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RESTRICTED

NATIONAL CONSENSUS STANDARDS

AND QUALITY CONTROL

DP/INS/71/002

INDONESIA

Technical report: Assistance in systems concepts  
for national standardization\*.

Prepared for the Government of Indonesia  
by the United Nations Industrial Development Organization,  
executing agency for the United Nations Development Programme

Based on the work of Santosh K. Sen, senior adviser in  
standardization

United Nations Industrial Development Organization  
Vienna

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Explanatory notes

The following abbreviations are used in this report:

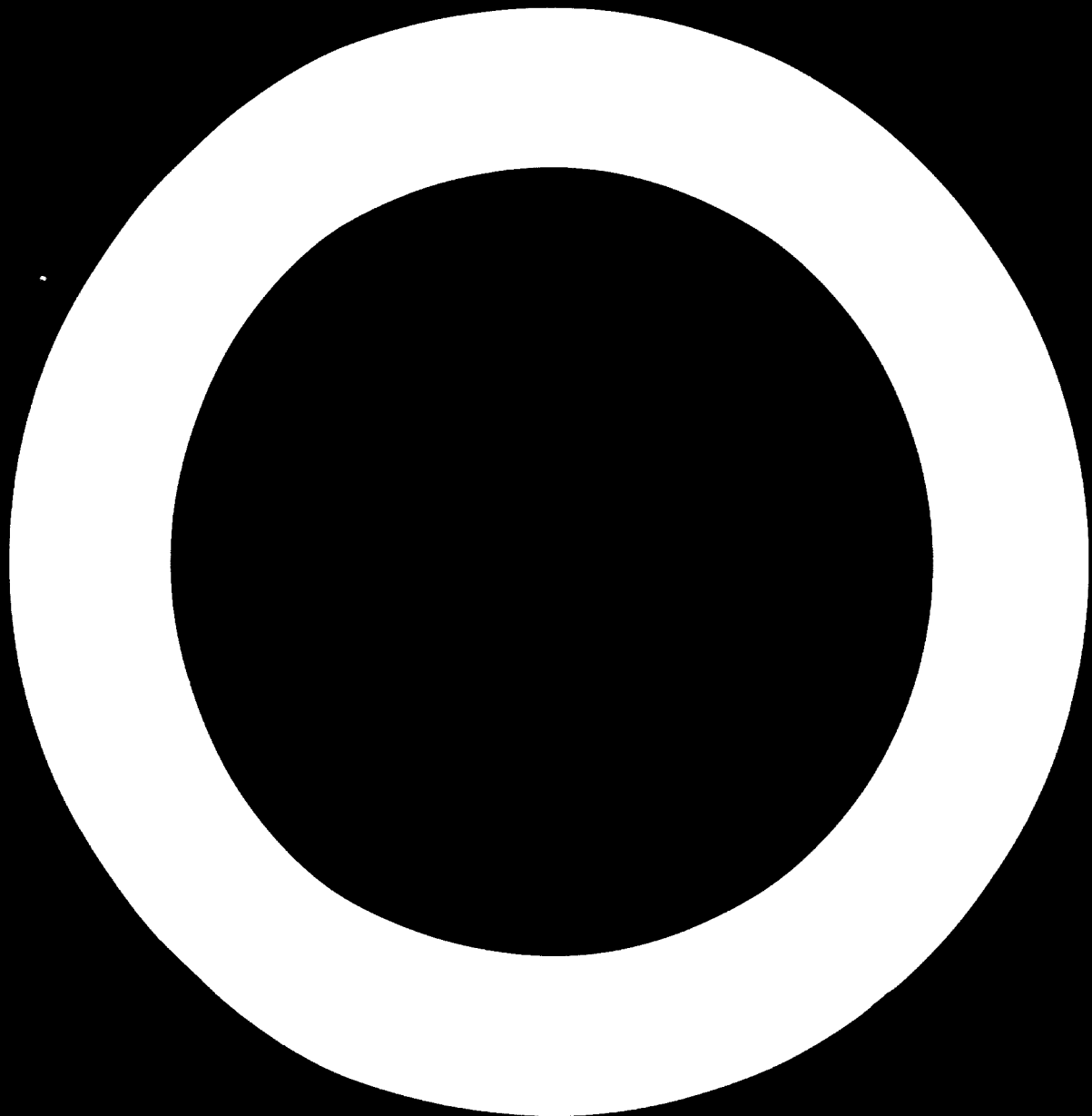
ASEAN	Association of South-East Asian Nations
BSI	British Standards Institute
DC	Divisional Council
ECAFE	Economic Commission for Asia and the Far East
IEC	International Electrotechnical Commission
ISI	Indian Standards Institute
ISO	International Organization for Standardization
ISRI	Institute for Industry Standards
JISC	Japanese Industrial Standards Committee
JSA	Japanese Standards Association
JSC	Joint Standardization Committee
LIPI	Lembaga Ilmu Pengetahuan (Indonesian Institute of Sciences)
NSB	National Standards Body
NSS	National Standards System
PPSSN	Panitia Persiapan Sistem Standarisasi Nasional (Committee for the Preparation of a National Standards System)
PVC	Polyvinyl chloride
SC	Sub-Committee
SCC	Standards Council of Canada
TC	Technical Committee
WG	Working Group
YDNI	Yayasan Dana Normalisasi Indonesia

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## 0. INTRODUCTION

0.1 Though Project DP/INS/74/002 covers two aspects, namely, National Consensus Standards and Quality Control (certification), the latter aspect, has been postponed to mid - 1979. This Report therefore relates principally to standardization activities.

0.2 The present assignment of the Senior Adviser was his second under the Project DP/INS/74/002. He first came for Preparatory Assistance from July 1975 to July 1976. This report, in a sense, is an extension of his earlier report.

An extent of overlapping between the two became unavoidable to make the present report complete in itself.

0.3 Indonesia offers a situation of some complexity in regard to the objective of the project, that is the establishment of a national standardization system.

A measure of this complexity lies in the fact that the series of initiatives so far undertaken, dating back to the Commodity Act (Law no. 10) of 1961, has failed to produce a concept acceptable to all.

0.4 By the end of the Preparatory Assistance period, a Memorandum was submitted by the National Institute of Sciences (LIPI) to the Minister of State for Research urging Government to establish a system with centralized control for policy and co-ordination but decentralized formulation and implementation of standards. A favourable reaction from the Government was expected but this expectation was not fulfilled in the intervening period of more than a year (1976 - 77) before the commencement of the present phase of the project in November 1977.

0.5 Partly for the above reason and partly for the diversity of views that ever existed on the basic issue, namely, what is or rather what should be the objective of the project, a major part of the Adviser's work had to be directed to sorting out basic ideas. This was worth while, for the debate is by no means over and may appear in different contexts in future.

0.6 The nature of the debate is explained in subsequent parts. It may be mentioned here that it concerns two differing opinions whether the objective of the project should be to establish a national standards body or to

establish a national standardization system. In the ultimate analysis both should produce the same results but the approach for one is not necessarily valid for the other. And there is much in the approach, for it preconditions the possible reaction of the organizations presently engaged in standardization activities independently of one another. Unless a consensus can be reached among these organizations, there is little hope that either a body or a system can be established in Indonesia.

0.7 In view of the foregoing, the Adviser has tried to present an analytical report in which the trend of thought has not followed the chronology of events.

The Adviser has worked very closely with his counterpart officials in the Institute of Sciences (LIPI) and therefore expects that the views expressed are generally acceptable to LIPI.

0.8 The Adviser believes that the project has succeeded not only in clarifying ideas but also in advancing a plan of actions to a stage promising a positive development in an area that has eluded attempts for fruitful action over 16 years.

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## 1. BACKGROUND INFORMATION

### 1.1 Technological Background (Relating to Standardization Activities)

#### 1.1.1 National Standardization

1.1.1.1 Standardization and related activities are important aspects of industrial development in any country, but in a developing economy they constitute an essential input for planned growth. National standards define the level of quality, safety and performance to be achieved in production and ensured in consumption.

Thus they act as a medium of co-ordination between production and consumption. In their absence, planning becomes uncoordinated and hence wasteful of resources.

Undefined quality tends to breed mistrust in indigenous production leading to increasing demand and reliance on imports. The following benefits can accrue from co-ordinated National System of Standardization, as evidenced by the common experience of countries with active standardization movement :

#### To the Consumer :

1. Quality assurance, purity and safety in use of consumer articles;
2. Interchangeability of products;
3. Ready availability of goods and services;
4. Improved service and maintenance facilities;
5. Lower price for a given quality or performance of products.

