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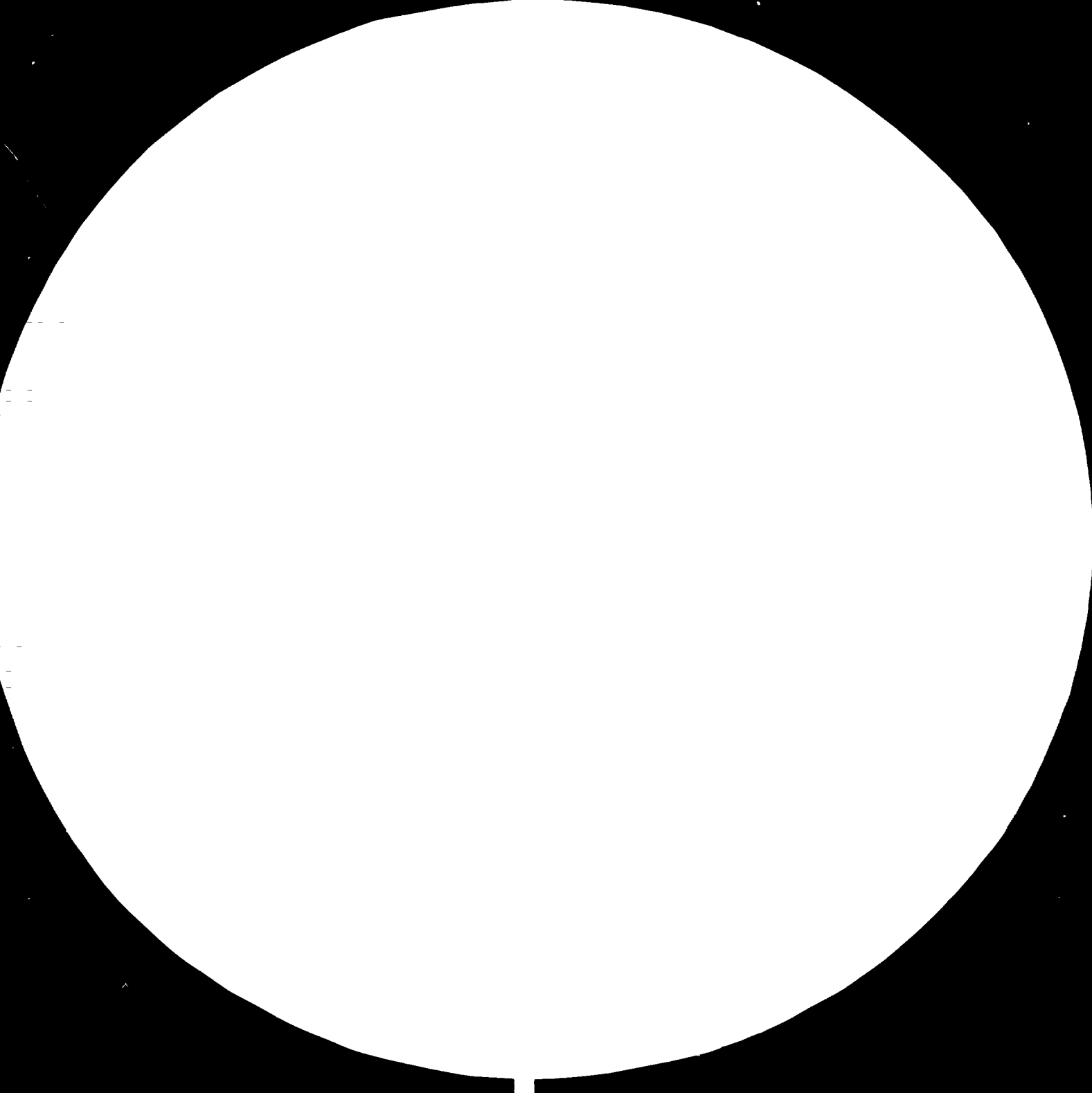

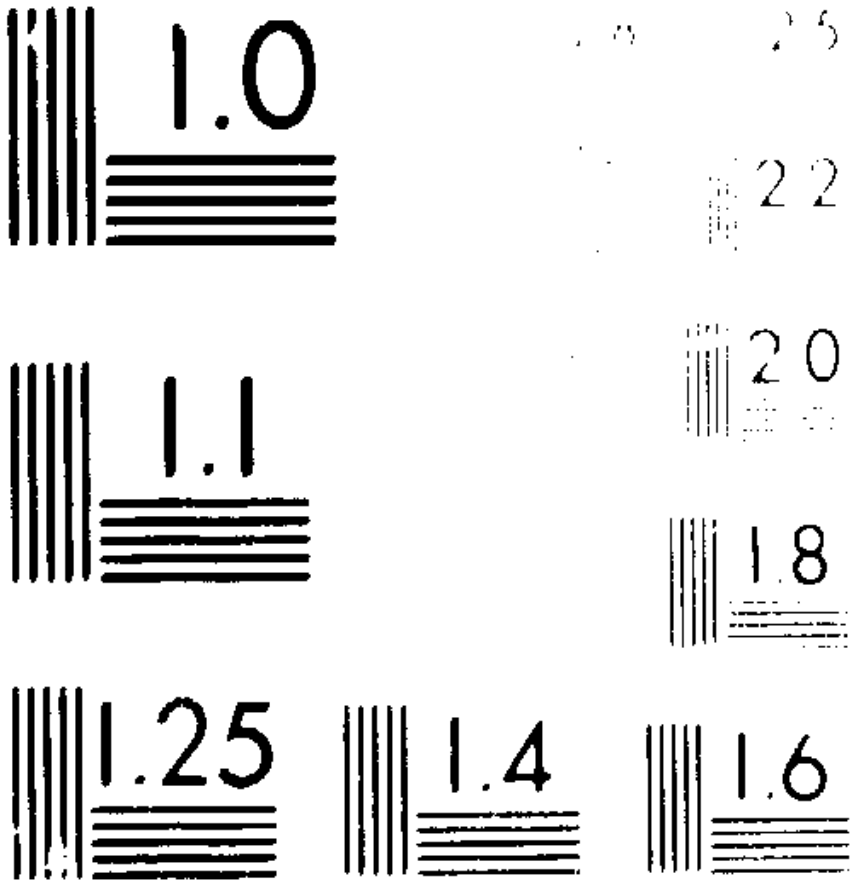
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NATIONAL CONSENSUS STANDARDS AND QUALITY CONTROL
(TRAINING IN STANDARDIZATION)
DP/INS/74/002/11-05
INDONESIA.

ON-THE-JOB TRAINING
IN
STANDARDIZATION PRINCIPLES AND PRACTICE
PROCEDURES, METHODOLOGY AND OPERATION OF THE SYSTEM.

Project Findings and Recommendations
Final Report Prepared for
the Government of Indonesia

by
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ACTING AS EXECUTING AGENCY FOR
THE UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP)

C O N T E N T S

A N N E X U R E S

1. ACKNOWLEDGEMENTS

The Expert would like to express his sincere thanks to all the officials and staff of LIPI Standardization Project, particularly to Dr. Eng. Muhammadi, Deputy Chairman of Technology, Eng. Herudi Kartowisastro, the present project leader, Dr. Suwarto Martosudirjo, the former project leader, Mrs. Sriati Djaprie, Mrs. Nurbuati Slamet, Mr. Suprapto, Miss. Herminiati, Miss. Tri Murtiningrum, Miss. Sri Wardhani, Miss. Sri Indrastuti, Mr. Johnny Soleman and Mr. Krisnabudi for their help and extensive cooperation.

The Expert seize the opportunity to express his gratitude to Mr. Himalaya Rana, Resident Representative and the officials of UNIDO/UNDP, for their kind attitudes, to Mr. Faquir M. Iqbal, SIDFA, for his support and valuable contribution.

The Expert's special thanks are due to his amicable colleague Mr. Rohn Hopper, Expert in certification and Quality Control on same project, for his appreciable and close collaboration.

The Expert's best wishes and regards to all of them.

2. NOTES

2.1 The details and objectives of the project are fully documented in :

(a) UNIDO PROJECT DP/INS/74/002 "NATIONAL CONSENSUS STANDARDS AND QUALITY CONTROL"

(b) REPORT OF THE UNIDO PROJECT REVIEW MISSION UNDERTAKEN BY MR. V.A. TALASHOV, INSTITUTIONAL INFRASTRUCTURE SECTION, UNIDO VIENNA (NOV. 1978)

(c) TERMINAL REPORT BY MR. S.K. SEN SENIOR ADVISER IN STANDARDIZATION, UNDER SAME PROJECT DP/INS/74/002 (NOV. 1978)

Therefore, details are provided and being repeated hereafter in a summary way for a clear comprehension of the background to this report.

2.2 It was seen that the final report prepared by Mr. R. Hopper, the expert in certification and quality control under same project (Oct. 1980) has to be expanded to comprise the broader viewpoint and wider coverage of a terminal report, this report is therefore related principally to training in standardization, the main task of the expert in standardization within the responsibility of his assignment.

2.3 This report together with Mr. Hopper's final report could be regarded as a terminal report of the project DP/INS/74/002, which is to be ended with the completion of training period with LIPI and the departure of the expert in standardization for training.

3. INTRODUCTION

3.1 The purpose of the project was to organize and develop a national system of standardization including the establishment of a National Standards Body and to assist in the formulation, organization and implementation of a National Quality Control and Certification programme.

3.2 The expert had one year's assignment under the project DP/INS/74/002 and arrived in Jakarta, Indonesia on the 15th of July 1980.

3.3 The expert was assigned to design, conduct and develop appropriate on-the-job training courses in standardization principles and practice, procedures, methodology and operation of the system, for the standardization project staff, to assist in the design and establishment of a training capacity and to advise upon the clause structure suitable for the application of standardization, the development and implementation of national standards.

3.4 The expert was attached to the standardization project located in the National Scientific Documentation Centre building (Pusat Dokumentasi Ilmiah Nasional) in Jakarta, of the Institute of Sciences LIPI (Lembaga Ilmu Pengetahuan Indonesia) the semi-autonomous Indonesian National Institute directly responsible to the President and is mandated to co-ordinate, promote and develop the use of research, science and technology at both the national and local levels and to bring about scientific co-operation with the regional and international scientific institutes.

3.5 The leader of LIPI standardization project is part-time distributing his activities between the project in Jakarta and LIPI in Bandung. He is directly responsible to the LIPI Deputy Chairman for Technology who is in turn responsible to LIPI Chairman.

3.6 A new leader of the project undertook his duties by first of April 1981. The new leader is also part-time distributing his activities between Jakarta and Bandung.

3.7 Before undertaking the tasks outlined in his job description, and to have a background informations about the existing situation, the actual requirements and needs for training in standardization and its modalities, the expert had successive meetings and thorough discussions on the approach with the national counterparts and responsible personnel

of the different departments proceeding with standardization activities in Indonesia (refer to the expert's preliminary report of 18 August 1980)

3.8 Adequate and suitable training schemes were prepared by the expert and designed in such a manner to meet the actual capacity needs of the trainees based on the assessment of their background, experience and the requirements of their responsibilities.
(refer to item 6 and annexes 1 and 2)

3.9 During the Second Country Programme Review I on 30 September 1980 a decision was made that no further activities should be carried out in the project and the fellowships training and the procurement of the equipment under the project should be stopped forthwith. It was decided also to revise the expert's terms of reference to include activities at the Departments of Industry and Trade for the remaining period of the expert's assignment.

3.10 A tentative outline on the reallocation of the expert's duties has been accordingly prepared by the expert and was submitted by UNDP to the Departments of Industry and Trade for actioning.
The expert had personal follow-up discussions with these Departments about the modalities of the training programmes they need in this respect, but no response has yet been received from their sides. (refer to item 6 and annexes 1 and 2)

3.11 The expert was attached to, worked in association with LIPI standardization project and closely with his counterpart officials. The training schemes and the themes for practical training were accepted and agreed upon by the standardization project leader and LIPI staff.

4. BACKGROUND

The following facts are stated hereafter as brief informations.

4.1 The Indonesian standards body YAYASAN DANA NORMALISASI INDONESIA (YDNI), a private body founded in 1928 with inadequate funds, status and facilities, has been able to develop a sectorial and technical committee structure only on a limited scale, It has no organizational status to operate as a national standardization body and exists only in name. The LIPI project, nominally with YDNI presently represents the country in international and regional standards organizations.

4.2 Indonesian standardization activities are carried out by many different organs. Various agencies in Ministries, governmental departments and other institutions have been setting their own standards to meet their specific and actual needs and to cover their respective areas of interest (minimum requirements, code of practice, regulations and for export standards). These includes Department of Trade and Cooperative, Department of Health, Ministry of Industry, Ministry of Mining and Energy, State Electricity Corporation, Ministry of Agriculture, etc.

4.3 Hundreds of the standards were issued in Indonesia based upon the international recommendations ISO, IEC and the national standards prepared by other National Bodies specially those in the region according to their suitability for adaptation. These standards are sectorial standards prepared by the different standardizing departments in Indonesia proceeding with standardization activities for their own interest without any sort of coordination, harmonization or rationalization at the national level. Accordingly, these standards were not considered as based upon the national agreement needed to recognize and adopt them by the different concerned parties in the country as the Indonesian national standards in the proper sense.

4.4 Attempts have been made to embrace all these national existing standardization activities under an adequate coordinating system supported by the Law No. 10 of 1961, Commodity Act, and the Government Decision No. 9 of 1964 related to standardization concepts and its related functions, but the intended actioning was not achieved.

4.5 Latter on and in September 1968, Dr. Lal Verman, who was at that time, the Regional Adviser in the Economic commission for Asia and the Far

East, presented his suggestions about the establishment of an autonomous National Coordinating Standardization Organization (refer to the Advisory Service Report on Standardization in Indonesia, ESCAPE, October 1968).

4.6 Years after, a seminar was organized by LIPI, in February 1973 proposed the establishment of a National Standards Body. In July 1973, a report on Consensus Standards was prepared by a UNDP/UNESCO consultant and Consequently a project for the Development of a National Standardization System was initiated by LIPI in April 1974. (In 1973, the Minister of State for Research was responsible for developing a national system for industrial standards and consequently to take charge of the promulgation and promotion of standardization activities in the country at all levels. The execution was entrusted to LIPI, in co-operation in particular with the National Institute for Industrial Training and research).

4.7 One year later UNDP/UNIDO provided LIPI with an expert for preparatory assistance. The same expert had his second assignment in 1977 under the same project.

4.8 In January 1980 the expert in certification and quality control was assigned and in July 1980 the expert in standardization was assigned and adhered to LIPI mainly for training.

4.9 Supporting and concerting efforts have been and still being made to achieve cooperative common agrrement between the concerned parties in order to obtain willing support and acceptance of LIPI to play the effective role and to act as the central focal authority to be recognized as the National Standardization Body or Council for the whole country, in collaboration with its members of the other standardizing departments. This was felt to be the rational system for harmonization, coordination and rationalization supporting the standardization activities working in Indonesia and its concept in general.

4.10 In the meantime, departments of Industry and Trade have proceeded with their activities and developed considerably more active programmes on standardization and certification in their own areas of interest.

4.11 A decision was made during the Second Country Programme Reviews I (30 September 1980) to stop any further UNDP/UNIDO assistance under this project which has to be ended with the completion of the assigment of

the expert in standardization for training by May 1981, with the only exception that the training work plan for the remaining period of the project should be reswitched and revised to include further activities to Industry and Trade in association with LIPI, with the hope that this would lead to channelling the UN technical assistance inputs, but no action have been made yet inspite that a tentative draft revised work programmes for the assistance were prepared and submitted to these concerned departments.

5. FINDINGS

5.1 The actual existing situation of standardization in Indonesia has led to :

5.1.1 In some cases, to overlap and a somewhat confusing relative condition of complexity with regard to standardization concept and its allied activities at the national level and the adoption of a national system.

5.1.2 The existance of a conflict and multiplicity of standards of same coverage

5.1.3 The duplication and contradiction in the main elements and components of the standards issued by the different departments

5.1.4 The diversity of standards issued with different style of presentation, format and order of sequence of its related elements, not only with regard to the standards prepared by different departments, but also as to those standards prepared within the one and same department.

5.2 The problems could be recapitulated hereafter as being due to :

5.2.1 The absence of a national overview and coordinated programme.

5.2.2 The need for a defined and clearer central direction and guidance.

5.2.3 The need for creating a national central focal authority for standardization acting as an umbrella to embrace all the national existing standardization activities carried out-by the different interested parties in the country, and to be recognized by law as the national standardization body or council for the whole country.

5.2.4 The need for setting up an adequate national coordinating system between the organizations currently engaged in formulating standrds with the aim to harmonize and rationalize them to be considered as national standards issued under one adopted national standardized format.

5.2.5 The need for adopting one official standards register for the country which will serve to avoid the confusion resulting from the multiplicity and duplication of standards with same coverage.

5.2.6 The need for setting up necessary ministerial decrees and regulations in the concern.

5.2.7 The need for setting up supporting system for the standards according to their legal consideration.

5.2.8 The need for legal enforcement for the implementation of national standards having regard to the nature of the standards, the level of standardization and the laws and conditions prevailling in the society for whom the standards have been prepared, realizing that the mere publication of standards is of little value unless it can be implemented. Implementation may necessitate sacrifices by the few in the benefit of the many.

5.2.9 The need for a linking feed-back network of an umbrella coverage to all the spreading out activities related to standardization working in the country.

5.2.10 The need to remove the existing suspicion that setting up such a national system may dent the authority importance and functions of the existing organizations dealing with standardization.

5.3 LIPI was chosen for the project being neutral, scientific and non-sectorial.

5.4 LIPI is still in the process of possible support and acceptance to establish itself as the central focal and coordinating body for the activities related to standardization working in the country.

5.5 The objectives of the project has not been achieved to the scale that was expected.

5.6 According to the actual situation already existing in promulgating standardization activities in the country. The different Ministries, governmental departments and interested institutes do organize periodic and regular short training courses in standardization (from 1 week to 2 Months). These courses are limited and designed in a way specifically to meet their job needs and activity requirements, without any broader scope. These courses are lectured by professionals from inside and outside the organizing department.

5.7 Moreover, There is no formal education or training in this respect included in the curriculum of the universities, technical or higher institutes or schools in the country, except that it is dealt with as a general approach within the framework of the Industrial Engineering faculty at Bandung.

5.8 Consequently, it could be considered that actually there no regular, coordinated and adequately leveled training courses in the country, for standardization in its proper sense, exists. The need of organizing such reliable training courses appeared to be essential.

5.9 Qualification training in the principles and in the process deemed to be of great importance and requiring urgent consideration at all levels, regarding the effective role of training for preparing : reliable and fertile area for different levels of qualified specialists which are required to meet urgent and growing needs in the specific fields of standardization activities. The bad need was for organizing fundamental and specialized in house and on-site training schemes followed by advanced higher training.

5.10 The expert was assigned to undertake the duties outlined in his job description, which are stated hereafter for information and following up, as to assist the LITI in the design and establishment of a training capacity which will eventually be responsible for a programme of continueing training of the staff of the LITI and at some point, in the future programme of training for individual enterprises, industrial sectors in standardization, quality control and certification. The expert was specifically expected to :

5.10.1 Design and conduct training courses for newly recruited staff of the LITI in :

(a) principles and procedures of standardization

(b) methodology and organization methods, etc.

5.10.2 Design and develop appropriate training programmes for the training officers and counterpart personnel based on an assessment of their background and experience and the requirements of their job.

5.10.3 Prepare appropriate manuals and other documentation to supplement the above training courses.

5.10.4 Make recommendations concerning overseas training of personnel under United Nations Fellowships.

5.10.5 Advise Standards Technical Committees on clause structure suitable for the application of standardization.

5.11 The appropriate training courses were prepared, organized and accomplished as needed and scheduled (refer to item 6 and annexes 1 and 2)

5.12 The expert added to his training schedule an additional session about the introduction of statistical concepts to quality control (refer to item 6 and annex 1)

5.13 Invitations in name of LIPI, upon the expert's request have been sent to the standardizing departments mainly Industry and Trade, for their professional officials to participate and attend these training courses, the project leader limitted the invitation to one participant from each department and department of Trade was the only that responded and sent one of its standardization staff who attended the courses irregularly.

5.14 Programmes of work for the practical training according to the agreed upon scheduled plan were prepared to be effective by January 1981, and again invitations in name of LIPI, upon the expert's request have been sent to departments of Industry and Trade, but no action has been made in this respect. The practical training was accomplished to a great extent but unfortunately not with the intended rate and target (refer to item 6 and annex 2)

5.15 The main standardization operational documentation for operating the system and for the internal actioning at the national level were prepared in a simplified appropriate and practical manner to suit the actual needs of standardization activities working in Indonesia. Complete sets of this operational documentation were submitted to departments of Industry and Trade for their consideration (refer to annex 3)

5.16 According to the withdrawal of the UNDP/UNIDO assistance and in order to make the optimum use of the expert's availability, a revised work plan for the remaining period of the project was prepared and submitted to departments of Industry and Trade, but no action has been made from their sides (refer to items 3.9, 3.10, 4.11 and annex 1).

5.17 The procurement of the equipment under the project was stopped according to the decision of 30 September 1980, and it was recommended by the expert that the existing limited UN equipment held by the project are to be transfered to the government and to be handed over to LIPI. The inventory of the project equipment is shown in annex 4 (refer to item 3.9)

5.18 The expert advised the LIPI on the concepts of the national standardization system to be adopted. The expert also advised the LIPI on its

functions and the clause structure suitable for working and proceeding on with standardization activities at the national level, and proposed, for guidance, adequate detailed organizational structure and work flow charts for operating the system (refer to Annex 3 pages 35, 36, 37, 38, 39 and Annex 5)

5.19 The expert had a personal feeling that both departments of Industry and Trade find it more convenient for them to have UN technical assistance and training independently, mainly in view of being not in full harmony with the concepts of the system in question and the modalities suggested, specially hat these two departments have achieved reliable progress and are looking forward for an extensive development and promotion of their efforts concerning standardization and related activities for their concern.

5.20 It could be realized that the inputs and efforts exerted under this project has speeded up the procession and brought it to a cultivated promising stage of growing tendency towards adopting the concepts of the national system.

6. TRAINING

6.1 These ecurses were designed for the on-the-Job training in standardization principles and practice, procedures, methology and operation of the system, and were constructed within the broad lines of ISO Guide 9, in two main parts :

6.1.1 Lectures and discussions

6.1.2 Themes for practical training. The broad outlines of the training programme and the coverage and contents of the courses within its different sessions are detailed in Annexes 1 and 2

6.2 These programmes were intended for training LIPI's permanent members of standardization staff (newly recruited, officials, counterpart officers and senior professionals) having the responsibilities for directing the work on the international, regional and national levels in different industrial and production sectors, based on an assessment of their background and experience and the requirements of their jobs and to meet their actual capacity needs. These programmes were intended also for training professional personnel of concerned departments, individual enterprises and industrial sectors dealing with standardization and proceeding on with its activities.

6.3 The academic phase of the training consisted of a series of lectures and discussions conducted in six major sessions on the principles [illegible] tice of standardization (procedures and methodology). Lectur[illegible] full papers and reference materials for discussion were prepared by the expert and submitted to the participants. The participants accompanied by the expert visited the Indonesian consumer organization, the standardization and export directorate of department of Trade and Cooperative, Trade testing and quality control centre and the electric power research centre of State Electricity Corporation, where they had exchange of views and thorough discussions on the concepts. The participants were requested and encouraged to write short reports as to make use of what have learned and the ideas they absorbed from the training, reflecting their background understanding in this concern.

6.4 For the practical phase of the training, six working groups were created from the participants (LIPI staff), for operating the system, of which four working groups were to establish basic, fundamental standards and

guides. The other two working groups were to establish standard specifications for products seen to be selected and given priority according to the scheduled plan of work. These products were chosen to be of the chemical and electrical industries, as case studies. Some factory visits were arranged on that basis (refer to annexes 1 and 2)

6.5 Technical in-field, factory studies and investigations were carried out by the working groups upon visiting some of the factories producing the selected items. These studies were repeated and carried out upon visiting other factories producing the same items as it was seen by the expert that doing so will enable the participants to have a clear comprehension of the actual available possibilities, testing facilities and capabilities of the local production and its quality measures. Reports in this concern were prepared by the participants using the operational manuals prepared by the expert. This would serve as collected technical data needed for preparing the required draft proposals as first step in drafting the standard specifications in question. It was not within the objective of these studies to criticize the internal organizational structure and modalities applied in the visited factories.

6.6 As it was seen during the tenure of the expert in certification, that the much needed statistical training was not achieved, the expert had to add to his training the introduction of statistical concepts to quality control (refer to annex 1)

6.7 The fellowships training under the project was stopped according to the withdrawal of the UN assistance. Three candidates only awarded training fellowships and completed their fellowships during the tenure of the expert in certification (refer to Mr. Hopper's final report, item 4)

6.8 The training courses were conducted to 18 of the qualified standardization staff of the LIPI project who are at present assigned regular jobs and undertake their duties as standardization specialists. One participant from department of Trade attended the courses irregularly.

6.9 It was clear that the practical experience, the familiarity with testing and the background about industry, the participants had, were not enough and at the level that could enable them to access to the application of the concepts and techniques covered by the academic training. This was also dealt with by the expert in certification in his report.

6.10 The scheduled programme of work proposed by the expert in his preliminary report in August 1980 was accomplished with the only exception that the development of the final draft standards for the items selected to be standardized was not achieved as that was planned within the practical training and operation of the system. This was due to some reasons and mainly to that which arised from the internal organization questions of the LIPI.

6.11 The participants who attended and completed the training courses were awarded certificates.

LEMBAGA ILMU PENGETAHUAN INDONESIA
PROYEK PENGEMBANGAN SISTEM STANDARDISASI NASIONAL
(PROJECT FOR DEVELOPMENT OF A NATIONAL STANDARDIZATION SYSTEM - LIPI)

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* INTRODUCTION OF STATISTICAL CONCEPTS TO QUALITY CONTROL, STATISTICAL METHODS OF QUALITY CONTROL

yang diberikan oleh ahli UNIDO dari bulan Agustus 1980 sampai dengan Mei 1981

Jakarta, Mei 1981

Pemimpin kursus

Edward Youssef Kadi Dipl. Eng.
UNIDO Expert, Standardization

Pemimpin Proyek

Ir. Herudi Kartowisastro
NIP.: 320000697

7. NATIONAL SEMINARS

7.1 A two-days seminar (29 - 30 October 1980) on the economic advantages of standardization and quality control was organized by the standardization project. The details and minutes about this seminar were covered by Mr. Hopper in his final report (page 12 item 6 and annex 5)

7.2 A tree-days seminar (28 - 30 January 1981) on standardization and quality control was organized by Department of Trade and Cooperative. The expert presented a general paper on standardization concepts and the existing situation of standardization activities working in Indonesia. This paper was presented at the first session of the seminar in English and was distributed to the participants with its summary in Indonesian version and a brief hints in English on the subject in question. The coverage of the expert's paper dealt mainly with the following :

- Standardization and International Trade (Trade barriers)
- Standardization and Industrial Development.
- Standardization and the Consumer
- Standardization and Production Cost Reduction (Variety Reduction)
- Standardization and Management
- Standardization at the National Level
- Implementation of Standards
- Support of Governments with respect to Standards Implementation
- Standardization in Indonesia, Existing situation and problems.

The details, minutes of this seminar and the complete text of the expert's paper are contained in annex 6 of this report.

7.3 A two-days technical meeting (2 - 3 February 1981) on testing laboratories and quality inspection network III was organized by Department of Trade and Cooperation, Centre for testing and quality control. The expert, upon invitation, attended the meeting and participated in the discussions that took place during this meeting.

8. RECOMMENDATIONS

8.1 Standardization Activities and System

8.1.1 Concerting efforts should be exerted and necessary support of the Government and of the concerned departments should be obtained in order that a consensus agreement could be reached on the standardization concepts at the national level and the adoption of the national coordinating system as the foundation stage in creating the National Body or Council for Standardization in Indonesia.
In this respect it should be realized and felt that :

8.1.1.1 The most important of the standardization levels is that of the national one because of its wide coverage scope and its farreaching results and influence to all other levels of company, regional and international.

8.1.1.2 Through the national level of standardization, the requirements and needs of the individuals, companies, industrial and trade sectors, producers and users, consumers and community, etc. .... in the country are coordinated, harmonized and integrated resulting as a proper and purposeful standards after consulting a consensus of all the interests concerned in the country.

8.1.1.3 Standardization at the national level could be considered as the basis for forging the international agreements concerning the international standards, helping to promote worldwide exchange of goods, services and national interests.

8.1.1.4 The recognition of the need for national standards raised from the growth of industrialization throughout the world, bringing with it increased trading and more need for standard specifications as recognized basis adopted for trade, and to provide necessary and adequate means for the assurance of the suitability, fitness and quality claimed for of the products or commodity dealt with. They are also essential for the variety reduction limiting the needless and unnecessary wide variety of production.

8.1.2 Workshops, seminars and successive meetings should be organized in collaboration with the concerned parties in order to clarify the views and to reach a consensus of national opinion about the adop-

tion of the concepts of the system.

8.1.3 Necessary supporting and constituting Presidential and Ministerial decrees and regulations should be issued in this concern.

8.1.4 All the spreading out standardization activities working in the country should be embraced under one umbrella coverage provided by the coordinating system.

8.1.5 The different standardization departments in the country should continue in proceeding on with the establishment and the implementation of national standards, but their activities should be subjected to mutual consultation and harmonization with each other according to an agreed upon national plan within the coordinating system.

8.1.6 The standards prepared by the different departments dealing with standardization in the country should be processed using same principles and with one adopted style of presentation, within the coordinating system (the national facet of standardization). These standards are to be recognized as the national standards adopted in the country which serve as the effective guidance for the development of the country's industry and commerce and bringing about order in existing pattern of national economy.

8.1.7 Consideration should be taken into account concerning the essential and important task of planning for a coordinated and harmonized programme of work to integrated the different standardization activities carried-out and are expected to take place by different departments dealing with standardization in the country to meet heir specific and actual needs and to cover their respective areas of interests, and to ensure cooperation and full utilization of their available facilities and capabilities. This programme of work should be coordinated and planned with special emphasis on :

(a) new industrial projects
(b) recognized needs of industry, trade and other national sectors.
(c) import and export schemes
(d) requirements of enterprises and governmental departments, schools, hospitals etc. ... of first priorities.
(e) consumer goods, safety of persons and goods, protection of health and life

(f) interests of both producers and users.

8.1.8 The Government and its associated authorities should play an important and considerable role in enforcing and securing the implementation of standards acting as standards implementing authority.

8.1.9 Standardization activities at the regional level are much needed and should be organized and coordinated within the ASEAN REGIONAL GROUP, with the intended industrial and economical development of the whole group as a main common objective.

