set up the technical committees required to study, draft or amend standards relating to the various industrial and technical branches; the members of the technical committees must be persons specialising in the industrial field in which the standardization is to take place;
4. To establish and maintain relations with the international standardisation organizations and with bodies established for the same purpose in other countries;
5. Any other task assigned to it by the Ministry of Trade and Industry in keeping with its specific functions.

In establishing COPANIT, the Government was responding to a need which arose out of the rapid industrialization of the country and the lack of official standards, which created a problem for agencies responsible for exercising surveillance over the quality of domestic products for the local and international markets.

In deciding on the membership of COPANIT, the three groups which play a part in the marketing of products, i.e. the producers, the consumers and the general interest group made up of sectors such as Government, the universities and professional societies were taken into account. The bodies which belong to the Panamanian Industrial and Technical Standards Commission are:



1. The Minister of Trade and Industry or his representative, who is the Chairman;
2. The Directorate of Public Health;
3. The Directorate-General of Administration and Planning in the Office of the President;
4. The Industrial Development and Productivity Centre;
5. The University of Panama;
6. The Panamanian Society of Engineers and Architects;
7. The Association of Industrialists of Panama;
8. The Chamber of Commerce, Industry and Agriculture of Panama; and
9. The Panamanian Chamber of the Building Industry;

Consequently, the standards prepared by COPANIT with the active participation of the Government and private sectors interested in this process, on the basis of the best international standards amended in accordance with studies and research by the Commission aimed at ascertaining the requirements of the country, reflect an aggressive government policy designed to improve the quality of Panamanian products and to rationalize domestic production.

From the organizational point of view, COPANIT consists of the Board of Directors, the Directorate, the Standardization Department, the Quality Control Department and the Administrative Department.

The functions of the individual sub-divisions are outlined below.

#### Board of Directors

The Board, which is made up of representatives of the bodies mentioned above, holds monthly meetings and has the following functions:

1. To propose the adoption of COPANIT standards to the Minister of Trade and Industry;
2. To plan the activities of the Commission and supervise the proper operation of its services;

3. To approve the annual working plan of the Commission;
4. To consider and approve the annual report of the Commission submitted by the Directorate;
5. To propose amendments to the regulations;
6. To prepare an annual order of priorities for the drafting of standards;
7. To recommend to the Executive Branch the appointment of the staff of the Departments of the Commission;
8. To consider and recommend to the Minister of Trade and Industry the approval of the annual budget submitted by the Directorate for the operation of the Commission;
9. To set up the technical committees required for the study, drafting or amendment of COPANIT standards.
10. To apply to the Minister of Trade and Industry for the imposition of penalties on private enterprises violating the provisions of article 7 of Cabinet Decree No. 282 of 13 August 1970;
11. To apply to the competent official for the imposition of penalties on government officials who do not comply with the provisions of article 6 of Cabinet Decree No. 282 of 13 August 1970;
12. To carry out any other task entrusted to it by the Ministry of Trade and Industry which is in keeping with its specific functions.

#### The Director

The functions of the Director are as follows:

1. To implement the decisions of the Commission;
2. To attend the meetings of the Commission, as Secretary;
3. To accept or reject requests for the performance of work made to the Commission; in the case of rejection, those concerned may appeal to the Chairman of the Commission;

4. To inform the Commission concerning the progress of the work of its departments;
5. To direct and supervise the Standardisation, Quality Control and Administration Departments;
6. To prepare the plans and programmes of work;
7. To invite specially qualified persons who will be able to act as advisers to the meetings of the Commission in order to obtain their opinions on the studies submitted;
8. To prepare the annual report;
9. To prepare the draft annual budget of the Commission;
10. To sign all the reports prepared concerning work and the decisions of the Commission;
11. To ensure that the established procedure is applied to standards;
12. To assign the specific investigations which the Commission decides to carry out to the individual laboratories and research institutes;
13. To represent the Commission legally;
14. To take all measures conducive to the efficiency of the Commission;
15. To promote and publicize the rationalisation of materials through lectures, publications and attendance at national and international congresses related to the specific work of the Commission;
16. To exercise other powers agreed upon by the Commission.

#### Standardisation Department

The functions of the Standardisation Department are the following:

1. To classify and maintain archives of all existing national and international documentation on standardisation;
2. To prepare outlines of standards based on a study of the documentation, research and consultations carried out in the production and consumption sectors;

3. To organize and direct and technical working parties;
4. To subject standards proposals to a public survey;
5. To make the corrections to the proposals arising out of the survey;
6. To prepare the final standard and submit it to the Directorate for approval;
7. To publish the COPANIT Newsletter.

#### Quality Control Department

The functions of the Quality Control Department are the following:

1. To carry out periodic inspections in the production sectors which fall within the scope of COPANIT standards;
2. To grant certificate of quality;
3. To establish the guarantee seal programme;
4. To provide technical advice on the introduction of quality control in industry;
5. To make reports in cases of violation of COPANIT standards;
6. To examine the reports of the official test laboratories.

#### Administrative Department

The functions assigned to the Administrative Department are:

1. Sending and receiving of correspondence;
2. Typing work in general;
3. Reception of the public;
4. Care of the document files;
5. Care of the standards library.

## II. SYSTEM OF CERTIFICATION AND MARK OF COMPLIANCE

Studies are being conducted for the introduction of the COPANIT seal of compliance with standards; for this purpose, the system used by IRAM in Argentina is being studied. The guarantee seal programme will be conducted by the Quality Control Department, which will carry out the promotion through State publicity organs. The guarantee seal system is expected to be operating by the end of 1972.

## III. SYSTEM OF WEIGHTS AND MEASURES

On the basis of a COPANIT standard, the Ministry of Trade and Industry legalised the International System (SI) in the middle of this year. Nevertheless, extensive use is made in the country of the British system of measures, particularly for retail marketing.

COPANIT considers that, together with measures on the part of government and educational authorities to enforce utilisation of the International System, a comprehensive plan for publicity and instruction concerning the use of the new system should be implemented.

In view of the promotion of the use of the International System, the Commission hopes that it will be the most widely used system in the Republic by 1975.

There is at present no office of weights and measures, and this function is assumed to a limited extent by various State bodies responsible for supervising different domestic trade activities. COPANIT plans, with international assistance, to establish a metrology laboratory which will perform functions of control and assistance with regard to weights and measures.

## IV. TRAINING IN STANDARDIZATION AND QUALITY CONTROL

Since COPANIT was set up recently and there are no technical personnel in the country trained in standardisation and quality control, one of the first concerns of the Board of Directors was to arrange for the training of technical personnel for COPANIT with assistance from OAS and the United Nations.

Once this stage has been completed, early in 1972, a series of courses dealing with these subjects will be initiated in the industrial sector of the country with the same personnel for the purpose of introducing entrepreneurs and supervisors to the advantages which can be obtained through the application of standardization and quality control.

It is planned to offer this series of courses initially at the management level in conjunction with instruction in universities and, later on, to offer it at the level of supervisors and foremen.

Panama, October 1971

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Panama, October 1971

MONOGRAPH ON STANDARDIZATION

REPUBLIC OF PARAGUAY

by

Mr. José Martino Vargas, Asunción

1. STANDARDIZATION BODIES

The Institution responsible for preparing national standards in Paraguay is the National Institute of Technology and Standards (INTN) set up by the National Law of 26 June 1963.

1.1. General organisation

INTN is a co-operative project of the Paraguayan Government and the United Nations Industrial Development Organization (UNIDO). It is an autonomous and self-sufficient body. It has been set up to carry out research and development activities aimed at improving and expanding the use of national raw materials in industrial production and to prepare national standards.