#### To the Producer :

1. Assured market for standard products;
2. Longer production runs from larger demands;
3. Possibilities of utilizing mass production techniques;
4. Reduction of stocks of materials, components and end-products;
5. Streamlining of operations at all levels;
6. Easier training of operatives;
7. Utilization of indigenous raw materials and talent with reduced dependence on import;
8. Increased productivity leading to lower costs and higher profits.

1.1.1.2 Standardization in Indonesia dates back to 1928 when the Yayasan Dana Normalisasi Indonesia (YDNI) was formed. The standardization activities of the Government Departments and other institutes are a later deve-



lopment - mainly after national independence. After the cessation of the Dutch authority, these agencies began formulating their own standards and codes, instead of augmenting the authority of YDMI which is a private foundation. As a result, standardization became fragmented and ceased to be national in character. The standards thus evolved correspond to the level of "industry/department" standards in the hierarchy of standardization which stands as below :

- a) International standards
- b) National standards
- c) Industry/Department (also Association) standards
- d) Company standards
- e) Individual standards

1.1.1.3 In this respect the standardization history in Indonesia differs from that of other developing countries where a beginning is usually made with a Central Authority. This somewhat unique situation in Indonesia has deterred the establishment of a National System primarily for an unexpressed feeling that a national system may dent the authority and importance of some of the existing organizations.

The situation is thus confusing with elements of conflicting standards, units and codes, which are likely to become chaotic unless given a clearer central direction. The table below lists the organizations currently engaged in formulation of departmental standards in their respective areas of interest. The problem is not that they are working independently. The problem lies in the absence of a co-ordinating system.

As a result, duplication and contradiction frequently arise in the standards issued by them. The absence of a national overview and programme necessarily follows from this state of affairs. Collectively these organizations have produced some 500 standards to-date, against a requirement that would mount to about 10 times that figure in the next five year period.

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Standardization Activities Currently Being Carried  
Out by Various Ministries and Other Institutions

1. Ministry of Industry

Area of Interest : Standardization of industrial products such as textiles, building materials, leather, ceramics, sports goods, and other consumer products including oils and batik designs and labelling.

Participating Institutes :

- i. Material Testing Institute
- ii. Textile Institute
- iii. Ceramic Institute
- iv. Chemical Research Institute
- v. Leather Institute
- vi. Batik and Handicraft Institute
- vii. Industrial Research Institute
- viii. Metal Industry Development Centre
- ix. Cellulose Research Institute

The co-ordinating authority is vested in the Research and Development Centre for Metals and Machinery

II. Ministry of Trade

Area of Interest: Standardization of export commodities and legal metrology. Elaboration of standards is the responsibility of the Directorate of Standardization, Normalization and Quality Control for the former and of the Directorate of Metrology for the latter.

III. Ministry of Health

Area of Interest: Testing and control of drugs, medical equipment, sanitary conditions in factories.

Participating Institutes :

Directorate for Food and Drug

Directorate for Cosmetics

Centre for Research and Development of Health

IV. Ministry of Transmigration, Cooperation and Manpower

Area of Interest: Safety <sup>of</sup> working conditions. Inspection is carried out by the Directorate of Control and Safety of Working Conditions, with branches all over Indonesia.

V. Ministry of Public Works

Area of Interest: Elaboration of standards, codes of inspection, etc,

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in the fields of road, buildings, bridges, water supply, irrigation and heavy equipment.

Participating Institutes :

- i. Regional Housing Center (Building Research Institute)
- ii. Hydraulics Research Institute
- iii. Road Research Institute
- iv. Soil Research Institute

VI. Ministry of Agriculture

Area of Interest: Standardization, quality control and testing of agricultural products.

Participating Institutes :

- i. Estate Crops Research Institute
- ii. Rubber Research Institute
- iii. Forest Products Research Institute..

VII. Ministry of Transportation

Area of Interest : Standardization of safety requirements of seagoing vessels, air planes, testing of safety of vehicles, etc.

Participating Institutes :

- i. Directorate of Air Communications
- ii. Directorate of Sea Communications
- iii. Directorate of Land Transportation
- iv. Directorate of River Transportation
- v. Indonesian Classification Bureau
- vi. Telecommunication Research and Development Centre

VIII. Ministry of Mining and Energy

Area of Interest : (1) Standardization and quality control of Bangka Tin products (P.N. Timah).

(2) Standardization of electricity generation, distribution and supply network, equipment and practices.

Participating Institutes :

- i. Power Research Institute
- ii. PLN (State Electricity Undertaking)
- iii. Oil and Gas Research Institute

IX. Other Institutions

i. Yayasan Dana Normalisasi Indonesia (YDNI), original standardization body established during the Dutch administration. It is an industry association in status, having the principal aim to promote the development of technical standards. It represents Indonesia in ISO and IEC.

ii. Jakarta Municipal Authorities.

Mandatory testing of selected industrial products is presently being carried out by the Municipal Authorities, including commodities such as: syrup, powder milk, edible oils, textiles, gold for jewellery and food stuff.

The testing facilities utilized are :

- i. Industrial Research Institute
- ii. Textile Testing Institute
- iii. Building Materials Testing Institute

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1.1.1.4 The existence of a multiplicity of standards with the same coverage is an anachronism at present times. However, there are more weighty reasons why a national standardization system, with a single Central Authority, is called for.

These reasons are associated with (a) national planning efforts, and (b) the stage of industrialization in the country. It is impossible to plan industrial production without a prior knowledge of the standards to be met. The standards not only define the qualitative requirements of the product but also determine the technology to be employed for production - thus exercising a direct influence on industrial investment. With increasing industrialization, the need for coordination between interdependent industries on the one hand and between production and consumption on the other, assumes greater and greater urgency. The absence of a national standardization system leads to uncoordinated production, wasteful development, misuse of national resources and loss of marketability in both national and international markets.

1.1.1.5 Indonesia is presently passing through a costly transition in the electricity distribution system which is being changed from 110 to

220 volts. The national cost in relaying the entire distribution network, in re-wiring of houses and in adapting all electrical gadgets and appliances in consumers' premises is going to be pretty high. This is not the only up-heaval of this type likely to be encountered. There is no authentic answer to-day to entrepreneur's query regarding the standards to be followed in designing production plants and equipment.

Consequently both metric and non-metric designs are being used, though the country is metric by law. A time will come when a choice will be forced by the circumstances - proving both confusing and costly unless carefully integrated in a national standardization programme. A precise example of this type recently came to Adviser's notice. PVC pipes used in water-supply systems are presently manufactured to either British/Japanese specifications (which are non-metric) or to ISO specifications (which are metric). The products are not interchangeable. Hence, once a system is planned, the supply of pipes of the same size and identically threaded must be ensured. Understandably water supply Authorities are keen to observe uniformity of specifications through<sup>out</sup> the country but the question is which one? Indonesia is metric by law.

The majority of the production units follows non-metric standards -- it is not easy to decide to throw them out of business. Further, if the metric standards are not accepted by countries of this region, it would be commercially unwise to work towards isolation. On the other hand, change to metric is an universal trend in present times. Only a high level decision, taken on a regional basis, can resolve the issue.

1.1.1.6 Like other developing nations, Indonesia is encouraging joint collaborative entrepreneurship with other countries. This is an effective means of transferring technology to build up local industrial potential. However, import of technology brings with it a variety of materials, spares, and equipment, conforming to the standards of the collaborating countries. It leads to rapidly mounting bill for maintenance imports. Still a remedy can not be sought in discouraging transfer of technology from abroad. The experience of other countries suggests that an effective means to contain this situation is timely advice to collaborators on the system of standards to be used in the design and execution of projects, with administrative firmness to ensure that they are observed.

1.1.1.7 Industrialization in Indonesia is approaching a stage to force national attention on such problems. Some warning symptoms are already discernible.

The production cost of indigenous industries is comparatively high. It will be difficult to reduce the cost without rigorous standardization to improve productivity and reap the advantages of large-scale production.

#### 1.1.2 International and Regional Standardization

1.1.2.1 Indonesia is represented in the International Organization for Standardization (ISO) and the International Electro-technical Commission (IEC) through YDNI. This explains the rather poor participation in these international forums. YDNI does not have either the organization or the resources to deal with the complex task of representing the national interest in the growing technical activities of ISO and IEC. It presently employs some 9 persons for clerical and manual work. Its meagre budget is spent primarily in meeting the salaries of these employees.