8.1.10 A network system should be introduced for publicity of all means, standard popularization, technical information, documentation and comprehensive library services to provide all interests working in the field, with the required informations, necessary references and measures for all standardization activities at all levels, thus providing an abstractive clearing house for such needs and consequently advice and consultations should be given and reference materials should be secured to all concerned parties on what concerned standardization and related activities. This should be done within the national coordinating system.

8.1.11 The existing standardization activities working in the country should be accelerated towards the adoption of the international works and efforts in this field. When developing the country national standards, the application and implementation of the international ISO and IEC recommendations should be given first priority.

8.1.12 Working with standardization requires specialists having scientific and technical education and background. The professional officials of the permenant standardization staff should be universities or high technical schools graduated.

8.1.13 LIPI should be called for, in view of its status, to be supported and accepted to play the effective role as the central focal point for the national coordinating system. In this respect, LIPI anticipates the support of a council, assisted by specialized advisory boards, divisional or sectorial and technical committees with permenant representatives of all the concerned departments, institutes, individual enterprises, industrial and trade sectors as participating members.

8.1.14 The elaboration of basic, fundamental standards and guides for the concepts and methodology should be the concern of LIPI of first priority.

8.2 Education and Training

8.2.1 Qualification training in the principles and in the process should be given urgent consideration at all levels, regarding the effective role of training for preparing a reliable and fertile area of qualified specialists required to meet the growing needs in the specific fields of standardization. This sould be achieved by organizing fundamental and specialized in country training followed by advanced higher training

8.2.2 Education and methodical training in standardization and its allied activities related to the various branches of engineering, should be included in the curriculum of the universities, institutes, high and technical schools under the directives of the standardization departments within the national coordinating system.

8.2.3 Sufficient and effective general public education, understanding and awarness about standardization and its related activities should be gained through general publicity, popularization, expressions and informative means and materials such as microfilms, microfiches, TV shorts, advertisements in scientific, technical and industrial bulletins, stamp and any other available means in this respect for the same purpose. This should be one of the main functions to be assigned to the standardization departments within the national coordinating system

8.2.4 Periodic seminars and succesive meetings should be organized by the standardization departments within the national coordinating system to provid a forum for exchange of views and discussion of new techniques which is to be considered the most wide, effective and rapid means of spreading out informations about the concepts of standardization and its related activities, communication and public education in this concern.

8.2.5 Consumer organization should play an active role in conducting education, general publicity and popularization about standardization and its aspects specially those dealing with the consumer and community interest as well as safety and protection of health and life. This should be done in collaboration with the standardization departments within the national coordinating system.

8.2.6 Necessary support should be given to the standardization departments to organize and carry on short term training courses in this field on a continuing basis. The programmes of these training courses could be expanded to cover training for company standardization engineers.

8.2.7 Training programmes in standardization should be designed, developed and conducted for the different functional levels. Two different types of training are required : for those who are working at the national level and for those who are working at the company level.

8.2.8 Newly recruited personal of the standardization permanent staff who will continue their services in future and who will proceed on with their activities at the national level should be put on field and be given on-the-job training. Group training should be considered the more effective in the long run for them.

8.2.9 On-the-job training courses in standardization should be conducted through lectures, mutual discussions and practical training to achieve the aimed purposes

8.2.10 These training courses should lay particular emphasis on standardization at the national and company levels, certification schemes, technical inspection, testing and testing conditions, criteria for acceptance and rejection, industrial quality control, its scientific and statistical methods. and industrial metrology.

8.2.11 The trainees should be given short term intensive courses in foreign languages (of which English then french are considered the most prevalent and profitable). This should be considered as a must to enable them to have access to the vast international standardization literature as well as to attend successfully the qualification courses held either in-country or overseas. This level of language knowledgement will serves them further on in following-up and responding to, within the frame work of their responsibilities, the international, regional and foreign

national standardization activities.

8.2.12 The professional staff working with standardization should be directed to pay short and periodic training visits to the industrial enterprises and firms which would help them to gain certain experience and background about industry as well as an initial understanding about standardization, its application and use.

8.2.13 The professional staff working with standardization should be familiar with testing laboratories and centres which no doubt would be of great help to them with respect to standardization activities specially in what concerns prototype, samples testing, calibration and verification of testing and measuring instruments.

8.2.14 For more advanced higher training. The trainees, after completing with success the previous fundamental and specialized courses, should attend for specialization perfection, overseas normal and advanced training courses organized under the directives of some of the advanced and long experienced bodies of standardization in collobaration, in somecases, with the international organizations and the specialized concerned institutions. The training courses are conducted by the Governments as part of their technical cooperation programmes for developing countries, the most important of these training courses are organized as follows :

8.2.14.1 Normal training courses in France, India, Japan and United Kingdom.

8.2.14.2 Advanced training courses in India, Japan, Netherland and Sweeden.

8.2.15 Training selected professionals of the standardization staff to recruit them as permanent training seniors or trainers should be considered as being a must for the establishment of a training capacity which-will be responsible for the continueing training of the standardization staff of/the departments, enterprises and industrial sectors, etc...

8.2.16 The proposed modalities of training for the training seniors or trainers would be :

8.2.16.1 a normal training course, followed by

8.2.16.2 an advanced training course, followed by

8.2.16.3 on field training under the directives of UNIDO Experts, followed by

8.2.16.4 training through individual or group study tour

8.2.17 Some proposed in-country and overseas group qualification training courses in this respect are contained in Annex 7

8.3. UNDP/UNIDO-UN technical assistance

8.3.1 In spits of the withdrawal of the project and according to the actual situation already existing in the promulgation and implementation of standardization and the problems associated with it in the country, consideration to future technical assistance of all types in the general area of standardization and its related activities should be given by UNIDO in conjunction with the specialized agencies of the UNITED NATIONS engaged in standardization with reference to their specific fields of action.

8.3.2 Further UNIDO technical assistance should be given to LIPI, one of the standardization institutes being in the process to be accepted and supported to act as the central focal point for the national coordinating system

8.3.3 Till a consensus agreement could be reached on the standardization concepts at the national level and the adoption of the national coordinating system, the technical assistance to be given should be channeled and extended to cover the needs of the different standardization departments, with the fact that the departments have to continue in proceeding on with the standardization activities for their own areas of interest even after the establishment of the national system.

8.3.4 The technical assistance to be given to the different standardization departments should cover as first priority the development of standards dealing with basic, fundamental aspects, protection of health and life, consumer goods, safety requirements and quality requirements of exported commodities.

8.3.5 UN technical assistance should be provided to organize and support seminars, symposia and conferences on standardization to be held in the country under the directives of the International Organizations ISO and IEC. This, to meet the bad need for a forum in which the different standardization departments could exchange their views, discuss their problems and explore ways and means for consolidating their activities at the national level and adopting

a national coordinating system. International experts, consultants, advisers and specialists have to be invited as well as delegates of the ASEAN countries who might be interested to participate.

8.3.6 The technical assistance to be given should include sufficient possibilities and facilities for provinding LIPI with the necessary international standards, standards of other countries and technical literatures about standardization, as LIPI is building itself to be the national clearing-house in this field. This would help in disseminating references, informations and library services to those engaged in standardization activities in the country.

8.3.7 In general and in this respect, under various UN assistance programmes, awarding fellowships for overseas training and sending standardization experts, advisers and consultants to the country on long or short terms would be a sound source and fruitful target.

ANNEXURES

ANNEX 1

ON - THE - JOB TRAINING COURSES

STANDARDIZATION PRINCIPLES AND PRACTICE
PROCEDURES, METHODOLOGY AND OPERATION OF THE SYSTEM

BROAD OUTLINES OF THE PROGRAMME

A. LECTURES AND DISCUSSIONS

SESSION 0: PRESENTATION, INTRODUCTION AND OVERVIEW

0.1 Presentation of the expert in standardization for training and the participants

0.2 Introduction and information on the training programme

0.3 Justification of the training

SESSION 1: STANDARDIZATION

1.1 What it is about (Meaning)

- Standardization and Industrial Development
- Standardization and Production Cost Reduction, Variety Reduction
- Standardization and Management, Analysis by Function/Value Analysis
- Standardization and the Consumer

1.2 General terms and their definitions in this respect.

1.3 General characteristics

1.3.1 Aims

1.3.1.1 Simplification
1.3.1.2 Interchangeability
1.3.1.3 Communication
1.3.1.4 Overall Economy.

1.3.1.5 Safety

1.3.1.6 Consumer and community interest

1.3.1.7 Trade Barriers

1.3.2 Principles

1.3.3 Subjects

1.3.4 Aspects

1.3.5 Level

1.3.5.1 International

1.3.5.2 Regional

1.3.5.3 National

1.3.5.4 Industrial Associations

1.3.5.5 Company

1.3.5.6 Private (Individual)

1.3.6 Activities

1.3.6.1 At the International level

1.3.6.2 At the Regional level

1.3.6.3 At the National level

1.3.6.4 At the Company level

1.3.7 Fields

1.3.7.1 Standard specifications development

1.3.7.2 Conformity with standards

1.3.7.3 Quality control

1.3.7.4 Certification schemes

1.3.7.5 Quality marks

1.3.7.6 Metrology and calibration

1.3.7.7 Testing laboratories and Quality control centres

1.4 Popularization

SESSION 2: STANDARD SPECIFICATIONS

2.1 Code of practice

2.2 Regulations

2.3 Basic, Fundamental standards

2.3.1 Quantities, units and symbols

2.3.2 Terminology

2.3.3 Preferred numbers

2.3.4 Engineering drawings

2.3.5 Tolerances, limits and fits

2.3.6 System of units (SI System)

2.3.7 Statistical methods

2.4 Applied standards

2.4.1 Raw materials

2.4.2 Semi-finished products

2.4.3 Finished products, End products

2.4.4 Safety requirements

2.4.5 Performance requirements

2.4.6 Environmental requirements

2.4.7 Methods of testing and standard Testing conditions

2.5 For Export standards, Export Quality Standards

SESSION 3: DEVELOPMENT OF STANDARD SPECIFICATIONS

3.1 Drafting of standards

3.2 Procedure for the establishment of standards (Work flow charts)

3.3 Revision of standards

3.4 Up-dating of standards

3.5 Implementation of standards

SESSION 4: APPLICATION OF ISO AND IEC RECOMMENDATIONS AND STANDARDS IN NATIONAL STANDARDS

SESSION 5: STANDARDIZATION OPERATIONAL DOCUMENTATION FOR OPERATING THE SYSTEM AND INTERNAL ACTIONING AT THE NATIONAL LEVEL

5.1 Development of standards specifications

5.2 Following-up the International Regional and foreign National technical standardization activities.

SESSION 6: LEGAL CONSIDERATION OF THE STANDARDS

ADDITIONAL SESSION : INTRODUCTION OF STATISTICAL CONCEPTS TO QUALITY CONTROL

- Presentation of data
- Elementary probability theory
- Some aspects of reliability engineering
- Statistical methods of quality control, statistical quality control SQC, General approach
- Statistical sampling, General approach

<u>CONCEPTS ON WHICH THE PARTICIPANTS WERE ENCOURAGED TO PREPARE SHORT REPORTS</u>

(a) Standardization at the company level-company standards

(b) Export Quality Standards

(c) Economic considerations and effects of standardization.

<u>B. THEMES FOR PRACTICAL TRAINING (OPERATION OF THE SYSTEM)</u>

1. Planning for establishing standard specifications and operating the system

   1.1 Basic, Fundamental standards

   1.2 Standards for a product

2. Preparation and design of appropriate operational manuals and other supplement documents for the system

3. Setting a follow-up system for the International, Regional and Foreign National standardization activities and operating the system.

TECHNICAL IN-FIELD, FACTORY STUDIES AND INVESTIGATIONS TO BE CARRIED OUT BY THE PARTICIPANTS

(a) Technical visits to be paid to industrial production units for selected case studies to demonstrate the application of standardization concepts and techniques dealt with within the coverage of the training

(b) Technical reports to be prepared on the in-field, factory studies and investigations upon visiting the industrial production units using the operational manuals.

INTERNATIONAL AND OTHER PUBLICATIONS RELATED TO STANDARDIZATION CONCEPTS DEALT WITH WITHIN THE COVERAGE OF THE TRAINING

- Standardization in the service of developing countries.
  The case for ISO action
- ISO GUIDE 2-1980
  General terms and their definitions concerning standardization and certification
- ISO GUIDE 4 - 1975
  Preparation of standard methods of measuring performance of consumer goods (SMMP)
- ISO GUIDE 12 - 1977
  Comparative testing of consumer products
- ISO GUIDE 13 - 1977
  Operation and significance, for consumers, of marks of comformity with standards
- ISO GUIDE 14 - 1977
  Product information for consumers
- Standardization space (Book: Standardization a new discipline by VERMAN)
- International standard ISO 31/10-1974
  General principles concerning quantities, units and symbols
- International standard ISO 3 - 1973. Preferred numbers - Series of preferred numbers
- International standard ISO 17 - 1973 Guide to the use of preferred numbers and of series of preferred numbers
- ISO Recommendation ISO/R128 - 1959 Engineering drawing, Principles of presentation
- ISO Recommendation ISO/R 129 - 1959 Engineering drawing, Dimensioning
- ISO Recommendation ISO/R 286 - 1962 ISO system of limits and fits
- ISO Recommendation ISO/R 406 - 1964 Inscription of linear and angular tolerances
- International standard ISO 1000 - 1973 SI units and recommendations for the use of their multiples and of certain other units
- International standard ISO 2859 - 1974 Sampling procedures and tables for inspection by attributes
- Setting standards for safe equipment (Industrial Safety Handbook).
- International standardization related to aspects of environmental engineering/ISO.

- Environmental problems with special reference to the IEC system of standards for environmental tests for electronic components and equipment/IEC.
- ISO Directives 1979 - part 2, Annex 2D Methods of chemical analysis
- International standard ISO 554 - 1976 Standard atmospheres for conditioning and/or testing - Specifications
- ISO Recommendation ISO/R 558 - 1967 Conditioning atmosphere, Test atmosphere, Reference atmosphere
- ISO FORMS - ISO DIRECTIVES, ANNEX IH AND ATTACHED FORMS
  - FORM 1 : Proposal for a new field of technical activity
  - FORM 2 : Reply on proposal ISO/TS/P
  - FORM 3 : Proposal for a new work item
  - FORM 4 : Annual TC report
  - FORM 5 : Statement of results
  - FORM 6 : Cover page of DP
  - FORM 7 : Cover page of DIS
  - FORM 8 : Cover page of International Standards
  - FORM 9 : Check - form for DIS
  - FORM 10: Ballot paper ISO/DIS with questionnaire on the implementation of the resulting International Standards
- ISO GUIDE 3 - 1976
  Identification of national standards which are identical with ISO International standards.
- ISO GUIDE 15 - 1977
  ISO/IEC code of principles on "reference to standards".

BROAD COVERAGE AND CONTENTS OF THE TRAINING COURSES

SESSION 1 : STANDARDIZATION

1.1 What it is - what it is about - meaning

- Standardization and Industrial Development
  Standardization and its related activities and fields as important aspects of industrial development in the country - efficient flow of production at reduced costs - marketing and improvement of consumer satisfaction - transfer of technology with provided guarantee - standardization as a common pattern for development of industry - standardization as the organizational backbone of the modern industrial economy - standardization as a key factor in development - the demand for quality as steadily gaining momementum in industrial development
- Standardization and Production Cost Reduction, Variety Reduction, Variety reduction of a product - variety and money - degree of application of variety reduction - different stages and types of production to which variety reduction could be applied - for assembled industries - for sub-assemblies or small components - for materials
- Standardization and Management. The challenge to industrial management - management and analysis of production costs - management functions - standardization as a tool of modern management - in design - in production - in purchasing - in marketing - in administration and accounting - analysis by function - value analysis
- Standardization and the Consumer, consumer interests and organizations - certification and conformity marks and the consumer - informative labelling and the consumer - comparative testing and the consumer - relationship of the consumer organization to the work of the standardization organization - consumer's unions.

1.2 General terms and their definitions in this respect.
Standardization - consensus - technical specifications - standard ("Norme" in French) - simplification - unification - interchangeability - tolerance - code of practice - regulations - basic (fundamental) standard - standardization body - variety control - fitness for purpose - conformity with standards - conformity certification - mark of conformity - quality control - statistical quality control - quality assurance.

1.3 General characteristics

1.3.1 Aims of standardization - achievement of overall economy of scarce resources, human efforts, materials, power and energy, etc - creation of maximum productivity - simplification - limitation of variety of manufactured goods and components - variety reduction - elimination of wastage during handling of materials processing, transport and in general exchange of goods - interchangeability - functional aspect of interchangeabilitym- functional and dimensional interchangeability - the function of standardization in providing adequate means of mutual communication between manufacturers and customers - provision of standards for safety and protection of health and life - safety requirements - protection of consumer and community interest - quality of service - serviceabiliyy of consumer equipment - availability of standard goods - trade barriers - promotion of international trade and exports - GATT standards code "Agrement on technical barriers to trade".

1.3.2 Principles of standardization - reduction of present complexity - prevention of unnecessary complexity in the future - standardization as an economic activity - general consensus as bases for formulating the standards - value of standards not implemented - actioning by selection followed by fixing when establishing the standards - revision and up - dating the standards regularly - inclusion of methods of testing and sampling in the standards - consideration of the nature and legal status of the standards - laws and conditions prevailling in the society for whom the standards has been prepared.

1.3.3 Standardization subjects - material objects - abstracts subjects - specified domains of related subjects.

1.3.4 Standardization aspects - group of requirements or conditions and characteristics satisfied by a subject as to be conforming to the standards.

1.3.5 Levels of standardization - international level - regional level - national level - industrial association level - company levels - private (individual level)

1.3.6 Activities of standardization - at the international level - the international organizations for standardization - ISO, IEC, OIML - IMECO - EOQC - ASTM - CEE - functions and technical work - interna-

tional ISO committees - EXCO, PLACO, CERTICO, COPOLCO, DEVCO, INFCO, ISONET, REMCO, STACO, ISCA - IEC and the Household consumer - IEC and the capital goods manufacturer - world - wide and national standardization.

At the regional level - the regional standardization organizations- CEN, CENEL, COPANT, ASAC, ASMO - functions and technical work.

At the national level - the national standardization organizations - NSB - organization and functions - technical work.

At the company level - company standardization - company standards

1.3.7 Fields of standardization - development of standard specifications - compliance to national standards - quality control - certification schemes - quality marks - metrology and calibration - testing laboratories and quality control centres.

1.4 Popularization - standardization publications - technical informations, documentation and library services - availability of references - the action of an abstractive clearing - house - expressions and informative means - public, technical and foreign relations - other available means in this respect for the same purpose.

SESSION 2 : STANDARD SPECIFICATIONS

The common pattern for the development and promotion of industry - the organizational backbone of the modern industrial economy - technical specifications and standards - types of standards.

2.1 Code of practice - recommended practices for the design manufacturing installation, utilization and maintenance of equipment, construction and services, safety aspects.

2.2 Regulations - legislative, regulatory or administrative rules - technical regulations.

2.3 Basic, fundamental standards - function of basic standards of direct application or as a basis for other standards.

2.3.1 Quantities, Units and symbols -, quantities and units - quantities and equations - measuring units - SI units - symbols for quantities - symbols for units

2.3.2 Terminology - glossaries of terms - technological terminology vocabularies.

2.3.3 Preferred numbers - Renard series - series of preferred numbers - use of preferred numbers - selection of a suitable range of sizes for a product - preferred sizes.

2.3.4 Engineering drawings-graphical symbolic and coding system for facilitating communication - principles for presentation - general principles of dimensioning - methods of execution of dimensioning - arrangements of dimensions.

2.3.5 Tolerances, Limits and fits - extreme permissible limits - basic size - deviation - maximum and minimum limits of size - clearance and clearance fit - interference and interference fit - transition fit - max and min clearance - max and min interference.

2.3.6 System of units - International System of Units SI - CGS system - MKS system - MKSA system - SI units - base units supplementary units - derived units - approved derived SI units - decimal multiples and sub - multiples of SI units

2.3.7 Statistical methods - statistical concepts - inspection by attributes - inspection by variables - engineering statistics - statistical inference - random sampling - basic definition - population - random variable - continuous variable - discrete variable - Probability distribution of a random variable - characteristic - sample - sampling - sampling unit - random sampling - frequency distributions - class - class limits - class interval - relative frequency - cumulative absolute frequency - cumulative relative frequency - histogram - bar diagram - bar chart - cumulative absolute (relative) frequency polygon.

2.4 Applied standards - industrial standards

2.4.1 Standards for raw materials

2.4.2 Standards for semi-finished products - components - sub - assemblies

2.4.3 Standards for finished, end products - descriptive standards - variety control standards - dimensional standards.

2.4.4 Safety requirements - standardization and safety - product standards and safety - safety standards - setting standards for safe equipment.

2.4.5 Performance requirements - reliability - performance characteristic - fitness for purpose - compatibility - performance standards - service

standards - performance test

2.4.6 Environmental requirements - classification of climate - tropical humid - tropical arid, desert - cold, sever cold - temperate, normal - main climatic factors affecting materials, products, equipments - environmental testing

2.4.7 Methods of testing and standard testing conditions - testing standard - test - test sample - types of methods of testing - reproducibility - repeatability - non destructive tests - precision of methods of testing.

2.5 For export standards - export quality standards

SESSION 3 : DEVELOPMENT OF STANDARD SPECIFICATIONS

3.1 Drafting of standards

3.1.1 Principal consideration - planning for the standards programme according to the national industrial development- requirements and needs to be emphasised on - evaluating the possible benefits to be derived by elaborating and applying the standards - securing the active participation of all interests - standards to be in accordance with the current and immediate future needs of the country economy - securing optimum overall national economy, etc.

3.1.2 Characteristics to be considered in drafting standards

3.1.3 Reference material - technical specifications - manufacturer or company standards - mother company standards - comparative, in office studies - in field, factory studies - international, regional and other foreign national standards - basic standards - existing national standards in same concern - available possibilities and facilities at universities, testing laboratories and research centres, etc.

3.1.4 Technical reports prepared by standardization specialists upon visiting producing firms

3.1.5 Style and presentation of standards - standardized format - standard's proper sizes - code number - elements for applied standards, complete product standards - elements for methods of testing - numbering of elements - forms of standards - discursive form, (traditional)- sheet form, (compact)

3.1.6 Clarity in drafting standards

3.2 Procedure for the establishment of standards.

3.2.1 Planning at the national level

3.2.2 Steps of the procedure

Allotment of work - working group - preparation of draft proposals- setting of technical committees - preparation of draft standards - circulation for comments - examination of collected comments - preparation of final draft standards - ratification and approval by divisional or sectorial committees, specifications advisory board, approval by council (NSB) - indication of date of implementation and legal consideration - publication - organization charts for permanent staff, advisory board, divisional or sectorial and technical committees and working groups, for guidance-work flow chart, steps/ stages and percentage achievements (estimated), for guidance

3.3 Revision of standards

3.4 Up - dating of standards

3.5 Implementation of standards

3.5.1 Implementation of compulsory standards

3.5.2 Implementation of voluntary standards

3.5.3 Implementation through standardization activities

3.5.4 Support of governments with respect to standards implementation

SESSION 4 : APPLICATION OF ISO AND IEC RECOMMENDATIONS AND STANDARDS IN NATIONAL STANDARDS

Recommendations and standards developed by the ISO and IEC - adoption and implementation of international recommendations and standards - full or partial harmonization or alignment of national standards with the relevant international standards

4.1 Following - up international, regional and foreign national standardization activities

4.2 Identification of national standards with ISO or IEC recommendations or standards-addition of the international standards identification to the national standards identification letters and numbers -

addition of the international standards identification to the national standards identification letters only, without numbers

SESSION 5 : STANDARDIZATION OPERATIONAL DOCUMENTATION FOR OPERATING THE SYSTEM AND INTERNAL ACTIONING AT THE NATIONAL LEVEL

5.1 Development of standard specifications

5.2 Following - up the international regional and foreign national standardization activities (contained in details in Annex 3)

SESSION 6 : LEGAL CONSIDERATION OF STANDARDS

Compulsory standards - voluntary standards - legal aspects of implementation of the standards

ADDITIONAL SESSION : INTRODUCTION OF STATISTICAL CONCEPTS TO QUALITY CONTROL

- Presentation of Data-the graph - Pie charts - bar charts - Pictogram - line chart - histogram - frequency polygon - frequency distributions table - methods of forming frequency distributions - cumulative frequency distributions - relative frequency distributions - frequency curves for continuous variables - types of frequency curves - cumulative curve

- Elementary probability theory - probability - complementary law of probability - multiplication law - addition law - conditional probability - probability, frequency definition

- Some aspects of reliability engineering.
  Statistics - reliability - product rule - redundancy - classification of failure - failure modes - design and testing - cause and effect - discrete engineering

- Statistical methods of quality control - statistical quality control (general approach)
  Definition of quality control - definition of statistical quality control - introduction to the concept - coordination between design, production and inspection - meaning and aspect of quality - quality of design - quality of conformance - quality of individual items - collective quality of a batch, lot or source of supply - quality costs - failure costs - appraisal costs - prevention costs - process

control - product acceptance - product acceptability - average outgoing quality (AOQ) curve - average outgoing quality limit (AOQL)

- Statistical sampling (general approach)
  Statistical methods of sampling - criteria for acceptance or rejection - sampling inspection and 100 % inspection - 100 % inspection - inspection by attributes - inspection by variables - sampling plan, acceptance sampling plan - features of sampling plans - sample and sample size - acceptance and rejection number - types of sampling plans - single sampling plan - double sampling plan - multiple sampling plan - sequential sampling plan - continuous sampling plan.

1/11/1980

M E M O R A N D U M

To : SIDFA UNIDO

From : UNIDO EXPERT, STANDARDIZATION

SUBJECT : PROPOSED REALLOCATION OF DUTIES

SUGGESTED METHODS OF THE ON-THE-JOB TRAINING IN STANDARDIZATION PRINCIPLES AND PRACTICE (FOR THE THREE DEPARTMENTS : LIPI, INDUSTRY AND TRADE)

1- Allocation of Time :

LIPI : 1 day/week for programme already agreed upon.
DEPT. of INDUSTRY : 2 days/week (1 day academic + 1 day field case study)
DEPT. of TRADE : 2 days/week (1 day academic + 1 day field case study)

2- Methodology

2.1 Academic (for both Depts. of Industry and of Trade)

(a) Standardization

- Meaning (what it is about)
- General Characteristics
  - Aims
  - Principles
  - Subjects
  - Aspects
- Levels
  - Company
  - Industrial Associations
  - National
  - Regional
  - International
- Activities and Fields
  - Standard Specifications development
  - Conformity with standards
  - Quality Control and Quality Marks
  - Certification Schemes
  - Metrology and Calibration
  - Testing Laboratories and Q.C. Centres.

(B) Standard Specifications

- Code of Practice
- Regulations
- Basic standards
- Applied standards
- Export standards

(C) Development of Standard Specifications

- Drafting of Standards
- Procedure for the Establishment of Standards
- Revision and Up-dating of Standards
- Implementation of Standards

(D) Application of International Standards in National Standards

(E) Economic Effects of Standardization

(F) Legal Consideration of Standards

(G) Standardization Documentation

- Operational Manuals
- Forms and Supplement Document

2.2. Field Case Study

2.2.1 Dept of Industry :

Procedures :

Selected officials accompany the expert to cooperative factories to study in field the application of standardization and its foundation for quality control (Note: It is anticipated that a preliminary tour in Java of duration of 1 month may be necessary)

2.2.2 Dept of Trade :

Procedures :

Selected officials accompany the expert to cooperative factories possibly specifically in areas know to be largely responsible for expert non-acceptance

N.B. These proposals to be discussed with Dept. of Industry and Dept. of Trade. Specific items and problems relative to production can be outlined by them.

EFFECTIVE JANUARY 1981

B - THEMES FOR PRACTICAL TRAINING (OPERATION OF THE SYSTEM)

1. STEPS :

1.1 Planning for the establishment of standard specifications (Selection of items to be in question).

1.2 Operating the system (Procedure and Methodology).

1.3 Preparation and design of appropriate operational and supplement documents for the system

. (With reference in particularly, to the lecture notes of sessions 2, 3 and 5 of these training courses)

2. ITEMS, SUBJECT MATTERS SEEN TO BE SELECTED AND GIVEN FIRST PRIORITY :

2.1 ESTABLISHMENT OF STANDARD SPECIFICATIONS

2.1.1 Basic, fundamentals standard specifications.

2.1.1.1 Engineering drawing

2.1.1.2 Standard format for Indonesian national standards.

2.1.2 Standard specifications for a product

2.1.2.1 Milk powder/Formulated milk for infants

2.1.2.2 Portland cement

2.1.2.3 Tungsten filament lamps for general service

2.1.2.4 Household and similar electrical appliances (General safety requirements).

2.2 ELABORATION OF GUIDES

2.2.1 General terms and their definitions concerning standardization and certification.

2.2.2 Process for formulation of standards

3. PROCEDURE :

(With the expert's full assistance)

3.1 For items : - Engineering drawing
- Standard format

Same as prescribed in the attached MEMORANDUMS (1), (2) dated 10 October 1980 in this concern.

3.2 For items : - Milk powder/Formulated milk for infants

- Portland cement
- Tungsten filament lamps for general service
- Household and similar electrical appliances (General safety requirements)

Same as presbribed in the attached MEMORANDUM (2) dated 10 October 1980, in addition, in-office, comparative studies and in-field, factory studies are to be carried out according to the designed operational manuals. These studies together with the reference material, survey, research work, investigation, etc... would serve for preparing the required draft proposals as the first step in drafting the standard specifications in question.

3.3 For items : - General terms and their definitions concerning standardization and certification
- Process for formulation of standards

Same as prescribed in the attached MEMORANDUM (2) dated 10 October 1980, with ISO GUIDES as the only reference material to be considered in this respect.

4. OPERATIONAL DOCUMENTS :

4.1 Appropriate practical operational documents, manuals, explanatory notes, circulars and forms were designed to be used in this respect. (refer to annex 3)

4.2 The operational documents (Note (5) and FORM 3/stand.) are to be used for the in-office, comparative studies.

4.3 The operational documents (Note (6) and FORM 4/stand.) are to be used for the in-field, factory studies (These studies to be carried-out in more than one factory producing the same item in question)

5. FACTORY VISITS :

5.1 Technical visits to be paid to selected factories producing the items in question (more than two factories producing same item)

5.2 Technical reports to be prepared upon visiting the selected factories (in-field, factory studies using the operational manuals)

10 October 1980

MEMORANDUM (1)

To : STANDARDIZATION PROJECT LEADER LIPI

From : UNIDO EXPERT, STANDARDIZATION

SUBJECT : INITIATIVE BY LIPI, ESTABLISHMENT OF STANDARD FORMAT FOR INDONESIAN NATIONAL STANDARDS (FORM, SIZE, SHAPE, CONTENTS, ITEMS, NUMBERING AND CODING, CLASSIFICATION, etc.