Since the end of 1968, the Institute has been headed by a Director of Paraguayan nationality who is selected by the Executive Authority in agreement with the United Nations. His chief adviser is the Project Manager. For the fixing of policy and the co-operation required for optimum implementation of the project and achievement of the objectives of the Institute, there is a CONSULTATIVE COMMITTEE made up of representatives of the Government, the Ministry of Industry and Trade, the National University of Asunción, the Federation of Production, Industry and Trade and the government representative assigned to the project. Relations are maintained with the Executive Authority through the Ministry of Industry and Trade.

1.2. Organisation and technical operation

INTN is headed by the Director, to whom the powers of the Board of Directors have been delegated for the duration of the project and who is advised by the Project Manager. The Institute is made up of the following departments: Administration, Standardisation, Foodstuffs, Leather, Textiles, Wood, Building Materials and Industrial Engineering.

The draft standards are studied by a technical committee, approved by the Director and submitted for public comment. A draft which has completed the process laid down in the regulations and been approved by the Director of INTW, then ratified by a decree of the Executive Authority authenticated by the Ministry of Industry and Trade is considered to be a PARAGUAYAN STANDARD.

### 1.3. Financing

The Institute is financed directly by the revenue obtained by application of the law setting it up, which established a charge of  $\frac{1}{2}$  per cent on the import of some items.

As a counterpart, the United Nations contributes fellowships, international personnel specialising in various fields and equipment.

### 1.4. Situation with regard to the application of standards

Application for its voluntary standards which are adopted by agreement between the parties. It is compulsory when the Executive Authority so determine, e.g. for standards covering products for human consumption or related to safety.

The application of standards in the private and government sectors is still in the beginning stages owing to the small number of standards so far adopted. The private sector, urged on by competition, is beginning to request advice from INTW on the application of standards.

## 2. SYSTEM OF CERTIFICATION AND MARK OF COMPLIANCE

### 2.1. General organisation

INTW is the institution responsible for administering the mark of compliance with standards. The regulations for its application are under study.

## 3. SYSTEM OF WEIGHTS AND MEASURES

### 3.1. System of measures in force

The decimal metric system is the one used under the legislation in force. The British system is also used, above all in industry.

### 3.2. Decision on whether to adopt the International System (SI)

The International System has not yet been legally adopted.

3.3. Office of weights and measures

There is no national office of weights and measures. The city government has the authority, in general, to test and inspect weights and measures used for sales and transactions concerning goods. INTN does not as yet provide instrument calibration services. Nor does the University.

3.4. Standards published in the SI

No standards in SI units are yet being studied.

3.5. Services which the country can offer

Paraguay is not in a position to offer metrology services.

4. TRAINING IN STANDARDIZATION AND QUALITY CONTROL

4.1. Standardisation

Four officials received fellowships to take part in a course on standardisation abroad. Regular courses have not yet been offered in the country on this subject.

4.2. Quality control

In 1971, the first quality control course was conducted at INTN for university-graduate professionals, students of technical faculties, graduates of technical schools at the Socolmaronte level and employees of State and private enterprises with technical responsibilities. The second quality control course will be held in the near future.

Asunción, 16 November 1971



## STANDARDIZATION IN PERU

by

Mrs. Susanna Le Roux Cater, Lima

### 1. STANDARDIZATION BODY IN PERU

The standardization body in the country is the Institute of Industrial Technological Research and Technical Standards (ITINTEC), which was set up in July 1970. However, standardization was introduced in the country in 1961 under the National Institute of Industrial Technical Standards and Certification (INASTIC), which was made part of ITINTEC when the latter was established.

#### 1.1 General organisation

ITINTEC is a decentralized public body under domestic public law in the industrial and commercial sector. Since it is legally part of this sector, it has an administrative link with the Ministry of Industry and Trade, but enjoys technical autonomy for conducting its work.

The highest executive official is the Director-General, and there are an auxiliary administrative department and two directorates: (1) the Research Directorate, and (2) Standardisation Directorate.

The Standardisation Directorate consists of: (1) the Division of Preparation of Standards, (2) the Division of Certification and Seal of Compliance with Standards, and (3) the Division of Metrology.

#### 1.2 Organisation of technical operation

1.2.1 Study of standards: Standards are studied by specialised committees composed of representatives of the production, consumption and technical sectors under the direction of a co-ordinator who is an official of the Institute.

1.2.2 Stages in standards: The co-ordinator of the specialised committee prepares an outline standard based on ISO, COPANT or IEC recommendations, standards of other countries and the material available in the country. This outline is submitted for discussion by the specialised committee.

Once the outline has been approved, it is published as a draft standard and submitted to public discussion for a period of 60 days, after which any observations are discussed in the specialized committee.

When the observations have been dealt with, or if there are none, the standards are made official in co-ordination with the interested sectors of the State.

### 1.3 Financing

The financing of the Institute comes from:

- (a) Its own revenues allocated by law;
- (b) Transfers from the budget of the Central Government;
- (c) Standardization agreements with other sectors of the national economy such as agriculture, energy and mining, etc.;
- (d) Provision of services;
- (e) Sale of standards.

### 1.4 Situation with regard to the application of standards

The legal provisions in force have made standards compulsory, but provisions are being considered which would make compulsory only standards relating to foodstuffs or medicaments or those which may affect health or safety and those which refer to industries regarded as of special interest for national development.

## 2. SYSTEMS OF CERTIFICATION AND MARK OF COMPLIANCE

### 2.1 General organization

ITINTEC issues only certificates, at the request of those concerned, of compliance of batches with national or foreign standards or given specifications. Sampling and testing is carried out in accordance with standards, if any, or the methods specified.

Marks of compliance are not yet granted; regulations for this purpose are now being considered. None the less, a number of applications have been received in this connexion from industrial enterprises.

The procedure proposed, which is to be approved in the specific ITINTEC law, is outlined in its essentials in ISO Recommendations 189, 436 and 526.

## 2.2 Type of promotion

For the time being, there is no promotion.

## 3. SYSTEM OF WEIGHTS AND MEASURES

### 3.1 System of measures in force

The decimal metric system was legally adopted in the country in 1862.

At the present time, both the metric system and the British system are used owing to the import of capital and consumer goods from countries using the British system.

### 3.2 Decision on whether to adopt the International System

It is possible that this system will be adopted, although the necessary legal provisions have not yet been promulgated.

### 3.3 Office of weights and measures

There is no office of weights and measures in the country.

ITINTEC has prepared a project with advice from a United Kingdom expert for establishing a laboratory of weights and measures under the Division of Metrology of the Standardisation Directorate of ITINTEC; the relevant action is being taken for installation of this laboratory.

### 3.4 Standards published in the International System

ITINTEC is preparing standards based on the International System, and the basic standards have been approved and published.

### 3.5 Services which the country can offer

None.

## 4. TRAINING IN STANDARDIZATION AND QUALITY CONTROL

4.1 Under the auspices of the regional standardisation programme of OAS and COPANT, a standardisation course was held before the first quality control course for professional personnel in industry and for civil servants.

4.2 Under the OAS/COPANT regional standardisation programme, two quality control courses running for 60 hours and 40 hours respectively have been held at ITIETEC. These courses were for professional personnel in industry and civil servants.

Some universities in the country offer a course of studies in the subject, and in others it is part of under-graduate or post-graduate courses.

Quality control courses have also been offered at the executive or post-graduate level by some private bodies.

## URUGUAYAN TECHNICAL STANDARDS INSTITUTE

by

Mr. Pablo J. Benia

### 1. ORGANIZATION AND STRUCTURE

#### Establishment

The Uruguayan Technical Standards Institute (UNIT) was set up on 3 November 1939 at the initiative of the South American Union of Associations of Engineers (UAAI) at a ceremony attended by representatives of the following bodies: the Ministry of National Defence; the Ministry of Public Works; the Departmental Council of Montevideo; the National Administration of Fuels, Alcohol and Portland Cement (ANCAF); the General Administration of State Factories and Telephones (UTE); the Faculty of Architecture; the Faculty of Engineering and Surveying; the Association of Engineers of Uruguay; the Society of Architects of Uruguay; the Ministry of Industries and the Uruguayan Executive Committee of UAAI.