The source of income has practically dwindled to a small grant from the Institute of Sciences (LIPI). However the membership responsibility is gradually being taken over by LIPI, which for the last few years has been able to send Indonesian delegations to a limited number of meetings, particularly of IEC.

1.1.2.2 The ASEAN Regional group, consisting of Indonesia, Singapore, Malaysia, Thailand and Philippines, is another reminder that a national standardization system in Indonesia must not be further delayed. One of the objectives of the Group is to plan complementary industrial development to take advantage of the combined market and the best economic location for the Group as a whole. It is impossible to put such plans into action without a high degree of standardization to facilitate the utilization of raw materials and intermediate products coming from one member country into the others or to establish the general level of quality assurance that would be acceptable for trading within the group. Only a beginning is noticeable in acknowledging the need of standardization at the ASEAN level.

## 1.2 Chronological Background Leading to the Project

1.2.1 Attempts have been made from time to time to establish a Central Authority to co-ordinate the fragmented standardization activities at the national level.

The more important among them are Law No. 10 of 1961, Commodity Act, and Government Decision No. 9, 1964, on Standards for Industry. The former was intended to establish regulations for (i) composition of materials, (ii) packing of goods, (iii) marking and labelling to show origin, kind, composition etc, and (iv) inspection and prevention of trading in goods which do not fulfil the regulations. A Committee on Goods was proposed to be established with statutory duty to advice on all actions which "according to its opinion are necessary for the implementation of the Law".

1.2.2 The Government Decision No. 9 of 1964 was more specifically related to standardization in industry. It stipulated the aim of standardization as (i) to avoid differences (in specifications) in order to achieve the maximum possible economy, (ii) to facilitate exchange of ideas in industry, (iii) to ensure interchangeability of industrial products, (iv) to improve the quality of production of industry, (v) to simplify transactional procedures in trade, (vi) to ensure rationalization of work procedures, (vii) to effect rationalization in the use of materials and goods, and (viii) to promote <sup>safety</sup> in industrial activities. An Institute for Industry Standards (ISRI) was contemplated to carry on all related functions, including formulation and establishment of standards and control of the use of a certification mark to indicate conformity of goods with the standards.

1.2.3 Neither the Commodity Act of 1961 nor the Decision No. 9 of 1964 was ever acted upon by the authorities as far as standardization is concerned, though they apparently still exist in the statutes book.

1.2.4 Next in the chronicle appeared a succession of committees but no definitive course of action emerged. There was a suggestion to revive YDMI as the National Standards Association. In September 1968, Dr. Lal C. Verman, an international authority on standardization who was then Regional Adviser in the Economic Commission for Asia and the Far East, visited LIPI and gave a Report with several recommendations (Advisory Service Report on Standardization in Indonesia, ECAFE, Bangkok, October 1968). Dr. Verman gave weightage towards the formation of an autonomous organization. However all these suggestions fared no better than the previous decisions.

1.2.5 In February 1973, a two-day Seminar was convened by the Indonesian

Institute of Sciences (LIPI) which brought together representatives of the main agencies concerned in standardization, both public and private. The conclusion of this Seminar proposed the establishment of a National Standards Body (NSB), with an interim "Working Group on Standardization Coordination in Indonesia" with broad public sector and private sector representation, being made responsible for coordinating the ongoing standardization efforts and generally for working towards the formation of an effective NSB. With the conclusions of the Seminar as a starting point, a report on "Consensus Standards" was prepared (July 1973) by a UNDP Consultant for UNESCO, and a project for "Development of a National Standardization System" was initiated by LIPI (April 1974). A year later, UNDP/UNIDO provided an Expert for Preparatory Assistance to LIPI.

1.2.6 The Preparatory Assistance led to (a) the enunciation of Strategic Policy Considerations to guide the development of a national standardization system, (b) the submission of a Memorandum by LIPI to the Minister of State for Research, and through him to the Government, urging suitable action for the purpose, and (c) the preparation of a Project Document for further UNDP assistance in this respect.

1.2.7 The Strategic Policy Considerations emphasized the need for collective action by the various existing organizations engaged in standardization work in their own fields of interest. It was taken as certain that any individual action would be doomed to failure. The following emerged as the major strategic parameters :

- (i) The National Standardization System must be truly national in scope and character, belonging equally to all concerned ministries as well as to industry, commerce, scientific and technical institutes and the consumer in general.
- (ii) All policies and programmes should be determined by Councils, appropriately representing the parties enumerated above, through general consensus.
- (iii) The System must permit the continuance of the present activities of the various ministries, departments and institutes, at the same time co-ordinating them in accordance with the overall policies and programmes.
- (iv) The Presiding Officer of the System should have adequate authority



to be able to coordinate the standardization activities of several ministries in the Government.

- (v) It would be futile to form a private foundation for the purpose. It is the general experience in developing countries that a private foundation does not succeed as the NSB. The reasons are not far to seek.

The Government has a heavy involvement in standardization in a developing economy as an essential input for implementation of national plans.

Besides, a private foundation cannot exercise any coordinating function where government departments are involved.

- (vi) The Secretariat of the System should, as far as possible, be entrusted to a neutral organization able to deal impartially with the multitude of official and non-official organizations that are involved in the formulation and implementation of standards. The Institute of Sciences (LIPI) eminently answers this description.

- (vii) There is a further consideration why LIPI should be entrusted the Secretariat of the National Standardization System. In a developing economy, it is desirable to integrate (i) standardization, (ii) quality control, (iii) research for quality improvement, and (iv) transfer of appropriate technology into a single process in which one feeds into the other to effect gradual improvement of quality of production. This is particularly important for small-scale industries which play a predominant role in developing countries. LIPI being already engaged in some of these functions, has the necessary organization and experience to take on the wider responsibility.

1.2.8 The Memorandum submitted to the Minister of State for Research presented the broad outlines of a proposed organizational structure and methodology in conformity with the foregoing strategic considerations. The System has to encompass (a) Planning, (b) Programming, (c) Formulation, (d) Adoption, and (e) Implementation, of standards. Of the above, planning, programming and adoption have to be centralized, otherwise the system gets fragmented failing to achieve a national status. Formulation and implementation, in the Indonesian context, could be decentralized, that is to say entrusted to various ministries and institutes, with a central co-ordinating forum being

responsible for co-ordination. The advantage of this plan lay in being able to utilize the resources of a number of organizations enlisting a wider base for the attainment of national consensus, without disrupting the existing activities.

The organizational structure, according to the Memorandum, was to consist of :

a. Supreme Standardization Council — constituted with representatives of the Government ministries, departments, research institutes, consumer organizations and industrial enterprises interested and involved in standardization activities, in other words fully representing the interests concerned with production, distribution, consumption, regulation, testing and research in products and services. The Council is to approve all policies, plans and the annual budget.

The authority for the adoption of National Standards is also to be vested in this Council.

b. Division Councils — For planning and programming of national standards, each Division Council is to represent one sector of the economy. They are representative of the various interests like the Supreme Council, the difference lying in that the Supreme Council members are chosen for their administrative experience and authority, while the Division Council members are required to possess wide technical experience for planning and programming.

c. Technical Committees — Since formulation of standards is proposed to be decentralized, Technical Committees which are <sup>given</sup> the task of preparing draft standards in accordance with the approved programme, are to belong to the various ministries and institutes engaged in similar functions.

For the purpose of co-ordination within the new frame work, the Memorandum suggested the following Work Flow (Diagrams 1 - 3).