BACKGROUND :

1 - Standardization activities in Indonesia are carried out by different and various departments and agencies.

2 - These departments are setting their own standards to meet their specific and actual needs and to cover their respective areas of interests.

3 - The standards issued by these different department are of different forms, sizes and shapes.

4 - Even within the same department, the issued standards are of different format.

OBJECTIVE :

A uniform standardized format for all Indonesian national standards.

RECOMMENDATIONS :

1 - To establish a uniform standardized format agreed upon by the different standardizing departments in Indonesia.

2 - This format is to be adopted and applied by the different departments in setting their own standards.

3 - This format is to be considered and recognized as an adopted standard format for Indonesian national standards, whatever the issuing department is.

4 - Moreover, within the ON-THE-JOB training in standardization principles and practice, establishment of such a standard is in the field theme for practical training for standardization staff of LIPI (PROCEDURE, METHODOLOGY AND OPERATION OF THE SYSTEM)

PROCEDURE : (With the expert's full assistance)

1 - Representatives of the different standardizing departments are to be invited to attend a preliminary meeting in order to obtain the necessary support and acceptance for the establishment of such a standard format (Technical committee).

2 - To form a working group WG from LIPI staff to carry on the work, representatives from other departments could share in this work.

3 - The WG has to draft the first harmonized proposal for a standar format.

4 - The following are to be considered as reference material :

4.1. Different format of the standards issued by the different standardizing departments in Indonesia.

4.2. Standard format adopted by International and other national standardization bodies (specially those bodies in the region) ISO, IEC, ISI, JIS, BSI, DIN, AFNOR.

5 - The (first) draft proposal prepared by the WG is to be submitted to the technical committee for draft approval.

6 - The draft is to be widely circulated for comments.

7 - The draft is to be revised by the WG taking into consideration the comments collected.

8 - The revised draft is to be submitted another time to the technical committee for final approval as a standard.

9 - All the departments has to agree on date of implementation.

16 October 1980

MEMORANDUM (2)

To : STANDARDIZATION PROJECT LEADER/LIPI

From : UNIDO EXPERT, STANDARDIZATION

SUBJECT : ESTABLISHMENT OF BASIC (FUNDAMENTAL) STANDARDS "ENGINEERING DRAWING"

BACKGROUND :

1 - In standardization activities, Engineering Drawing was adopted as a graphic, symbolic and coding system that could be adapted to any language, enabling designs to be precisely submitted, simplifying the process and minimizing any arising problems in the concern. Engineering Drawing could be interpreted correctly both within the country and from one country to the other, facilitating communication between engineers, technicians and scientists, and forms a reliable achievement at both the international and national levels.

2 - Engineering Drawing is a basic standard of a wide-ranging coverage and functions as a standard of direct application, or as a basic for other applied standards

OBJECTIVE :

To speed up completion of the standards for Engineering Drawing which was planned to be prepared during the year 1979 within the framework plan of LIPI.

RECOMMENDATIONS :

1 - In view of the delay in preparing this standard, it would be appreciated if the work could be carried on within the framework of LIPI plan for the year 1980

2 - As the domain of this standards is of a wide coverage, a work programme is to be set up with itemized priorities to cover all the subjects and fields of application of this domain, having an estimated time schedule.

3 - A first priority is to be given for the establishment of a basic standard covering the principles of presentation and dimensioning used in Engineering Drawing.

4 - Moreover, within the ON-THE-JOB training in standardization principles and practices, establishment of such a standards is in the field theme for prac-

tical training for standardization staff of LIPI (PROCEDURE, METHODOLOGY AND OPERATION OF THE SYSTEM)

PROCEDURE : (With the expert's full assistance)

1 - To form a working group WG from LIPI staff to carry on the work.

2 - The WG has to prepare the draft proposal taking into account the adequate references (International standards, standards issued by standardization bodies in the region and other foreign standards, ISO, ISI, JIS, BSI, DIN etc..)

3 - The draft proposal prepared by the WG is to be submitted to the technical (divisional) committee for approval as (first) draft standards.

4 - The (first) draft standards is to be widely circulated for comments.

5 - The (first) draft standards is to be revised by the WG taking into cosideration the comments collected.

6 - The revised draft standards is to be submitted another time to the technical (divisional) committee for final approval as a final draft standards.

STANDARDIZATION OPERATIONAL DOCUMENTATION

The following are the main documentation for operating the system at the national level and for the internal actioning of the National Standards Body or Council NSB/NSC in collaboration with its members or, in the absence of a NSB/NSC, these documentation could be used by any of the other Standardization Departments for their assigned purposes and areas of interest.

These documentation include simplified appropriate practical operational circulars, forms, manuals with related self explanatory notes, annexes and work flow charts for guidance and reference.

1 DEVELOPMENT OF STANDARD SPECIFICATIONS

1.1 NOTE (1), CIRCULAR 1/stand and FORM 1/stand.

To be used usually for collecting national opinions on the standard specifications needed to be issued and the existing, already issued standard specifications seen to be revised, amended and up-dated through an annual plan for standardization, establishment and revision of standard specifications (the national plan or the plan adopted at the national level).

1.2 NOTE (2) and FORM 2/stand.

To be used usually for presenting a proposed draft for an annual plan for standardization, establishment and revision of standard specifications (the national plan or the plan adopted at the national level), submitted for final approval.

1.3 NOTE (3) and CIRCULAR 2/stand

To be used usually for collecting national opinions and views about the standard specifications in question to be revised, amended and up-dated, included in the approved annual plan for standardization (the national plan or the plan adopted at the national level).

1.4 NOTE (4) and CIRCULAR 3/stand

To be used usually in connection with sending the standards specialists to the industrial firms and sectors for carrying on the in-field, factory studies and investigations as a first step in formulating the industrial standard specifications in question, included in the approved annual plan for standardization (the national plan or the plan adopted at the national level)

1.5 NOTE 95), FC 3/stand and FORM 3/stand CONT'D

To be used usually for carrying on the in-office, comparative studies and investigations taking into consideration the available reference material that to - gether with the in-field, factory studies and investigations, survey, research work and obtained informations would serve as collected technical data needed for preparing the required draft proposals as the first step in drafting the standard specifications in question.

1.6 NOTE (6) and OPERATIONAL MANUAL - FORM 4/stand, with ANNEX

To be used usually for carrying on the in-field, factory studies and investigations, taking into consideration the actual available possibilities and capabilities of local production, its quality measures, the standard specifications followed, the available testing facilities, the feedback of informations based on the experience in using and applying the standard specifications, and the identification of the problems that would arise having the production in compliance with such a standard specifications.

These in-field, factory studies and investigations to-gether with the in-office, comparative studies and investigations, reference material, survey, research work and obtained informations, would serve as collected technical data needed for preparing the required draft proposals as the first step in drafting the standard specifications in question.

1.7 NOTE (7), CIRCULAR 4/stand and FORM 5/stand

To be used usually for collecting national opinions, views and comentaries about the draft standard specifications in question according to the approved plan, prepared by the specialized working group/s and the concerned technical committee/s as a result of the wide circulation of this draft standards for critical review and comments by the concerned interested bodies in the country.

1.8 NOTE (8), FORM 6/stand and FORM 7/stand

To be used usually for collecting and collating clearly and precisely, the comments received, specially those seen to be worthy, as a result of the wide circulation of the draft standards in question according to the approved plan, for public opinion, comment and critical review by the concerned interested bodies in the country.

These collected comments are to be appended with the views of the working group/s about how to deal with for certain elements or clauses of the standards and the suggested solutions to-gether with the corresponding convenient decisions of the technical, divisional or sectorial committee/s and the advisory board or committee for standard specifications, within the objective view points, and while meeting the national requirements, could comply to the possible extent with the view points of the commentators, and accordingly a final draft standards is prepared and submitted further on for ratification and approval as national standards with the decisions about its date of implementation and legal consideration (refer to attached WORK FLOW CHARTS)

1.9 NOTE (9) and FORM 8/stand with explanatory WORK FLOW CHARTS, ANNEXES

To be used usually for preparing a monthly work progress report out-lining the actual situation about the work done and the achievements in estimated percentage within one month concerning the development of standard specifications. This work progress report could be prepared monthly, quarterly or bi-annually for the internal actioning of the NSB/NSC or the standardization department.

The superimposing of these consecutive periodic reports indicates the actual situation about the progress achieved in implementing the programme of work according to the approved plan for establishment of standard specifications for the year during which this plan is subjected to be executed, identifying the problems that would arise during proceeding on with the work.

2 FOLLOWING - UP THE INTERNATIONAL TECHNICAL STANDARDIZATION ACTIVITIES

2.1 NOTE (10), CIRCULAR 1/ISO, FORM 1/ISO, FORM 2/ISO and FORM 3/ISO

To be used usually for following - up the International technical standardization activities, mainly those of the ISO and the ISO/technical committees/ sub-committees/working groups, according to the inquiry requested and the ISO forms (ISO/DIRECTIVES - FORM 1 to FORM 10)

These circular and forms are simplified, detailed and self-explanatory and could be modified to suit the case study in question, to be used for following-up the standardization activities carried out by the other International, Regional and foreign national standardization organizations or bodies.

NOTE (1)

The attached consist of an appropriate practical circular and a form (CIRCULAR 1/stand and FORM 1/stand) to be used usually for collecting national opinions on the standard specifications needed to be issued and the existing, already issued standard specifications seen to be revised or amended through an annual plan (the national plan) for standardization, establishment and revision of standard specifications.

This circular and attached form could be addressed to all the enterprises, governmental and non-governmental departments, industrial sectors, consumers and users, producers, trade organizations and commercial agencies, institutes, laboratories and research centres, specialists, technologists and experts and any other interested bodies working with standardization in the proposed field in the country, in the name of the National Standards Body or Council, in collaboration with its members or, in the absence of a NSB/NSC, the circular and attached form could be used by any of the other standardization departments for their assigned purposes and areas of interest.

MESSRS, (NAME) (1) CIRCULAR 1/stand.

(name) (2) Date :

(address) Ref :

Dear Sirs,

We have the pleasure to inform you that (1) is planning our annual programme for setting - up standard specifications according to the industrial development of the country and with due interest in new industrial projects, exports schemes and the requirements of enterprises, governmental and non-governmental departments as well as consumers.

Therefore you are kindly requested to provide us with your views about the following :

1 - A list of raw-materials, commodities, semi-finished and finished products, testing and calibration methods as well as of quantities, units, symbols and terminology you would like to see standardized.

2 - A list of existing already issued standard specifications which should be revised, amended or modified taking into account the feedback of information based on your experience in using these standards as well as the latest innovations in research, techniques, instrumentation and control.

3 - A list of export commodities and products which in your opinion should be standardized.

Your reply would be of great benefit to us in carrying on our tasks and we would appreciate it if you would take this inquiry into consideration, indicating your views on the priorities to be given in each case using the attached FORM 1/stand.

Looking forward to a fruitful and mutual collaboration between us in the common interest.

Yours Sincerely,

(Signature)
Post Title

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(1) NAME OR TITLE OF THE NATIONAL STANDARDIZATION BODY/COUNCIL OR THE STANDARDIZATION DEPARTMENT

(2) NAME AND ADDRESS OF ENTERPRISE/DEPARTMENT OR INDUSTRIAL SECTOR, ETC.... TO WHICH THIS CIRCULAR AND ATTACHED HAS TO BE ADDRESSED

(1) (FORM. 1/ stand.)

STANDARD SPECIFICATIONS DEVELOPMENT PLAN

Raw-materials commodities, semi-finished and finished products to be standardized	Testing and callibration methods to be standardized	Quantities. units. symbols and terminologies to be standardized	Existing, already issued standards to be revised amended or modified	Export commodities and products to be standardized

ENTERPRISE / DEPARTMENT / INDUSTRIAL SECTOR / ETC .... : DATE :

PERSON RESPONSSIBLE FOR STANDARDIZATION : SIGNATURE :

(1) NAME OR TITLE OF THE NATIONAL STANDARDIZATION BODY/COUNCIL OR THE STANDARDIZATION DEPARTMENT

NOTE (2)

The attached is an appropriate practical form (FORM 2/stand.) to be used usually for presenting a proposed draft of an annual plan (the national plan) for standardization, establishment and revision of standard specifications submitted for final approval.

This proposed draft plan is a result of collecting national opinions and views in the concern (CIRCULAR 1/stand and FORM 1/stand).

This form can be used by the National Standards Body/Council or by any of the other standardization departments for their assigned purposes and areas of interest.

IN THE FORM 2/stand.

(1) NAME OR TITLE OF THE NSB/NSC OR THE STANDARDIZATION DEPARTMENT

(2) THE SECTION RESPONSSIBLE FOR STANDARDIZATION IN THE NSB/NSC OR THE DEPARTMENT

(3) THE PLAN (NATIONAL) TO BE EXECUTED DURING THE CONCERNED YEAR

(4) THE GROUP OF RELATED SUBJECTS TO BE COVERED BY THIS PLAN (ENGINEERING, AGRICULTURE, etc), THIS FORM IS REPEATED FOR EACH PARTICULAR DOMAIN.

(5) YEAR DURING WHICH THIS PLAN IS SUBJECTED TO BE EXECUTED (1980, 1981 ...).

(1) (FORM 2/stand.)

STANDARD SPECIFICATIONS SECTION (2) DOMAIN : (4)

ANNUAL PLAN FOR SETTING-UP S/SPECIFICATIONS (3) YEAR : (5)

ITEMS NEEDED TO BE STANDARDIZED ACCORDING TO REQUESTS RECEIVED.	ITEMS SELECTED TO BE STANDARDIZED ACCORDING TO PRIORITIES GIVEN	TYPES OF STANDARDS TO BE ESTABLISHED	REFERENCE MATERIALS (STANDARDS)	REMARKS
COLLECTED (NATIONAL) OPINIONS AND VIEWS ON THE STANDARD SPECIFICATIONS SEEN TO BE SET UP (CIRCULAR 1/stand - FORM 1/stand), STANDARD SPECIFICATIONS NEEDED TO BE ISSUED AND EXISTING, ALREADY ISSUED STANDARD SPECIFICATIONS SEEN TO BE REVISED, AMENDED OR MODIFIED.		. BASIC . PRODUCT . PERFORMANCE . SAFETY . TESTING . TERMINOLOGY . CODE OF PRACTICE . ETC.	. INTERNATIONAL . REGIONAL . NATIONAL . COMPANY . ANY OTHER TECHNICAL SPECIFICATIONS (IF ANY) FOLLOWED BY MANUFACTURERS OR CONTROLING AGENCIES	REASONS FOR SELECTION AND PRIORITIES GIVEN (SECOND COLUMN)

SPECIALISED WORKING GROUP : DATE :

SENIOR OFFICER : SIGNATURE :

NOTE (3)

The attached is an appropriate practical circular (CIRCULAR 2/stand.) to be used usually for collecting national opnions and views about the standard specifications, to be revised, amended and up-dated, included in the approved annual plan (the national plan) for standardization, to meet the growing needs of consumers and the world market demands of a high reliability and quality production level at the lowest possible cost, taking into account the feedback of information on the experience in using the standards as well as the latest innovations in research and industrial techniques.

This circular can be addressed to the concerned enterprises, governmental and non-governmental departments, industrial sectors, consumers and users, producers, trade organizations and commercial agencies, institutes, laboratories and research centres, specialists, technologists and experts and any other interested bodies working with standardization in the proposed field in the country, in the name of the National Standards Body/Council, in collaboration with its members or, in the absence of a national body/council, the circular could be used by any of the other standardization departments for their assigned purposes and areas of interest.

(NAME) (1)

MESSRS,

(name) (2)

(address)

CIRCULAR 2/stand.

Date :

Ref :

Dear Sirs,

We have the pleasure to inform you that the approved annual plan (national plan) for standardization includes the revision and up-dating of the standard specifications .....(3).....

Attached is a copy of this standard specifications for your consideration.

We would appreciate it if you would examine this standard specifications and let us know about the amendements, modification or adaption you would find necessary to be taken into consideration.

The revision and modifications of this standard specifications will be studied and approved by the concerned technical committee in which you may/will be represented.

Looking forward to a fruitful and mutual collaboration between us in the common interest.

Yours Sincerely,

(Signature)
Post Title

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(1) NAME OR TITLE OF THE NATIONAL STANDARDIZATION BODY/COUNCIL OR THE STANDARDIZATION DEPARTMENT

(2) NAME AND ADDRESS OF ENTERPRISE/DEPARTMENT OR INDUSTRIAL SECTOR ETC... TO WHICH THIS CIRCULAR HAS TO BE ADDRESSED

(3) TITLE AND SERIAL NUMBER OF THE STANDARD SPECIFICATIONS TO BE REVISED

NOTE (4)

The attached is an appropriate practical circular (circular 3/stand.) to be used usually in connection with sending the standards specialists to the industrial firms and sectors for carrying on the in-field, factory studies as a first step in formulating the desired industrial standard specifications, x) included in the approved annual plan (the national plan) for standardization, establishment and revision of standard, in accordance with the actual available possibilities and capabilities of local production, its quality measures and the company standards followed etc.

This circular can be addressed to the manufacturers of the item to be standardized (PRODUCT/COMMODITY) in the name of the National Standards Body/ Council, in collaboration with its members or, in the absence of a national body or council, the circular could be used by any of the other standardization departments for their assigned purposes and areas of interest.

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x) Same procedure could be applied when dealing with the revision (totally or partially) of the existing, already issued standard specifications, and when the in-field studies to be carried on in the industrial firms and sectors in this concern seen to be necessary.

(NAME) (1) CIRCULAR 3/stand.

MESSRS,

(name) (2) Date :

(address) Ref :

Dear Sirs,

We have the pleasure to inform you that our annual programme of work for setting-up/revising industrial standard specifications includes setting-up/revision of the standard specifications for .....(3).....

Being keen to set-up the required/revised standard specifications in accordance with the actual available possibilities and capabilities of local production, its quality measures, the company standards followed, available testing facilities and the feedback of information based on the experience in using and applying the standard specifications, and to try to identify the problems that would arise having the production in compliance with such a standard specifications.

We feel that it will be in the common interest if we send out our standards specialist, Mr. ..... to pay visit to your firm to carry on the necessary in field, factory studies in this concern, and would appreciate it if you could provide him with all available facilities and possible assistance.

These studies will be submitted to the concerned technical committee, in which your firm may/will be represented, for discussion and drafting as a standard specifications/revised standard specifications.

Looking forward for a mutual collaboration between us in the common interest.

Yours Sincerely,

(Signature)
Post Title

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(1) NAME OR TITLE OF THE NATIONAL STANDARDIZATION BODY/COUNCIL OR THE STANDARDIZATION DEPARTMENT

(2) NAME AND ADDRESS OF MANUFACTURES OF ITEM TO BE STANDARDIZED

(3) ITEM (PRODUCT/COMMODITY) IN QUESTION.

NOTE (5)

The attached is an appropriate practical operational form (FORM 3/stand.) to be used usually for carrying on the in-office, comparative studies taking into consideration the available reference material that to-gether with the in-field, factory studies, survey, research work, investigations and obtained informations would serve as collected technical data needed for preparing the required draft proposals as first step in drafting the standard specifications in question.

IN THE FORM 3/stand.

(1) NAME OR TITLE OF THE NSB/NSC OR THE STANDARDIZATION DEPARTMENT
(2) THE SECTION RESPONSSIBLE FOR ESTABLISHMENT OF STANDARD SPECIFICATIONS IN THE NSB/NSC OR THE DEPARTMENT.
(3) PRODUCT OR COMMODITY TO BE STANDARDIZED ACCORDING TO THE APPROVED PLAN
(4) THE GROUP OF RELATED SUBJECTS COVERED BY THE APPROVED PLAN, WITHIN WHICH THE SUBJECT MATTER IN QUESTION IS CLASSIFIED
(5) YEAR DURING WHICH THIS PLAN IS SUBJECTED TO BE EXECUTED.
(6) IF MORE THAN ONE MANUFACTURER EXIST FOR SAME ITEM, THEIR RESPECTIVE COMPANY'S TECHNICAL SPECIFICATIONS SHOULD BE TAKEN IN ACCOUNT
(7) EXISTING STANDARDS ISSUED BY SAME BODY OR BY ANY OF THE OTHER STANDARDIZING DEPARTMENTS IN THE COUNTRY, DEALING DIRECTLY OR INDIRECTLY WITH SUBJECT MATTER IN QUESTION
(8) THE SERIAL NUMBER/S AND TITLE/S OF THE RELEVANT REGIONAL AND INTERNATIONAL STANDARDS TO BE CONSIDERED SHOULD BE INDICATED FOR REFERENCING.
(9) IN SOME CASES AND UNDER CERTAIN FAVOURABLE CIRCUMSTANCES WHERE ADVANCED SB ARE PROCEEDING WITH STANDARDIZATION ACTIVITIES, IT IS OFTEN POSSIBLE TO RELY UPON THE WELL TRAINED AND ENOUGH EXPERIENCED STANDARDS SPECIALISTS OF THE PERMANENT STAFF OF THESE BODIES TO UNDERTAKE INDIVIDUALLY THIS WORK

(1) (FORM 3/stand.)

STANDARD SPECIFICATIONS SECTION (2) DOMAIN : (4)

ITEM (PRODUCT/COMMODITY) TO BE STANDARDIZED (3) ANNUAL PLAN : (5)

DIFFERENT ELEMENTS OF STANDARDS IN QUESTION	MANUFACTURER'S COMPANY TECHNICAL SPECIFICATIONS (6)			
	1st MANUFACTURER	2nd MANUFACTURER	3rd MANUFACTURER	4th MANUFACTURER
. MAIN AND ESSENTIAL ELEMENTS OF STANDARDS FOR THE NEEDED COVERAGE AND FIELD OF APPLICATION OF THE SUBJECT MATTER DEALT WITH.	. RESPECTIVE MOTHER COMPANY STANDARDS TO BE CONSIDERED IF THE LOCAL PRODUCTION IS UNDER LICENCE.			

SPECIALISED WORKING GROUP/STANDARDS SPECIALIST : (9) DATE :

SENIOR OFFICER : SIGNATURE :

(1) (FORM 3/stand.) CONT'D

STANDARD SPECIFICATIONS SECTION (2) DOMAIN : (4)

ITEM (PRODUCT/COMMODITY) TO BE STANDARDIZED (3) ANNUAL PLAN : (5)

DIFFERENT ELEMENTS OF STANDARDS IN QUESTION.	STANDARDS ISSUED BY SAME OR OTHER BODIES IN SAME CONCERN (IF ANY) (7)	ANY OTHER REFERENCE MATERIAL	RELEVANT REGIONAL STANDARDS (IF ANY) (8)	RELEVANT INTERNATIONAL STANDARDS OR RECOMMENDATIONS (IF ANY) (8) (ISO/IEC/ETC.)
. MAIN AND ESSENTIAL ELEMENTS OF STANDARS FOR THE NEEDED COVERAGE AND FIELD OF APPLICATION OF THE SUBJECT MATTER DEALT WITH		. AVAILABLE REFERENCE MATERIAL SEEN USEFUL AND WORTHY TO BE CONSIDERED	. IF REGIONAL STANDARDS DOES NOT EXIST STANDARDS ISSUED BY BODIES IN THE REGION COULD BE CONSIDERED	. BASIC STANDARDS AND TESTING AND ANALYSIS METHODS ISSUED BY ISO . TESTING AND MEASURING METHODS ISSUED BY IEC . ENVIRONMENTAL REQUIREMENTS ISSUED BY ISO/IEC. . ETC.

SPECIALISED WORKING GROUP/STANDARDS SPECIALIST : (9) DATE :

SENIOR OFFICER : SIGNATURE .

NOTE (6)

The attached is an appropriate operational manual (FORM 4/stand.) to be used usually for carrying on the in-field, factory studies (refer to NOTE (4) and CIRCULAR 3/stand.), taking into consideration the actual available possibilities and capabilities of local production, its quality measures, the standard specifications followed, the available testing facilities and the feedback of informations based on the experience in using and applying the standard specifications, and to try to identify the problems that would arise having the production in compliance with such a standard specifications.

These in-field, factory studies to-gether with the in-office, comparative studies, reference material, survey, research work, investigations and obtained informations, would serve as collected technical data needed for preparing the required draft proposals as first step in drafting the standard specifications in question.

IN THE FORM 4/stand.

(1) NAME OR TITLE OF THE NSB/NSC OR THE STANDARDIZATION DEPARTMENT
(2) THE SECTION RESPONSSIBLE FOR ESTABLISHMENT OF STANDARD SPECIFICATIONS IN THE NSB/NSC OR THE DEPARTMENT
(3) YEAR DURING WHICH THIS PLAN IS SUBJECTED TO BE EXECUTED
(4) THE GROUP OF RELATED SUBJECTS COVERED BY THE APPROVED PLAN, WITHIN WHICH THE SUBJECT MATTER IN QUESTION IS CLASSIFIED.
(5) PRODUCT OR COMMODITY TO BE STANDARDIZED ACCORDING TO THE APPROVED PLAN.
(6) TYPE OF STANDARD SPECIFICATIONS SEEN TO BE ESTABLISHED: PRODUCT/PERFORMANCE/SAFETY/TESTING/ETC. .. ACCORDING TO APPROVED PLAN (REFER TO NOTE (2) AND FORM 2/stand.)
(7) THESE IN-FIELD, FACTORY STUDIES ARE TO BE REPEATED AND CARRIED ON UPON VISITING DIFFERENT MANUFACTURERS OF SAME ITEM (PRODUCT OR COMMODITY).
(8) IN SOME CASES AND UNDER CERTAIN FAVOURABLE CIRCUMSTANCES WHERE ADVANCED SB ARE PROCEEDING WITH STANDARDIZATION ACTIVITIES, IT IS OFTEN POSSIBLE TO RELY UPON THE WELL TRAINED AND ENOUCH EXPERIENCED STANDARDS SPECIALISTS OF THE PERMANENT STAFF OF THESE BODIES TO UNDERTAKE INDIVIDUALLY THIS WORK.

GENERAL NOTE :

The other components or elements of this operational manual (FORM 4/stand.) are self-explanatory.

OPERATIONAL MANUAL

(1) (FORM 4/stand.)

STANDARD SPECIFICATIONS SECTION (2)

ANNUAL PLAN : (3)

DOMAIN : (4)

ITEM (PRODUCT/COMMODITY) IN QUESTION : (5)

TYPE OF STANDARD SPECIFICATIONS IN QUESTION : (6)

TECHNICAL REPORT UPON VISITING PRODUCING FIRMS

(IN-FIELDS, FACTORY STUDIES) (7)

FACTORY VISITED :

DATE OF VISIT/S :

SPECIALISED WORKING GROUP/STANDARDS SPECIALIST (8)

SENIOR OFFICER : NAME :

SIGNATURE :

1. NAME OF FACTORY (IN FULL) :

2. ADDRESS OF FACTORY (IN FULL) :

3. MOTHER FACTORY, IF LOCAL PRODUCTION IS UNDER LICENCE (IN FULL) :

4. ADDRESS OF MOTHER FACTORY (IN FULL) :

5. MAIN PRODUCTION OF THE FACTORY :

6. BRAND NAME/S :

7. TYPE/S, GRADE/S OR CLASSIFICATION :

8. PERSON/S RESPONSIBLE FOR PRODUCTION :
   NAME :
   TITLE POST :

9. PERSON/S RESPONSIBLE FOR STANDARDIZATION :
   NAME :
   TITLE POST :

10. PERSON/S RESPONSIBLE FOR QUALITY CONTROL (INSPECTION AND TESTING) :
   NAME :
   TITLE POST :

11. ITEM (PRODUCT/COMMODITY) IN QUESTION, SELECTED TO BE STANDARDIZED ACCORDING TO APPROVED PLAN :

12. TYPE/S, RELATED SIZE/S AND DIMENSIONS :

13. NOMENCLATURE OF PRODUCT TO DISTINGUISH IT FROM OTHERS IN SAME DOMAIN :

14. DESCRIPTION, FUNCTION AND PERFORMANCE OF PRODUCT, IN BRIEF (SCOPE, FIELD OF APPLICATION OF THE STANDARD SPECIFICATIONS IN QUESTION) :

15. SPECIFICATIONS FOLLOWED IN MANUFACTURING :
    - FANTORY
    - MOTHER FACTORY, IF ANY (CLAUSE 3 OF THIS OPERATIONAL MANUAL)

16. GENERAL CONDITIONS :

17. NECESSARY CONSIDERATIONS IN REGARD TO QUALITY, DIMENSIONAL PERFORMANCE, SAFETY REQUIREMENTS AND PROTECTION OF HEALTH AND LIFE :

18. RAW MATERIALS USED FOR PRODUCTION (ENTERING THE FACTORY) :
    - LOCALLY PRODUCED (TO BE LISTED)
    - IMPORTED (TO BE LISTED)

19. CHARACTERISTIC PROPERTIES OF RAW MATERIALS :
    - MECHANICAL
    - ELECTRICAL
    - PHYSICAL
    - CHEMICAL
    - BIOLOGICAL

20. SPECIFICATIONS TO WHICH RAW MATERIALS ARE MANUFACTURED :

21. INSPECTION AND TESTING OF RAW MATERIALS AND CHECKING COMPLIANCE WITH THEIR SPECIFICATIONS ON RECEPTION :

22. ACCEPTANCE TESTS APPLIED ON RAW MATERIALS, SAMPLING AND PROCEDURES :

23. EXPORTER'S IMPORTER'S*) OR SUPPLIER'S QUALITY ASSURANCE, APPROVED TESTING SHEETS,CONFORMITY CERTIFICATE, (IF ANY) OR RAW MATERIALS :

24. STORING CONDITIONS FOR RAW MATERIALS :

25. PROPOSALS AND SOLUTIONS FOR RAW MATERIALS WHICH ARE NOT AVAILABLE AND THE MATERIALS WHICH COULD SUBSTITUTE THE ORIGINAL MATERIALS :

26. SEMI-FINISHED PRODUCT, SUB-ASSEMBLIES AND COMPONENTS USED FOR PRODUCTION :
- TO BE LISTED AND CLASSIFIED

27. SPECIFICATIONS OF SEMI-FINISHED PRODUCTS, SUB-ASSEMBLIES AND COMPONENTS USED FOR PRODUCTION :

28. THE PROSESS OF MANUFACTURE, IN BRIEF :
- FLOW CHARTS TO BE USED
- DIFFERENT PRODUCTION STAGES TO BE INDICATED CLEARLY

29. INSPECTION DURING DIFFERENT STAGES OF THE PROCESS OF MANUFACTURE :
- FLOW CHARTS TO BE USED
- DIFFERENT INSPECTION STATIONS TO BE INDICATED CLEARLY

30. INSPECTION OF FINAL, END PRODUCT :

31. ACCEPTANCE QUALITY LEVEL AQL OF THE PRODUCT, REJECTS AND WASTE :

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*) IF THE RAW MATERIALS ARE NOT IMPORTED BY THE FACTORY

32. QUALITY CHECK, QUALITY CONTROL SYSTEM APPLIED IN THE FACTORY :

33. TESTS CARRIED OUT ON PRODUCT, TESTING METHODS ADOPTED AND TESTING CONDITIONS:
- ROUTINE TESTS
- DESTRUCTIVE TESTS
- NON-DESTRUCTIVE TESTS

34. SAMPING AND SAMPLING PLAN EMPLOYED :

35. PREPARATION AND TREATMENT OF TEST SAMPLE :

36. TESTING EQUIPMENTS, INSTRUMENTS AND DEVICES, ETC :

37. TESTING AND LABORATORIES FACILITIES :

38. SAFETY PRECAUTIONS :

39. TREATMENT OF TESTED SAMPLES :
- IN CASE OF DESTRUCTIVE TESTS
- IN CASE OF NON-DESTRUCTIVE TESTS

40. DIFFICULTIES OR PROBLEMS ENCOUNTERED DURING PRODUCTION :

41. FACTORS AFFECTING THE QUALITY OF PRODUCTS AND PRODUCTION RUN FAILURES :

42. PROBLEMS THAT WOULD ARISE HAVING THE PRODUCTION IN COMPLIANCE WITH THE STANDARD SPECIFICATIONS :

43. CONSUMERS COMPLAINTS :

44. RESEARCH WORK AIMING AT HIGHER QUALITY LEVEL :

45. GUIDANCE AND CRITERIA FOR ACCEPTANCE AND REJECTION :

46. MARKING, CERTIFICATION MARKING :

47. LABELING, INFORMATIVE LABELING :

48. PACKING :
- FOR LOCAL MARKET
- FOR EXPORT (IN THE ABSENCE OF EXPORT QUALITY STANDARDS)

49. INSTRUCTIONS FOR USE, CARE AND MAINTENANCE :

50. VERIFICATION AND CALIBRATION OF TESTING AND MEASURING INSTRUMENTS, ETC. :
- CALIBRATION SERVICES IN COUNTRY
- CALIBRATION SERVICES ABROAD

51. EXPORT QUALITY SPECIFICATIONS FOLLOWED IN MANUFACTURING, IF ANY :

52. ADDITIONAL REQUIREMENTS FOR PRODUCTION SUBJECTED FOR EXPORT, IF THE EXPORT QUALITY SPECIFICATIONS APPLIED IS THE SAME AS THAT OF PRODUCTION DELIVERED FOR LOCAL MARKETS :

53. <u>R E M A R K S</u> :

NOTES :

(a) COPIES OF THE SPECIFICATIONS APPLIED BY THE FACTORY, SPECIFICATIONS CONCERNING RAW MATERIALS, SEMI-FINISHED PRODUCTS, SUB-ASSEMBLIES AND COMPONENTS, INSPECTION, AND QUALITY CONTROL RECORDS, CHARTS, GRAPHS AND TESTING RESULTS SHEETS HAVE TO BE TAKEN AND ATTACHED TO THIS TECHNICAL REPORT FOR REFERENCING AND STUDY PURPOSE.