#### Statutes, nature and purposes

UNIT is a non-profit private organization which enjoys status as a legal entity under a resolution of 3 January 1941 by the Executive Authority.

#### Authorities

The highest authority of UNIT is the General Assembly of Members. The members fall into five categories, namely founding, active, life-time, corresponding and associate members, and are grouped into three divisions; technical, production and consumption. The Assembly meets annually and all members of six months' standing can take part in it.

The direction and administration are assumed by a Board of Directors made up of 15 members with the following proportional representation: nine for the Technical Division, three for the Production Division and three for the Consumption Division.

The President of the Institute is Mr. Juan P. Holfino.

### Working departments

UNIT is organized into two internal working departments, namely the Technical and Administrative Departments. Only one technical specialist works part-time in the former, and four staff members (one secretary, one official and two assistants) work in the latter.

### 2. SYSTEM OF WORK

#### Specialised committees

The working units responsible for considering and drafting standards are known as specialised committees and are made up of representatives of the technical, production and consumption sectors who are delegates from governmental and private institutions and act in a completely disinterested manner.

### 3. DOCUMENTATION AND DISSEMINATION OF INFORMATION

#### Material for consultation

In order to carry out its work, UNIT has the standards prepared by foreign standards bodies. For economic reasons, it has in general been necessary to forgo all other types of publications which cannot be obtained by exchange (ISO and IEC recommendations, books in general, etc.).

#### Dissemination

The dissemination of information on the activity of the Institute is confined to the publication of standards and the annual report (which is carried out in the Institute itself) since the lack of resources makes it difficult to have a regular review or newsletter and to carry out campaigns of promotion and education.

### 4. WORK PERFORMED

#### Standards prepared

There are 285 standards in force relating to the following subjects:

- (1) general;
- (2) bituminous materials;
- (3) pigments, paints and solvents;
- (4) design;
- (5) safety;
- (6) fuels;
- (7) leathers;
- (8) floorings;
- (9) metals;
- (10) textiles;
- (11) sanitary installations;
- (12) electrical engineering;
- (13) civil construction; (a) materials, (b) building components, (c) installations, (d) calculation and design of structures;
- (14) woods;
- (15) paper;
- (16) alcoholic beverages;
- (17) foodstuffs and (18) fertilisers.

### Official standards

The following State bodies have made UNIT standards official: the Ministry of National Defence, the Ministry of Public Works, the Ministry of Industry and Trade, the National Administration of Fuels, Alcohol and Portland Cement (ANCAP), the General Administration of State Factories and Telephones (UTE), the National Administration of Ports, the State Health Services (OSE) and the Municipal Administration of Montevideo. Standards are not made official automatically but generally at the explicit request of UNIT for each standard or group of standards, in the study of which delegates from these agencies have usually participated.

### 5. FINANCIAL SYSTEM

#### Budget and contributions

The financial resources which UNIT has at its disposal to carry out its functions come from contributions made to it by various governmental agencies; these contributions are not fixed once and for all, but are granted at will. Another source of funds is the fees paid by members (bodies and individuals) and the sale of standards.

Economic assistance from the State is very small (approximately US\$2,000 a year).

Assistance has also been obtained from OAS through COPANT, but this assistance, apart from being small, is not given regularly.

### 6. MARK OF COMPLIANCE WITH STANDARDS

For a number of years, UNIT has had rules for awarding the "Certificate of Compliance with Standards" (CCNU), the main purpose of which is to certify the standardized quality of a given product. These certificates are awarded, under terms laid down by law, to member enterprises which apply for them voluntarily and contractually and adjust their production to the specifications laid down in the relevant standards.

However, the certificate has not been awarded to any product, although there have been a number of applications. This is due to the fact that none of the manufacturers applying for it has fulfilled the certificate requirements with regard to factory quality control and that the Institute itself has not, in view of the limitation of its resources, offered the certificate directly to industrial enterprises.

At present, a draft law is being considered in the Ministry of Industries to obviate the dangers involved in the use of electrical and gas appliances. The same draft would seek to find a way to promote the introduction of the certificate of compliance with standards for these appliances.

#### 7. TRAINING IN STANDARDIZATION AND QUALITY CONTROL

UNIT receives a fellowship every year for the course for standardisation leaders held in Buenos Aires under the OAS/COPANT technical co-operation programme.

In the context of the same programme, a course on quality control at the first level was conducted this year by Professor Enrique J. Garofa, and the course at the second level will be given in the coming year.

The Institute plans to repeat the first-level course periodically at its own expense. The course is intended for industrial technical personnel or freshly-graduated engineers.

### SYSTEM OF WEIGHTS AND MEASURES

#### I. System of measures in force

Law No. 714 of 20 May 1862 stipulated that, beginning on 1 January 1867, the decimal metric system would replace all other systems of weights and measures throughout the territory of the Republic.

Law No. 6954 of 12 September 1919 made the decimal metric system compulsory.

#### II. Adoption of the International System

The International System has not been adopted to date. It was recently decided, after a study made by a committee of the Uruguayan Technical Standards Institute, to suggest adoption of this system to the national authorities.

#### III. Office of weights and measures

The National Service for the Verification and Testing of Weights and Measures of the Eastern Republic of Uruguay was transferred, as a result of the last constitutional reform, to the National Council of Basic Necessities and Price Control, an institute which is part of the Ministry of Industry and Trade.

These functions were assigned to a department specially created for the purpose which was named the Department of Weights and Measures. The present Director of the Department is Mr. Julio García y Santos.



**IV. Services provided by the Department of Weights and Measures**

These services are limited owing to the lack of financial resources and technical and administrative facilities, as well as shortages in manpower and working materials.

Up to the present time, the following basic tasks have been carried out:

- (a) Testing of non-precision scales, weights, counter-weights and units of length;
- (b) Periodic checking of the above-mentioned instruments;
- (c) Supervision and control of the quantity, weight or volume of packaged items.

**PAN AMERICAN STANDARDS COMMISSION  
(COPANT)**

by

**Mrs. B. Ghirelli de Ciaburri**

**I. BACKGROUND**

The Pan American Standards Commission began work in April 1961, after an Assembly held at Montevideo.

This Assembly was the culmination of a series of activities undertaken mainly at the initiative of Mr. Paulo Sá, at that time Executive Secretary of the Brazilian Technical Standards Association (ABNT), which may be summarised as follows:

1. At a meeting held in 1947 at Quitandinhas, Brazil, by the Pan American Union of Engineering Associations, it was recognised that Pan American standards were absolutely essential if technical integration was to be achieved, in matters to do with civil engineering in particular. There was at that time no great concern with standardisation in production and technological development, because the meeting was concerned essentially with problems of engineering.
2. In 1956, after the Organisation of American States (OAS) had completed studies on the feasibility of establishing a Latin American Common Market, standardisation was considered from a standpoint which was much broader and more correct, because its importance in the development of regional trade was realised, both for raw materials and for manufactured goods and equipment.

Accordingly, in 1956 OAS convened a meeting of representatives of the American countries in Rio de Janeiro to deal specifically with the subject of standardisation.

The standardisation institutes of the following countries were directly represented at the meeting: Argentina, Brazil, Chile, United States of America and Uruguay. Colombia, Mexico and Venezuela only had diplomatic representatives, who acted as observers, taking note of the economic and social importance of standardisation.

Mr. Henry St. Leger, General-Secretary of ISO, attended as a special guest.