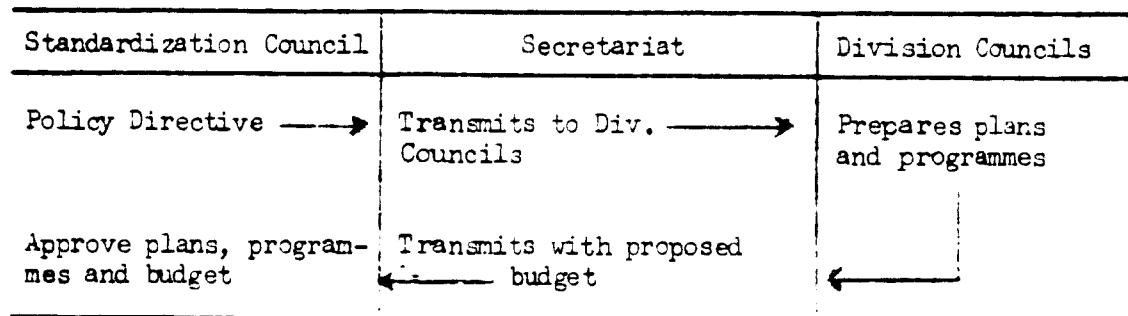


Diagram 1 : Work Flow Stage I - Planning and Programming for National Standards



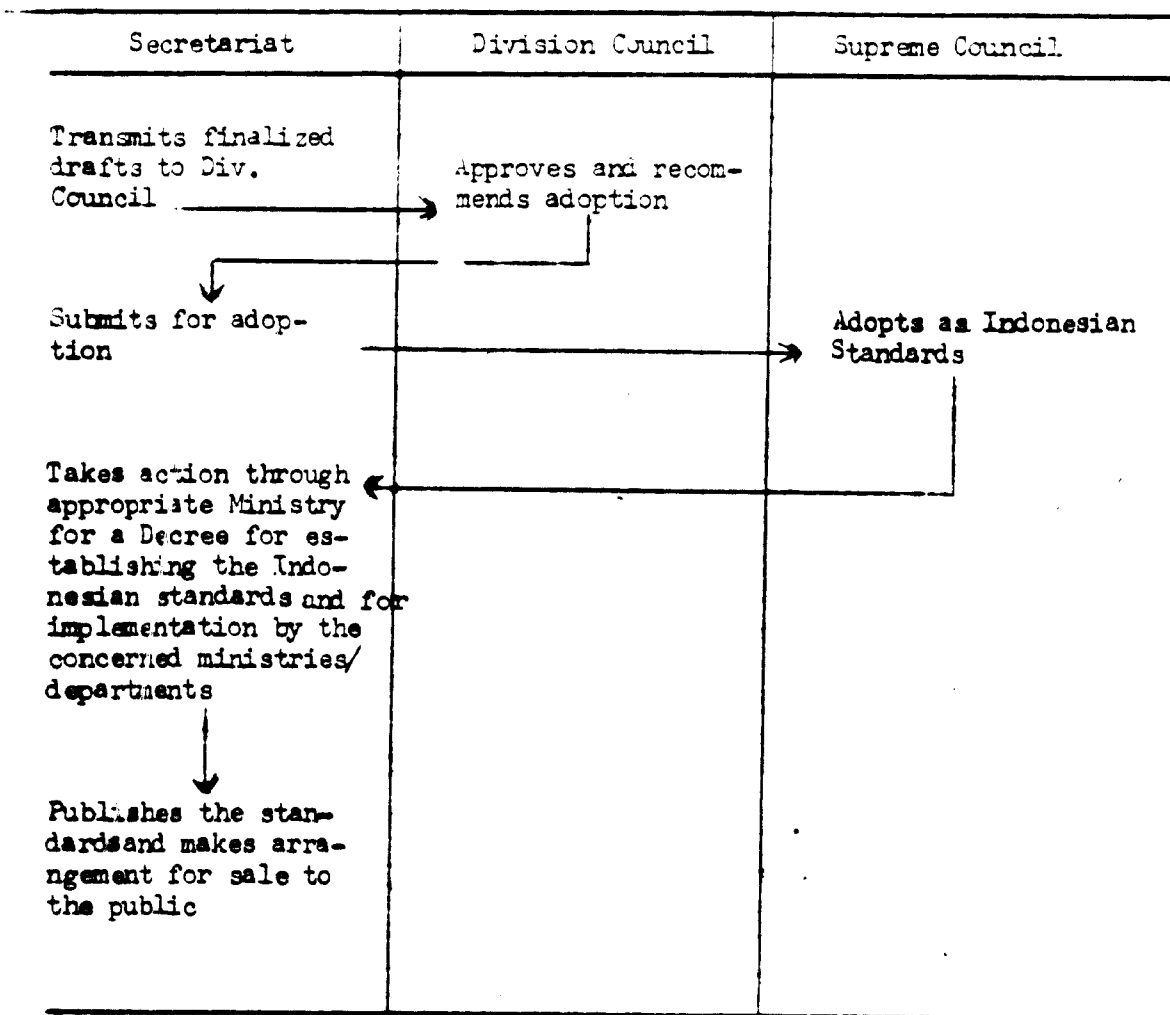


Diagram 3 : Work Flow Stage 3 -- Adoption and Establishment of Indonesian National Standards

1.2.9 The Project Document for UNDP assistance (beyond the Preparatory Assistance period) envisaged a UNDP input of 30 m/m of Experts for Standardization, Certification and Quality Control, 56 m/m of Fellowships for training abroad and US \$ 100,000 for Equipment. The Long Range and Immediate Objectives were laid down as below :

A. Long-Range Objectives

To establish a National System of Standardization as an effective instrument for (i) accelerating industrialization and general economic development of the country, (ii) promoting acceptability of Indonesian products internally and abroad in regard to quality and safety in performance and use, and (iii) providing a necessary institutional support for national planning.

B. Immediate Objectives

- to elaborate the organizational structure and methodology of operation of the National Standardization System ;
- to formulate a standardization programme closely coordinated with the programme of national development and industrialization ;
- to establish an effective mechanism for formulation and approval of new national standards and revision thereof from time to time, based on a broad pattern of cooperation and consultation between all public and private parties concerned ;
- to prepare a frame-work of inspection and quality certification of Indonesian products for internal marketing ;
- to promote quality control concepts and practices on a national scale ;
- to prepare plans for establishing or strengthening testing facilities required for implementation of the standardization, quality control and certification programmes;
- to promote Indonesian participation in regional and international events relating to standardization, quality control and quality certification ;
- to train national staff in the achievement of the above objectives.

1.2.10 The UNDP assistance was obviously to begin in the area of standardization and later extended to cover certification and quality control (to the extent required for certification). The Adviser was recruited for the post of Standardization Expert. During briefing in Vienna, he was given the following written instruction :

"As result of today's discussions and in particular with regard to the concern you have expressed on how to build up and integrate an overall

standardization system in Indonesia I am hereby asking you to adhere to the following points :

1. The problem to establish an integrated system for Indonesia is a large and important project itself and you have been recruited for this purpose. You should concentrate your efforts in this field and as we have discussed today, outline a programme as to time and as to institutions to be involved and activities and inputs subsequently needed to achieve an overall system. We would like you to inform us within 2 - 3 months about your findings and draft programme and we will thereupon advise you from Headquarters.
2. Until further notice you are not allowed to go into Training without previous consulting with Headquarters.
3. In view of the above you should not enter into any negotiations on behalf of UNIDO or yourself as to programmes or projects referring with ASEAN Group."

1.2.11 The Adviser arrived in Jakarta on 2 November 1977.

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## 2. FINDINGS

### 2.1 Basic Issue

2.1.1 LIPI's Memorandum for the Establishment of a National Standardization System evoked limited response from the ministries and government departments.

The Minister of State for Research had accepted the basic proposition of the Memorandum (para 1.2.7) and had circulated it to the concerned ministries/departments for comments, with the suggestion that the functions of the Supreme Council should be assigned to the National Economic Stabilization Committee. This Committee co-ordinates the work of three Ministries, namely Economy, Industry and Finance, and reports directly to the President. Thus it is in a better position to derive the maximum benefit from standardization which must necessarily cut across departmental jurisdictions.

2.1.2 In one Cabinet Meeting the question of standardization was discussed and it was proposed that the Minister of State for Economy, Finance and Industry should take up this matter, though the follow-up actions thereafter did not proceed as expected.

2.1.3 A further development to note was the Decree dated 17 May 1976 of the Minister of Industry concerning Industrial Standardization and Quality Control of industrial goods, which defined the related activities of the Ministry of Industry. The Decree is annexed (Annexure I).

2.1.4 In the circumstances it was obvious that the matter had to be examined de novo from the very basic premises, starting with the Objective of the Project. It so happened that this issue was raised by the Substantive Department in UNIDO Head-Quarters, in the form of a suggestion that LIPI should be projected as the National Standards Body.

2.1.5 The Objective of the Project, as far as the Project Document goes, is clearly stated as "the establishment of a National System of Standardization" (para 1.2.9). However what should be the objective has been debated off and on within and outside LIPI and apparently the debate has not yet seen its last. The contending issues are (a) whether Indonesia should have a "National Standards Body (NSB)", or (b) a "National Standardization System (NSS)". The question has a deep significance and deserves to be dealt with at some length.