(b) SAMPLES REPRESENTING THE REAL PRODUCTION HAVE TO BE TAKEN AND TESTED FOR THE INDIVIDUAL ITEMS EITHER IN THE FACTORY (FACTORY LABORATORY) OR IN ANY OTHER AUTHORIZED TESTING LABORATORY IN ORDER TO ENSURE THAT THE FIGURES LAID DOWN IN THE STANDARDS WOULD REPRESENT A REAL EXISTING CASE.

(c) COMPARATIVE STUDIES ARE PREPARED BY THE STANDARDS SPECIALISTS INCLUDING THE SPECIFICATIONS APPLIED IN THE FACTORY AND THE INTERNATIONAL, REGIONAL AND OTHER FOREIGN NATIONAL STANDARDS IN THE CONCERN (REFER TO NOTE (5) AND FORM 3/stand.).

ANNEX

ELEMENTS OF STANDARDS

The main elements necessary to be included in the standard specifications for covering the substantive matter dealing with its subject matter and the most adequate possible elements sequence within the concerned ISO GUIDE could be stated as follows.

(a) Product standards

- Foreword, Brief history (if necessary)
- Index, Contents
- Title
- Introduction (if any)
- Scope
- Field of application (if not included in scope)
- Terms and Definitions, Terminology
- General conditions
- Symbols and Abbreviations
- Raw Materials used
- Charactarestic Properties
  - Mechanical
  - Electrical
  - Physical
  - Chemical
  - Biological

- Dimensions and sizes
- Classifications, Grading (if any)
- Manufacture, Processing
- Tolerances, Permissible Limits
- Sampling
- Methods of testing and Inspection
- Designation
- Guidance, Creteria for Acceptance and Rejection
- Packing, Marking
- Labeling
- Annexes

- Reference Material
- Notes (if any)
- Appendices (if any)
- Technical Expressions (special case)

(b) Methods of Testing

- Foreword, Brief history (if necessary)
- Index, Contents
- Title
- Introduction (if any)
- Scope
- Field of Application (if not included in scope)
- Terms and Definitions, Terminology
- Principle of Method, Theory
- Apparatus, Instruments, Equipments, Devices (LABS)
- Chemical Reagents and Materials
- Reactions, Indicators
- Auxiliary Materials
- Sampling, Sample ize
- Preparation of the Test Sample, Treatment of Sample Before Test
- Procedure, Sequence of Test, Testing Conditions
- Safety Precautions
- Expression of Results, Readings, Charts
- Test Sheet, Test Report
- Notes on procedure, other notes
- Guidance, Criteria for Acceptance and Rejection
- Annexes
- Reference Materials
- Technical Expressions (special case)

Important Note

The above listed elements of the standards might not be all included in the text of the standards, also, in some and special cases, new elements may have to be introduced into the text, this depends on the needed coverage of the subject matter dealt with. However many of these elements are essential, considered as the body or main text of standards and found to be included in all standards.

NOTE (7)

The attached consists of an appropriate practical circular and a form (CIRCULAR 4/stand. and FORM 5/stand) to be used usually for collecting national opinions, views and commentaries about the draft standard specifications in question according to the approved plan, prepared by the specialized working group/s and the concerned technical committee/s as a result of the wide circulation of this draft standards for critical review and comments by the concerned interested bodies in the country.

This circular and attached form could be addressed to all the enterprises, governmental and non-governmental departments, industrial sectors, consumers and users, producers and manufacturers, trade organizations and commercial agencies, institutes, laboratories and research centres, specialists, experts and to any other interested bodies working with standardization in the proposed field in the country, in the name of the NSB/NSC, in collaboration with its members or, in the absence of a NSB/NSC, the circular and attached form could be used by any of the other standardization departments for their assigned purposes and areas of interest.

IN THE FORM 5/stand.

(1) NAME OR TITLE OF THE NSB/NSC OR THE STANDARDIZATION DEPARTMENT

(2) THE SECTION RESPONSSIBLE FOR ESTABLISHMENT OF STANDARDS SPECIFICATIONS IN THE NSB/NSC OR THE DEPARTMENT.

(3) PRODUCT OR COMMODITY TO BE STANDARDIZED ACCORDING TO THE APPROVED PLAN

(4) THE GROUP OF RELATED SUBJECTS COVERED BY THE APPROVED PLAN, WITHIN WHICH THE SUBJECT MATTER IN QUESTION IS CLASSIFIED.

(5) YEAR DURING WHICH THIS PLAN IS SUBJECTED TO BE EXECUTED.

(6) NAME OR TITLE AND ADDRESS OF THE CONCERNED INTERESTED BODIES OR INDIVIDUALS IN THE COUNTRY TO WHOM THE DRAFT STANDARDS IN QUESTION IS ADDRESSED FOR CRITICAL REVIEW AND COMMENTS (CIRCULATION)

(7) IN CASE, FOR COUNTRIES WHERE NATIONAL STANDARDS ARE VOLUNTARY, AND SOME OF THESE STANDARDS, ACCORDING TO CERTAIN NATIONAL CONSIDERATION, SEEN TO BE MANDATORY AND GIVEN SUPPORT FOR SECURING THEIR IMPLEMENTATION.

(8) SIGNATURE AND POST TITLE OF THE COMMENTATOR.

(NAME)(1)

CIRCULAR 4/stand.

MESSRS,
(name) (2)
(address)

Date :
Ref :

Dear Sirs,

We have the pleasure to inform you that our annual programme of work according to the approved annual plan (national plan) for standardization, includes setting-up standard specifications for .....(3).....

For your consideration, we enclose here-with a copy of the draft standars in question prepared by the specialized working group/s and technical committee/s.

Being keen to establish the standard specifications in accordance with the actual available possibilities and capabilities of local production, its quality measures, available testing facilities, company standards followed and to meet the growing needs of consumers and the world market demands of a high reliability and quality production level at the lowest possible cost, as well as to avoid the problems that would arise upon having the production in compliance with the standard specifications in question.

We would appreciate it if you would examin this draft standard specifications and let us know about your views and commentary or adaption, you would find it necessary to be taken into consideration.

Your reply would be of great benefit to us in carrying-on our tasks and we would be much obliged if you would take this inquiry into consideration, using the attached FORM 5/stand., and would kindly provide us with your reply as soonest as possible.

Looking forward to a fruitful and mutual collaboration between us in the common interest.

Yours Sincerely

(Signature)
Post Title

---

(1) NAME OR TITLE OF THE NSB/NSO OR THE STANDARDIZATION DEPARTMENT

(2) NAME OR TITLE AND ADDRESS OF THE CONCERNED INTERESTED BODIES OR INDIVIDUALS IN THE COUNTRY TO WHOM THE DRAFT STANDARDS IN QUESTION IS ADDRESSED FOR CRITICAL REVIEW AND COMMENTS (CIRCULATION)

(3) ITEM (PRODUCT/COMMODITY) IN QUESTION

(1) (FORM 5/stand.)

STANDARD SPECIFICATIONS SECTION (2) DOMAIN : (4)

ITEM (PRODUCT/COMMODITY) IN QUESTION (3) ANNUAL PLAN : (5)

FORM FOR CRITICAL REVIEW AND COMMENTS

NAME/TITLE OF COMMENTATOR : (6)

ADDRESS OF COMMENTATOR :

(1) TECHNICAL CRITERION AND COMMENTS :

(2) COMMENTARY CONCERNING THE SCOPE, COVERAGE AND FIELD OF APPLICATION OF THE (DRAFT) STANDARDS IN QUESTION:

(3) PROBLEMS THAT WOULD ARISE UPON THE APPLICATION OF THE (DRAFT) STANDARDS IN QUESTION :

(4) COMMENTARY CONCERNING TESTING, TESTING METHODS AND TESTING CONDITIONS INCLUDED IN THE (DRAFT) STANDARDS IN QUESTION.

(5) LEGAL CONSIDERATION, SUPPORT, LEGISLATION SEEN TO BE GIVEN TO THE (DRAFT) STANDARDS IN QUESTION, FOR ENFORCING AND SECURING ITS IMPLEMENTATION: (7)

(6) GENERAL COMMENTS AND REMARKS

REF : SIGNATURE : (8)

DATE : POST TITLE:

NOTE (8).

The attached are appropriate practical operational forms (FORM 6/stand. and FORM 7/stand.) to be used usually for collecting and collating, clearly and precisely, the comments received, specially those seen to be wothy, as a result of the wide circulation of the draft standards in question according to the approved plan, for public opinion, comment and critical review by the concerned interested bodies in the country (refer to NOTE (7), CIRCULAR 4/stand. and FORM 5/stand.).

These collected comments are to be appended with the views of the working group/s about how to deal with for certain elements or clauses of the standards and the suggested solutions to-gether with the corresponding convenient decisions of the technical, divisional or sectorial committee/s and the advisory board or committee for standard specifications, within the objective viewpoints, and while meeting the national requirements, could comply to the possible extent with the viewpoints of the commentators.

The final draft standards is accordingly prepared and submitted further on for ratification and approval as national standards with the decisions about its date of implementation and legal consideration.

IN FORM 6/stand. AND FORM 7/stand.

(1) NAME OR TITLE OF THE NSB/NSC OR THE STANDARDIZATION DEPARTMENT

(2) THE SECTION RESPONSSIBLE FOR ESTABLISHMENT OF STANDARD SPECIFICATIONS IN THE NSB/NSC OR THE DEPARTMENT.

(3) PRODUCT OR COMMODITY TO BE STANDARDIZED ACCORDING TO THE APPROVED PLAN.

(4) THE GROUP OF RELATED SUBJECTS COVERED BY THE APPROVED PLAN, WITHIN WHICH THE SUBJECT MATTER IN QUESTION IS CLASSIFIED.

(5) YEAR DURING WHICH THIS PLAN IS SUBJECTED TO BE EXECUTED

(6) NAME OR TITLE OF THE COMMENTATORS (DEPARTMENT, FACTORY? INSTITUTE, LABORATORY, TESTING CENTRE, TRADE OR COMMERCIAL AGENCY, EXPERT, SPECIALIST OR TECHNOLOGIST, ETC.....) AND THEIR COMMENTARIES.

(7) DIFFERENT ELEMENTS OR CLAUSES OF THE DRAFT STANDARDS IN QUESTION, TO BE REVIEWED OR RESTUDIED ACCORDING TO THE COMMENTS RECEIVED.

(8) IN CASE THAT THE SUBJECT MATTER OF THE DRAFT STANDARDS IN QUESTION FALLS WITHIN THE SCOPE, COVERAGE AND FRAME WORK OF MORE THAN ONE WORKING GROUP,

THE COMMENTS RECEIVED ARE TO BE EXAMINED AND DISCUSSED JOINTLY BY ALL THE CONCERNED WORKING-GROUPS, THE SAME APPLIES WHEN PROCEEDING ON WITH THE WORK BY THE TECHNICAL, DIVISIONAL OR SECTORAL COMMITTEES.

(9) IN SOME CASES AND UNDER CERTAIN FAVOURABLE CIRCUMSTANCES WHERE ADVANCED SB ARE PROCEEDING WITH STANDARDIZATION ACTIVITIES, IT IS OFTEN POSSIBLE TO RELY UPON THE WELL TRAINED AND ENOUGH EXPERIENCED STANDARDS SPECIALISTS OF THE PERMANENT STAFF OF THESE BODIES TO UNDERTAKE INDIVIDUALLY THIS WORK.

(1)

(FORM 6/stand.)

STANDARD SPECIFICATIONS SECTION (2)

DOMAIN : (4)

ITEM (PRODUCT/COMMODITY) IN QUESTION (3)

ANNUAL PLAN : (5)

SERIAL No.	COMMENTATOR AND COOMENTS RECEIVED (6)	ELEMENT OR CLAUSE (7)	PAGE No.	VIEWS AND SUGGESTIONS WORKING GROUP/S (WG/S) (8)
1	FIRST COMMENTATOR AND COMMENTARY			
2	SECOND COMMENTATOR AND COMMENTARY			
3	THIRD ..... (AND SO ON)			

SPECIALISED WORKING GROUP/STANDARDS SPECIALIST: (9) DATE :

SENIOR OFFICER : SIGNATURE :

(1) (FORM 7/stand.)

STANDARD SPECIFICATIONS SECTION (2) DOMAIN : (4)

ITEM (PRODUCT/COMMODITY) IN QUESTION (3) ANNUAL PLAN : (5)

SERIAL No	ELEMEN OR CLAUSE (7)	PAGE No.	VIEWS, SUGGESTIONS AND CORRESPONDING CONVENIENT DECISIONS		
			TECHNICAL COMMITTEE/S (TC/S) (8)	DIVISIONAL OR SECTORIAL COMMITTEE/S (8)	ADVISORY BOARD OR COMMITTEE FOR STANDARD SPECIFICATIONS
1					
2					
3					
4					

SPECIALISED WORKING GROUP/STANDARDS SPECIALIST: (9) DATE :

SENIOR OFFICER : SIGNATURE :

NOTE (9)

The attached is an appropriate practical monthly work progress report (FORM 8/stand. with explanatory work flow charts), to be used usually for outlining the actual situation about the work done and the achievements in estimated percentage within one month concerning the development of standard specifications.

This work progress report could be prepared monthly, quarterly or biannually for the internal actioning of the NSB/NSC or the standardization department.

The superimposing of these consecutive periodic reports indicates the actual situation about the progress achieved in implementing the programme of work according to the approved plan for establishment of standard specifications for the year during which this plan is subjected to be executed, identifying the problems that would arise during proceeding - on with the work. (refer to the attached work flow charts)

IN THE FORM 8/stand.

(1) NAME OR TITLE OF THE NSB/NSC OR THE STANDARDIZATION DEPARTMENT

(2) THE SECTION RESPONSSIBLE FOR ESTABLISHMENT OF STANDARD SPECIFICATIONS IN THE NSB/NSC OR THE DEPARTMENT

(3) IN SOME CASES AND UNDER CERTAIN FAVOURABLE CIRCUMSTANCES WHERE ADVANCED SB ARE PROCEEDING ON WITH STANDARDIZATION ACTIVITIES, IT IS OFTEN POSSIBLE TO RELY UPON THE WELL TRAINED AND ENOUCH EXPERIENCED STANDARDS SPECIALISTS OF THE PERMANENT STAFF OF THESE BODIES TO UNDERTAKE INDIVIDUALLY THIS WORK.

(4) THE GROUP OF RELATED SUBJECTS COVERED BY THE APPROVED PLANT, WITHIN WHICH THE SUBJECT MATTER IN QUESTION IS CLASSIFIED

(5) YEAR DURING WHICH THIS PLAN IS SUBJECTED TO BE EXECUTED

(6) PRODUCT/S OR COMMODITY/S TO BE STANDARDIZED ACCORDING TO THE APPROVED PLAN, AND ARE ALLOTED TO SAME WORKING GROUP/S.

(1) (FORM 8/stand.)

STANDARD SPECIFICATIONS SECTION : (2) DOMAIN : (4)

SPECIALIZED WORKING GROUP/STANDARDS SPECIALIST : (3) ANNUAL PLAN : (5)

ESTABLISHMENT OF STANDARD SPECIFICATIONS
MONTHLY WORK PROGRESS REPORT

	STEPS / STAGES	% FOR STEP	% CUMULA-TIVE	WORK FLOW BAR CHART
9	PUBLICATION	5	100	
8	APPROVAL BY NSB/NSC COUNCIL	5	95	
7	APPROVAL BY STANDARDS ADVISORY BOARD OR COMMITTEE	5	90	
6	APPROVAL BY DIVISIONAL OR SECTORIAL COMMITTEE/S	5	85	
5	FINAL DRAFT STANDARDS PREPARED BY TC/s	10	80	
4	EXAMINATION OF COMMENTS RECEIVED BY WG/s	15	70	
3	DRAFT STANDARDS PREPARED BY TC/s	25	55	
2	DRAFT PROPOSALS PREPARED BY WG/s	20	30	
1	PRILIMINARY STUDIES AND INVESTIGA-TIONS	10	10	

REMARKS :

1st 2nd 3rd 4th

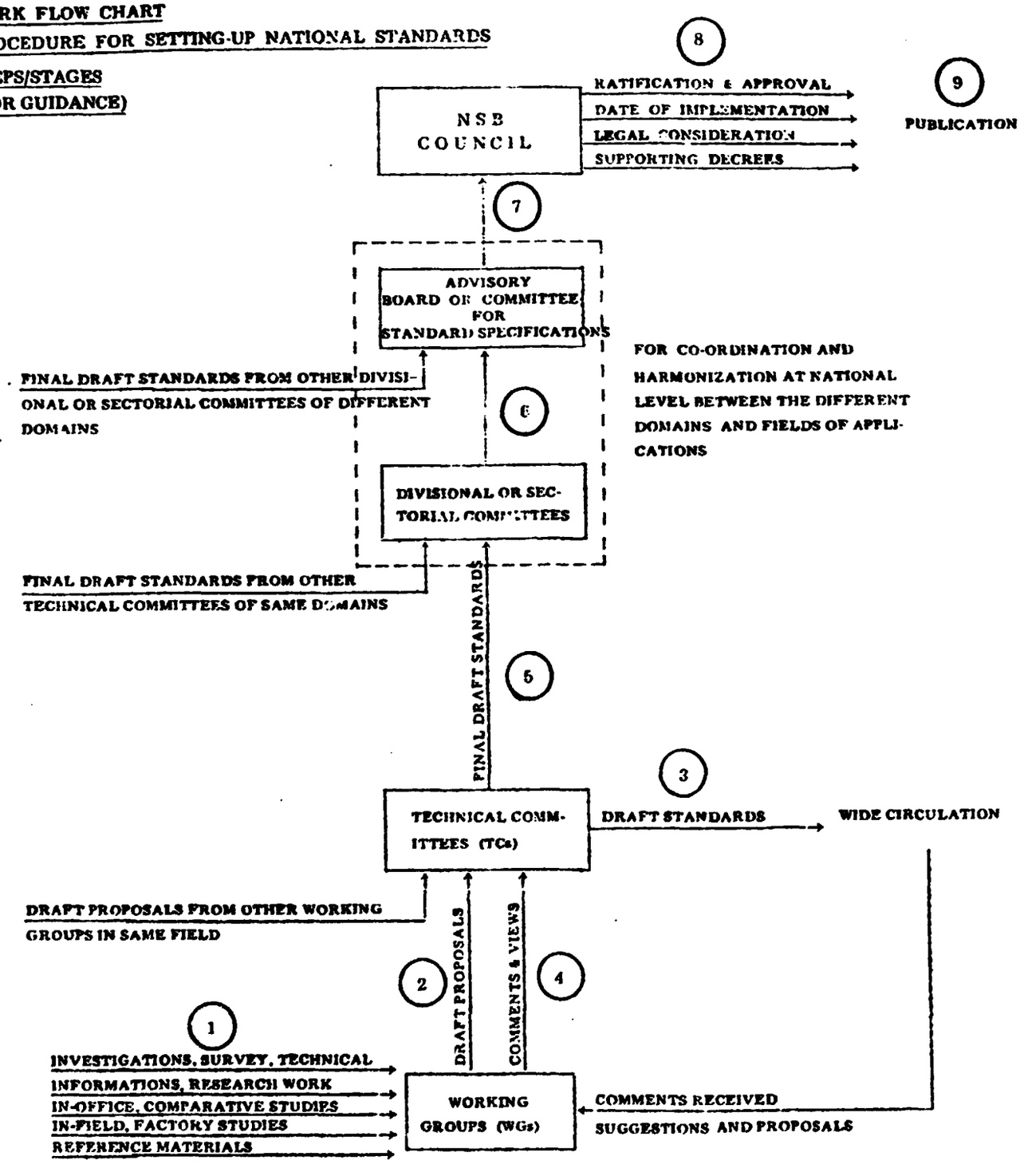
ITEM/S IN QUESTION (6)

SENIOR OFFICER : SIGNATURE : DATE :

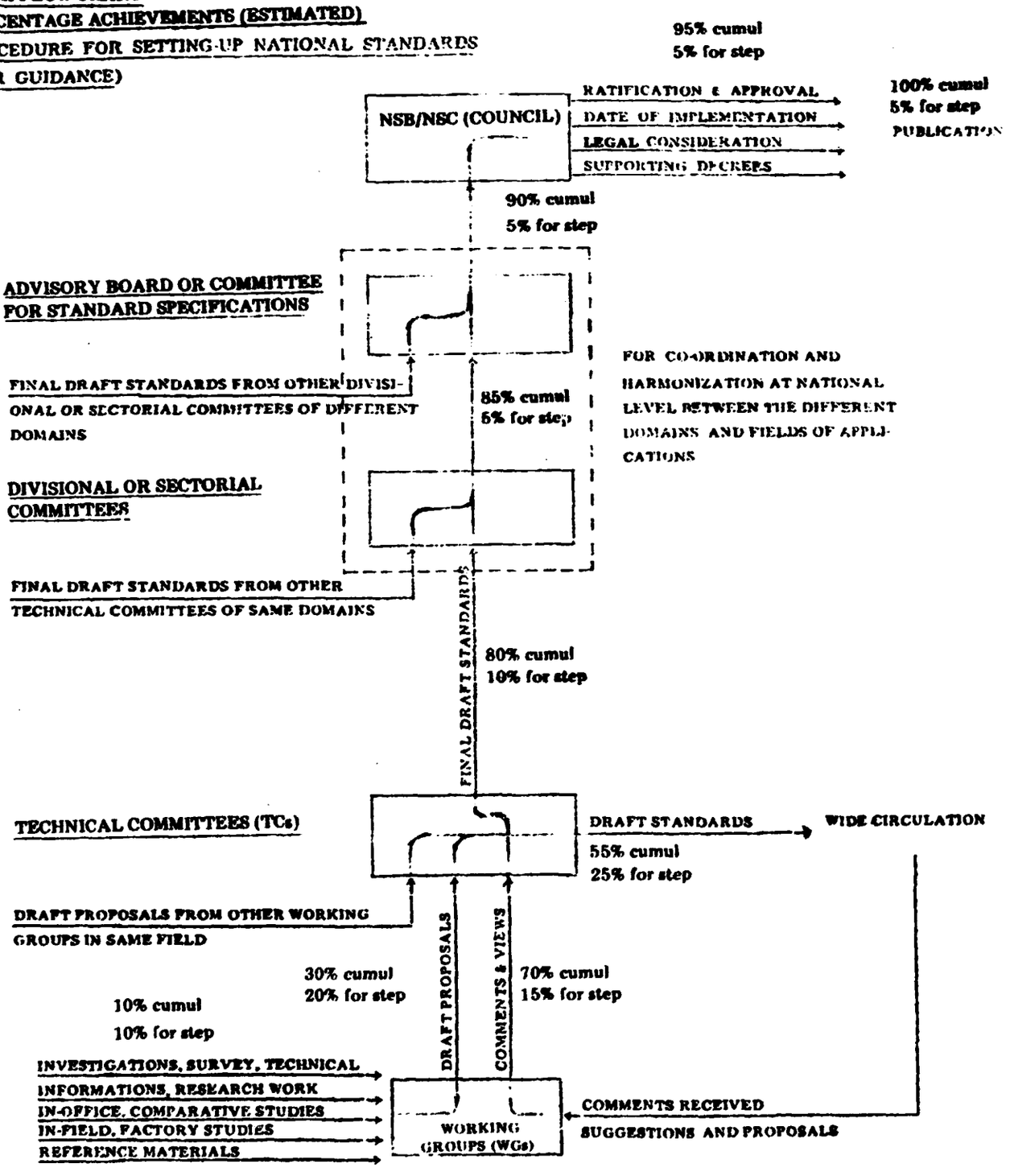
WORK FLOW CHART

PROCEDURE FOR SETTING-UP NATIONAL STANDARDS

STEPS/STAGES
(FOR GUIDANCE)

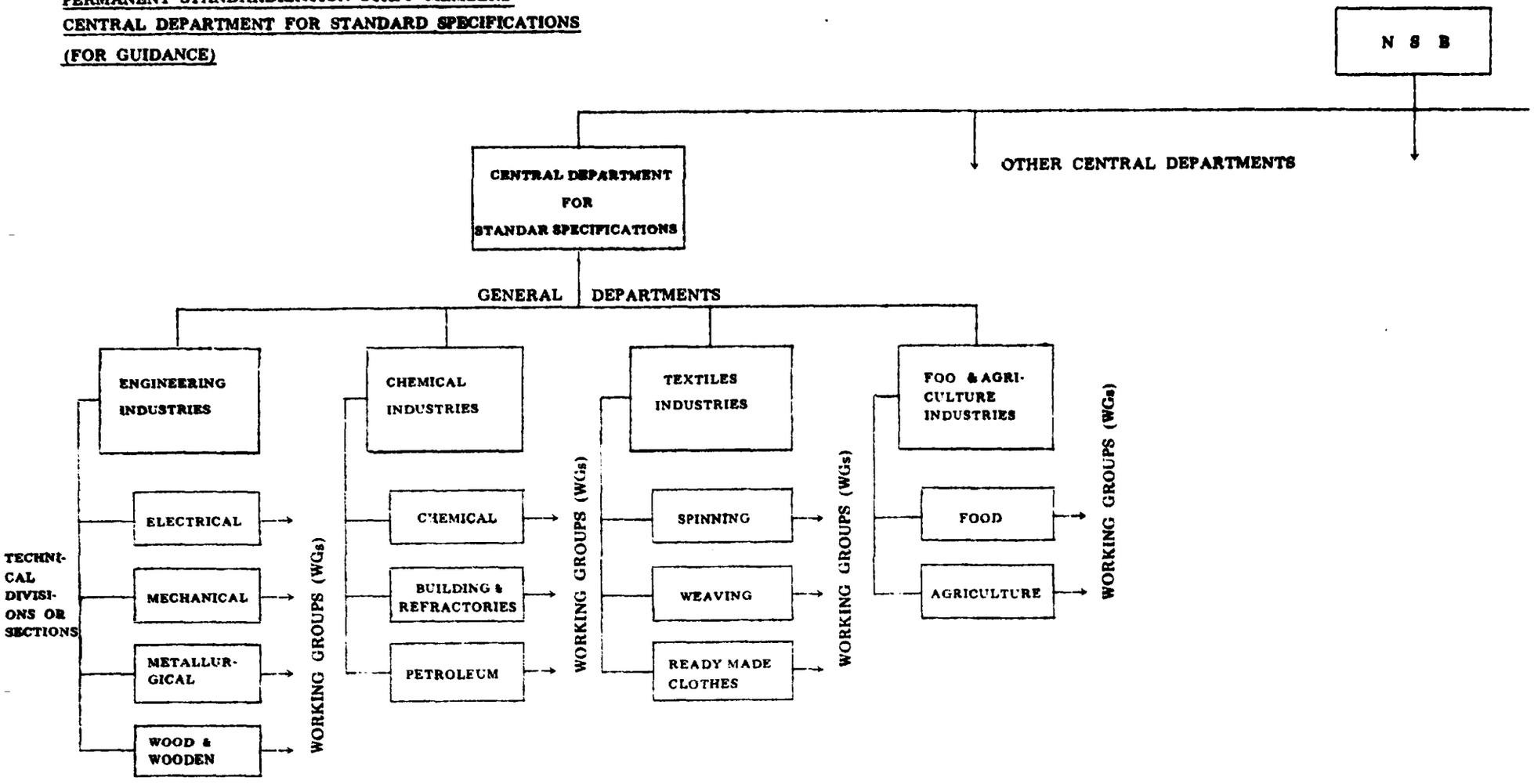


WORK FLOW CHART
PERCENTAGE ACHIEVEMENTS (ESTIMATED)
PROCEDURE FOR SETTING-UP NATIONAL STANDARDS
(FOR GUIDANCE)