The Argentine delegation, consisting of a government representative and the Director of the Argentine Institute for the Rationalisation of Materials (IRAM), put forward the view that it was vitally necessary that standardisation activities should cover the whole continent and that standardisation institutes should be set up for the purpose so as to form a special organisation at the continental level, enjoying autonomy and independence of any political, economical or social body.

This proposal led to a series of meetings, the final result of which was a decision to hold a meeting to be attended solely by standardisation experts, who were to propose specific technical measures to give effect to the Quitandinha resolution.

3. At the same time, the representatives of the standardisation institutes attending the meeting resolved to establish the Pan American Standards Commission, appointing Mr. Paulo Sá of ABNT as Chairman and Mrs. Beatris Ghirelli de Ciaburri, Director-General of IRAM, as General Secretary and inviting them to submit within not more than one year a plan for the organisation and financing of the Commission.

4. The meeting of standardisation experts was held in 1957.

5. From 1957 onwards, Mr. Cyril Ainsworth, representative of the American Standards Association, and Mrs. Beatris Ghirellide Ciaburri, General Secretary of the Commission, worked together with persistence and determination to get the Pan American Standards Commission going, particularly because of the imminent creation of the Latin American Common Market.

6. In 1960, IRAM, in celebration of the 150th anniversary of Argentine independence and the 25th anniversary of its own foundation, organised an international standardisation congress. The most important conclusion reached by the congress was that the Pan American Standards Commission must be organised and brought into operation. To that end it was requested that an Assembly should be convened immediately in Montevideo.

This resolution was put into effect, and in April 1961 the Pan American Standards Commission (COPANT) was finally established.

## II. RECOGNITION OF COPANT BY REGIONAL ORGANISATIONS

With the Assembly's authorization, the Secretary took a series of measures designed to get COPANT's work recognised by the Organisation of American States and the Latin American Free Association (LAFTA), which started work in September 1961, a few months after COPANT.

### III. NATIONAL STANDARDIZATION INSTITUTES

When the Pan American Standards Commission started work in 1961, only six standardisation institutes, representing six countries, were actually in operation on the continent, excluding Canada. Two were in the process of being organised.

Today all countries in the Americas have set up their own standardisation institutes, and this has obviously been the result of the action taken by COPANT both at the national level and in dealings with the region's economic organisations, which have understood the vast importance of standardization for industrial and technological development.

Purely for information purposes, we indicate in table 1 the order in which the various institutes were established and the basis on which they are organised.

What this shows is that during COPANT's ten years of activity, eight institutes have either come into being or actually started operations, one of them being ICAITI which is a regional body. This means that COPANT now consists of fourteen organisations representing nineteen countries.

But COPANT's work has had other effects which, although perhaps not as easy to show as in table 1, are of equal or similar importance. Almost all the institutes which were in existence before COPANT have undergone profound changes in organisation in order to meet the requirements of standardization at the national and regional levels.

Special attention should be drawn in this connexion to the great effort involved for Latin America in carrying on these activities at both levels simultaneously.

If we look at what has happened in the highly industrialised countries, we can see that they started activities at the international level when the idea of standardisation had already been accepted in the individual countries, both in the public and the private sector. We also see that they were in a position to contribute to the process technically and economically and that they understood the importance, with regard to the possibility of expanding into the international market, of achieving an agreement at the international level on the standards that were to apply in trade.

In Latin America, the studies and preparations for the Central American market, the Free Trade Area (LAFTA) and regional standardisation were started simultaneously with work at the national level in most of the countries. Among the institutes in

existence before 1961, only a few had at that time done any considerable amount of work and set up a sufficient number of specialist committees to serve as a basis for contributing to the arduous task of achieving an agreement at the Pan American level.

#### IV. SCOPE OF REGIONAL WORK

Anyone who has worked in standardisation knows that it is no easy task to get the ideas involved known, understood and accepted even in countries with a native industry and a high level of development. It is still more difficult in countries whose industry is born of a desire for social change and is generally brought into being more by government action than by any natural process of economic evolution.

However, even if this last factor is not taken into account, the mere achievement of a national industry harmonising the various interests that have come into play in our continent is already enough of a problem in itself. When we consider that standardisation is one of the tools necessary to achieve such a system, no further comment is necessary.

But if these national activities, before they are even properly under way, have to be combined with a regional programme, the goal can only be achieved if the need is absolute and the will to succeed exceptional. COPANT must certainly have had all this to be able, within a period of only ten years, to organise the technical meetings which have been held, to set up 194 technical secretariats actually in operation and to obtain the following results in the preparation of standards:

|                          |       |
|--------------------------|-------|
| Recommendations approved | 326   |
| Studies in progress:     |       |
| Outlines                 | 328   |
| Preliminary drafts       | 152   |
| Drafts                   | 290   |
|                          | <hr/> |
| TOTAL                    | 1,096 |

Further evidence of the attention given to COPANT's work, particularly in the economic field, is the attitude of those attending the various meetings, who are more and more anxious to establish certain viewpoints.

For example, the problem of the choice of a system of measurements has already been raised at the technical meetings. Although all Latin American countries have adopted the decimal metric system by law, in practice the feet and inches system still has a strong pull, and in many cases COPANT's recommendations have had to accept the existence of both.

Logically, this is not the ideal solution, because in countries with a limited domestic market, diversifying industry does not lead to a harmonious development of the economy. However, even admitting this situation, we have to recognise that the mere fact of having a single standard throughout the continent for each of the two systems is already an enormous step forward.

## V. FINANCING SYSTEM

### 1. OAS.

In 1962, COPANT's first year of technical activities, the Inter-American Economic and Social Council of OAS approved, under a training programme, the work plan put forward by COPANT in conjunction with ILAFA, for which the sum of \$100,000 was allocated.

The programme provided for the financing of the following:

- (a) Three technical meetings, to deal with documents concerning iron and steel (ILAFA being co-sponsor).

The sums allocated covered the travel and subsistence of one representative of each institute belonging to COPANT and the meetings were held for a minimum period of three weeks;

- (b) Since the funds were allocated under a training programme, short courses on standardization designed to familiarise participants with the basic ideas were given at the same time;
- (c) An allocation was made for the General Secretary to travel to various Latin American countries in order to win the support of existing bodies and create a climate of opinion favourable to their establishment in countries which still lacked them.

This system, which proved an effective way of spreading the basic ideas involved, was kept up for three years, but it had the drawback that successive technical meetings dealing with documents relating to a particular field could not be attended by the same persons, because it was felt that training should be given to others.

The confusion was due to a bad arrangement in the financing programme. This was subsequently corrected, the training section being clearly separated from the section concerned with technical meetings intended specifically for the preparation of recommendations.

The result of this was, as can be seen from the attached table 2, that the work has been speeded up in a quite extraordinary way, because the meetings are really workshops at which a substantial number of documents are analysed and in most cases it is possible to approve them at the draft level, which means that the secretariat can send them out to be voted on for approval as recommendations.

Naturally, as countries come to understand the importance of standardisation in all its aspects, the work gets more difficult, because it is concerned with problems of greater economic importance, but it can truly be said that there has been and still is a spirit of co-operation in COPANT which makes its task easier, despite the difficulties arising from the different outlook of the various industries in each of the countries concerned.

## 2. Other sources of finance

As stated above, other bodies have given COPANT economic assistance in order to speed its work.

The Latin American Iron and Steel Institute (ILAPSA) has not done so directly, but it has persuaded its members in each of the COPANT countries to give technical and economic assistance to their national institutes, which explains the large number of recommendations approved in the field of iron and steel.

It is easier to evaluate the aid given by the International Copper Development Council, since both directly and through the national standardisation institute of the country in which any particular technical meeting is held, it has financed all the meetings held so far on copper, with the result that sixteen recommendations have been adopted and seventy-seven are under consideration.