2.1.6 When one thinks of standardization at the national level in any country, one naturally thinks of a NSB. This is the most familiar type, of national organization. It started with the British Standards Institute -- the first national standards body in the whole world and has been repeated, in major outlines, in a large number of countries, both developed and developing. This type is characterized by the fact that its Deliberative Wing of Councils and Committees and its Executive Wing of Staff Members are all located in one organization.

Thus the organization is clearly seen as a body (NSB).

2.1.7 If one looks through the world list of NSB's, one can come across another type -- the best example of which is the Standards Council of Canada (SCC). The following is a brief description of SCC :

The SCC is the non-governmental national co-ordinating agency for standardization, bringing together, into a National Standards System, established organizations involved in the preparation of voluntary standards for application in both the private and public sectors, and in testing and certification.

The objects of the Council, as set forth in the Act, are :

to foster and promote voluntary standardization in fields relating to the construction, manufacture, production, quality, performance and safety of buildings, structures, manufactured articles and products and other goods, including components thereof, not expressly provided for by law, as a means of advancing the national economy, benefiting the health, safety and welfare of the public, assisting and protecting consumers, facilitating domestic and international trade and furthering international cooperation in the field of standards.

SCC is clearly projected as a Co-ordinating Agency for a National Standards System. It is rather far fetched to call it a body.

2.1.8 The real difference between the BSI - type and the SCC - type is that the former has a Centralized System of Standardization and the latter has a Decentralized System of Standardization. Whether a NSB exists or not, what is important is the existence of a System, which is more fundamental.

2.1.9 The Indonesian debate has thus proceeded on a wrong track. The choice is not between a "Body" and a "System", but between "a Centralized System" and "a Decentralized System". Locked at from this point of view,



the answer seems fairly straight forward, for the following reasons :

- i) projecting any one organization as the NSB would evoke cold reception, if not outright opposition, from other organizations presently engaged in standardization work;
- ii) no progress is possible until a consensus is reached among all the concerned organizations;
- iii) no one organization has the necessary resources in men and money to cater to all the multifarious tasks of a national standardization system. (To date, the various organizations have collectively produced some 500 standards, against an estimated need of about 5000 standards for the next five years.)

## 2.2 New Plan of Action

2.2.1 After the Objective of the Project was re-confirmed within LIPI, attention was paid in chalking out a new Plan of Action, taking a lesson from the poor response to the Memorandum. To start with, the possible cause or causes of the general lack of acceptability of the Memorandum had to be identified for rectification in the future plan. It could hardly be denied that the Memorandum did lay down a set of principles (para 1.2.7) which protected the interests of all currently active organizations.

Then it was realized that the Memorandum represented a proposal from an individual institution. However good it might have been, it was not a collective view of the concerned organizations, inspite of the extensive informal consultations that preceded its preparation. For instance, it had not been cleared through any authoritative forum representing these organizations, which thus were not committed to it.

2.2.2 It was therefore agreed in LIPI that the new Plan of Action must emphasize the need to build up a body of consensus and agreement among the standardizing organizations in support of the Memorandum principles, so as to facilitate a governmental decision on it. The approach agreed upon was to set up a de facto standardization system through collaborative action of the standardizing organizations, which could in due course be given recognition by the government as the de jure national standardization system.

2.2.3 At this stage it became necessary to draft a Guideline for collaborative action. Consultations with interested parties revealed certain interes-

ting features. It became evident that agreement on the overall system concept would be difficult to reach, but it could be comparatively easier to build up a consensus of views on the results of the system. For example the national system, whatever its profile, must produce an agreed programme at the national level, it must ensure that no duplication or contradiction arises when the programme is executed by the various interested organizations, etc. Thus the idea was conceived of beginning with the results and work up-wards to the system concept -- giving rise to a step by step approach.

A Draft Guidelines on this basis was discussed at a meeting on 5 June 1978 at which 51 representatives from some 25 organizations took part. The following is the accepted text :

#### GUIDELINES

1. The establishment of a National Standardization System in Indonesia is of urgent necessity for industrial, agricultural and economic development as well as for consumer protection in respect of quality, safety and performance of indigenous products.
2. The National System, to be generally acceptable, should incorporate certain basic premises, namely :
  - i) The System must be representative of all ministries and institutes presently engaged in standardization activities as well as the industry, trade, professional bodies and the consumer organization;
  - ii) The System should provide an "Umbrella Coverage" for the purpose of co-ordinating existing activities while permitting them to continue;
  - iii) The purpose of co-ordination is to (a) avoid duplication of efforts, (b) avoid contradiction in standards (issued by various organizations), and (c) meeting the national requirement by pooling of resources.
3. In support of the establishment of such a System, a body of consensus and agreement should be built up among the standardizing organizations to --
  - a) visualizing the national requirement, sector by sector, for say 5 years, taking the development plans into consideration (step 1);

- b) distributing the workload, by agreement among the various ministries/institutes engaged in formulation of standards, avoiding duplication of efforts (step 2);
- c) setting up a mechanism to avoid contradiction in standards (step 3);
- d) issuing a single series of Indonesian National Standards with a common designation (step 4); and
- e) establishing a clearing-house for distribution and sale of all Indonesian National Standards (step 5).

4. Hopefully the successful attainment of the above steps would lead to an agreed concept of the National System (step 6).

### 2.3 Documentation

2.3.1 For the six steps proposed in the Guidelines, necessary documents were drafted, discussed in LIPI and rearranged as below :

- A. Proposals for a National Standardization System in Indonesia
  - Part I : Profile of a National System for Consensus Standards
  - Part II : Consultation Procedure
  - Part III : Procedure for Indonesian Participation in ISO
  - Part IV : Procedure for Indonesian Participation in IEC
- B. Five Year Standards Programme for Repelita III
- C. LIPI Standardization Project -- Objective, Organization and Procedure

The documents are annexed for perusal (Annexures II, III and IV), with some explanatory notes as below :

#### a) Standardization Programme

Draft Five-year Standards Programme for Repelita III have been prepared for five industry sectors, namely (i) electrical and electronics, (ii) civil engineering, (iii) automotive engineering, (iv) documentation and information retrieval, and (v) basic engineering standards. Except item (iii), the other four covers the areas of interest to LIPI, which intends to limit its work to these areas as its share in the overall national programme;

#### b) Consultation Procedure -- The proposed procedure is based on the

following sequence :

Step 1 : A programme is established for each industry sector;

Step 2 : The work programme is shared by consent among the interested organizations (Participating Organizations);

Step 3 : Each Participating Organization determines priority among the subjects allocated to it, taking the national plans into consideration;

Step 4 : Draft standards are prepared through the Committee framework belonging to each Participating Organization;

Step 5 : The Secretariat checks the drafts for duplication/contradiction and allocates a number;

Step 6 : Finalized drafts are adopted by a National Council;

Step 7 : The adopted national standards are published by the Participating Organization (until a national Clearing House is established).

- c) National System Profile -- In principle, the System proposed in the Memorandum (para 1.2.7 and 1.2.8) has been maintained but has been expanded with necessary details. The System is comprised of three parts - (i) a centralized part for policy and coordination through a National Standards Council, (ii) a decentralized part for formulation and implementation of standards, and (iii) a sub-system for support from industry, trade, professional bodies, scientific institutes and consumer associations. It is envisaged that the Participating Organizations will receive budgetary support from the government on the recommendation of the National Council, which (along with the System) will be established by an appropriate Decree of the Government.
- d) Role of YDNI - Though it has been observed (para 1.1.2.1) that YDNI presently stands on the verge of extinction, it is not devoid of possible useful role in the future. Some guidance may be taken from the Japanese standardization set-up which is comprised of the Japanese Industrial Standardization Committee (JISC), a government agency for formulation of Japanese national standards, and the Japanese Standards Association (JSA) which is an industry Association for channeling industrial support to JISC, for publishing and selling all standards produced by JISC and promoting their implementation by the industry. It is possible to think of a future role

of YDNI as the Indonesian counterpart of JSA. Several advantages can accrue from it, principally in raising funds from industry which can be specifically utilized for standardization activities in addition to governmental budgetary allocation. No doubt YDNI will have to be revived to command appropriate facilities for such responsibility. It is far from certain whether this extent of revival is feasible. At any rate, the industry will have to come forward in a big way to provide the resources. At an appropriate time, after the establishment of the proposed standardization system, it would be worth while to discuss this matter with industry representatives. In the meantime, the following agreement between the YDNI and LIPI defines their inter-relationship :

---

Joint Agreement  
Between LIPI and YDNI

Clause 1

This joint agreement to work together is based on the common aim to develop a National Standardization System and to establish a National Standards Council in Indonesia.