ANNEX (A) – (FOR REFERENCE)

ORGANIZATION CHART
PERMANENT STANDARDIZATION STAFF MEMBERS
CENTRAL DEPARTMENT FOR STANDARD SPECIFICATIONS
(FOR GUIDANCE)

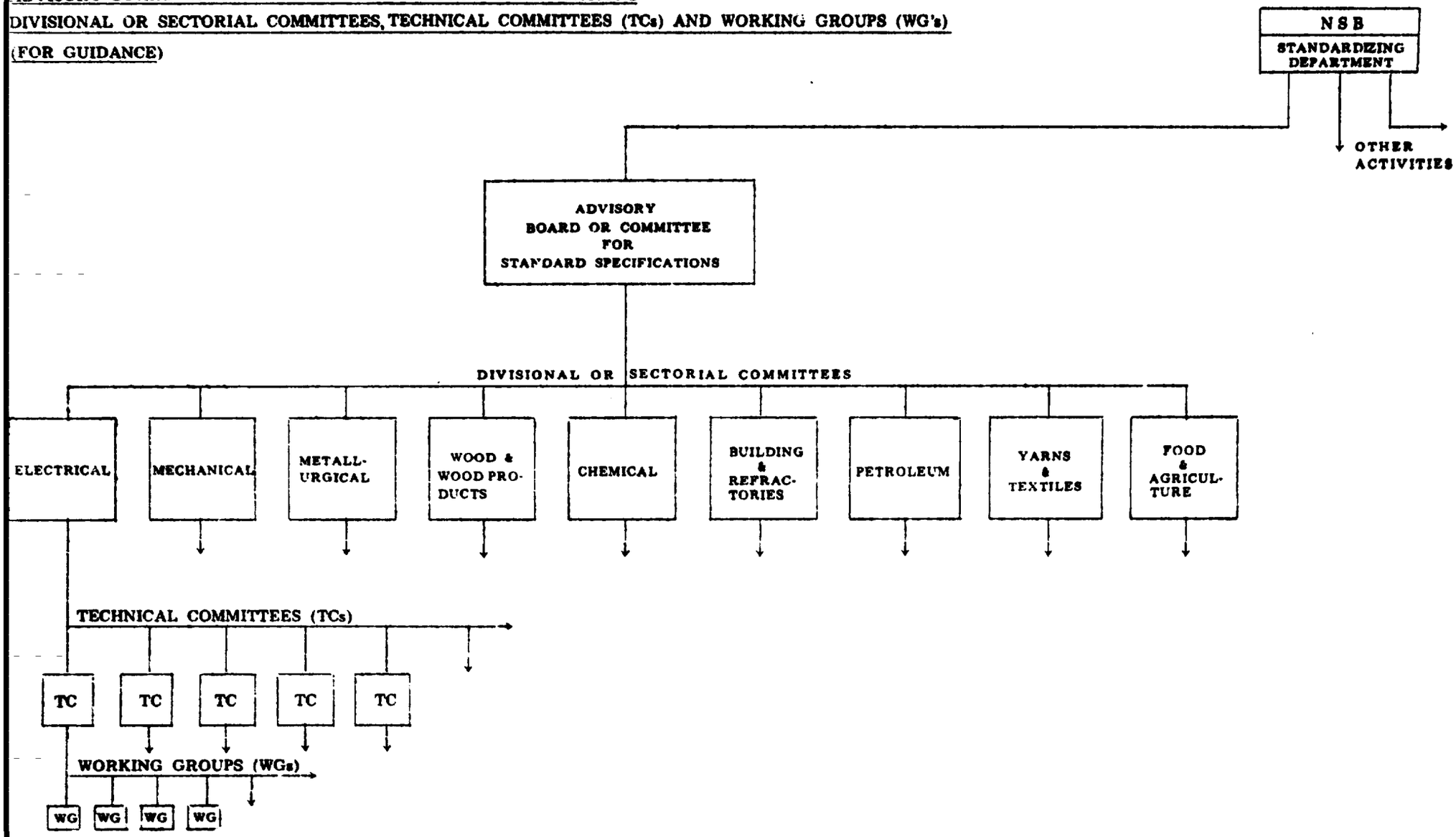


ORGANIZATION CHART

ANNEX (B) – (FOR REFERENCE)

ADVISORY BOARD OR COMMITTEE FOR STANDARD SPECIFICATIONS DIVISIONAL OR SECTORIAL COMMITTEES, TECHNICAL COMMITTEES (TCs) AND WORKING GROUPS (WG's)

(FOR GUIDANCE)



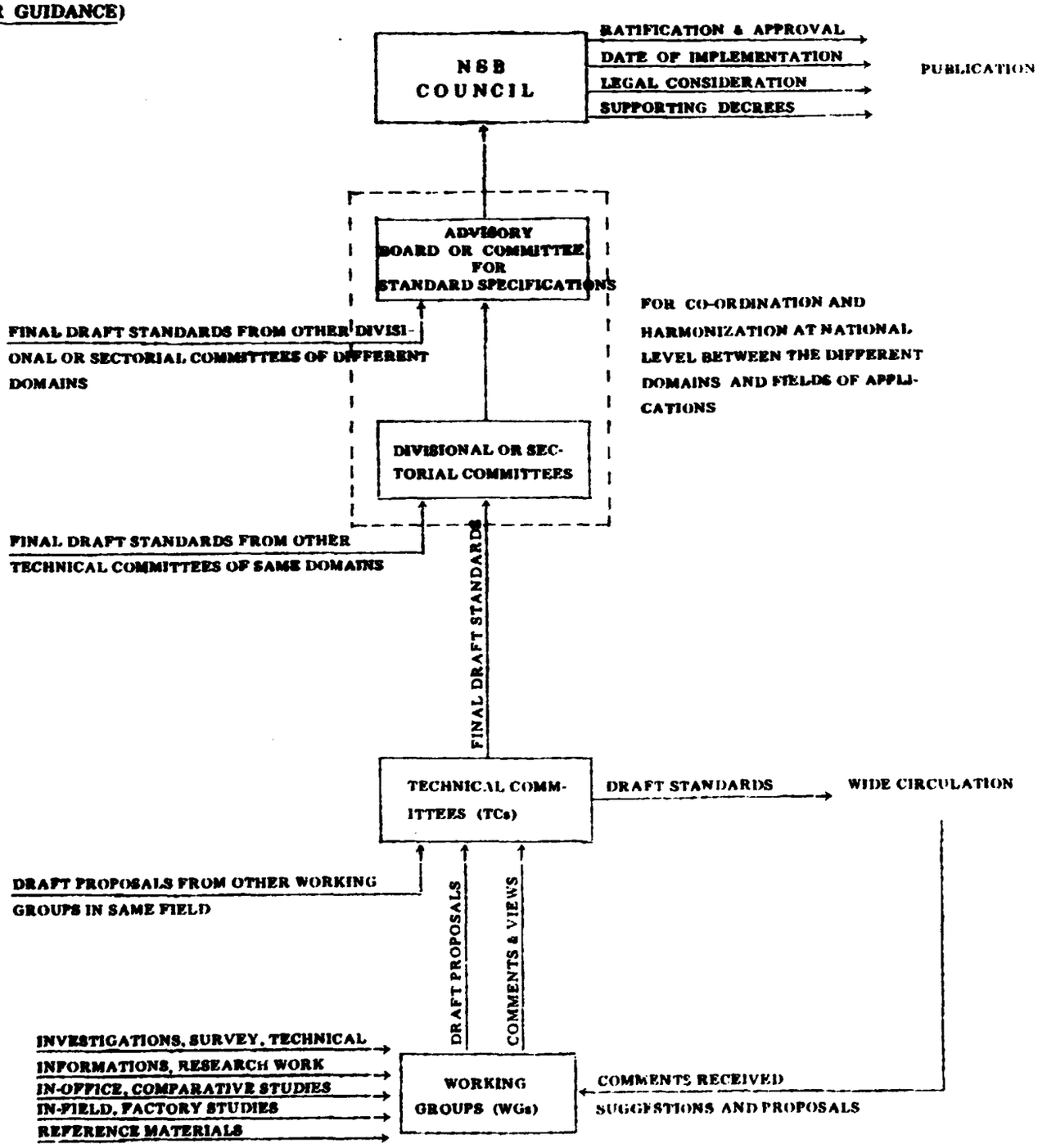
(WGs ACTING AS TECHNICAL SECRETARIAT FOR TCs)

ANNEX (C) – (FOR REFERENCE)

WORK FLOW CHART

PROCEDURE FOR SETTING-UP NATIONAL STANDARDS

(FOR GUIDANCE)



NOTE (10)

The attached are an appropriate practical operational circular and forms (CIRCULAR 1/ISO, FORM 1/ISO, FORM 2/ISO and FORM 3/ISO) to be used usually for following - up the International technical standardization activities, mainly the ISO and ISO/TC/SC/WG activities according to the inquiry requested and the ISO forms, ISO/DIRECTIVES - FORM 1 to FORM 10.

These circular and forms are simplified, detailed and self-explanatory and could be applied with almost the same concept (these circular and forms could be modified to suit the case study in question), to be used for following-up the standardization activities carried out by the other International, Regional and foreign national standardization organizations or bodies.

This circular could be addressed to all the interested bodies and specialists whom the subject matter concern, in the name of the NSB/NSC, in collaboration with its members or, in the absence of a NSB/NSC, the circular could be used by any of the other standardization departmens, proceeding on with these tasks.

The attached forms could be used by the NSB/NSC or the standardization department for internal actioning.

IN THE FORM 1/ISO, FORM 2/ISO AND FORM 3/ISO

(1) NAME OR TITLE OF THE NSB/NSC OR THE STANDARDIZATION DEPARTMENT

(2) THE SECTION RESPONSSIBLE FOR FOLLOWING-UP THE INTERNATIONAL TECHNICAL ACTIVITIES

(3) NUMBER IN SEQUENCE OF THE ISO/TC, ISO/SC OR ISO/WG IN THE ORDER OF ISO COMMITTEES IN WHICH THEY ARE SET UP AND ITS TITLE ACCORDING TO THE DEFINED FIELDS OF ITS ACTIVITY

(4) SCOPE OF THE INTERNATIONAL DOCUMENT IN QUESTION WHICH DEFINE THE LIMITS OF THE WORK DONE TO BE CONSIDERED.

(5) REFERENCE NUMBER OR CODE OF THE INTERNATIONAL DOCUMENT IN QUESTION.

(6) THE SUBJECT MATTER DEALT WITH WITHIN THE SCOPE OF THE INTERNATIONAL DOCUMENT IN QUESTION AND THE INQUIRY REQUESTED BY THE ISO/TC/SC/WG - SECRETARIAT ACCORDING TO THE ISO FORMS, ISO/DIRECTIVES - FORM 1 TO FORM 10.

(7) STANDARDS, CODES OF PRACTICE, REGULATIONS AND RELEVANT DOCUMENTATION EXISTING IN THE COUNTRY (ADOPTED AT THE NATIONAL LEVEL) DEALING WITH THE SUBJECT MATTER OF THE INTERNATIONAL DOCUMENT IN QUESTION.

(8) THE TECHNICAL CONTENT OF THE RELEVANT DOCUMENTATION EXISTING IN THE COUNTRY IS THE SAME AS THAT OF THE INTERNATIONAL DOCUMENT IN QUESTION, WITH NOTHING ADDED OR REMOVED IN RELATION TO THE ASPECT/S COVERED BY THE INTERNATIONAL DOCUMENT IN QUESTION.

(9) A "MINOR DEVIATION" IS ONE WHICH IS CONSIDERED UNLIKELY TO RENDER THAT WHICH IS ACCEPTABLE UNDER THE TERMS OF THE INTERNATIONAL DOCUMENT IN QUESTION UNACCEPTABLE UNDER THE TERMS OF THE RELEVANT DOCUMENTATION EXISTING IN THE COUNTRY AND VICE-VERSA. IF THE INTERNATIONAL DOCUMENT IN QUESTION CONTAINS ALTERNATIVES AND THE RELEVANT DOCUMENTATION EXISTING IN THE COUNTRY DOES NOT ADOPT THEM ALL, THIS RELEVANT DOCUMENTATION IS CONSIDERED TO BE NOT EQUIVALENT TO THE INTERNATIONAL ONE

(10) EXPLANATIONS TO BE GIVEN UNDER THE HEADING "REMARKS".

(NAME) (1) CIRCULAR 1/ISO

MESSRS Date :
(name) (2) Ref :
(addre.s)

Subject : (3)

Dear Sirs,

We have the pleasure to inform you that (1) is joining in the activities of the International Organization for standardization ISO.

The object of ISO is to promote the development of standards in the world with a view to facilitating international exchange of goods and services, and to developing mutual co-operation in the sphere of intellectual, scientific technological and economic activity, The results of ISO technical work are publiched as International Standards.

ISO creates technical committees to undertake their tasks according to clearly defined fields of activity, one of which is the ISO/TC ..(4). international document/s ..(5).., of which a copy is/copies are attached for your consideration.

We would appreciate it if you would examine and study this/these document/s and let us know about your technical views and commetns you would find it necessary to be taken into consideration.

Your reply would be of great benefit to us in carrying-on our tasks and we would be much obliged if you would take this inquiry into consideration and provide us with your reply as soonest as possible to enable us by our turn, to reply to the ISO/TC secretariat in due course.

Looking forward to a fruitful and mutual coolaboration between us in the common interest.

Yours Sincerely,

(Signature)
Post Title

---

(1) NAME OR TITLE OF THE NSB/NSC OR THE STANDARDIZATION DEPARTMENT

(2) NAME AND ADDRESS OF CONCERNED INTERESTED BODIES AND SPECIALISTS TO WHOM THIS CIRCULAR IS ADDRESSED

(3) THE SUBJECT MATTER DEALT WITH WITHIN THE SCOPE OF THE INTERNATIONAL DOCUMENT/S IN QUESTION AND THE INQUIRY REQUESTED BY THE ISO/TC SECRETARIAT ACCORDING TO THE ISO FORMS, ISO/DIRECTIVES - FORM 1 to FORM 10 (STANDARDS ENVISAGED).

(4) NUMBER IN SEQUENCE OF THE ISO/TC IN THE ORDER OF ISO COMMITTEES IN WHICH THEY ARE SET UP AND ITS TITLE ACCORDING TO THE DEFINED FIELDS OF ITS ACTIVITY.

(5) SCOPE OF THE INTERNATIONAL DOCUMENT/S IN QUESTION, WHICH DEFINE THE LIMITS OF THE WORK DONE TO BE CONSIDERED.

(1) (FORM 1/ISO)

INTERNATIONAL TECHNICAL ACTIVITIES (2)

ISO/TC/SC/WG : (3)
SCOPE OF DOCUMENT : (4)
REFERENCE OF DOCUMENT : (5)

INTERNATIONAL DOCUMENT (STANDARDS)

SUBJECT : (6)

RELEVANT DOCUMENTATION EXISTING IN COUNTRY (7)	INTERESTED BODIES AND SPECIALISTS WHOM THE SUBJECT MATTER CONCERN	COMPARATIVE STUDIES (SUMMARY/IN BRIEF)

1 EXAMINATION AND DISCUSSION OF THE COMPARATIVE STUDIES WITH THE INTERESTED BODIES AND SPECIALISTS WHOM THE SUBJECT MATTER OF THE DOCUMENT IN QUESTION, CONCERN :

2 EXAMINATION AND STUDY OF THE VIEWS AND COMMENTS RECEIVED AS A RESULT OF THE WIDE CIRCULATION OF THE DOCUMENT IN QUESTION (CIRCULAR 1/ISO) :

3 STATEMENT OF RESULTS

3.1 RELEVANT DOCUMENTATION (7) DEALING WITH THE SUBJECT MATTER OF THE INTERNATIONAL DOCUMENT (STANDARDS) IN QUESTION, EXIST/S IN THE COUNTRY (IF ANY):

3.2 THE TECHNICAL CONTENT OF THE RELEVANT DOCUMENTATION EXISTING IN THE COUNTRY (IF ANY), AND THAT OF THE INTERNATIONAL DOCUMENT IN QUESTION ARE :

3.2.1 EQUIVALENT IN TOTAL : (8)

3.2.2 EQUIVALENT WITH MINOR DEVIATIONS : (9)

3.2.3 NOT EQUIVALENT : (10)

3.3 THE RELEVANT DOCUMENTATION EXISTING IN THE COUNTRY IS/ARE SEEN TO BE REVISED OR AMMENDED IN ACCORDANCE WITH THE TECHNICAL CONTENTS OF THE INTERNATIONAL DOCUMENT IN QUESTION, IN TOTAL/WITH MINOR DEVIATIONS :

3.4 THE RELEVANT DOCUMENTATION EXISTING IN THE COUNTRY IS/ARE SEEN NOT TO BE REVISED OR AMMENDED FOR THE FOLLOWING REASONS :

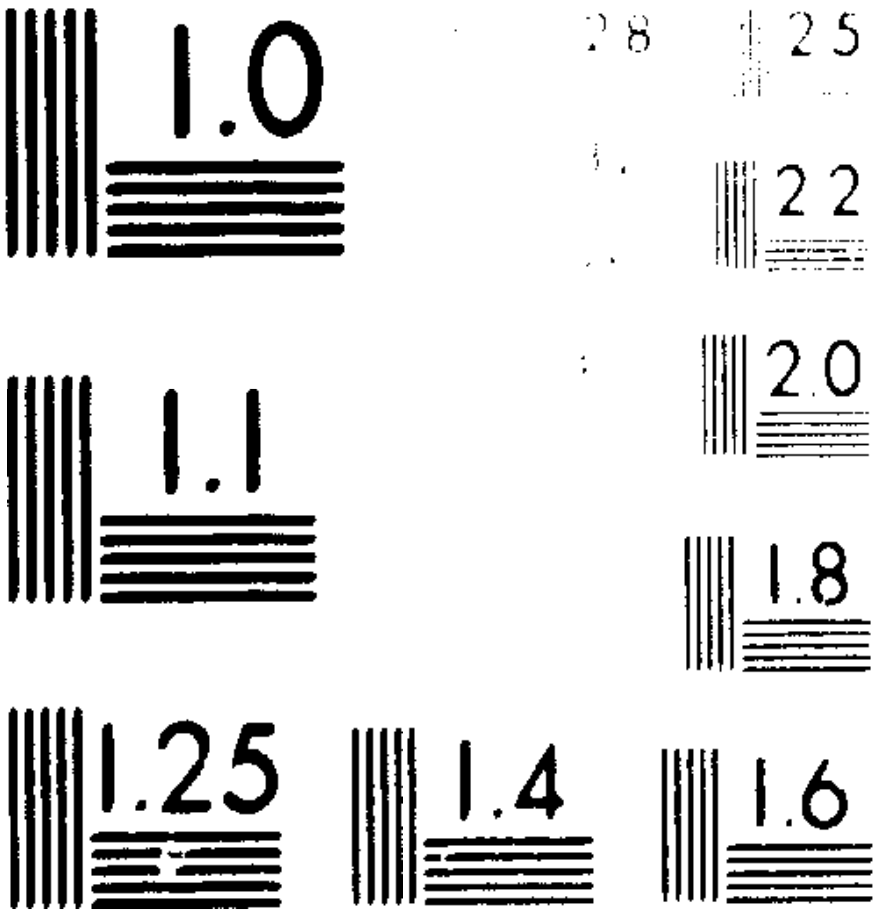
3.5 RELEVANT DOCUMENTATION DEALING WITH THE SUBJECT MATTER OF THE INTERNATIONAL DOCUMEN IN QUESTION IS/ARE SEEN TO BE ISSUED (AND ADOPTED IN THE COUNTRY AT THE NATIONAL LEVEL), AND THEIR TECHNICAL CONTENT WILL BE :

3.5.1 EQUIVALENT IN TOTAL : (8)

3.5.2 EQUIVALENT WITH MINOR DEVIATIONS : (9)

3.5.3 NOT EQUIVALENT : (10)

B-932


1.0
2.8
2.5
2.2
1.1
2.0
1.8
1.25
1.4
1.6

3.6 RELEVANT DOCUMENTATION DEALING WITH THE SUBJECT MATTER OF THE INTERNATIONAL DOCUMENT IN QUESTION IS/ARE SEEN NOT TO BE ISSUED FOR THE FOLLOWING REASONS :

4 IMPLEMENTATION OF THE INTERNATIONAL DOCUMENT IN THE COUNTRY

4.1 POSSIBILITIES ACCORDING TO COUNTRY REGULATIONS (CONFLICTING/NOT CONFLICTING), LOCAL PRODUCTION CAPABILITIES, ETC. .... :

4.2 VIEWS AND SUGGESTIONS :

4.2.1 THE INTERNATIONAL DOCUMENT IN QUESTION TO BE USED DIRECTLY:

4.2.2 THE RELEVANT DOCUMENTATION EXISTING OR TO BE ISSUED IN THE COUNTRY IS/ARE TO BE HARMONIZED WITH THE INTERNATIONAL DOCUMENT IN QUESTION :

4.2.3 THERE IS NO INTEREST SEEN TO BE IN THIS CONCERN FOR THE FOLLOWING REASONS (REASONS FOR NON-IMPLEMENTATION) :

5 REMARKS :

6 COMMENTS TO BE SENT TO ISO - CENTRAL SECRETARIAT OR TO ISO/TC SECRETARIAT :

SPECIALIST IN CHARGE : SIGNATURE :
DATE :

SENIOR OFFICER : SIGNATURE :
DATE :

(1) (FORM 2/ISO)

INTERNATIONAL TECHNICAL ACTIVITIES (2)

ISO/TC/SC/WG : (3)

SCOPE OF DOCUMENT : (4)

REFERENCE OF DOCUMENT : (5)

INTERNATIONAL DOCUMENT (METHODS OF TEST/CHEMICAL ANALYSIS)

SUBJECT : (6)

RELEVANT DOCUMENTATION EXISTING IN COUNTRY (7)	INTERESTED BODIES AND SPECIALISTS WHOM THE SUBJECT MATTER CONCERN	COMPARATIVE STUDIES (SUMMARY / IN BRIEF)						
		INDICATORS		APPARATUS		EFFICIENCY		ACCURACY
		ISO	(7)	ISO	(7)	ISO	(7)	ISO (7)

1 EXAMINATION AND DISCUSSION OF THE COMPARATIVE STUDIES WITH THE INTERESTED BODIES AND SPECIALISTS WHOM THE SUBJECT MATTER OF THE DOCUMENT IN QUESTION, CONCERN :

2 EXAMINATION AND STUDY OF THE VIEWS AND COMMENTS RECEIVED AS A RESULT OF THE WIDE CIRCULATION OF THE DOCUMENT IN QUESTION (CIRCULAR 1/ISO) :

3 BASIC PRINCIPLES, PROCEDURE AND PROPERTIES OF WHICH USE IS MADE

3.1 WITHIN THE SUBJECT MATTER OF THE INTERNATIONAL DOCUMENT IN QUESTION :

3.2 WITHIN THE SUBJECT MATTER OF THE RELEVANT DOCUMENTATION EXISTING IN THE COUNTRY (IF ANY) :

4 REAGENTS, MATERIALS, AUXILIARY MATERIALS, INDICATORS AND APPARATUS OF WHICH USE IS MADE

4.1 WITHIN THE SUBJECT MATTER OF THE INTERNATIONAL DOCUMENT IN QUESTION :

4.2 WITHIN THE SUBJECT MATTER OF THE RELEVANT DOCUMENTATION EXISTING IN THE COUNTRY (IF ANY) :

4.3 AVAILABILITY IN THE COUNTRY :

5 STATEMENT OF RESULTS

5.1 RELEVANT DOCUMENTATION (7) DEALING WITH THE SUBJECT MATTER OF THE INTERNATIONAL DOCUMENT (METHODS OF TEST/CHEMICAL ANALYSIS) IN QUESTION, EXIST/S IN THE COUNTRY (IF ANY) :

5.2 THE TECHNICAL CONTENT (REFER TO 3,3.1,3.2 AND 4,4.1,4.2) OF THE RELEVANT DOCUMENTATION EXISTING IN THE COUNTRY (IF ANY), AND THAT OF THE INTERNATIONAL DOCUMENT IN QUESTION ARE :

5.2.1 EQUIVALENT IN TOTAL : (8)

5.2.2 EQUIVALENT WITH MINOR DEVIATIONS : (9)

5.2.3 NOT EQUIVALENT : (10)

5.3 THE RELEVANT DOCUMENTATION EXISTING IN THE COUNTRY IS/ARE SEEN TO BE REVISED OR AMMENDED IN ACCORDANCE WITH THE TECHNICAL CONTENTS (REFER TO 3,3.1,3,2 AND 4,4.1,4.2) OF THE INTERNATIONAL DOCUMENT IN QUESTION, IN TOTAL/WITH MINOR DEVIATIONS :

5.4 THE RELEVANT DOCUMENTATION EXISTING IN THE COUNTRY IS/ARE SEEN NOT TO BE REVISED OR AMMENDED FOR THE FOLLOWING REASONS :

5.5 RELEVANT DOCUMENTATION DEALING WITH THE SUBJECT MATTER OF THE INTERNATIONAL DOCUMENT IN QUESTION IS/ARE SEEN TO BE ISSUED (AND ADOPTED IN THE COUNTRY AT THE NATIONAL LEVEL), AND THEIR TECHNICAL CONTENT (REFER TO 3,3.1,3.2 AND 4,4.1,4.2) WILL BE :

5.5.1 EQUIVALENT IN TOTAL : (8)

5.5.2 EQUIVALENT WITH MINOR DEVIATIONS : (9)

5.5.3 NOT EQUIVALENT : (10)

5.6 RELEVANT DOCUMENTATION DEALING WITH THE SUBJECT MATTER OF THE INTERNATIONAL DOCUMENT IN QUESTION IS/ARE SEEN NOT TO BE ISSUED FOR THE FOLLOWING REASONS :

6. IMPLEMENTATION OF THE INTERNATIONAL DOCUMENT IN THE COUNTRY

6.1 POSSIBILITIES ACCORDING TO COUNTRY REGULATIONS (CONFLICTING/NOT CONFLICTING), LOCAL PRODUCTION CAPABILITIES, ETC. ..... (REFER TO 3,3.1, 3.2 AND 4,4.1,4.2,4.3) :

6.2 VIEWS AND SUGGESTIONS :

6.2.1 THE INTERNATIONAL DOCUMENT IN QUESTION TO BE USED DIRECTLY :

6.2.2 THE RELEVANT DOCUMENTATION EXISTING OR TO BE ISSUED IN THE COUNTRY IS/ARE TO BE HARMONIZED WITH THE INTERNATIONAL DOCUMENT IN QUESTION (REFER TO 3,3.1,3.2 AND 4,4.1,4.2,4.3) :

6.2.3 THERE IS NO INTEREST SEEN TO BE IN THIS CONCERN FOR THE FOLLOWING REASONS (REASONS FOR NON-IMPLEMENTATION) :

7 REMARKS :

8 COMMENTS TO BE SENT TO ISO-CENTRAL SECRETARIAT OR TO ISO/TC SECRETARIAT :

SPECIALIST IN CHARGE : SIGNATURE :
DATE :

SENIOR OFFICER : SIGNATURE :
DATE :

(1) (FORM 3/ISO)

INTERNATIONAL TECHNICAL ACTIVITIES (2)

ISO/TC/SC/WG : (3)

SCOPE OF DOCUMENT : (4)

REFERENCE OF DOCUMENT : (5)

INQUIRY REQUESTED :

(REFER TO ISO FORMS, ISO/DIRECTIVES-FORM 1 TO FORM 10)

CATEGORY OF COUNTRY'S (NSB) MEMBERSHIP IN ISO/TC

PARTICIPATING P_ MEMBER :

OBSERVER O_ MEMBER :

SUBJECT : (6)

1 STATEMENT OF RESULTS CONCERNING THE EXAMINATION AND STUDY OF THE DOCUMENT IN QUESTION ACCORDING TO INQUIRY REQUESTED AND ISO FORMS :

2 RELEVANT DOCUMENTATION EXISTING IN THE COUNTRY (IF ANY) DEALING WITH THE SUBJECT MATTER OF THE DOCUMENT IN QUESTION : (7)

3 TECHNICAL VIEWS, COMMENTS AND JUSTIFICATION CONCERNING THE SUBJECT MATTER OF THE DOCUMENT IN QUESTION ACCORDING TO INQUIRY REQUESTED AND ISO FORMS :

4 REMARKS :

5 COMMENTS TO BE SENT TO ISO - CENTRAL SECRETARIAT OR TO ISO/TC SECRETARIAT ACCORDING TO INQUIRY REQUESTED AND ISO FORMS :

SPECIALIST IN CHARGE : SIGNATURE :
DATE :

SENIOR OFFICER : SIGNATURE :
DATE :

ANNEX 4

INVENTORY OF PROJECT EQUIPMENT

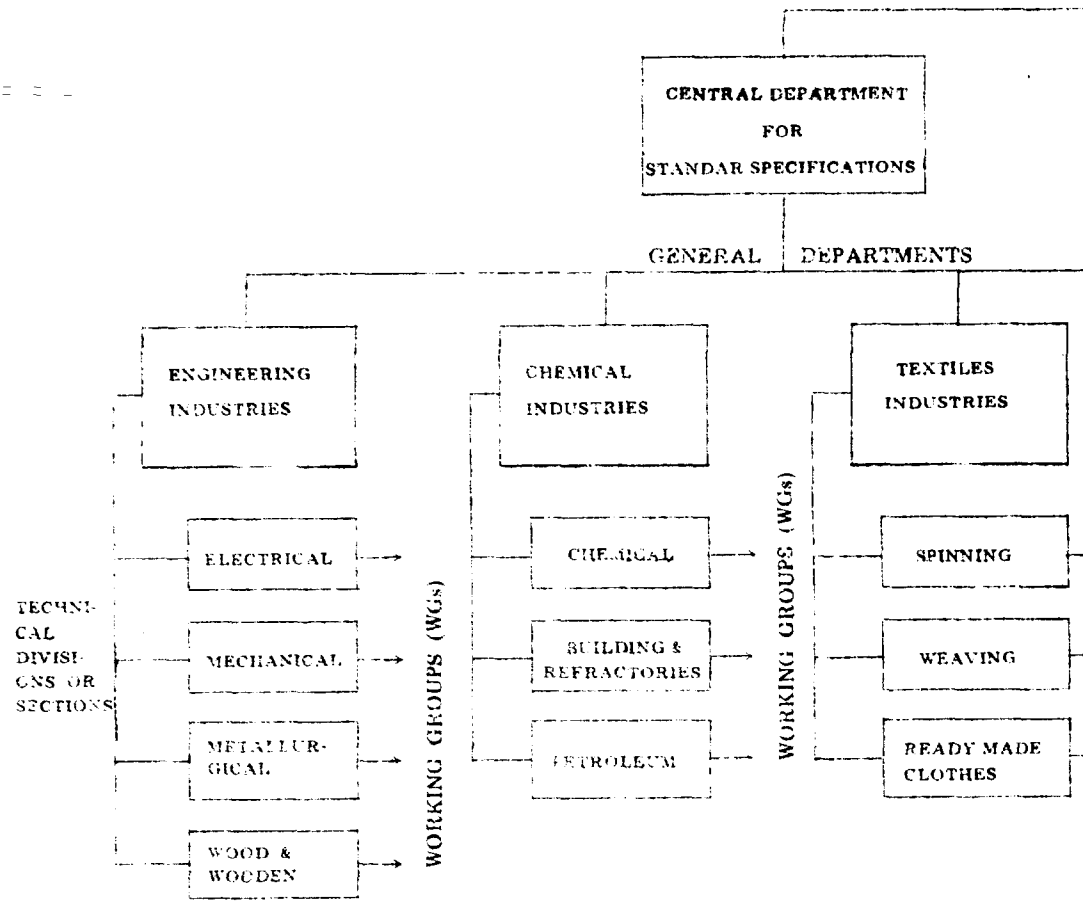
PROJECT TITLE : NATIONAL CONSENSUS STANDARDS AND QUALITY CONTROL
PROJECT NO : DP/INS/74/002
COUNTRY : INDONESIA