## VI. TRAINING

However important the standardisation work done by COPANT is, due emphasis must nevertheless be placed on the efforts it makes to train specialists and give support to national institutes so that they in turn can assist the work being done at the continental level.

### 1. Standardisation courses

When COPANT began its substantive work in 1962, one of the immediate problems that had to be faced was the lack of standardisation personnel in Latin America.

The attention of OAS was therefore drawn to the need to finance special courses, after the pattern of, for example, AFNOR, the French standardisation institute, which gives an 8-month standardisation course every year, including, in addition to theoretical classes, a useful period of practical work, both on standardisation as such and on the seal of compliance procedure.

These courses, as can be seen from table 2, have been given almost without interruption since 1962. So far they have been held at Buenos Aires, because that is where the secretariat has its headquarters and because the Argentine institute has a full professional staff, which enables it to perform this service for the rest of the continent.

We believe that this brief account shows beyond doubt the importance of COPANT's work in the field of training.

## VII. OFFICERS

Since 1961, the following persons have served as Chairman of the Pan American Standards Commission:

1. Mr. Alberto Sinay Neves, to whose human qualities we undoubtedly owe the effective and lasting contacts established with the regions economic and political organisations;
2. Mr. Mario Samané Boggio carried on what his predecessor had begun, important factors being his university work in engineering and his professional experience in mining studies;



3. Mr. Fernando Aguirre Tupper, took over COPANT after it had been in existence for six years, in the course of which interests had come into play, as the very result of the Commission's growth, which were not always in harmony, but which nevertheless were a sign of its importance. His capacity for leadership and his knowledge of human relations and political affairs, both privately and officially, enabled him to guide those interests along positive lines, eliminating partisanship, and leading COPANT into a period of productivity and mutual understanding, not only in technical matters, but also in the administrative field.
4. Mr. Ignacio Chiappe Lemos has been elected too recently for any judgement to be passed on the results of his chairmanship, which will undoubtedly prove to have strengthened COPANT, because he is an expert who is familiar with the political and economic life of the region and has taken over an organisation whose importance is no longer questioned.

Up until 1971, the Vice-Chairmen of COPANT were the representatives of the United States Institute, so that it has been possible to carry on the work on a continent-wide and not merely Latin American basis.

Their names were as follows: Mr. J. R. Townsend, Mr. Roger May and Mr. Francis LaQue.

The importance attached by the United States to the work of COPANT is at once evident when one considers that Mr. Francis LaQue is now President of ISO.

At the 1971 Assembly, Mr. Guillermo Becker Arreola, who is at present Director-General of Industry in Mexico, was elected Vice-Chairman.

His profound knowledge of the social and economic importance of standardisation is sure to be a very important factor in the development of this work in Mexico.

COPANT's Treasurers have been Mr. Pedro Molfino, Chairman of UNIT (Uruguay), until 1965, and Mr. Paulo M. Pereira, of ABNT (Brazil), from 1965 until the present. His assistance has been an important factor in ensuring that COPANT is administered properly.

Finally, the position of General Secretary has been held on an honorary basis, with the approval of the Assembly and the authorization of IRAM, by Mrs. Beatriz Ghirelli de Ciaburri.

Table 1

Standardization Institutes belonging to COPANT

Institutes in process of formation when COPANT started  
 Institutes set up as a result of COPANT'S activities

| Year of foundation    | 1918                   | 1935           | 1940        | 1941         | 1944                                     | 1960                                 | 1958                                    | 1962                                | 1963             | 1965   | 1969   | 1970   |        |
|-----------------------|------------------------|----------------|-------------|--------------|--|--------------------------------------|---|-------------------------------------|------------------|--|--|--|--------|
| Institute and country | ASA (now ANSI) USA (1) | IRAM Argentina | ABNT Brazil | UNIT Uruguay | INDITECNOR Chile                         | Peru                                 | Venezuela                               | Standards Division ICAITI**         | ICONTEC Colombia | Paraguay***  | Diretorate General of Standards and Technology**** | Ecuadorian Standardization Institute Ecuador       | COPANT |
| Nature                | Private                | Private        | Private     | Private      | Comes under National University of Chile | Public, part of Ministry of Industry | Public, part of Ministry of Development | Multi-national body with own budget | Private          | Set up by agreement between Paraguay and Government and United Nations; has own budget | Public   | Public, comes under Ministry of Industry and Trade | Public |

1. Since it joined COPANT, this body has undergone various changes in organization and has had three changes of name.

\* This body underwent a change in function and administration in 1970, when it adopted its present name.

\*\* This body was originally set up for purposes of technological research by agreement between the five Central American countries and the United Nations in 1955. In 1962, as part of the agreement, it organized its Standards Department.

\*\*\* Technological organization set up in 1963; organized its Standards Department in 1965.

\*\*\*\* The scope and characteristics of this body are still not certain; it is still in process of being set up.

**Table 2**  
**COPANT Standardisation Courses**  
(Financed by OAS)

| Year    | Duration of course | Location        | Number of participants       | Argentina | Bolivia | Brazil | Central America | Colombia | Chile | Country of origin |                    |         |           |          |          |      |         |           |   |   |
|---------|--------------------|-----------------|------------------------------|-----------|---------|--------|-----------------|----------|-------|-------------------|--------------------|---------|-----------|----------|----------|------|---------|-----------|---|---|
|         |                    |                 |                              |           |         |        |                 |          |       | Costa Rica        | Dominican Republic | Ecuador | Guatemala | Honduras | Paraguay | Peru | Uruguay | Venezuela |   |   |
| 1962    | approx. 3 months   | Buenos Aires    | 19                           | X         | X       | X      | X               | X        | X     | X                 |                    |         |           |          |          |      |         |           |   |   |
| 1962*   | 2 weeks            | Santiago, Chile | 16                           |           |         | X      |                 |          |       |                   |                    |         |           |          |          |      |         |           |   |   |
| 1962*   | 2 weeks            | Mexico          | 10                           |           |         | X      |                 |          |       |                   |                    |         |           |          |          |      |         |           |   |   |
| 1964    | 4 months           | Buenos Aires    | 15                           |           | X       |        |                 |          |       |                   |                    |         |           |          |          |      |         |           |   |   |
| 1966**  | approx. 1 month    | Buenos Aires    | 8                            | X         | X       | X      | X               | X        | X     | X                 | X                  | X       | X         | X        | X        | X    | X       | X         | X | X |
| 1969*** | 3 months           | Buenos Aires    | 12                           |           |         | X      |                 |          |       |                   |                    |         |           |          |          |      |         |           |   |   |
| 1970*** | 2 months           | Buenos Aires    | 22<br>(2 with own financing) | X         | X       | X      | X               | X        | X     | X                 | X                  | X       | X         | X        | X        | X    | X       | X         | X | X |

\* For the OAS programme in which the standardisation course was included, the technical meetings had to begin with a brief standardisation course. Only the Buenos Aires course was fully attended.

\*\* Concerned specifically with the seal of compliance

\*\*\* These courses cover the programme attached to this paper and we regard them as being for standardisation directors. They were prepared under the auspices of the OAS Science and Technology Programme.

### VIII. CONCLUSIONS

The review of COPANT's work given in this paper shows clearly that:

1. It has been made possible through the understanding, co-operation and sense of responsibility shown by national standardization institutes, even those of most recent origin.
2. COPANT's lack of resources has not prevented it from making progress because:
  - 2.1 It has not spent more than was essential, the General Secretary having given her services on an honorary basis and her promotion work, when it involved travelling, having been financed by OAS.
  - 2.2 The financial assistance of OAS has made it possible to train specialist staff in very short periods, to hold technical meetings in the form of workshops and to give direct assistance to national institutes.
  - 2.3 The technical co-operation of ILAFA and the technical and economic co-operation of CIDEC, which, although related to specific subjects, has none the less been considerable, and the co-operation of the various national bodies, both public and private, through the national institutes has made it possible to hold meetings also in the form of workshops, at which a very large number of documents have been dealt with, thus avoiding spending a great deal of time on unnecessary administrative procedure.
3. The fact that the importance of standardization has been recognized by the region's economic organizations, such as the Central American Common Market, LAFTA, and by its various industry organizations, etc., means that there is no question of the work being merely academic. It has from the beginning had a clear and precise objective: to facilitate the transfer of technology and regional trade.