Clause 2

To materialize the national standardization system in Indonesia, the 1st and 2nd party agree to establish a LIPI - YDNI Joint Council for Standardization comprising of the following :

- a) a Chairman representing the 1st party,
- b) a Vice-Chairman representing the 2nd party,
- c) a Secretary representing the 1st party,
- d) Four Members, two from each party.

Clause 3

The task of the LIPI - YDNI Joint Council is to promote collaboration between the 1st and 2nd party, facilitating development of a National System and the establishment of a National Standards Council in Indonesia.

Clause 4

The LIPI - YDNI Joint Council is entitled to take steps on behalf

of the 1st and 2nd party which would facilitate the development of a National System and the establishment of a National Standards Council in Indonesia.

Clause 5

LIPI - YDNI Joint Council is located in Jakarta.

Clause 6

Expenses incurred shall be the responsibility of the two parties.

Clause 7

This joint agreement is for a five year period, with the provision for extension, amendments or revokement by mutual agreement. In case of annulment of the LIPI - YDNI Joint Council, its inventory and assets will be regulated by mutual consent.

- 
- e) Participation in ISO and IEC - Indonesian membership in ISO and IEC presently stands in the name of YDNI - LIPI. Obviously it should be transferred to the National Standards Council as the national system is established. There is much scope in improving the extent of active interest taken by Indonesia, though participation in IEC has recently shown some promise of growth due to the initiative of PLN (State Electricity Undertaking). The proposed procedures (para 2.3.1) would be helpful in removing procedural difficulties but sustained interest will have to be built up by long-term efforts, especially among public and private industries.

2.4 Committee for the Preparation of a National Standardization System --

The absence of an authoritative forum to recommend a System Profile to the government was identified as the principal cause of the limited response to the Memorandum (para 2.2.1).

The formation of a representative committee was therefore considered as a sine qua non for future progress. A proposal was mooted out in LIPI but the prospect of re-nomination of ministers following Presidential election caused a temporary delay in advancing the matter further. A new Minister was appointed by the end of March 1978. After he gave assent to the proposal, a draft Decree for the establishment of a committee entitled "Panitia Persiapan Sistem Standarisasi Nasional - PSSN" (Committee for the Preparation of a National Standardization System) has been submitted for authorization as below:

Draft Decree

THE MINISTER OF STATE for RESEARCH and TECHNOLOGY

- Considering : 1) that standardization and its supporting activities are an inseparable part of national industrial development;
- 2) that standardization activities at present are uncoordinated;
- 3) that national standardization activities need to be improved and institutionalised into a national standardization system;

- in view of : 1) Presidential Decree No. 45 of the year 1973
- 2) Presidential Decree No. 59/M of the year 1978

DECREES

To form Committee for the Preparation of a National Standardization System, with the following provisions :

Article I

Clause 1

The Committee for the Preparation of a National Standardization System (hereafter referred to as the Preparation Committee) shall provide consultation to the Minister of State for Research and Technology.

Clause 2

The Preparation Committee shall have the following major tasks :

- 1) To propose to the Government, via the Minister of State for Research and Technology, a concept for a National System for Standardisation;
- 2) To foster cooperation and close relations among those parties having interests concerning the concept of a National System for Standardisation.

Clause 3

In carrying out the major tasks stated in clause 2 above, the Preparation Committee shall have the following func-

tions :

- a) To draw up a formula concerning a National System for Standardisation in Indonesia, including its organisation and work procedure;
- b) To provide a forum for communication among parties having interests in standardisation;
- c) To formulate a national policy and programme in the field of standardisation;
- d) To hold meetings, discussions and workshops in the framework of making a joint consensus concerning a National System for Standardization.

Article II

STRUCTURE OF ORGANISATION AND EXECUTION

Clause 4

The Preparation Committee shall comprise :

- a) a Chairman, concurrently a member;
- b) a Deputy Chairman, concurrently a member;
- c) an Executive Secretary, who is concurrently a member and also Head of the Project to Develop a National Standardisation System, in the Indonesian Institute of Sciences;
- d) Members comprising representatives from Ministries, non-ministerial government institutes and non-governmental bodies concerned with standards consensus at the national level.

Clause 5

The daily activities of the Preparation Committee shall be carried out by an Executive Committee, comprising :

- a) the Executive Secretary of the Preparation Committee, as chairman and member;
- b) a Secretary, concurrently a member;
- c) five (5) members.

Clause 6

- a) The Preparation Committee shall hold sessions and meetings at least once every six months, at a place



determined by the Preparation Committee Chairman.

- b) The Executive Committee shall hold meetings at least once every two months.

Article III

Clause 7

- a) The Members of the Preparation Committee shall be appointed and dismissed by the Minister of State for Research and Technology, on proposal by the Ministries, non-ministerial government institutes and non-governmental bodies concerned.
- b) The Chairman and Deputy Chairman of the Preparation Committee shall be appointed by the Minister of State for Research and Technology, on proposal by the Preparation Committee members.
- c) Members of the Executive Committee shall be elected by and from the Preparation Committee members.
- d) The Executive Committee Secretary shall be appointed by the chairman of the Executive Committee, and need not necessarily be chosen from among the members of the Preparation Committee.

Article IV

Funding

Clause 8

All expenses necessarily incurred in the execution of the Preparation Committee's tasks shall be paid from the budget of the Indonesian Institute of Sciences.

Article V

Conclusion

Clause 9

Details of the tasks, functions and work procedure of the Preparation Committee and Executive Committee shall be determined by the Preparation Committee Chairman.

Clause 10

This Decree shall come into force on the date it is decreed, with the proviso that if it should be found to contain any mistakes or anomalies, it shall be revised.

Decreed in Jakarta  
on .....  
Minister of State for Research  
and Technology

2.4.1 Minister's authorization of the above Decree is expected any time now. On being set up, the following schedule of actions with reference to the Guidelines (para 2.2.3) will be placed before the PPSSN :

- i) Early agreement on Steps 1 and 2 for a few sectors, work being continued for other sectors;
- ii) Agreement on Steps 3, 4 and 5;
- iii) Agreement on System Concept (step 6).

2.5 Tripartite Review

2.5.1 A Tripartite Review Meeting on 5 July 1978 provided an occasion to take stock of the developments till then and decide upon the role of further UNDP assistance to advance the Project. The following are the highlights of the Meeting \* :

Standardization System

(i) LIPI pointed out that it is currently agreed that the matters be pursued in terms of a National Network of Standards instead of a National Standards Body and that it was expected that by early 1979 an agreed decision by the concerned departments and organizations in respect of the establishment of a Network (System Profile) will be forthcoming.

(ii) It was mentioned that there are some experts available in Indonesia but that many more will be needed in order to effectively introduce and manage the Standardization Network. Currently LIPI had only seven professional staff,\*\* but in the next five years would need some 50 persons trained adequately in the field.

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\* From Minutes of the Tripartite Review Meeting dated 1 Aug 1978.  
\*\* The present strength has increased to 12.

(iii) The role of UNDP assistance in staff training was emphasized. It was agreed that a Training Adviser should be provided for one year (1979) to organize formal training courses for the new staff that LIPI would recruit in order to extend its staff strength allocated to the standardization project. The training outline already prepared by the Adviser was endorsed (Annexure V).

The main idea would be to have a Training Adviser run at least two training courses, after which the activity will be developed by the LIPI staff itself, supplemented by fellowship training in overseas institutions for suitable candidates.

#### Certification System

(iv) It was suggested that the Certification Expert should come after the Standardization Network was established, i.e. after January 1979, to help the certification programme to be taken in conjunction with the Second Country Programme proposals.

Preparatory assistance for certification in regard to raising of the inspection staff, test facilities, etc, and evaluation thereof for the purpose of ascertaining the full scale assistance that might be needed would be worthwhile in the first instance. LIPI agreed to transmit its decision on the postponement of the certification activity. This has since been done. The post of Certification Expert is provided from July 1979 in Budget Revision G.

(There is little certification activity in Indonesia at present. LIPI has still to make a beginning. The Ministry of Industry is currently evaluating the possibility of certifying cement under the authority of the Ministerial Degree (Annexure I).