Item No	Qty	Unit	Description	Equivalent US Dollar	Received Qty.	M	Y	Qty. on hand
1	1	EA	STENCIL SCANNER 2002S	1,941.-	1	2	78	1
2	2	EA	REX ROTARY STENCIL DUPLICATORS RR1050S WITH STANDARD ACCESSRIES AND SUPPLIES SERIAL No. 103034773, 1030 A 0093	1,570.-	2	2	78	2
3	1	EA	REX ROTARY SPRITI DUPLICATOR MODEL R11 E STANDARD WITH ACCESSORIES AND SUPPLIES SERIAL No. 104654427	646.-	1	2	78	1
1	1	EA	OCE 1610 PHOTOCOPYING MACHINE 220/50/1	4,109.-	1	6	78	1
1	1	EA	DRUM	411.-	1	6	78	1
4	1	EA	OCE 208 PLAN PRINTER 220/50/1	1,772	1	6	78	1
2	1	EA	IBM COMPOSER WITH THREE FONTS-EXTRAS FOR 220 VOLT	10,416.-	1	1	78	1
3	1	EA	CAKKEN OVERHEAD PROJECTOR MODEL GPJ-628W	293.-	1	6	78	1
2	1	EA	KODAK CAROUSEL S-AV2000 PROJECTOR, AND ACCESSORIES	1,010.-	1	9	78	1
2	1	EA	ELMO MODEL 16-FR (M-0) 16 mm SOUND PROJECTOR	1,032.-	1			1
4	1	EA	AKAI MODEL GX650D, 3 HEADS, 3 MOTORS,	910.-	1	12	78	1

CONT'D

Item No.	Qty	Unit	Description	Equivalent US Dollar	Received Qty.	Received M	Received Y	Qty. on hand
1	1	EA	CAMERA FUJICA AZ-1 SLR, BODY ONLY PLUS ZOOM LENS 43-75 mm F/3.5-4.5, STANDARD LENS 50 mm F/1.4, STANDARD LENS 55 mm F/1.8, AUTO-WINDER, AUTO-FLASH	487.-	1	10	78	1
4			PORTABLE INSTALLATION FOR CONFERENCE OF 50-75 PERSONS	6,682.-	-	6	79	1 set
1	1	EA	ISO FILM ON STANDARDIZATION IN TRANSPORTATION	872.-	1	6	79	1

ORGANIZATION CHART
PERMANENT STANDARDIZATION STAFF MEMBERS
CENTRAL DEPARTMENT FOR STANDARD SPECIFICATIONS
(FOR GUIDANCE)



ANNEX 5

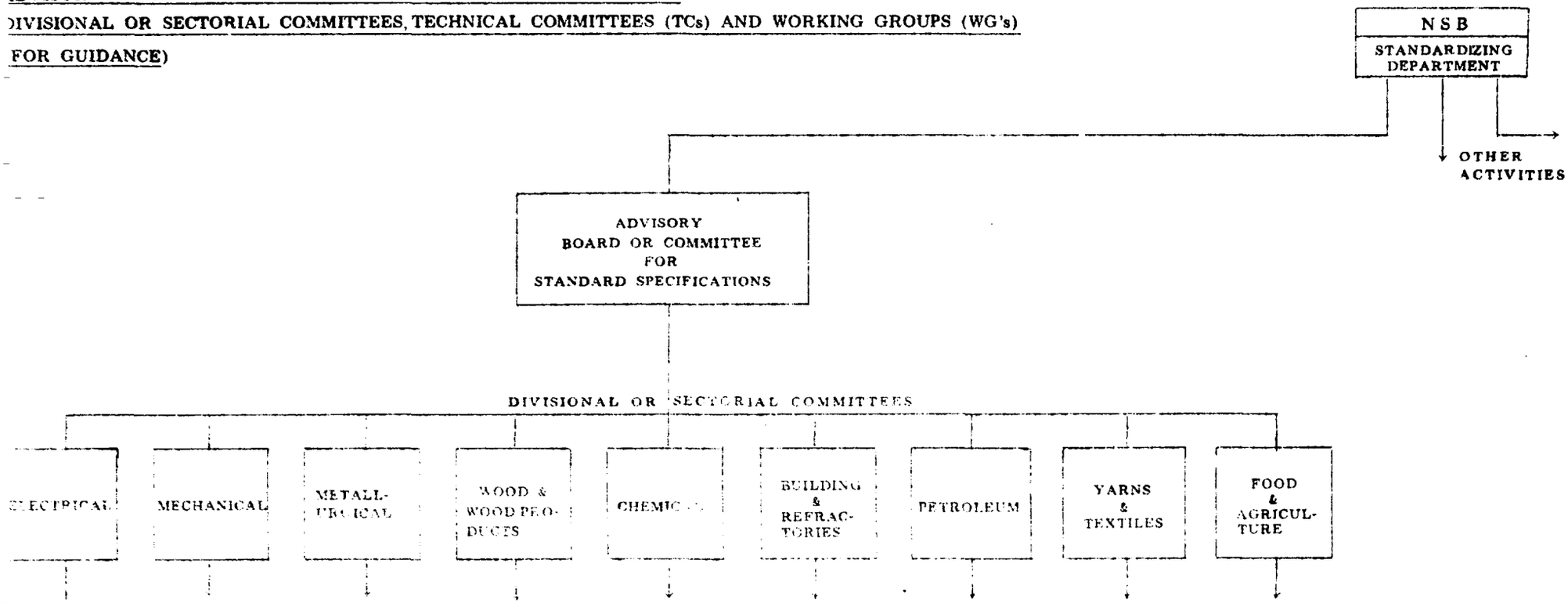
N S B
OTHER CENTRAL DEPARTMENTS
FOO & AGRI-
CULTURE
INDUSTRIES
FOOD
AGRICULTURE
WORKING GROUPS (WGs)
WORKING GROUPS (WGs)

)RGANIZATION CHART

\DVISORY BOARD OR COMMITTEE FOR STANDARD SPECIFICATIONS

)IVISIONAL OR SECTORIAL COMMITTEES, TECHNICAL COMMITTEES (TCs) AND WORKING GROUPS (WG's)

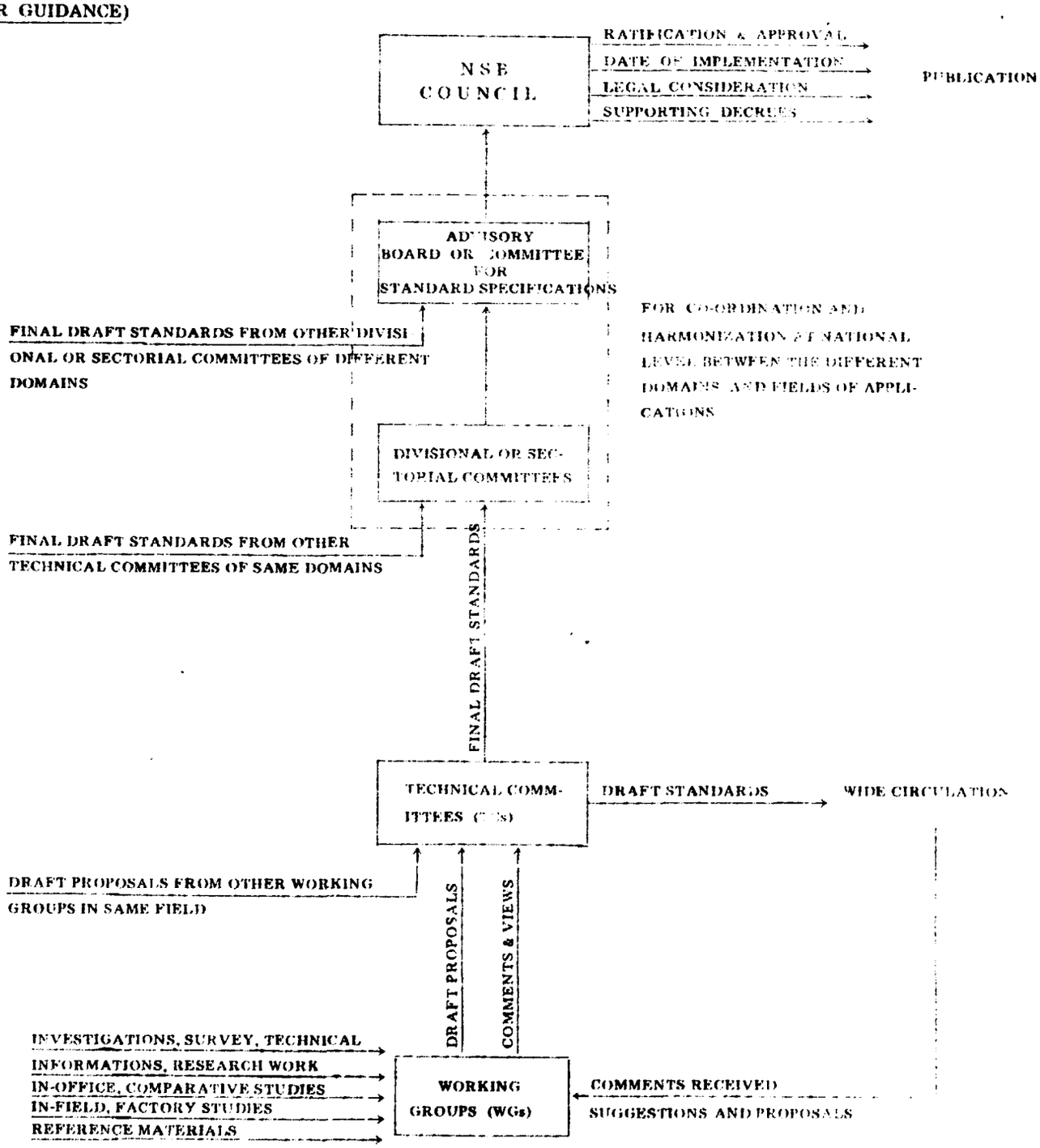
FOR GUIDANCE)



WORK FLOW CHART

PROCEDURE FOR SETTING-UP NATIONAL STANDARDS

(FOR GUIDANCE)



ANNEX 6

SEMINAR ON STANDARDIZATION
AND QUALITY CONTROL VI
JANUARY 28 - 30, 1981

1 The Sixth Seminar on Standardization and Quality Control was organized by Directorate for Standardization, Normalization and Quality Control, Department of Trade and Cooperative, The Republic of Indonesia.

2 Some 90 participants have attended comprising of representatives from the following :

- Department of Trade and Cooperative
- Department of Agriculture
- Department of Industry
- Department of Finance
- Universities
- Universities
- Institute of Research
- Trade Unions and Associations.

3 The Seminar discussed the subject of :

3.1 General paper

3.1.1 Standardization, what it is and what it is about.
Standardization in Indonesia
} Presented by the Expert

3.1.2 Post Harvest, packaging and transportation of vegetables and fruits.

3.2 Draft Standards and Test Methods for the following commodities :

3.2.1 Onion
3.2.2 Garlic
3.2.3 Fresh Tomato
3.2.4 Fresh Petsai (Chinese Cabbage)
3.2.5 Fresh Carrot
3.2.6 Avocado
3.2.7 Salak
3.2.8 Manggoes
3.2.9 Pine apple
3.2.10 Mandarin orange

DIREKTORAT STANDARDISASI, NORMALISASI DAN PENGENDALIAN MUTU
DEPARTEMEN PERDAGANGAN DAN KOPERASI

SEMINAR STANDARDISASI
DAN PENGAWASAN MUTU BARANG VI
(SAYUR-SAYURAN DAN BUAH-BUAHAN)
CISARUA, 28-30 JANUARI 1981

STANDARDIZATION
WHAT IT IS AND WHAT IT IS ABOUT

BY
EDWARD YOUSSEF KADI, DIPL. ENG.
EXPERT STANDARDIZATION
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION/
LIPI STANDARDIZATION PROJECT

BRIEF HINTS

Standardization is the process of formulation and applying rules for an orderly approach to a specific activity for the benefit and the cooperation of all concerned and in particular for the promotion of optimum overall economy taking due account of functional conditions and safety requirements. It determines not only the basis of the present, but also for futur development and should keep pace with advance.

Its pre-requisite aims are to achieve the overall economy, the protection of consumer community interest and the provision of safety requirements and protection of health and life.

Standardization is of considerable importance in international trade, it provides a reference in clear language for the negotiations between buyer and seller, thereby facilitating the exports of goods ranging from semi-processed agricultural products to a complex articles, especially if there is a scheme of inspection which guarantees conformity with standards equipment. Standardization and its related activities and fields are important aspects of industrial development in any country.

It is considered as an integrated disciplinary factor of industrial development and planning because of its reliable advantages and usefulness in the

present and the future. When standardization is employed in the broad strategy for industrial development, it helps to ensure an efficient flow of production at reduced costs, assists marketing and improves consumer satisfaction, it is an effective tool for the transfer of technology with provided guarantee. Although the production cost reduction was initial reason for industrial standardization, the consumers interests and the growth of its movement are a continuing stimulus. The regulations of the standardizing body generally call for the consultation between producers and users in preparing standards specially when it concerns consumer goods, but it has not been so easy to obtain the views of the ordinary consumers "man in the street". Competent government agencies may then represent the interests of the consumers.

The need for standardization is developing to meet the demands of the modern industrialized society of an ever increasing volume of goods and for labour saving devices in every walk of life.

The challenge of industrial management is to provide all these goods in the necessary volume, with the degree of reliability and at the competitive price demanded by the society. These requirement cannot be achieved without introducing standardization into industrial life on a scale which was not contemplated before. The most important of the standardization levels is that of the national one because of its wide coverage scope and its far reaching results and influence to all other levels of company, regional and international.

Standardization at the national level could be considered as the basis for forging the international agreements concerning the international standards, helping to promote worldwide exchange of goods, services and national interests. The recognition of the need for national standards raised from the growth of industrialization throughout the world, bringing with it increased trading and more need for standard specifications as recognized basis adopted for trade, and to provide necessary and adequate means for the assurance of the suitability, fitness and quality claimed for of the products or commodity dealt with. They are also essential for the variety reduction limiting the needless and unnecessary wide variety of production.

The extent of participation of the government in the activities of standardization carried out at the national level varies from one country to the other, it depends on the legal status and the internal organizational structures of the standardizing bodies as well as, it depends on the economical plicy trends and social circumstances peculiar to the country involved. However, unless this body has the full backing and necessary support of its government in this concern,

it will not be able to undertake the functions assigned to it with the expected and needed efficiency.

To achieve the expected and desirable profits for which the establishment of standards are intended, it is very importan, not only to issue standards, but also to implement and put them in actual and effective action for application by all the interested concerned parties took parts in preparing them. There are bad needs for exerting common efforts to implement and to ensure the implementation of standards in the various relevant sectors of the different industrial and economical domains at all levels. This is one of the major and important tasks to be undertaken by the standardizing bodies, reflecting their essential functions in relation with standardization activities and its foundation for quality control.

The measures and means for the implementation of standards need to be adopted and the deliberated common efforts exerted in this concern, vary from one country to the other. This is due to the differences in the internal organizational structurs of the SBs and to the industrial achievements, economical policy t trends and social circumstances peculiar to the country involved.

Moreover, this also depends on the nature, type, level of the standards in question, their legal considerations and as well, on the legal status of their available possibilities and the support received from their governments.

In implementing standards, a decision must first be taken as to whether the standards involved are going to be voluntary or compulsory.

In some countries all national standards are compulsory, in others, where the standards are voluntary, this applies only to certain categories of the voluntary, standards seen to be mandatory according to the national needs, safety and protection of the community and the particular requirements that the standards provide.

Both economic and social considerations play a part in the choise and each country is taking its own decision in the light of the local conditions and existing circumstances.

Standardization in Indonesia

Standardization activities in Indonesia are carried out by different and various agencies and governmental departments in ministries and other institutions which are setting up their own standard specifications to meet their specific and actual needs and to cover their respective areas of interests (minimum requirements, code of practice, regulations and for export quality standards).

These include Ministries of Trade and Cooperative, Industry, Health, Mining and Energy, Agriculture, State Electricity Corporation, etc.

This has lead in some cases to overlap and a somewhat confusing situation with the existence of a conflicting and multiplicity of standards with the same coverage (duplication and contradiction), but in different style of presentation.

As a background, the Indonesian standards body YAYASAN DANA NORMALISASI INDONESIA (YDNI), which is a private body with inadequate funds, status and facilities, has been able to develop a sectoral and technical committee structure only on a limited scale. It has no organizational status to operate as a national standardization body and exists only in name. The LIPI project nominally with YDNI presently represents the country in international and regional standards organizations.

The problems could be stated as follows :

1- The absence of a national overview and coordinated programme.

2- The need for a defined and clearer central direction and guidance.

3- The need for creating a national central focal authority for standardization acting as an umbrella to embrace all the national existing standardization activities carried out by the different interested parties in the country, and to be recognized by law as the national standardization body or council for the whole country as the more logical rational trend to achieve harmonization, coordination and rationalization in this respect. This national body or council should have the legal status as the authority responsible for the issue of national standards, their implementation and for representing the country at the international and regional levels of standardization activities. This body should possess or have access to necessary testing and research facilities in the concern.

4- The need for setting up an adequate national coordinating system between the organizations currently engaged in formulating standards with the aim to harmonize and rationalize them to be considered as national standards issued under one adopted national standardized format.

5- The need for adopting one official standards register for the country which will serve to avoid the confusion resulting from the multiplicity and duplication of standards with same coverage.

6- The need for setting up necessary ministerial decrees and regulations in the respect.

7- The need for setting up supporting system for the standards according to their legal consideration.

8- The need for legal enforcement for the implementation of national standards

having regard to the nature of the standards, the level of standerdization and the laws and conditions prevailling in the society for whom the standards have been prepared. For the voluntary issued standards, some of them, according to certain seon national consideration, are to be made mandatory by legislation and legally enforceable even that the other relevant standards remain voluntary, realizing that the mere publication of standards is of little value unless it can be implemented. Implementation may necessitate sacrifices by the few in the benefit of the many.

It is the time now, with the hope to have in the near future a national body or council, to call for supporting and concerting efforts to be made to achieve cooperative agreement between concerned parties in order to obtain willing support and acceptance for, as well as to develop a national system for standardization and consequently to take charge of the promulgation and promotion of standardization allied activities in the country at all levels, and to remove any existing suspicion that setting up such a national system may dent the authority importance and functions of some of the existing organizations.

This national system anticipates support of an executive council assisted by specialized advisory boards and divisional or sectorial committees, established in such a way as to ensure representation of all relevant interests, ministries, governmental departments, institutes, individul enterprises, industrial and trade sectors, consumer bodies, research and testing centres.

The establishment of national standards will be carried out by the different organs and departments dealing and procedding with standardization, directly concerned in the specific field or domain work referred to them and the subject matter in question.

No.: 01/PU-SEM VI/DSNPM/81

SEMINAR STANDARDISASI
DAN PENGAWASAN MUTU BARANG VI
(SAYUR-SAYURAN DAN BUAH-BUAHAN)
CISARUA, 28 - 30 JANUARI 1981

STANDARDISASI

APAKAH DAN MENGENAI APAKAH ITU

OLEH :

DIPL. ENGINEER
EDWARD YOUSSEF KADI

EXPERT STANDARDIZATION

UNITED NATIONS INDUSTRIAL DEVELOPMENT
ORGANIZATION / LIPI STANDARDIZATION PROJECT

DIREKTORAT STANDARDISASI, NORMALISASI DAN PENGENDALIAN MUTU
DEPARTEMEN PERDAGANGAN DAN KOPERASI

Standardisasi,
Apakah dan mengenai apakah itu.

Standardisasi adalah proses menyusun dan menerapkan peraturan untuk menangani secara teratur suatu aktivitas tertentu untuk manfaat dan dengan bantuan semua pihak yang berkepentingan dan terutama untuk mencapai keadaan ekonomi menyeluruh yang optimum dengan mempertimbangkan kondisi yang ada dan persyaratan-persyaratan keselamatan; standardisasi tidak saja menentukan dasar dari perkembangan dewasa ini tetapi juga perkembangan masa datang dan harus selalu selaras dengan kemajuan.

Tugas mutlaknya adalah mencapai keadaan yang paling ekonomis, melindungi konsumen dan kepentingan umum dan mengadakan persyaratan-persyaratan keselamatan serta melindungi kesehatan dan jiwa.

Standardisasi amat penting dalam perdagangan internasional, karena memberikan referensi yang jelas untuk negosiasi antara pembeli dan penjual, serta mempermudah ekspor dari komoditi pertanian yang semi proses sampai barang-barang yang lebih kompleks, apalagi bila terdapat rencana inspeksi yang dapat memberi tanggungan bahwa barang-barang tersebut mutunya sesuai dengan standar yang ada. Standardisasi dan aktivitas serta bidang-bidang yang berkaitan dengan itu adalah aspek penting dari perkembangan industri setiap negara. Standardisasi dianggap sebagai faktor menyeluruh pengatur tata tertib dari perkembangan dan perencanaan industri karena keuntungan-keuntungannya yang dapat diandalkan serta kegunaannya untuk masa sekarang dan masa depan. Bila standardisasi diterapkan pada siasat perencanaan umum dari perkembangan perindustrian, maka hal ini akan menjamin diperolehnya aliran produksi yang efisien dengan ongkos yang rendah, akan membantu pemasaran dan memperbaiki rasa kepuasan si konsumen; standardisasi adalah alat yang efektif untuk pemindahan teknologi dengan hasil yang terjamin. Meskipun rendahnya ongkos produksi merupakan alasan yang pertama untuk melaksanakan standardisasi industri, tetapi kepentingan konsumen dan perkembangan aktivitas perlindungan konsumen memberi dorongan yang kontinu. Peraturan-peraturan dari badan standardisasi umumnya menghendaki adanya konsultasi antara produsen dan konsumen dalam penyusunan standar, terutama bila mengenai komoditi yang dikonsumsi langsung, tetapi memang tidak mudah untuk memperoleh pandangan dari para konsumen yang awam. Umumnya badan-badan pemerintah yang kompeten akan mewakili para konsumen tersebut.

Kegunaan standardisasi adalah untuk dapat memenuhi permintaan masyarakat modern yang telah berorientasi industri akan barang-barang dalam jumlah yang

makin besar dan peralatan-peralatan yang menghemat tenaga dalam kehidupan sehari-hari.

Yang menjadi tantangan bagi para pemimpin industri adalah untuk dapat mengadakan barang-barang tersebut dalam jumlah yang diperlukan, dengan harga bersaing dan mutu yang diminta oleh masyarakat. Persyaratan-persyaratan itu tidak dapat dicapai tanpa penerapan standardisasi dalam dunia industri, hal yang sebelumnya tidak dipertimbangkan terlebih dahulu. Tingkat yang paling dari standardisasi yaitu standardisasi nasional, karena meliputi ruang lingkup yang luas dan memberi akibat dan pengaruh yang luas pula pada standardisasi di tingkat perusahaan, regional dan internasional.

Standardisasi di tingkat nasional dapat dianggap sebagai dasar dari persetujuan internasional mengenai standar-standar internasional, dan membantu untuk mempromosikan pertukaran barang, jasa dan kepentingan nasional lainnya diseluruh dunia ini. Pengakuan bahwa standar nasional diperlukan terjadi setelah perkembangan industri yang menyeluruh di dunia, yang mengakibatkan bertambahnya jual beli dan bertambahnya keperluan akan spesifikasi standar yang digunakan sebagai dasar jual beli yang diakui serta menjadi ukuran yang perlu dan cukup untuk menjamin kepatutan, kegunaan mutu yang dinyatakan untuk barang yang bersangkutan. Standar-standar juga perlu untuk membatasi jenis barang, meniadakan produksi dari jenis-jenis yang sebetulnya tak perlu dan tak berguna.

Besarnya partisipasi pemerintah dalam aktivitas standardisasi di tingkat nasional berbeda untuk setiap negara, tergantung pada status yang sah dan struktur organisasi dalam badan standardisasi yang bersangkutan dan tergantung pula pada peraturan-peraturan ekonomi dan keadaan sosial negara tersebut. Tetapi, bila badan standardisasi tersebut tidak mendapat dukungan yang penuh dari pemerintahnya, maka tidak dapat melaksanakan fungsinya secara efisien seperti yang diharapkan.

Untuk mencapai apa yang diharapkan dan keuntungan yang diinginkan dari penyusunan standar seperti yang dimaksud, maka tidak saja sangat penting untuk mengesahkan standar tetapi juga menerapkannya dan menggunakannya secara aktif oleh semua pihak yang berkepentingan yang telah ikut berpartisipasi dalam penyusunannya. Dirasakan adanya keperluan yang besar untuk penerapan standar dan menjamin penerapan standar tersebut diberbagai sektor industri dan ekonomi disemua tingkat. Ini adalah salah satu tugas yang besar dan penting yang harus ditangani oleh badan-badan standardisasi, untuk mencerminkan fungsi mereka yang

perlu sehubungan dengan aktivitas standardisasi dan sebagai dasar untuk pengendalian mutu.

Ukuran dan cara untuk penerapan standar harus disetujui dan cara-cara untuk mencapai persetujuan ini berbeda dari satu ke lain negara.
Ini karena perbedaan struktur organisasi intern dari badan standardisasinya dan tingkatan industri, peraturan-peraturan ekonomi dan keadaan sosial negara yang bersangkutan.

Hal ini juga tergantung pada jenis, tipe dan tingkatan dari standar yang bersangkutan, statusnya secara sah dalam hukum serta dukungan dari pemerintahnya.

Dalam penerapan standar, perlu diambil keputusan terlebih dahulu apakah standar tersebut akan diberlakukan secara sukarela atau secara harus.

Di beberapa negara semua standar nasional diberlakukan secara keharusan. Di negara-negara lain di mana standar diberlakukan secara sukarela hal ini hanya berlaku untuk standar-standar tertentu saja. Standar diberlakukan secara keharusan untuk kepentingan nasional, keselamatan dan perlindungan masyarakat dan menurut persyaratan khusus dari standar tersebut. Untuk memilih apakah standar akan diberlakukan sukarela atau secara harus tergantung pada pertimbangan-pertimbangan ekonomi dan sosial dan setiap negara harus memilih berdasarkan keadaan yang ada.

Standardisasi di Indonesia

Aktivitas standardisasi di Indonesia dilaksanakan oleh berbagai instansi pemerintah di berbagai departemen. Yang menyusun standar berdasarkan spesifikasi-spesifikasi yang dapat memenuhi keperluan sesuai dengan bidangnya masing-masing (persyaratan minimum, rencana pelaksanaan, peraturan-peraturan dan standar mutu ekspor). Ini termasuk Depdagkop, Departemen Perindustrian, Departemen Pertambangan dan Energi, Departemen Pertanian, PLN dan lain-lain.

Hal ini menimbulkan adanya tumpang tindih dan keadaan yang agak membingungkan karena adanya berbagai standar untuk komoditi yang sama dengan ruang lingkup yang sama yang kadang-kadang berbeda (duplikasi dan kontradiksi), dengan cara penyajian yang berbeda pula.

Sebagai latar belakang, Badan Standardisasi Indonesia, Yayasan Dana Normalisasi Indonesia (YDNI) yang adalah badan swasta dan didirikan 1928 dengan

dana, status, fasilitas yang tidak cukup, dapat membentuk seksi-seksi dan jaringan komite-komite secara terbatas. Badan ini tidak mempunyai status organisasi untuk dapat beroperasi sebagai badan standardisasi nasional dan sebetulnya hanya terdiri dari nama saja. Proyek LIPI, yang disatukan dengan YDNI dengan peraturan, pada saat ini mewakili Indonesia dalam pertemuan standardisasi internasional dan regional.

Persoalannya dapat dikemukakan sebagai berikut :

1. Tidak adanya pandangan umum di tingkat nasional dan tidak ada program terkoordinasi.
2. Perlu adanya tujuan dan pengarahan yang terpusat secara jelas dan tegas.
3. Perlu diadakannya titik pusat nasional yang berwibawa untuk standardisasi, agar dapat berlaku sebagai payung yang dapat melindungi semua aktivitas standardisasi nasional yang pada saat ini dilaksanakan oleh berbagai instansi dan untuk diakui secara hukum sebagai Badan Standardisasi Nasional atau Council untuk seluruh negeri, sebagai jalan yang lebih logis dan rasional untuk dapat mencapai harmonisasi, koordinasi dan nasionalisasi dalam standardisasi.
   Badan nasional ini harus berstatus hukum yang berkuasa untuk mengeluarkan standar nasional, menerapkannya dan mewakili negara dalam aktivitas internasional dan regional. Badan ini harus mempunyai atau dapat mempergunakan fasilitas untuk melaksanakan testing dan penelitian yang diperlukan.
4. Perlu diadakannya sistim koordinasi nasional yang baik antara instansi-instansi yang pada saat ini melaksanakan penyusunan standar-standar, dengan tujuan untuk mengharmonisasi dan merasionalisasi standar-standar tersebut sebagai standar-standar nasional, diterbitkan menurut satu bentuk format standar nasional yang telah disahkan.
5. Perlu adanya suatu Badan resmi di tingkat nasional yang mendaftarkan secara resmi semua standar, untuk menghindarkan adanya berbagai macam standar untuk komoditi yang sama.
6. Perlu adanya SK Menteri dan Peraturan-peraturan pemerintah untuk hal-hal tersebut.
7. Perlu adanya sistem penunjang untuk meresmikan standar secara sah.
8. Perlu adanya penerapan yang sah dari standar-standar nasional dengan mempertimbangkan hal-hal sbb : jenis standarnya, tingkatan standardisasi yang ada, hukum dan kondisi setempat yang berlaku dalam masyarakat untuk siapa standar-standar tersebut disusun, standar-standar yang mana yang harus di-

berlakukan sukarela atau secara keharusan dilihat dari kepentingan nasional, karena standar setelah disusun dan dinyatakan berlaku harus betul-betul diterapkan. Penerapan akan menyebabkan pengorbanan oleh sebagian kecil dari masyarakat untuk kebaikan masyarakat banyak.