**CENTRAL AMERICAN RESEARCH INSTITUTE FOR INDUSTRY**

**(ICAITI)**

**Standardisation activities**

**by**

**Mr. J. Joaquín Bayer**

**1. INTRODUCTION**

The Central American Research Institute for Industry (ICAITI) is a regional technological body established by the five Governments of Central America with the assistance of the United Nations to further the industrial development and economic integration of Central America. ICAITI pursues the following basic objectives: (a) to advise private enterprises in all phases of studies and the execution of industrial projects; (b) to advise enterprises on the solution of practical production problems which may arise in their factories; (c) to carry out technological research for the utilisation of regional raw materials, the development of manufacturing processes, the manufacturing of new products and the adoption of modern manufacturing processes; (d) to promote the application and adaptation of technology and modern manufacturing methods to Central American industry; (e) to advise government or private institutions concerned with industrial and economic development or which are interested in industrial investment; (f) to co-operate actively in the implementation of programmes for Central American economic integration; (g) to prepare ICAITI Central American standards.

Since its establishment in Guatemala City in January 1956, ICAITI has been operating as an autonomous non-profit body fully devoted to promoting the development of the Central American industrial sector and, hence, raising the economic level of the region.

ICAITI has the following divisions: (a) Education and Training; (b) Promotion and Development; (c) Geology and Mining; (d) Applied Research; (e) Analysis, Trials and Testing; (f) Standardisation; (g) Technical and Industrial Services; (h) Leather and Footwear Technology; and (i) Documentation and Information.

## 2. ICAITI STANDARDIZATION DIVISION

In mid-1962, the Standardization Division was established in ICAITI to meet the pressing need for quality standards for the Central American Common Market and, since that time, it has been working on the preparation of standards for regional application; 209 Central American standards have been published in their final form, and around 500 standards are in various stages of preparation.

### 2.1 Organisation of the Standardization Division

The ICAITI Standardization Division has a Chief of Division and two professional chemical engineers responsible for co-ordination and all activities relating to the preparation of standards proposals and the technical working parties. In addition, the Division has the auxiliary staff required to carry out its tasks.

The Standardisation Division receives co-operation from the other ICAITI Divisions in preparing standards and in solving the problems concerning standardisation which are brought to it by industry and governmental and private bodies.

## 3. FINANCING

The Standardization Division receives a specific allocation under the general budget of ICAITI. The budget is covered by the contributions of the five Central American Governments, the revenue from some contracts for work with international bodies which are, however, already earmarked for a specific purpose within the budget and some income in the form of remuneration for work performed for private enterprises, primarily chemical analyses, quality control and technical and economic studies.

## 4. SITUATION WITH REGARD TO THE APPLICATION OF STANDARDS

Application of all the ICAITI standards is voluntary. It rests with the national bodies of the five countries to propose to their respective Governments that they should adopt as national standards those standards prepared by ICAITI which they consider desirable, declaring them, as appropriate, either "recommended" or "compulsory".

5. **SYSTEM OF CERTIFICATION AND MARK OF COMPLIANCE**

Neither the seal of compliance with standards nor the certificate of quality for a specific batch of products is applied at the regional level.

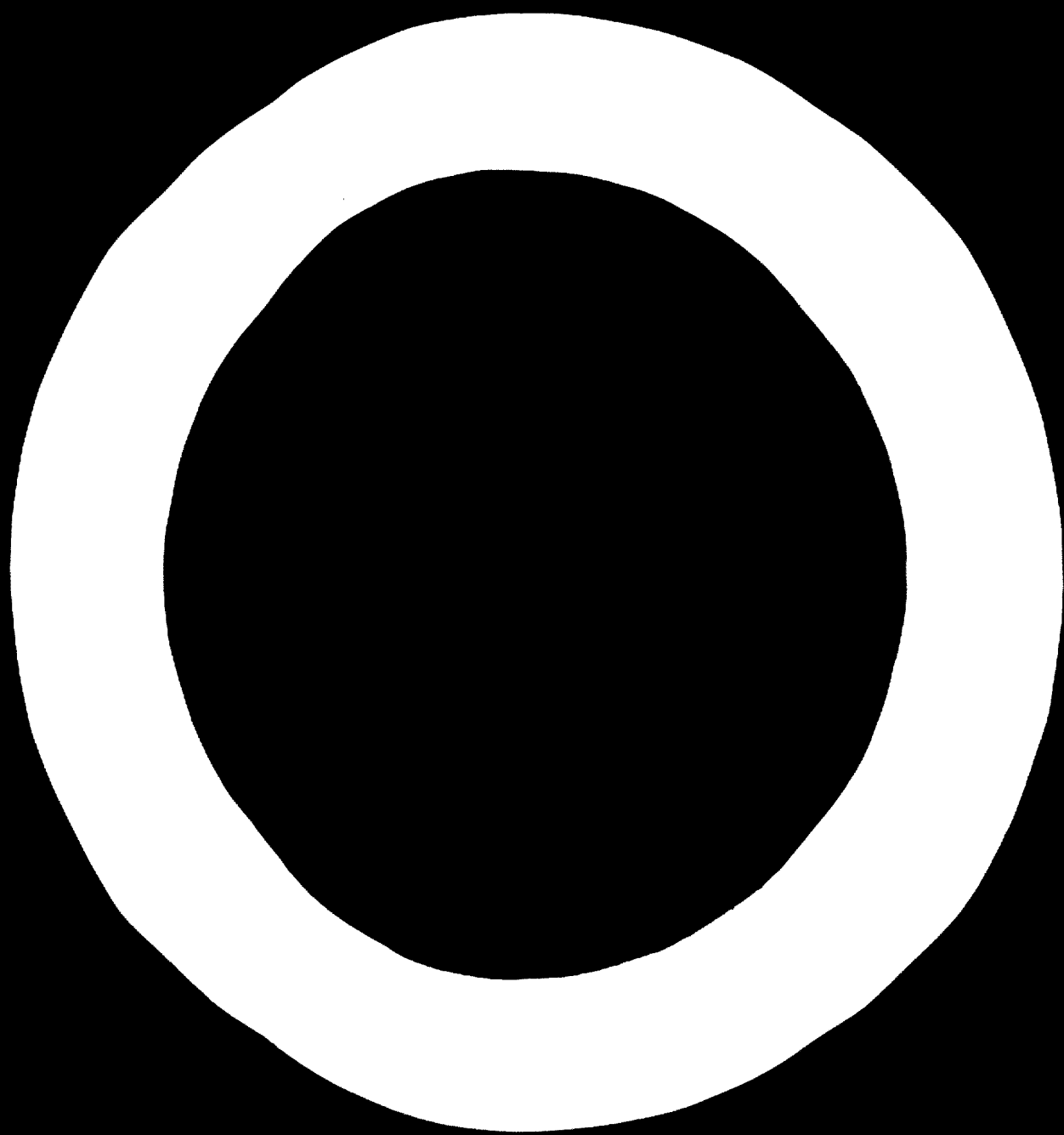
6. **SYSTEM OF WEIGHTS AND MEASURES**

A great variety of weights and measures is used in Central America, with equivalents varying from country to country. For this reason, steps are being taken in some countries for the effective introduction of the International System of Units.