Some cable manufacturers use the "PLN" mark to indicate conformity with the specifications issued by the State Electricity Undertaking (PLN). Export certification (see Annexure VI) by the Ministry of Trade does not strictly fall in the category of certification systems based on a mark of conformity with standards, though the object is to control quality for export purposes.)

#### 2.6 Overall Assessment of the Project

2.6.1 The Project Document outlines a Work Plan. The extent of its implementation is best assessment of the overall progress of the Project. The following table indicates the present position :

Work Plan from Project Document	Present Stage of Completion
i) Elaboration of methodology, procedure and directives	Organizational outlines, methodology and procedure have been prepared (see note below).
ii) Establishment of Councils and Committees	As far as LIPI is concerned, 3 Div. Councils are working, one more to be formed.
iii) Establishment of a standardization programme	Sectoral five-year programmes of interest to LIPI already prepared (see note below).
iv) Recognition of competent institutes for delegation of work	Proposed System recognizes organizations presently engaged in such activities.
v) Coordination and control of development of standards	Work in LIPI is continuing. That for national system can begin only after the system is adopted.
vi) Implementation of standards	This activity is presently continuing separately in different ministries.
vii) Establishing relations with other national bodies	Already being done.
viii) Participation in international standardization activities	Already being done.
ix) Training of national staff : a) Field training b) Fellowships	Outside Adviser's terms of reference. Action for 1978 has been taken.
x) Procurement of equipment	Equipment ordered in 1977/1978 are all expected within the year - except one item.
xi) Promoting company standardization	Not yet due.

Note : Documents prepared for items (i) and (iii) are subject to adoption by PFSSN (Committee for Development of a National Standardization System).

2.6.2 When the present phase of the Project began (November 1977), the prospect was hardly encouraging. LIPI's Memorandum for the Establishment of a system, had made little headway. A new approach and plan of action were needed to make a fresh beginning. There were issues raised on the very objective of the project. All this has been successfully tackled. Appropriate initiatives have been restored, with accepted guidelines for collaborative

action setting out a timely plan. Necessary documents have been prepared for the purpose and a national forum is in the offing which will be able to provide definitive and purposeful leadership to take the matter to the government for a final decision.

2.6.3 If the tasks of the Adviser were to help in sorting out ideas, in charting new approaches, in preparing necessary documents and in bringing the project to a stage enabling the counterpart organization to proceed on its own, the Adviser considers that he has completed his tasks.

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### 3. RECOMMENDATIONS

#### 3.1 Relating to Standardization System

3.1.1 The guiding principles underlying the proposed national standardization system, first enunciated in the Memorandum (para 1.2.7) and later incorporated in the Guidelines (para 2.2.3), have a wide base of understanding among standardizing organizations and should be placed for endorsement by the Panitia Persiapan Sistem Standarisasi Nasional (PPSSN) at the earliest opportunity. It would be unproductive to reopen this basic issue for a debate again.

3.1.2 In processing the documents constituting the Proposals for a National Standardization System in Indonesia (para 2.3.1) a flexible approach should be taken to advance those parts on which agreement can be reached quicker, so that progress is not delayed by more complicated issues.

3.1.3 The standards programme for Repelita III should be extended to cover other areas as early as possible and the entire programme should be published for general information.

3.1.4 Sharing of work among the standardizing organizations should be attempted only after the System (that is the National Profile and the Consultation Procedure) has been established by a government decree.

3.1.5 Highest priority should be given to staff training. It would appear that a more intensive language (English) course might be required than what has been proposed in the training schedule (Annexure V). Early arrangement should be made for this part of the training, with re-assessment of the timing of fielding the Training Expert.

3.1.6 Training a Trainer being the only permanent solution of the problem, a suitable official should be earmarked (or immediately recruited) for the purpose and placed with the Training Expert in due course.

3.1.7 The Procedure developed for participation in ISO and IEC (para 2.3.1) would be helpful in streamlining Indonesian representation in these bodies, but administrative delays in meeting membership dues present a barrier that needs to be solved on a long term basis.

3.1.8 Sufficient attention has not yet been paid to organizing regional standardization efforts within the ASEAN group. It is high time to make a beginning in this area (please see para 1.1.1.5 and 1.1.2.2).

3.1.9 It is obvious that LIPI will have to undertake an increasing share of responsibility in the future standardization set up at the national level. Therefore LIPI's own project should be well strengthened in respect of staff strength and budgetary allocation and accorded a permanent status in LIPI's organizational structure.

### 3.2 Relating to Certification System

3.2.1 Assuming that a Certification Expert might be fielded by mid-1979, it is suggested that a Senior Officer should be taken early to be groomed to take charge of the department. It would be useful to send him for a Study Tour (of say 3 months) to countries operating certification systems for an initial understanding of the methods and procedures.

### 4. Acknowledgement

4.1. The Adviser leaves with a pleasant memory of his association with LIPI and wishes to express his sincere thanks to all LIPI officials connected with the Standardization Project, particularly Dr. Muhammadi, Mr. Sumantri, Mrs. Djaprie and Mrs. Nung, to name a few. Mr. Himmlaya S. Rana, Resident Representative, and the Substantive Section in UNIDO Head Quarters have made valuable contributions to the Project. Finally, the Adviser's special thanks are due to Mr. F.M. Iqbal, SIDFA, and Mr. J. De Vries of UNDP, Jakarta, for their help and support which proved a redeeming feature in a trying assignment.

Annexure I

Decree of the Minister of Industry  
No. 172/M/SK/5/1976

Concerning

INDUSTRIAL STANDARDIZATION AND QUALITY CONTROL  
OF INDUSTRIAL GOODS AND PRODUCTS WITHIN THE  
JURISDICTION OF MINISTRY OF INDUSTRY.

MINISTER OF INDUSTRY

Considering : That in order to promote fair competition in the industrial business sector to assure production, rationalization and to protect the consumers' interest, it is deemed necessary to define the implementation of industrial standardization and quality control on industrial goods and products within the jurisdiction of the Ministry of Industry;

With a view to :

1. Law No. 10 year 1961
2. Government Regulation No. 9 Year 1964 concerning Industrial Standards
3. Presidential Decree No. 9 Year 1973;
4. Presidential Decree No. 44 and No. 45 Year 1974;
5. Decree of Minister of Industry No. 249/M/SK/4/1975, dated April 30, 1975;
6. Decree of Minister of Industry No. 589/M/SK/10/1975, dated October 23, 1975.

H A S D E C I D E D :

To Enact : Decree of the Minister of Industry concerning industrial standardization and quality control on industrial goods /products within the jurisdiction of the Ministry of Industry.

ARTICLE 1

In this Decree and its executive regulations :

- (a) Industrial standardization is understood to mean :
- definition, terminology, abbreviation, symbols, classification mark, in the industrial sector;



- system of planning, drawing and executing technical and economic efforts;
  - system of processing materials and ways of presenting the products;
  - kinds, form, size, quality and safeguarding of industrial products and systems of packing;
  - systems of testing, analyzing, inspecting and examining industry products
- (b) Quality control shall include all efforts to improve production apparatus/ factories, so that they are capable of producing products, the quality of which meets the standards which have been promulgated.
- (c) Quality supervision shall cover the conduct of testing and other measures to examine whether or not the produced goods comply with the requirements of the relevant standard.
- (d) Product testing shall be the analysis and inspection of products in the field or in the laboratory to examine conformity <sup>with</sup> standard specifications.

#### ARTICLE 2

- (1) To appoint Centres for Industrial Research and Development within the jurisdiction of the Ministry of Industry to perform the tasks related with all efforts on industrial standardization, including quality control, quality supervision and testing of products, according to the respective sectors in industry.
- (2) In performing the tasks as stated under Article 2 paragraph (1) above, the Centre for Research and Development of Metal and Engineering Industries, shall be the Coordinator of all Research and Development Centres within the jurisdiction of the Ministry of Industry, as stipulated in Decree No. 589/M/SK/X/75, dated October 23, 1975.