Inilah saatnya untuk mengharapkan bahwa tidak lama lagi akan ada Badan Nasional atau Council untuk menghimpun usaha standardisasi dari semua instansi yang secara bersatu dapat menerima adanya sistem standardisasi nasional yang akan melaksanakan, pengesahan standar dan promosi standardisasi dan aktivitas-aktivitas lain yang berkaitan dengan itudi tingkat nasional, dan dapat dihilangkannya kecurigaan bahwa adanya sistem nasional akan mengurangi otoritas, kepentingan dan fungsi dari instansi yang sudah ada.

Sistem nasional ini mengharapkan dukungan dari badan eksekutif yang dibantu oleh badan pemberi nasehat yang khusus dengan devisi-devisi atau seksi-seksi lainnya, yang mewakili semua pihak yang menaruh minat yaitu pemerintah, swasta, industri, pedagang, konsumen, peneliti dan laboratorium penguji.

Penyusunan standar nasional dilaksanakan oleh masing-masing instansi dalam Departemen yang saat ini aktif dalam standardisasi, yang langsung berkecimpung dalam bidang tersebut.

No.: 01/PU-SEM VI/DSNPM/81.

SEMINAR STANDARDISASI
DAN PENGAWASAN MUTU BARANG VI
(SAYUR-SAYURAN DAN BUAH-BUAHAN)
CISARUA, 28-30 JANUARI 1981

STANDARDIZATION
WHAT IT IS AND WHAT IT IS ABOUT

OLEH :
DIPL. ENGINEER
EDWARD YOUSSEF KADI
EXPERT STANDARDIZATION
UNITED NATIONS INDUSTRIAL DEVELOPMENT
ORGANIZATION/LIPI STANDARDIZATION PROJECT

DIREKTORAT STANDARDISASI, NORMALISASI DAN PENGENDALIAN MUTU
DEPARTEMEN PERDAGANGAN DAN KOPERASI

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STANDARDIZATION
WHAT IT IS AND WHAT IT IS ABOUT

Standardization is the process of formulation and applying rules for an orderly approach to a specific activity for the benefit and the cooperation of all concerned and in particular for the promotion of optimum overall economy taking due account of functional conditions and safety requirements. It is based on the consolidate results of science, technology and experience in the different fields and domains. It determines not only the basis of the present, but also for future development and should keep pace with advance.

Standardization is one of the most efficient methods of furthering the harmonius and beneficial development of production sought for in the general interests and to achieve this must itself rest on the scientific foundations of efficacity.

Standardization has eliminated and continues to eliminate the change and uncertainty which characterize primitive relationship and hamper the creative human mind. Such an important element as confidence is acquired from standardization which gives a solid foundations to repetition and disciplined procedure.

Standardization facilitates mental work, introduce order, simplifies and clarifies, It is a factor which assists the profitable exploitation of materials wealth and the wealth of the mind already accumulated over various ages and in various fields.

Standardization is a social as well as an economic activity and should be promoted by the mutual cooperation of all concerned, it operates and can be promulgated at different levels, the international, the regional, the national and the industry or company level, its objectives could be realized through its activities the establishment and implementation of standards, the quality control and certification schemes, the quality marks and metrology.

There are pre-requisite aims of standardization to establish order in industrym trade and commerce, and in human relationships generally. Standardization helps to regulate the conduct of commerce and trade in a smooth and efficient manner and assists in improving productivity of man and machine thus leading to the development of the country.

These aims are to achieve :

1 - Overall economy in terms of human effort, materials, power etc. .... in the production and exchange of goods.

2 - The protection of consumer community interest through adequate and consistent quality of goods and services.
3 - Safety, health and protection of life.

Standardization and Trade (Trade barriers)

The primary function of standardization is to provide adequate means of expression and of mutual communication between the manufacturers and the customers, and amongst all interested parties, by which the manufacturers declare their available production, size, performance and specifications which meet the needs and requirements of customers who will be inspired with confidence to rely on the production quality and reliability.

Standardization is of considerable importance in international trade, It provides a reference in clear language for the negotiations between buyer and seller, thereby facilitating the exports of goods ranging from semi-processed agricultural products to a complex articles, especially if there is a scheme for inspection which guarantees conformity with standards. Interchangeability of component parts giving same requirements achieved by standardization, is important for servicing and maintenance particularly of exported equipment. Standardization as applied to industry involves a group of activities that include the control of weights and measures, metrology, the setting and enforcing of standard specifications for industrial products, codes of practice, quality control and testing, and certification marking.

In international trade, buyer and seller are separated by distance, differences in national customs and, in most cases, by a language barrier as well, It is a part of the value of a well issued standard that it uses clear and concise language to specify its subject matter. From the commercial point of view, standards can help the processes of ordering and selling and eliminate potential causes of misunderstanding and dispute about performance, testing and inspection. The need of standards increases rapidly as the range of experts extends with industrialization and in the case of manufactured goods, it may often be impossible to enter world markets without complying with standards.

For this reason, in some countries where standards are in general voluntary, the government includes the demands of expert trade as well as the requirements of health and safety among the creteria for compulsory standards.
(in this respect the General Agreement on Tariffs and Trade in Geneva "GATT" issued the standards code "Agreement on Technical Barriers to Trade", entered into force on the 1st of January 1980).

STANDARDIZATION AND INDUSTRIAL DEVELOPMENT

Standardization and its related activities and fields are important aspect of industrial development in any country. It is considered as an integrated disciplinary factor of industrial development and planning because of its reliable advantages and usefulness in the present and the future.

The important consideration of standardization is not only as being the measures of industrial product quality level to be attained in production and ensured in consumption, but also to give achieved meanings to economic cooperation and international trade (trade between countries).

When standardization is employed in the broad strategy for industrial development, it helps to ensure an efficient flow of production at reduced costs, assists marketing and improves consumer satisfaction, it is an effective tool for the transfer of technology with provided guarantee.

Standardization is an organized and planned development feature of our present day industrial civilization. Standardization sets a common pattern for development of industry trough setting of specifications, nomenclature, test methods, preferred sizes and codes of practice. This pattern helps to ensure consistent mass production, reliability of products in use, and adequate safety and quality. These standards cover all fields, construction, engineering, food, agriculture, consumer goods, safety, transport, packaging documentation and technical information etc.

Standards enable quality to be determined and controlled, allow longer manufacturing runs and make important economics in storage, stocks, control, accounting procedures, administration and management.

Standards are the organizational backbone of the modern industrial economy. They ensure the uniformity and interchangeability of consumer and industrial products, leads to a reduction in product cost with high quality, develop the confidence of producer in their goods having maintained reputation with reduced obligations for the benefit of local and international trade (open markets locally and abroad).

Standardization can be considered as a key factor in development which could be achieved through it as follows :

1 - The principal national value that evolves from the introduction of standardization is a disciplinary factor in industrial productivity and progress.

2 - Standardization would avoid confusion and dissipation of economic productive progress and development, preventing serious consequences on the national economy.

3 - Industrial development is often dependant on foreign assistance in the form of capital equipment, industrial know-how and technical personnel of different industrial groups, leading to the use of different standards, standardization would reduce this variety thus leading to a quick accelerated industrial growth and development, reducting wastage in respect of maintenance and spare parts.

4 - Standardization helps the country to plan its industrial development in a national and orderly manner with the least wastage and utmost expedition.

5 - Standardization secures reference standards for calibration and verification of measuring instrument and measures.

6 - Standardization provides the necessary adequate measures for quality of raw materials and products in conformity with national standards.

7 - The laboratories owned by or working in co-operation with the national standardizing body will help in the progressive application of science and technology to industrial development.

8 - Standardization coordinates the activities of the different, various institutes, laboratories, testing centres and organizations concerned, with standards and standardization activities to ensure cooperation and full utilization of their available facilities at the national, regional or international levels.

9 - Standardization introduces a system for documentation, technical information and standard popularization, acting as a clearing body for such needs and activities, and consequently, wold give advice, consultations and reference materials to governmental and non-governmental departments, public and private sectors on what concerns standardization and its related activities.

10 - Sharing in the multichannel flow of information, experience and knowledge in the fields of standardization and related activities through the coordination of the standardization work in accordance with the international trends, helps to eliminate the barriers to international trade.

The demand for quality in terms of dependability, reliability, durability, safety, performance and other criteria and hence for adequate quality control methods is steadily gaining momentum in industrial development.

The necessity to manufacture products complying with the concerned standards, is mainly governed by the following factors :

1 - The necessity of satisfying the growing needs of the population in a way that emphasizes the production of high quality goods : This is an important point to observe specially at the first stages of the industrial development where imports are kept to a minimum and where locally produced articles should gain the confidence of the consumers.

2 - The need to promote experts as an essential source of foreign currency highly needed for carrying out development plans.

Evidently, this could not be achieved unless the local products would attain a high quality level conforming to the concerned standards and at prices low enough to withstand the necessary competition on the world market.

In this connection, it should be pointed out that ensuring and improving the quality of products is not a campaign that is to be conducted for a short time and then will be terminated after a certain period. On the contrary it is a continuing process that requires the attention of all these sharing in the execution of the development plans and particularly those who are responsible for the quality standards regardless of their being governmental or trade officials, scientists, engineers, technicians or workers.

The development of the level of quality in the country is verified through carrying its programmes comprising setting-up quality standards, quality control systems and techniques in industrial firms, training of engineers, technicians and workers, verification of the compliance of the products to national standards, the granting of certification marking, the periodic and sudden inspection stages and final products, assuring testing facilities and the establishment of quality control centres and laboratories.

The consumers of today who have a large choice of consumer goods need guidance and also to prevent them from buying goods not really suited for their purposes.

Conformity to national standards should be secured in order to get the full benefits of standardization.

STANDARDIZATION AND THE CONSUMER

Although the production cost reduction was the initial reason for industrial standardization, the consumers interests and the growth of its movement

are a continuing stimulus. Undoubtedly, one of the principal aims of standardization is to give assurance to the consumers that the goods which they buy are of the quality which is claimed for them and are satisfactory for the use to which they are to be put. The regulations of the standardizing body generally call for the consultation between producers and users in preparing standards specially when it concerns consumer goods, but it has not been so easy to obtain the views of the ordinary consumer "man in the street". Competent government agencies may then represent the interests of the consumers.

1. Marks of Conformity

The use of certification marks indicating conformity with standards can help the consumers to recognize the quality of goods, as they assume that certified goods are subjected to inspection and control procedures, as well as they have full confidence in what the national standards specifies for their use, assuming the concerned standards is the good one and the scheme of quality control and supervision used is an effective one.

2. Informative labelling

Informative labelling including warning, care, using and maintenance, instructions, etc helps the consumers to make a rational choice of product and to know what they want to know and what they need to know which are not, necessarily, the same at the outset, and without standardization, producers would tend to include different items of information in the lables which will confuse the consumer and misleading him, therefore the data included in such labelling must be as simple and unambiguous as possible.

3. Comparative testing

Standardization can help the consumer also through standard methods of measuring performance of consumer products and comparative testing based on them. Sometimes, producers have evolved methods of measuring performance in these respect and have been agreed on a standard, this is not only the case, research may be necessary to be carried out before a method could be advised, some manufacturers may not believe and it is to their advantages to impart this information factually and objectively.

The consumers' associations or unions, whenever exists could be of help in several ways. Given the vast range of consumer goods, the selection of items for priority in standardization work is a severe problem and they can provide a means whereby the ordinary consumer can make know his own

wishes in the matter.

They can help, likewise, to define the aspects of performance particularly interest the public, to participate in drafting such instructions included in informative labelling, and in developing comparative testing.
In some cases, national standards should oblige the producers to develop an identical consumer products, in effect, from point of view of all the elements which make up performance and quality.

Certain public authorities make large purchases of consumer products such as for schools and hospitals, they may with common advantage participate in the technical work of preparing standards for such products.

A great deal of standardization work in the field of consumer goods is of comparatively recent origin, and the appropriate techniques and forms of organization are still evolving.

Readily available information about consumer opinion will clearly be of great importance in the future in facilitating the necessary market research for feasibility studies.

STANDARDIZATION AND PRODUCTION COST REDUCTION (VARIETY REDUCTION)

As one of the most important aims of standardization is simplification, the most immediate and greatest economic benefits from standardization are found in variety reduction of a product, by reducing the number of nearly similar goods available their types and sizes to the minimum consistent providing an adequate choice to the customer. In fact variety costs money, and if the customer wants reliable goods at the cheapest possible price, he must consequently be prepared to sacrifice some of his own individual desires, but on the other hand, restrict limitation of variety would in some cases, lead to a very dull and confused existance therefore, the degree to which variety reduction is applied, is a compromise and each individual case has to be considered on its merits.
Variety reduction can be applied at every stage and type of production, but it has to be taken into consideration that the factors effecting it are somewhat different according to different stage as follows :

1. Assembled industries

In assembled industries, the production is normally complete products or equipments assembled from a large number of semi-finished, finished, products, sub-assemblies or small components.

The precise dimensions and other detailed characteristic specifications of these small products or components are dealt with through the individual standards related to each of them, while for the assembled or complete products, the concerned standards has only to specify certain aspects as performance, safety requirements, quality and overall dimensions and has not to be too restrictive. However it is often possible for manufactures to effer a limited variety of finished goods from the same semi-finished components or sub-assemblies. As stated before, all variety costs money and customer wishing for economical costs must be prepared to accept some restriction in choice or to pay a special price for a special article.

2. Sub-assemblies or small components

Diemensional standardization is an important aspect of nearly all product standards, which a very large number of them are concerned with sub-assemblies or small components, it is used for interchangeability for reduction of types and sizes or to provide a general classification by means of standards and for comparing components or products of different origins.

Stanlards at the company level always restrict the choice of components to an absolute minimum, but national and international standards must offer a wider variety based on a logically selected range of sizes governed by certain rules.

3. Materials

The benefits of variety reduction are not limitted to sizes and shapes only, they apply equally to materials. It is very difficult for a producer to be faced with a choice of some nearly similar material specifications without knowing which one is really the best for the purpose and right do equally well. New materials are constantly being developed and related specifications are prepared. It is important to withdraw obsolescent specifications as soon as they can be replaced with new ones.

Specifications for materials should include physical and characteristic properties and testing methods as well as chemical composition and permited tolerances, if necessary, but one should be wary of specifying the purpose for which the material is to be used, as this can lead to great duplication and an unnecessary multi plicity of standards.

It should be also recognized that too rigid an application of variety

reduction can lead to lack of progress and inhibition of design, as provisions must always be made for the introduction of new and improved designs both of complete equipments and of component parts, even though in their stages those new designs may not be immediately profitable.

STANDARDIZATION AND MANAGEMENT

The need for standardization is developing to meet the demands of the modern industrialised society for an ever increasing volume of goods and for labour-saving devices in every walk of life. The challenge to industrial management is to provide all these goods in the necessary volume, with the degree of reliability and at the competitive price demanded by the society. These requirements can not be achieved without introducing standardization into industrial life on a scale which was not contemplated before.

Many industries now-a-days adopte the mass production systems (giving rise to a large volume of interchangeable parts of reliable precision produced with a minimum of skilled labour) and moved on to automation as the volume of sales increases. The case there exists a good reliable standard for a product which is assessed by management to have a secure life for a period, then is the need to carry on careful analysis of production costs in order to determine the most economical method of production depending on the volume of sales which is anticipated, the decision will be for batch production, continous flow production line or full automation as the case may be.

Taking into consideration management functions, standardization as a tool of modern management does affect each of these functions and acts as a primary and essential means of communications between them.

1. In design

Products are constantly improving, fresh designs are being prepared, and it is the design department which is responsible for this progress. To fulfil these tasks it is necessary to maintain the closest touch with research and development in order to introduce improved materials and techniques just as soon as it is appropriate to do so. But in the main the design department relies on a vast number of prooved materials, components and subassemblies whose details and performance are recorded in standards. It is with the aid of these that the new design is prepared. Only where no suitable standard part exists does the design department proceed to develop a new one calling on research and development resources if need be.

Where new parts are designed it is possible that they may have other applications and consideration must be given as to whether they should be introduced into the standard, either in addition to what is there already, or displacing some item which is new obsolescent standards are never stagnent, so constant revisions are necessary and it is as important to take out obsolescent items as it is to introduce new ones. Nevertheless changes ought not to be introduced untill there is a sufficient step forward to justify the change.

2. In production

Generally speaking, the more articles produced to a given pattern, the cheaper the unit cost of manufacture and the simpler the task of management. The production manager, if he has a large order for standard articles, can concentrate his energies on speeding up production, improving efficiency and and lowering costs, the period spent during process is also much reduced this means that for a given number of articles there is less money tied up as work in progress. Stocking and storing of parts and articles is much reduced and availability is increased.

Once an article is standardized, it is possible to estimate the demand over a period of years and devide overhead costs, such as design and tooling, into the total number of articles to be made over the period. By this means the unit cost comes down very much and that in itself may well generate an increase in demand over and above what was originally estimated. Without st standards, these benefits are not possible, and standards for this purpose are documents describing of it and the test procedure to ensure conformity. With the necessity for standards so apparent and with all these obvious advantages which follow on from good standards corectly applied, there are still in sometimes where the procedures are not applied as effectively as they should be, this is generally, due to the ignorance in the management team of the correct procedures and of the improvements which would still be effected, or at least, to a lack of availability of knowledge, regarding existing standards documents at various levels, and to a lack of cooperation between concerned management parties.

3. In purchasing

Apart from standardization being an essential means of communication between purchaser and supplier, the availability and cost of standardized goods must be lower than for non-standardized, and the volume of stocks

which need to be maintained behind the production line will also be much lower. By concentrating production on standard types and sizes, and purchasing, ordering the correct sizes, dimensions, and specifications of raw materials, semi-finished or finished products needed for this production, producers could achieve interested reduction in waste. This could be simply an example of the main function of purchasing management.

4. In marketing

The value of standardization at all levels is particularly apparent in the sphere of marketing and exporting. In this respect standardization provide a means of communication, a possible guarantee of performance and finally a wider and a more reliable market. Standards constitute a very good selling point if the goods offered to a foreign market can be stated to be in accordance with standards approved internationally as well as it facilitate, to a great extend, the comparison of tenders from different competing countries.

If the standards of both the purchasers and suppliers are marketly different and specifies different quality requirements, nationally or internationally it will be difficult to make any fair comparison.

Also, in some cases where some countries manufacture some parts and import some other parts for assembling all together to have final products, this process will be very difficult if the basic standards of importing country differ substantially from those of the exporting country. This is dealt with within the trade barriers where legal restriction are placed upon importing goods not complying with regulations and standards of the importing country. This could be avoided by implementation the international standards for both sides. Good standards are a guarantee of good performance which is an important selling point, regarding that it specifies the performance as well as it specifies the test procedure necessary for the compliance with the standards whatever the level of this standard is. For consumer goods, compliance with international standards signifies more certain reliable replacement availability provided that they satisfy the needs of the functional interchangeability concerning these goods.

5. In administration and accounting

The volume of work in administration and accounting increases rapidly with the variety of goods handled but can be minimized by careful and accurate cataloguing, standards can thus exercise a dual benefit, the one in reduction of unnecessary variety and the other in providing an efficient basis for

cataloguing and listing the many goods materials employed in the company's business.

All levels of standardization contribute to simplifying administration and accountancy work but the principal benefits will be derived from maintaining good company standards.

Standardization at the national level

The most important of the standardization levels is that of the national one because of its wide coverage scope and its farreaching results and influence to all other levels of company, regional and international.

Through the national level of standardization, the requirements and needs of the individuals, companies, industrial and trade sectors, producers and users, consumers and community, etc. ... in the country are coordinated, harmonized and integrated resulting as a proper and purposeful standards after consulting a consensus of all the interests concerned in the country.

This standards is to be recognized as the national standards to be adopted in the country which serve as the effective guidance for the development of the country's industry and commerce and bringing about order in the existing pattern of national economy.

Standardization at the national level could be considered as the basis for the international agreements concerning the international standards, helping to promote worldwide exchange of goods, services and national interests.

The recognition of the need for national standards raised from the growth of industrialization throughout the world, bringing with it increased trading and more need for standard specifications as recognized basis adopted for trade, and to provide necessary and adequate means for the assurance of the suitability, fitness and quality claimed for of the products or commodity dealt with. They are also essential for the variety reduction limiting the needless and unnecessary wide of production.

The preparation and promulgation of the requisite standards is the principal task to be assigned to and carried out by a national body (council) or any standardizing body within its functions recognized in the country as the national authority for the issue of standards. But for a developing country that is endeavouring to develop its industry on an efficient and economical basis, there is also the essential and important task of planning for a coordinated and harmonized

programme of work which will integrate the different standardization activities carried out and are expected to take place by different organs and various agencies dealing with standardization in the country to meet their specific and actual needs and to cover their respective areas of interests, and to ensure co-operation and full utilization of their available facilities and capabilities.

This programme of work should be coordinated and planned with special emphasis on :

(a) new industrial projects.
(b) recognized needs of industry, trade and other national sectors.
(c) import and export schemes
(d) requirements of enterprises and governmental departments, schools, hospitals etc. .... of first priorities.
(e) consumer goods, safety of persons and goods, protection of health and life.
(f) interests of both producers and users.

The extent of participation of the government in the activities of standardization carried out at the national level varies from one country to the other, it depends on the legal status and the internal organizational structures of the standardizing bodies as well as, it depends on the economical policy trends and social circumstances peculiar to the country involved. However, unless this body has the full backing and necessary support of its government in this concern, it will not be able to undertake the functions assigned to it with the expected and needed efficiency.

Implementation of standards

Within the principles, aims and aspects of standardization and to achieve the expected and desirable profits for which the establishment of standards are intended, it is very important, not only to issue standards, but also to implement and put them in actual and effective action for application by all the interested concerned parties took parts in preparing them.

Generally speaking, it could be realized that there are bad needs for exerting common efforts to implement and to ensure the implementation of standards in the various relevant sectors of the different industrial and economical domains at all levels. This is one of the major and important tasks to be undertaken by the standardizing bodies, reflecting their essential functions in relation with standardization activities and its foundation for quality control.

The measures and means for the implementation of standards needed to be

adopted and the deliberated common efforts exerted in this concern, vary from one country to the other. This is due to the differences in the internal organizational structures of the SBs and to the industrial achievements, economical policy trends and social circumstances peculiar to the country involved. Moreover, this also depends on the nature, type, level of the standards in question, their legal considerations and as well, on the legal status of their available possibilities and the support received from their governments.

In implementing standards, a decision must first be taken as to whether the standards involved are going to be voluntary or compulsory.

In some countries all national standards are compulsory, in others, where the standards are voluntary, this applies only to certain categories of the voluntary standards seen to be mandatory according to the national needs, safety and protection of the community and the particular requirements that the standards provide.

Both economic and social considerations play a part in the choice and each country is taking its own decision in the light of the local conditions and existing circumstances.

Implementation of Compulsory Standards

In countries where the national standards are almost compulsory and legally mandator[illegible]orceable, (those countries where their economy, industry and trade are often [illegible]ected and controlled totally and centrally by the government according to its high state policy, all means of industrial production, cost and quality, marketing, import and export are as well subjected to same control), the SBs are governmental bodies and accordingly, each standards issued by them upon national consensus principle and adoption has its legal status and consideration and is rigidly adhered to, applied and implemented by all concerned interested parties in a mandatory way having same power as that of laws exercised in the country. The promulgation, wide spread and implementation of standards in these countries is to be considered as one of the major and essential tasks concerned and enforced by the authorities within their extended responsibilities and is to be subjected to the state constant vigilance, continuous surveillance and due penalities in case of non actioning through firm and controlled tight prescribed enforcement process, related regulations and laws pertaining to standardization activities and implementation in the country involved.

Implementation of voluntary Standards

In countries where the national standards are voluntary, with minor exceptions (those countries where their economies are [illegible] totally or to a certain extent), some of the concerned SBs are governmental bodies and because of its legal status would exert official action on matters concerning standards implementation.

The common factor among all these SBs of different organizational structures would be the prevalence of the practice of voluntary national standards, and because of the identical legal character of the standards issued by them, their problems and their measures in respect of implementing and ensuring implementation of standards would almost still be the same.

Some of the standards issued by these SBs may, according to certain seen national consideration, be made mandatory by legislation and legally enforceable, even that the other relevant standards could remain voluntary.

However, all the SBs of different organizational structures and legal status, in their general approach to the tasks undertaken by them, have as a must to depend on the national consensus principle and to ensure the possible major agreement among the concerned interested parties participating in standardization activities as that would reflect their views and responsibilities in regard to participation in these avtivities and would be in their interest and feeling to put any issued standards in action and application to be implemented to the maximum possible extend for the sake of achieving the expected and desirable benefits for the common interest.

Implementation through other Standardization Activities

Furthermore, the firm establishment of the concept of standardization in most countries and its all pervasive influence on the national economy suggest the need for recognition of standardization as an accepted and adopted discipline in its own right, integrating all the functions and activities which are associated with it directly or indirectly at the national level. These allied activities are to be either undertaken and enforced or suported and encouraged by the SBs or the concerned interested parties in the countries involved. Such recognition of standardization as an integrated discipline (at least in the early stages of development) and the enforcement or encouragement of such related activities by the SBs and the other concerned bodies would do best for the more furthering, diffusion of the widest possible understanding and propagation of

standardization and would facilitate the implementation of the integrated approach to standardization of standards and bring home the benefits of following it to every potential user and interest giving fully detailed informations felt to be necessary in this concern, whereby the main components of these activities :

(a) applied scientific research and industrial development.
(b) planning of new production and industrial projects and provisions to be made in their original framework.
(c) quality control, its statistical approach and associated assurance schemes.
(d) quality certification and marking systems.
(e) pre-shipment inspection for export.
(f) testing laboratories and quality control centres.
(g) metrology, verification and calibration services.
(h) standardization at the industrial enterprises and company level.
(i) qualification training and education at universities, institutions and high technical schools levels.
(j) organizations of consumers, professionals and standards engineers.
(k) relevant public relations and informations.
(l) specialized, directed and general means of publicity in this respect.
(m) national, regional or state-wise, economical, trade, industrial-wise conventions and scientific, professional conferences, seminars and symposia, etc.

Support of Governments with respect to Standards Implementation

The SBs of different organizational structures and legal status being governmental, joint private or purely private bodies are to be supported by their governments and associated authorities.

The respective governments and their associated authorities can play an important and considerable role in enforcing and securing implementation of standards acting as standards implementing authorities.

When the governments are concerned directly and completely or partially with the control of the economy, trade, industrial production, marketing and consumption, export and import and especially in respect of certain basic domains, having advantageous position to be able to influence the relevant private sectors in the country, the tasks of implementation of standards and securing it in such cases, are considered to be the concern of the state, by virtue of its capacity, but it would be quite reliable to ensure more widespread and effective implementation of standards by directing and biasing all the governmental, public sectors as well as the private sectors to have their policies, objectives, activities, official

actions, business, tenders, offers, orders and contracts etc.... limited to and based on the available and adopted national standards whenever applicable.

Standardization in Indonesia.

Standardization activities in Indonesia are carried out by different and various agencies and governmental departments in ministries and other institutions which are setting up their own standard specifications to meet their specific and actual needs and to cover their respective areas of interests (minimum requirements, code of practice, regulations and for export quality standards). These include Ministries of Trade and Cooperative, Industry, Health, Mining and Energy, Agriculture, State Electricity Corporation, etc.

This has lead in some cases to overlap and a somewhat confusing situation with the existence of a conflicting and multiplicity of standards with the same coverage (duplication and contradiction), but in different style of presentation.

As a background, the Indonesian standards body YAYASAN DANA NORMALISASI INDONESIA (YDNI), which is a private body founded in 1928 with inadequate funds, status and facilities, has been able to develop a sectoral and technical committee structure only on a limited scale, It has no organizational status to operate as a national standardization body and exists only in name. The LIPI project, nominally with YDNI presently represents the country in international and regional standards organizations.

The problems could be stated as follows :

1 - The absence of a national overview and coordinated programme.

2 - The need for a defined and clearer central direction and guidance.

3 - The need for creating a national central focal authority for standardization acting as an umbrella to embrace all the national existing standardization activities carried out by the different interested parties in the country, and to be recognized by law as the national standardization body or council for the whole country as the more logical rational trend to achieve harmonization, coordination and rationalization in this respect. This national body or council should have the legal status as the authority responsible for the issue of national standards, their implementation and for representing the country at the international and regional levels of standardization activities.
This body should possess or have access to necessary testing and research facilities in the concern.

4 - The need for setting up an adequate national coordinating system between the organizations currently engaged in formulating standards with the aim to harmonize

and rationalize them to be considered as national standards issued under one adopted national standardized format.

5 - The need for adopting one official standards register for the country which will serve to avoid the confusion resulting from the multiplicity and duplication of standards with same coverage.

6 - The need for setting up necessary ministerial decrees and regulations in the respect.

7 - The need for setting up supporting system for the standards according to their legal consideration.

8 - The need for legal enforcement for the implementation of national standards having regard to the nature of the standards, the level of standardization and the laws and conditions prevailling in the society for whom the standards have been prepared. For the voluntary issued standards some of them, according to certain seen national consideration, are to be made amandatory by legislation and legally enforceable even that the other relevant standards remain voluntary, realizing that the more publication of standards is of little value unless it can be implemented. Implementation may necessitate sacrifices by the few for the benefit of the many.

It is the time now, with the hope to have in the near future a national body or council, to call for supporting and concerting efforts to be made to achieve cooperative agreement between concerned parties in order to obtain willing support and acceptance for, as well as to develop a national system for standardization and consequently to take charge of the promulgation and promotion of standardization allied activities in the country at all levels, and to remove any existing suspicion that setting up such a national system may dent the authority importance and functions of some of the existing organizations.

This national system anticipates support of an executive council assisted by specialized advisory boards and divisional or sectoral committees, established in such a way as to ensure representation of all relevant interests, ministries, governmental departments, institutes, individual enterprises, industrial and trade sectors, consumer bodies, research and testing centres.

The estalishment of national standards will be carried out by the different organs and departments dealing and proceeding with standardization, directly concerned in the specific field or domain of work referred to them and the subject matter in question.

GUIDE 9-1976 (E)

Courses in standardization

1 SCOPE

This document sets out a programme intended

a) for staff members of national standards bodies and

b) for personnel of standards offices in industrial companies.