All the ICAITI standards are published in units of the International System.

7. **TRAINING IN STANDARDIZATION AND QUALITY CONTROL**

For the time being, no type of training is being offered in these activities.





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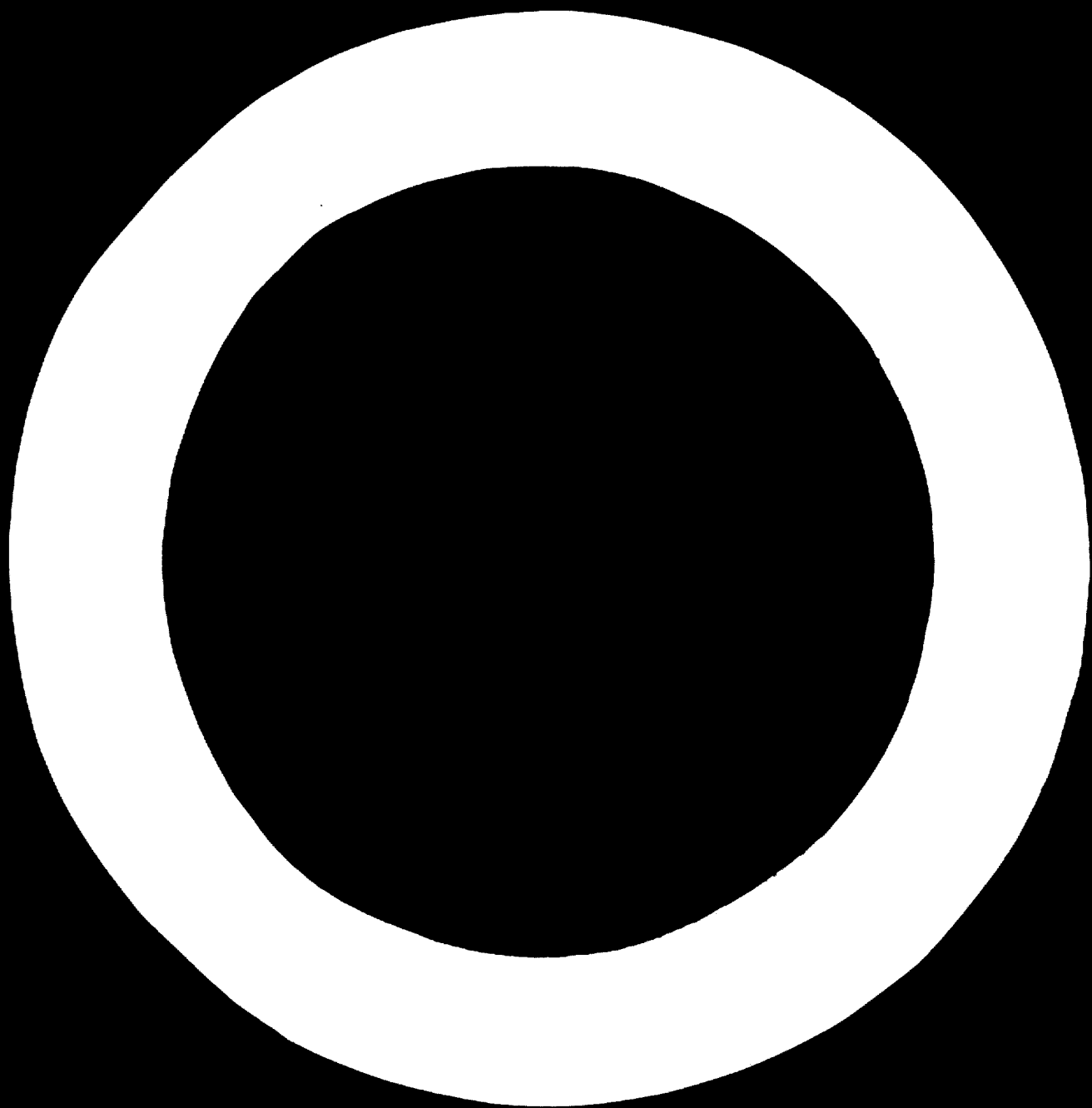
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2. Miss Juana EYZAGUIRRE  
Conference Officer  
ECLA  
Santiago de Chile

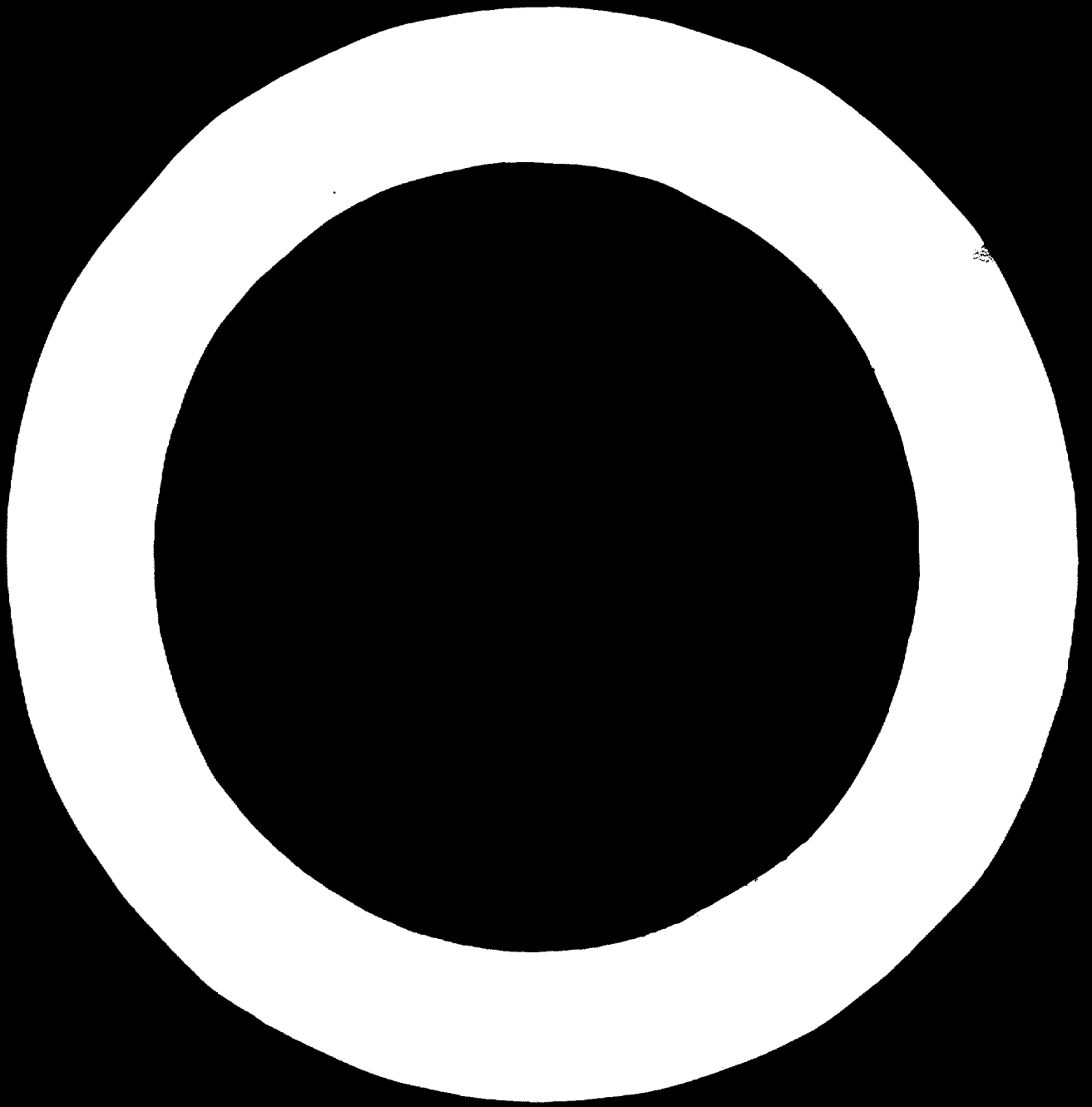
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UNIDO  
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AGENDA