Though the headings and their subdivisions are common to both groups, the time required is usually different and the detailed content of the lectures must be different too. Speaking, for example, of the planning of standardization activities in the framework of the course for group "a", the lecturer will explain the methods and the procedure of planning of national standardization while the same for company standardization will be mentioned only briefly. For group "b" probably the opposite relation of the details will be valid.

2 FIELD OF APPLICATION

The programme set out in the annex is intended for use in ISO Member Bodies as a model only. Depending upon the prevailing standardization problems in a country, the emphasis of some items will probably be shifted and the introduction of new headings may even be necessary. For countries where the international system of units (SI) is just being introduced, this part of the programme must evidently be enlarged; for countries not participating in any regional standardization, item 4.3 can be omitted; for countries having a highly developed planning system, the question under 3.1 might include complex standardization and preventive standardization as well. Even if significant changes are necessary the model may be useful as a check-list.

Similarly the courses for group "b" will vary according to the composition of the groups. If one particular field of industry is represented in the group, the whole course should be related to some extent to the specific problems of that field and a number of examples should be collected from the experience in that particular field.

The level of knowledge of the audience may also influence the content of the lectures. It may necessitate additional explanations for some questions or the inclusion of supplementary lectures.

3 NUMBER OF HOURS

The numbers of hours indicated in the programme for groups "a" and "b" are somewhat arbitrary. They may be accepted as indicated or may be changed according to necessity. They indicate, however, some relationship between the length of a particular lecture and the length of the whole course, and also between the times required for lectures in groups "a" and "b" respectively.

The programme can be used as a whole or split up into several parts. If it is used as a whole without substantial changes, then it could be introduced as a 2-week course (8 hours per day) for either of the groups "a" or "b".

If the training is organized in the form of an evening course consisting of 2-hour lectures twice a week, then it may take 4 to 5 months.

Should more time be given for discussion, control, visits to factories, etc., the length of the course may be increased accordingly.

4 SERIES OF COURSES

If the programme should be split up into parts, this may be done in different ways. One of the possibilities is the following (the group titles give only a rough indication of the content of the course) :

for group "a"		hours	days
Basic notions and organization :	items 1, 2, 3, 4	16	3
Establishment of standards :	items 5, 6, 7 .	16	3
Use of standards :	items 8, 9, 10	10	2
Safety, quality, economy :	items 11, 12, 13, 14, 16	16	3
Company standardization :	items 15, 17, 18	7	1
	Total	65	12

for group "b"		hours	days
Basic notions and organization :	items 1, 2, 3, 4	8	1
Company standardization :	items 15, 17*	18	3
Establishment of standards :	items 5, 6, 7	14	2
Use of standards :	items 8, 9, 10	7	1
Safety, quality, economy :	items 11, 12, 13, 14, 16, 18*	21	4
	Total	68	11

This example is chosen to show that 3-day modules can be established so as to keep similar items together, which might be one of the preferred alternatives in some countries.

5 REFERENCE LITERATURE

In order to define more closely the content of some of the titles included in the programme, some basic literature is allocated to those items for which such literature is easily available, and which can probably be found in the libraries of most Member Bodies. This has been done with the aim of providing an outline of the content of the lectures concerned.

The following books have been chosen :

VERMAN L. C. : *Standardization : a new discipline*, Archon books, Hamden (U.S.A.), 1973.

SANDERS, T. R. B. : *The aims and principles of standardization*, ISO, Geneva, 1972.

FRONTARD, R. : *La normalisation*, La Documentation Française, Paris, 1969.

OLLNER, J. : *The company and standardization*, SIS, Stockholm, 1974.

AFNOR : *La normalisation dans l'entreprise*, AFNOR, Paris, 1967.

This is not a list of recommended literature to be used directly in the lectures concerned; if it is used, it should be regarded as nothing more than a basis. Member Bodies will also have their own literature, or lecturers who are qualified to deliver the lectures based on actual examples adapted to the needs of each particular course.

The initial letter of the name of the respective author (V, S, F, O or A) is used in the last column of the annex to indicate the book concerned; the figures after these letters indicate the relevant pages (or, in the case of "V", the relevant sub-clauses) of the book.

* In the programme, only 2 hours is indicated for item 17, and only 1 hour for item 18, and that might be enough in the framework of a basic training. However, a follow-up course might be organized separately, containing these two items only, and in this case, instead of 2 + 1 = 3 hours, at least 10 hours are needed.

ANNEX

PROGRAMME

of a course on standardization

a) for staff members of national standards bodies and

b) for personnel of standards offices in industrial companies

Lectures		hours a)	hours b)	Reference literature
1	**Introduction and overview**	**2**	**2**	–
	1.1 Information on the programme			–
	1.2 Presentation of the lecturers and the participants			–
	1.3 Administrative questions			–
	1.4 Justification of the training			–
2	**What is standardization ?**	**4**	**2**	A 17-19; A 193
	2.1 Historical background			V 1.1-1.22; F 5-6
	2.2 General characteristics			V 2.4-2.22; 3.1-3.2; 3.8-3.9
	2.3 Aims			V 3.13-3.27
	2.4 Levels			V 3.3-3.5
3	**Organization and functioning of standardization at national level**	**6**	**2**	F 8-12; V 9.0-9.31
	3.1 Planning of standardization activities			V 20.0-20.30
	3.2 Functioning of expert committees			
	3.3 Juridical questions			V 9.7-9.13
4	**Organization and functioning of standardization at international level**	**4**	**2**	F 13-16; V 11.0-11.3
	4.1 ISO and IEC			V 11.4-11.22; S 63-71
	4.2 Other international organizations			V 11.23-11.35
	4.3 Regional standardization			V 12.0-12.27; S 71-73
	4.4 Participation in committee meetings			A 138-139
5	**Drafting of standards**	**4**	**4**	V 5.0-5.31
	5.1 Titles			
	5.2 Terminology, symbols, signs			
	5.3 Sampling, testing			V 23.31-23.33
	5.4 Dimensions and ratings			
	5.5 Performance and reliability characteristics			
	5.6 Designation			
	5.7 Marking			
	5.8 Packaging, transportation, storage			
	5.9 Layout and language of standards			V 22.0-22.27
6	**Basic standards**	**6**	**6**	
	6.1 Preferred numbers			V 23.4-23.9
	6.2 Units of measurements			V 13.0-13.30
	6.3 Tolerances and fits			
	6.4 Statistical methods			V 23.17-23.30; 23.34-23.3
	6.5 Drawings			
	6.6 Equations, signs and symbols			
	6.7 Other basic standards			V 23.16 (rounding off)
7	**Procedure for the establishment of standards**	**6**	**4**	V 10.9-10.48
	7.1 Justification and programme			
	7.2 Drafts, committee meetings			
	7.3 Consensus, reporting			
	7.4 Publication of the draft, public comments, copyright			
	7.5 Approval, publication			
	7.6 Modifications			
	7.7 Influence of international and regional standards			

Lectures	hours a)	hours b)	Reference literature
8 Implementation of standards	2	2	V 14.0-14.7
8.1 By companies and users			A 133-137
8.2 By governmental bodies (reference to standards)			V 14.15-14.26
8.3 Legal considerations			
9 Popularization of standards	4	1	V 14.8-14.13
9.1 Publication and sales promotion			
9.2 Information services			
9.3 Public relations			
10 Information retrieval and organization of standards documentation	4	4	S 110-112
10.1 Library services, documentation centres			
10.2 Standards catalogues			
10.3 Classification systems (UDC, thesauri, Kwic index)			
10.4 Microfilm, microfiche			
11 Certification	4	2	V 15.0-15.53
11.1 What is it ?			
11.2 Its role in trade			
11.3 Its role in consumer protection			
11.4 Existing certification systems, legal aspects			
11.5 Which characteristics should be certified and how ?			
12 Calculation of economic effects	2	6	F 19-22; V 21.0-21.26
12.1 Cost analysis methods			
12.2 Costs of standardization			
12.3 Variety reduction			A 169-182; V 21.22-21.26
12.4 Savings in design and storage			
12.5 Other savings			
13 Quality control	2	8	F 22-29; S 95-106
13.1 Contribution of standardization to quality control			
13.2 Costs of quality control and of rejects			V 17.0-17.25
13.3 Introduction of statistical methods			V 23.38
13.4 Performance and reliability characteristics to be standardized			
14 Safety requirements in standards	4	2	
14.1 Safety against accidents			
14.2 Environmental requirements			
14.3 Ergonomical requirements			
14.4 Relationship between standardization and regulation			
15 Company standardization	4	16	V 7.0-7.18
15.1 Place and functions of standardization in a company			A 28-49; A 140-154
15.2 Relationship between the standard service and other services of the company			A 119-132; A 155-168
15.3 Standard engineers committees			
15.4 Forecast and verification of all results of standardization			A 50-118
15.5 Systems (classification, coding, numbering, etc.)			
16 Consumer questions	4	2	V 16.0-16.15; 18.0-18.22
16.1 Consumer interests and organizations			
16.2 Standardization as means of help to consumers			
16.3 Marks of conformity			
16.4 Informative labelling			
16.5 Comparative testing			

Lectures		hours a)	hours b)	Reference literature
17	**Standardization and data processing**	**2**	**2**	
	17.1 Data processing in general			
	17.2 Application of data processing to numbering systems for the identification and classification of items, and for their standardization in a company			
	17.3 Application of data processing systems to technical documentation and its standardization			
	17.4 Advantages of data processing for standardization			
18	**Modern means used in standardization**	**1**	**1**	
	18.1 Network planning			V 5.29
	18.2 Value analysis			O 74-85; S 52.54

TRAINING IN THE FIELD OF STANDARDIZATION

1. INTRODUCTION

The present contribution has been prepared in conformity with DEVCO resolution 6.1/1969, regarding the establishment of a set of typical training programmes.

2. TYPICAL TRAINING PROGRAMMES

2.1 Draft of Typical Training Programme intended for training permanent members of staff of a standardization institute having the responsibility for directing the technical work

2.1.1 Lectures

What is standardization ?
(Brief history, general characteristics)
Organization and functioning of a standardization body
What a standard provides, a typical plan
International standardization
The development stages of a standard
The problem of direct contact with industry and the standards user.
Councils, participating or correspondent members, miscellaneous assistance, dissemination of standards etc.
Standardization and Metrology
Standardization and Quality
Standardization and Safety
Marks indicating conformity with standards
Standardization and the public Markets
Standardization and Agriculture
Standardization of products used in Agriculture
Weighting and measuring methods
Standardization in the field of refrigeration
Standardization and Trade
Standardization and agricultural Machinery
Standardization in the textile field
National Standardization : publicity problems
Economic aspects of standardization

Standardization and the Company

The Working Programme of a newly created standardization institute.

2.1.2 Themes for practical training

A Development of a standard

Establishing a draft proposal

Study of a draft proposal by the Committee

Establishing the minutes of a meeting

Establishing a second draft proposal

Consultation : dissemination of draft

Consultation: preparation of analysis of comments

Committee meeting after consultation

Drafting of final draft and submission for approval

B International standardization

Application of ISO Directives

Application of the ISO Guide

C Marks indicating conformity with standards

Setting-up a special committee to administer the mark

Enquiry of application for licence

Complaints - Sanctions

D Miscellaneous work

Drafting a press communique and a news bulletin

Drafting a leaflet on popularisation

Preparing a text for a use in schools

Practical work on particular standards

2.2 Draft of Typical Training Programme for company standards personnel

2.2.1 Lectures

What is standardization ?

(Brief history, general characteristics)

The different levels of standardization :

- international
- regional
- national
- professional
- company

Place and function of company standardization

Place and function of company standardization
Programme and management of company standardization
The different forms of expression of standardization
General reference data for the practical management of standardization activities
Nomenclature and codification in a company
Documentation retrieval
Practical management of standardization studies and activities
Reduction in variety
Standardization and supply
Standardization and technical drawing
Standardization of test methods
Quality control
Analysis of the value
Forecast and verification of results of standardization activities
Dissemination of standardization documents to company personnel

2.2.2 Themes for Practical Training

Selection of subjects-Establishing a programme
Nomenclature and codification, the tools of the standardization
Documentation retrieval
Conducting a study (documents, methods)
Conducting a meeting
Calculation of action
Dissemination of documents

2.3 Draft of Typical Programme for information day for officials in the economic field

Morning : What is standardization ?
(Brief history, general characteristics)
International and national and company organizations

Afternoon : Standards in economy
The policy of company standardization
Examples of results.

Outlines of the Specialized Training Course on the Scientific Methods of Industrial Quality Control.

Participants :

The course is intended for engineers and specialists in charge of Quality Control Departments in industrial enterprises.

Duration :

Five weeks, including lectures, discussions and case studies totalling 120 hours divided on 4 weeks + 1 week of practical training in an industrial firm.

Subjects :

1) Meaning and functions of Quality Control : (2 hours)
   - Meaning of quality, quality of design and production.
   - Definition of Quality Control.
   - Relation between cost of quality and its value, optimum quality.
   - Quality circuit, integrated quality control.

2) Statistical basis of quality control : (22 hours)
   - The objectives of statistical science, analysis of data.
   - Probability, and some important probability distributions. (normal, binomial and poission distributions).
   - Statistical tests of hypotheses, confidence limits.

3) Statistical Quality Control Charts : (16 hours)
   - Variation of quality due to random and assignable causes.
   - Examples of causes of variations in industrial processes.
   - Design and use of control charts.
   - Control charts for variables - the X & R charts.
   - Control charts for percent of defectives (P-chart).
   - Control chart for number of defects (C-hart).

4) Sampling Inspection : (14 hours)
   - Importance of sampling (economics of quality inspection, destructive tests - impossibility of perfect 100 % inspection).
   - Drawing of samples (intended sample, random sample).
   - Sampling inspection errors. Operating characteristic curve (consumer's risk and producer's risk).
   - Sampling by attributes.

- Sampling by variables.
- Double sampling, multiple sampling, sequential sampling.

5) Economics of Quality : (6 hours)

- Cost of quality (cost of design and cost of production, cost of inspection, drawing of samples and testing, cost of sorting).
- Relation between cost of quality and its values.
- Economics of sampling inspection, economics of accepting rejects and rejecting good products, reducing cost by minimizing defectives.

6) Organization of Quality Control Functions : (6 hours)

- Duties and responsibilities of Quality Control Department in a factory (quality control of raw materials, quality control of production processes and production equipment, control of waste, quality control of final products, control in storage and transportation, control of packaging, analysis of consumer complaints, taking part in training of personnel for quality and taking part in product design and development). Position of quality control department in the organizational structure. Documentation of quality control.

7) Standardization and Quality Control : (8 hours)

- Standardization (definition, aspects, bases, aims and applications).
- National Standards - characteristics - preparation and formulation.
- Company Standards.

8) Measurement and Testing : (4 hours)

- Measurement and units - measuring instruments.
- Metrological properties of measuring instruments. (range of measurement, sensitivity, least scale division, initial sensitivity, repeatability).
- Accuracy of measurement, and sources of errors, classification of errors, correction of measurement errors, calibration of instruments, reference standards.

9) Activities of Quality Control in various departments : (6 hours)

10) Actual case studies of Quality Control : (6 hours)

11) Aquaintance with quality control systems in advanced factories (visits) : (18 hours)

12) Discussion of lectures : (6 hours)

13) - Field studies for one week : (6 hours)

14) - Evaluation of Course : (6 hours)

Training of Standardization Personnel on Statistical Sampling, Testing and conditions of tests, Safety and rules governing acceptance and rejection, in the following fields :

1- ELECTRICAL INDUSTRIES :

1.1. Household appliances (for domestic use).

1.2. Power machines (Alternators, Generators and Transformers).

1.3. Electronic equipments and components for general use.

2- MECHANICAL INDUSTRIES :

2.1. Household appliances useing liquified gases.

2.2. Transport and earth moving equipment and subassemblies.

2.3. Machine tool performance

2.4. Spare parts.

3- METALLIC INDUSTRIES :

3.1. Ferrous metals.

3.2. Non ferrous metals.

4- CHEMICAL INDUSTRIES :

4.1. Paper, Leather, Rubber, Plastics, Detergents, and Paints.

4.2. Chemical Products.

5- PETROLEUM INDUSTRIES :

5.1. Petrolum and petroleum products.

6- REFRACTORIES AND BUILDING MATERIALS INDUSTRIES :

6.1. Building Materials.

6.2. Refractories.

7- FURNITURE :

7.1. Wooden Furniture

7.2. Metallic Furniture

8- TEXTILES :

8.1. Ready made clothes of men, women and children.

8.2. Man made fibres and its products.

8.3. Underwear and outwear knitted products.

8.4. Stages of manufacturing wool and its products from the raw materials to the final products.

8.5. Physical, mechanical and chemical characteristics of the fabrics and its standards.

9- FOOD INDUSTRIES :

9.1. Canned Foods

9.2. Frozen and Dried Foods.

9.3. Food Additives.

9.4. Oils and Fats.

9.5. Dairy Products.

9.6. Meat and Meat Products, Fish and Fish Products.

GROUP TRAINING COURSE IN INDUSTRIAL STANDARDIZATION AND QUALITY CONTROL - JAPAN

(In English or through the interpretation of Japanese into English)

TABLE 1 : Tentative Programme

		Unit in day
I.	Orientation : Introduction to Japan Courtesy calls to authorities concerned Programme meeting Country reports	11
II.	Lectures, mutual discussions and seminars (See the subjects in TABLE II	27
III.	Technical visits and in-plant training	10
IV.	Observation tour	6
V.	Evaluation & report-writing	4
VI.	Others	3
VII.	Holidays and weekends	26
	Total	87 days

TABLE II : Tentative Subjects

1. Fundamentals in industrial standardization
2. Administration of national standardization
3. Standardization at international level
4. Legal metrology & measurement standards
5. Export inspection system
6. Reference to standards
7. JIS marking system and other certification systems
8. Company standardization
9. Value engineering and standardization
10. Permeation and implementation of standards
11. Quality control & statistical methods
12. Reliability and quality assurance

GROUP TRAINING COURSE IN CERTIFICATION SYSTEMS - JAPAN

Inspection of industrial products and Examination of manufacturing factories

(In English or through interpretation of Japanese into English)

Training Programme (Tentative)

I. General Orientation

II. Course Orientation

1. Course Programme
2. Introduction to different certification systems in Japan (including actual situation on application of certification systems)
3. Summary of JIS certification mark system (including procedure for examination of accrediting factories and its examples)
4. Summary of export inspection system (including inspection method and its examples)
5. Review of basic knowledge on standardization and Quality Control
6. Technical visits and in-laboratory training
7. Observation Tour
8. Evaluation and Report writing

Duration : For two (2) months

IN-PLANT GROUP TRAINING PROGRAMME IN THE FIELD OF QUALITY CONTROL - SWEDEN

TENTATIVE PROGRAMME

1. Basic concepts
2. Statistical tools in quality control
3. Techniques of communication
4. Metrology
5. Reliability
6. Inspection
7. Quality specifications
8. Vendor activities
9. Manufacture of quality
10. New-product quality
11. Customer relations
12. Vendor activities
13. Quality audit
14. Economics of quality
15. Quality data
16. Improving quality
17. Human factors in quality control
18. Quality policy and objectives
19. Quality system
20. Organization for quality control
21. Getting started
22. Developing countries and quality control
23. Study Visits
24. Practical training
25. Seminar

Duration : For 9 weeks

COMPANY STANDARDIZATION TRAINING PROGRAMME - INDIA

LECTURES AND PRACTICALS

- **Company Standardization Concept**
  Aims and objects of standardization at various levels — Company standards programme — Value of documented standards — Sources of information
- **National Standardization**
  ISI's activities — Inter-relationship of national and company standards
- **Standardization in Design, Manufacturing and Control**
  Basic standard — Standard drafting practice — Common parts — Plant facilities — Process standards — In-process control — Incoming and outgoing inspection
- **Standardization in Purchasing, Maintenance and Administration**
  Purchase specifications — Product specification — Handling and storage — Materials code — Preventive and breakdown maintenance — Safety and training standards, etc
- **Techniques for Standardization — I**
  Statistical methods
- **Techniques for Standardization — II**
  Variety Reduction and Codification — Practical exercise
- **Organized Standardization**
  Principles of standardization — Methods of development of standards — Layout and style — Printing and distribution — Management backing
- **Company Standards in Operation**
  Case studies covering fields of activity, problems tackled, organization, economic benefits, etc
- **Workshop — I**
  Present status of Company Standardization
- **Workshop — II**
  Scope for development of company standards
- **Guidance for In-Plant Survey**
  In-plant survey by participants — Indication of possible project for investigation — Report to management

Duration : 5 weeks

TRAINING IN STANDARDIZATION FOR DEVELOPING COUNTRIES - INDIA

Aspects of Standardization covered by lectures

What is Standardization ?
- Historical Development
- Fundamentals
- Aims and Objects
- Levels and Agencies

Organization and Functions of National Standards Bodies (NSB)
- Constitution
- Functions
- Administration

International Standardization
- ISO and IEC
- Standards of Other International Bodies
- Regional Standardization

Development of National Standards
- Areas for Standardization
- Planning and Priorities
- Methodology
- Responsibilities of Technical Secretary
- Influence of International and Regional Standardization

Drafting of Standards
- Style Manual
- Project Work

Basic Standards
- Preferred Numbers
- Rounding Off Numerical Values
- Interconversion
- SI Units
- Limits and Fits
- Atmospheric Conditions
- Screw Threads
- Metrology

Statistical Techniques in Standardization
- Basic Statistical Concepts
- Evolving Specification Limits
- Sampling Inspection Schemes
- Statistical Quality Control

Implementation of Standards
- **Legal Consideration**
- **By Government Departments**
- **By Industry, Trade and Consumer**

Company Standardization
- **Significance of Company Standardization**
- **Inter-relationship Between Company and National Standardization**
- **Functions of Standards Department**
- Promoting Company Standardization Practices

Quality Certification
- **What is it ? Its Role in Industrial Development and Consumer Protection**
- **Existing Certification Systems**
- **Acts, Rules & Regulations and Operational Aspects of a Scheme**
- **Export/Import Control**
- **Laboratory Facilities**

Information Retrieval
- **Classification Systems for National Standards**
- **Standards Catalogue**
- **Bibliographic Services**
- **Standards Information Services**

Economic Benefits of Standardization
- **Nature and Assessment of Economic Benefits**
- **Inventory Control**
- **Variety Reduction**
- **Value Analysis**
- **Design Unification**

Promotional Programmes
- **Publication and Sale**
- **Media Publicity**
- **Conventions and Conferences**
- **Educational Utilization**
- **Training**

Consumer Questions
- **Consumer Interests and Organizations**
- **Comparative Testing**
- **Safety and Health Standards**

Duration : 12 weeks

TRAINING PROGRAMME IN STATISTICAL QUALITY CONTROL FOR DOMESTIC ELECTRICAL APPLIANCES - INDIA

TOPICS FOR TECHNICAL SESSIONS

Session 1A Inauguration

Session 1B Opening Session

Introduction of participants. Objectives of training programme. Method of conduct and outline of the Programme.

Concept of quality. The quality function. Quality costs. Optimum level of quality. Meaning and importance of SQC. Concept of total quality control.

Session 1C Summarization of Statistical Data

Quality evaluation by counting and measurement. Frequency table. Graphical representation of data. Histograms and their interpretation. Averages. Concept of variation. Systematic and random variation. Measures of variation.

Session 1D Workshop

Session 2A Probability Distributions

Fundamental principles of probability. Concept of probability distributions. Binomial and normal distributions. Use of the tables of normal distribution.

Session 2B Indian Standards on Domestic Electrical Appliances

Indian Standard specifications for domestic electrical appliances.

Session 2C Specifications and Tolerances

Concept of tolerances. Methods for specifying the tolerances and specification limits. Statistical aspects of tolerances. Determination of percentage of material within and beyond specification limits.

Session 2D Workshop

Session 3A Laboratory Testing

Session 3B Process Control

Need for control during production. Process control charts. Statistical basis of control charts. Rational sub-groups. State of statistical control. Economics of control charts.

Session 3C Process Control (Continued)

Control charts for individuals, averages ($\bar{X}$) and range (R), fraction defective and number of defects. Interpretation of control charts. When to take corrective action.

Session 3D Workshop

Session 4A Control of Vendors

Need for standards for raw materials, components and parts procured from vendors (sub-contractors). Joint quality planning. Vendor-vendee relations Control of vendors' system and operations. Vendor certification. Incoming inspection. Feed-forward and feed-back to vendors.

Session 4B Sampling Inspection

Sampling inspection. Advantages of sampling inspection Areas of application of sampling inspection. Inspection by attributes. Inspection by variables. Purposes of sampling inspection. Estimation of lot quality. Process control and acceptance of lots. Random sampling. Determination of sample size.

Session 4C Acceptance Sampling

Lot-by-lot inspection. Sampling inspection *versus* 100 percent inspection. Effects of lot size and sample size on quality assurance. Principles of acceptance sampling. Producers' and consumers' risks. Acceptance quality (AQL). Lot tolerance percent defective (LTPD). Operating characteristic (OC) curve.

Session 4D Acceptance Sampling (Continued)

Use of ' IS : 2500 (Part I)-1973 Sampling inspection tables: Part I Inspection by attributes and by count of defects (*first revision*) '. Use of ' IS : 2500 (Part II)-1965 Sampling inspection tables: Part II Inspection by variables for percent defective '. Practical exercises.

Session 5A ISI Certification Marks Scheme

Session 5B Inspection Schemes for Certification Marking

Importance of process flow diagrams. Identification of strategic points of control. SQC principles in the formulation of schemes of testing and inspection. Problems of quality control in the manufacture of certified products. Responsibilities and practices for reporting, diagnosis and treatment of quality troubles.

Session 5C Concluding Session

Duration : 5 days

	MONDAY	TUESDAY
9.15 - 10.45	Introduction I & II: Quality Functions and Organisation R.H.S. Lesser (9.30) Improving the control of quality in an industrial enterprise. Statistical Quality Control as a tool in the wider field of quality management. Problems arising in getting a quality control programme under way. Quality Costs.	Basic Statistics for Quality Control D.W. Hewton **Probability Distributions, with particular reference to the Binomial, Poisson and Normal Distributions** Statistical Sampling D.W. Hewton A review of the basic concepts underlying the theory of statistical sampling.
2.00 - 3.30	Introduction III & IV: Statistical Concepts and Applications R.H.S. Lesser General statistical philosophy for decision making in the face of uncertainty. Simple statistical concepts leading to discussion of their application in quality control.	Tutorial D.W. Hewton *Exercises will be presented for solution* by course members.
4.00 - 5.30		Significance Testing I & II Dr. P. Davies **The statistical procedure for testing the feasibility of any hypothesis. The statistical terminology used in Significance Testing. Applications in particular instances, such as comparing proportions or means.**
5.45 - 7.00	Basic Statistics for Quality Control D.W. Newton Elementary Probability Theory.	
	MONDAY	TUESDAY
9.15 - 10.45	Applications of Statistical Quality Control to High Speed Manufacture P.A. Daisley Cheap products and high speed mean big financial commitments, and this necessitates precision, discrimination and control.	Tutorial D.W. Hewton Course members will be presented with exercises designed to give practice in handling the statistical quality control techniques so far discussed.
11.15 - 12.45		
2.00 - 3.30	Cumulative Sum Charts and Decision Procedures A.T. Bissell Cumulative sum procedures have been developed for use with continuous type processes where the type of process change expected is a sudden change in the mean level of the process parameter.	Designed Experiments in Statistical Quality Control Dr. P. Davies For processes that are not in control it is sometimes necessary to perform what are in effect small experiments to determine the cause of variability. This is most effectively done with the aid of scientifically designed experiments.
4.00 - 5.30		
5.45 - 7.00		Analysis of Variance Dr. P. Davies Assessment of the results of designed experiments involves the statistical concepts of analysis of variance

WEDNESDAY	THURSDAY	FRIDAY
Tutorial Dr. P. Davies Exercises in calculating confidence intervals and testing for significance.	A.S. Methods IV I.D. Hill The importance of random selection. Treatment of multiple defects. Discussion of some published tables.	Process Control Charts I & II D.W. Newton Control charts for number defective based on the properties of the Binomial and Poisson Distributions. Mean and Range Control Charts for controlling measurable characteristics
Acceptance Sampling Methods I I.D. Hill The advantages and disadvantages of sampling inspection and of 100% inspection. Inspection by attributes.	A.S. Using Measurement I.D. Hill Ways of choosing a plan and methods of simplifying the necessary calculations. Advantages over inspection by attributes.	
A.S. Methods II I.D. Hill Distinction between sampling for process quality and sampling for batch quality. Ways of choosing a sampling plan.	Tutorial in Acceptance Sampling I.D. Hill Syndicates will be formed for discussion of problems which will be offered for solution.	Properties of Control Charts D.W. Newton Interpretation and diagnosis of possible trouble. Instantaneous, short-term, long-term and cyclic variability.
A.S. Methods III I.D. Hill Double, Multiple and Sequential Sampling plans. The first sample taken does not necessarily lead to rejection or acceptance.	Economic Considerations in Acceptance Sampling Dr. B.W. Jenney Description of current university research activity in the economics of acceptance sampling, including Bayesian approaches.	
Nature and Significance of Human Error in Quality Control Dr. B.W. Jenney Psycho-physiological and motivational factors which help explain human error in tasks such as inspection.	Variability in Manufacturing Processes D.W. Newton Defining and measuring variability. Relation to design tolerances. Assignable and non-assignable causes.	
WEDNESDAY	**THURSDAY**	**FRIDAY**
Non-parametric Statistics in Quality Control Dr. C.C. Dory Definition of non-parametric statistics, their function and usefulness in general applications. Examples of their actual use in quality control situations. New techniques for measuring inspection performance.	Some Aspects of Reliability Engineering Dr. B.W. Jenney Discussion of the problems arising in the demand for product performance to meet specification.	Process Control C.S. Smith Controllable processes. Review of standard methods of control for variables and for attributes. Pre-control for variables or attributes.
	Practical Experience of the Assessment of Reliability R. Brewer Practices evolved in the electronic components industry for the assessment of reliability.	Identification of Major Causes of Variability C.S. Smith Pareto analysis. Simplified methods of investigation, employing: Graphs; Poisson distribution; multi-vari chart.
Introduction to Regression and Correlation Analysis W. Armstrong Correlation and regression analysis may be used where controlled experiments cannot be constructed.	Organisation of a Reliability Evaluation Department R. Brewer Relationship with other departments. Documentation and presentation of evidence. Economics of reliability assurance.	Quality Audit C.S. Smith Inspection versus sorting. 100% or sampling inspection? The risk levels in sampling procedures. Classification of defects. Cut-plot plan for variables.
Tutorial W. Armstrong Exercise in the calculation of regression lines.	Integrated Control of Product Quality C.S. Smith Organising for Quality and Reliability. Problems of training. Economics of quality control. Process capability analysis.