1. Opening Addresses
2. Election of Officers
3. Adoption of the Agenda and the Work Programme
4. Organization and Operation of a National Standardisation Body (NSB)
5. Regional Standardization
6. Standardization and Exports Promotion
7. Standards, Quality Control and Certification Compliance Marking and the Consumer
8. International Standardization
9. Basic Standards and Adoption of the SI Units
10. Priorities for Standardization Activities
11. Training for Standardization
12. Formulation of Recommendations
13. Adoption of Report and Recommendations





WORK PROGRAMME

Monday 27 September 1971

Morning

- 9:30 - 10:30 - Registration, Administrative and Financial Matters
- 10:30 - 11:00 - Opening Addresses
- 11:30 - 13:00 - Election of Officers
  - Adoption of the Agenda and the Work Programme
  - Organization of the Work

Afternoon

- 14:00 - 17:00 - "Organization and Operation of a National Standardization Body (NSB)", by Mr. A. Lopez-Ore (Peru)
  - Statement by participants
  - Discussion

Tuesday 28 September 1971

Morning

- 10:00 - 13:00 - "Regional Standardization", by Mrs. E. Ghirelli de Ciaburri (COPANT)
  - Discussion

Afternoon

- 14:00 - 17:00 - "International Standardization", by Mr. V. Koukhar (ISO)

Wednesday 29 September 1971

Morning

- 10:00 - 13:00 - "Standardization and Exports Promotion", by Mr. L. Gavin (UK)
  - Discussion

Afternoon

- 14:00 - 17:00 - "Standards, quality control and certification compliance marking and the consumer", by Mr. L. Gavin (UK)
  - Discussion

Thursday 30 September 1971

Morning

- 10:00 - 13:00 - "Basic standards and adoption of the SI Units",  
by Mr. E. Layton (UNIDO, Brazil)  
- Discussion

Afternoon

- 14:00 - 17:00 - "Training in Standardization", by Mr. B. S. Krishnamachar (India)  
- "Priorities for standardization activities"  
by Mrs. B. Ghirelli de Giaburri (COPANT)  
- Discussion

Friday 1 October 1971

Morning

- 10:00 - 13:00 - Formulation of Recommendations

Afternoon

- 14:00 - 17:00 - Adoption of Recommendations  
- Closing Sessions

LIST OF DOCUMENTS

1. Information Papers

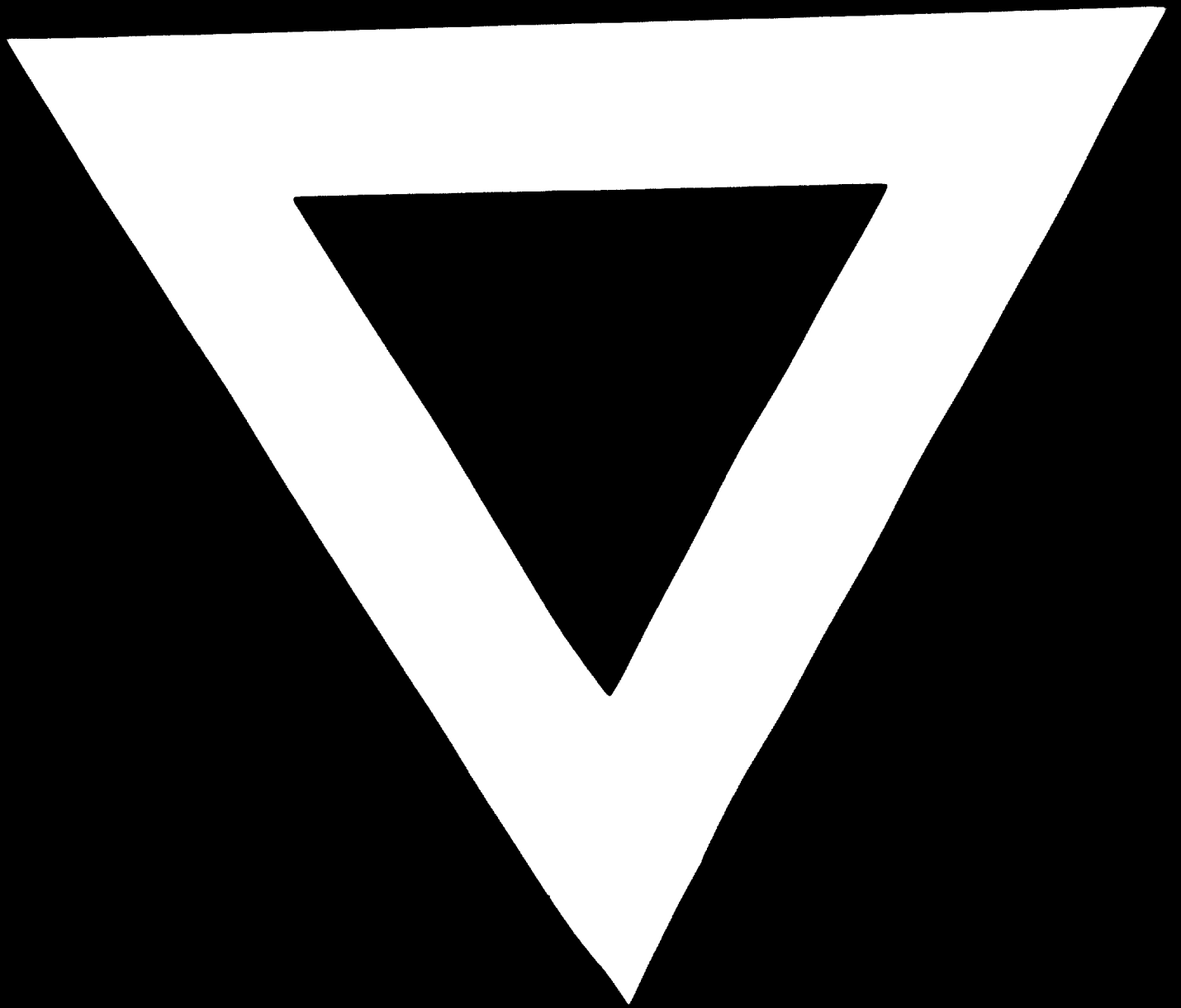
Reference No.

- Provisional Agenda ID/WG.97/1
- Provisional Annotated Agenda ID/WG.97/1/Add.1
- Provisional Work Programme ID/WG.97/2/Rev.1
- Aide-Mémoire -
- Provisional List of Experts  
Participants and Observers ID/WG.97/9
- List of Documents ID/WG.97/10

2. Discussion Papers

- "Standards, Quality Control and Certification  
Compliance Marking and the Consumer"  
by Mr. J. M. L. Gavin, London, England ID/WG.97/3  
and Corr. 1
- "Standardization and Exports Promotion"  
by Mr. J. M. L. Gavin, London, England ID/WG.97/4
- "Training in Standardization"  
by Mr. B. S. Krishnamachar, New Delhi, India ID/WG.97/5
- "International Standardization"  
by Mr. V. Koukhar, Geneva, Switzerland ID/WG.97/6
- "Organization and Operation of a National  
Standardization Body", by Mr. Alfonso Lopes Ore  
Lima, Peru ID/WG.97/7
- "Basic Standards and Adoption of SI Units",  
by Mr. Edmund Layton, Rio de Janeiro, Brasil ID/WG.97/8
- "Priorities for Standardization Activities"  
by Mrs. B. de Giaburri, Buenos Aires, Argentina





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