#### ARTICLE 3

- (1) In performing the tasks as stated under Article 2 above, each Centre for Research and Development shall be obliged

to do the following activities :

- (a) The preparation of standard glossaries of terms and their definitions;
  - (b) Composing quality standards;
  - (c) Composing the standards for test methods;
  - (d) Composing the standards for sampling methods;
  - (e) Composing marking methods;
  - (f) Testing and quality control;
  - (g) Certification marking;
  - (h) Other efforts in the sector of industrial standardization.
- (2) The implementation of the provision stated under paragraph (1) shall be coordinated by the Centre for Research and Development of Metal and Engineering Industries, taking into consideration the opinion of Industrial Standardization Committee referred to under Article 5 of this Decree;

#### ARTICLE 4

- (1) In performing its tasks each Centre for Research and Development may be assisted by research institutes and/or industrial research centres within the jurisdiction of the Ministry of Industry as well as by other parties concerned.
- (2) For the purpose stated under paragraph (1) of this Article, Industrial Standardization Technical Committees may be set-up, the membership of which covers the above mentioned elements.
- (3) The composition of members and working scheme of Industrial Standardization Technical Committees shall be laid down by the Head of the Centre for Research and Development of Metal and Engineering Industries, upon the proposal of the Head of the Centre for Research and Development concerned.

#### ARTICLE 5

- (1) To assist the Minister of Industry in composing the priority and programme on industrial standardization, Industry Standardization Committee shall be set-up, the members of

which shall consist of government officials and elements representing the producers and consumers.

- (2) The composition of members and working schemes of the Industrial Standardization Committee shall be laid down by the Minister of Industry.

#### ARTICLE 6

- (1) Centres for Research and Development referred to under paragraph (1) Article 4, may perform testing on the product and its quality control upon the request of any party which needs them.
- (2) The results of testing the products (which comply with the standard requirements) can be established as industrial standards and declared obligatory.

#### ARTICLE 7

- (1) The industrial products of which the industrial standards have been declared obligatory <sup>shall</sup> be produced with the quality which comply with the industrial standards concerned and must be given the mark of the industrial standard as stipulated on the basis of this Decree.
- (2) A company may use the mark of the industrial standard as stipulated in this Decree, after having obtained the approval from the Director General concerned.

#### ARTICLE 8

The Minister of Industry shall determine and establish the industrial standards and the obligatory effectiveness of the industrial standards.

#### ARTICLE 9

- (1) The Director General concerned shall give his approval to the industrial enterprises which have fulfilled quality requirements continuously, to use the industrial standard mark and make announcement to the public and revoke it if the quality requirements can no longer be fulfilled.
- (2) The Director General concerned shall inspect industrial products and stipulate policy to promote the industry, so

that it can produce the products which meet the quality requirements.

ARTICLE 10

- (1) The Director General concerned may set-up an Executive Team to assist the Director General in performing his tasks as stated under Article 9 above.
- (2) The composition and working scheme of the Executive Team stated under paragraph (1) of this Article shall be enacted by a Decree of the Director General concerned.

ARTICLE 11

- (1) Expenses for sampling, testing the product and quality control as well as other costs related to the implementation of the provisions stipulated in this Decree shall be imposed on the industrial enterprise or manufacturing factory concerned.
- (2) The amount of the levies, systems of collecting and calculating <sup>shall</sup> be stipulated in the executive regulations laid down by the Director General concerned on behalf of Minister of Industry.

ARTICLE 12

All industrial standards which have been issued and legalized by virtue of a Decree of the Minister of Industry shall remain effective by due compliance of the provisions stipulated in this Decree.

ARTICLE 13

All Team and/or Committees for Industrial Standardization set up and appointed based on or by virtue of a Decree of the Minister of Industry are declared to be dissolved and substituted by Standardization Committee, Technical Teams and Executive Teams set up and appointed on the basis of this Ministerial Decree.

ARTICLE 14

Industrial enterprises which violate the provisions sti-

pulated in this Decree and do not obey the executive regulations based on this Decree, are subject to administrative penalty, including the revocation of their industrial undertaking permit.

ARTICLE 15

This Decree shall come into force on the date of its sanctioning, with the provision that if mistakes are found matters will be altered accordingly.

Sanctioned in Jakarta  
on May 17, 1976  
for MINISTER OF INDUSTRY

Annexure II

Proposals for a National Standardization  
System in Indonesia

Part I. PROFILE OF A NATIONAL SYSTEM FOR CONSENSUS STANDARDS

1. Organization

1.1 Memorandum for the Establishment of a National Standardization System in Indonesia, submitted by LIPI to the Minister of State for Research (in 1976), and the Minister's expressed views on the Memorandum define certain basic premises of the System, namely :

- i) The System must embrace all ministries and institutes presently engaged in standardization activities, as well as the industry, trade, professional bodies and the consumer organization as parties interested in standardization;
- ii) The System by providing an "Umbrella Coverage" over existing activities, should ensure their appropriate co-ordination while permitting them to continue with formulation of standards in a decentralized fashion;
- iii) The purpose of co-ordination is to (a) avoid duplication of efforts, (b) avoid contradiction in standards issued by various organizations, and (c) meeting the total national need in standardization by pooling of resources.

1.2 Thus the System will function as a centralized system for policy and coordination and as a decentralized system for formulation and implementation of standards.

1.3 The policy and co-ordination function must necessarily be assigned to a representative forum. For this purpose it is proposed that the National Standards Council be composed of representatives of various fields.

1.4 Formulation of Standards has an internal and an external aspect.

- i) Internally formulation of standards will be distributed, as stated in 1.1 (ii), among the organizations presently engaged in such work (hereafter called Participating Organizations);
- ii) Externally, Indonesian participation in the International Organization for Standardization (ISO) and the International Electro-technical Commission (IEC) will, for the time being, continue to be organized

through YDNI - LIPI, since the membership in these two international bodies is represented jointly by YDNI and LIPI. When the National Standards Council is established, membership in ISO and IEC will be registered in the name of the Council.

1.5 The foregoing leads logically to organizational arrangements shown diagrammatically in Fig 1A, 1B and 1C.

1.6 Since the National Standards Council will be of a high-level and may meet once or twice in a year, it will need to be assisted by a smaller Committee for continuous guidance of the work. An Executive Committee is therefore proposed (Fig. 1) which may conveniently consist of Heads (that is officials in charge of the standardization work) of the Participating Organizations engaged in the formulation of standards. The Executive Committee shall refer to the Council all policy matters requiring its direction and report to it the progress of the work periodically.

1.7 The Secretariat will be provided by LIPI.

## 2. Procedure

### 2.1 Communication between Participating Organizations

2.1.1 It is of utmost importance to promote communication and consultation between the Participating Organizations themselves and also with other interested parties so that the decentralized formulation of standards is carried out within the framework of national policies and plans approved by the Council.

2.1.2 Particularly a Consultation Procedure shall be established to avoid duplication and contradiction in standards formulated by the various Participating Organizations, which shall be approved by the Council.

(Please see Part II for details of the Consultation Procedure).

### 2.2 Programme

2.2.1 Initially a five-year standards programme will be established by consultation among the Participating Organizations. Thereafter any Participating Organization may propose additional subjects for inclusion in the programme.

2.2.2 The Executive Committee will determine how the work will be shared between the Participating Organizations.

2.2.3 The programme, with the proposed allocation of work, will have to be approved by the Council

2.2.4 Each Participating Organization will prepare a yearly programme and formulate standards on subjects allocated to it (para 2.2.2).

### 2.3 A Single Series of Indonesian National Standards

2.3.1 All standards published under the procedure approved by the Council shall bear two designations, namely the designation of the Participating Organization and another designation to be adopted by the Council signifying that the standards belong to a single series of Indonesian National Standards.

Alternatively, if the Council so decides for the latter purpose, the designation "NI" of YDNI may be used through a special agreement with YDNI.

### 2.4 Authority

2.4.1 The Participating Organizations shall abide by the directives of the Council on all matters relating to the organization of the work

### 3. Implementation

3.1 Implementation of standards will be decentralized among the Participating Organizations in accordance with its share of work.

3.2 For the time being, each Participating Organization will publish and distribute the standards formulated by it, until a common Clearing House is established for publication and distribution.

3.3 The Secretariat will publish a common list of standards - listed in a single series.

3.4 The Council may make suitable recommendations to the Government on the question of voluntary/obligatory use of the standards.

### 4. Financial Arrangement

4.1 Each Participating Organization will receive funds from the government through the normal administrative channel. The Council may make appropriate recommendation to the government on the basis of the yearly programmes.

4.2 Additionally YDNI may receive funds from the industry which shall be disbursed in accordance with its rules of procedure.

### 5. Legal Frame-Work

5.1 A Decree by the appropriate authority will establish the System.



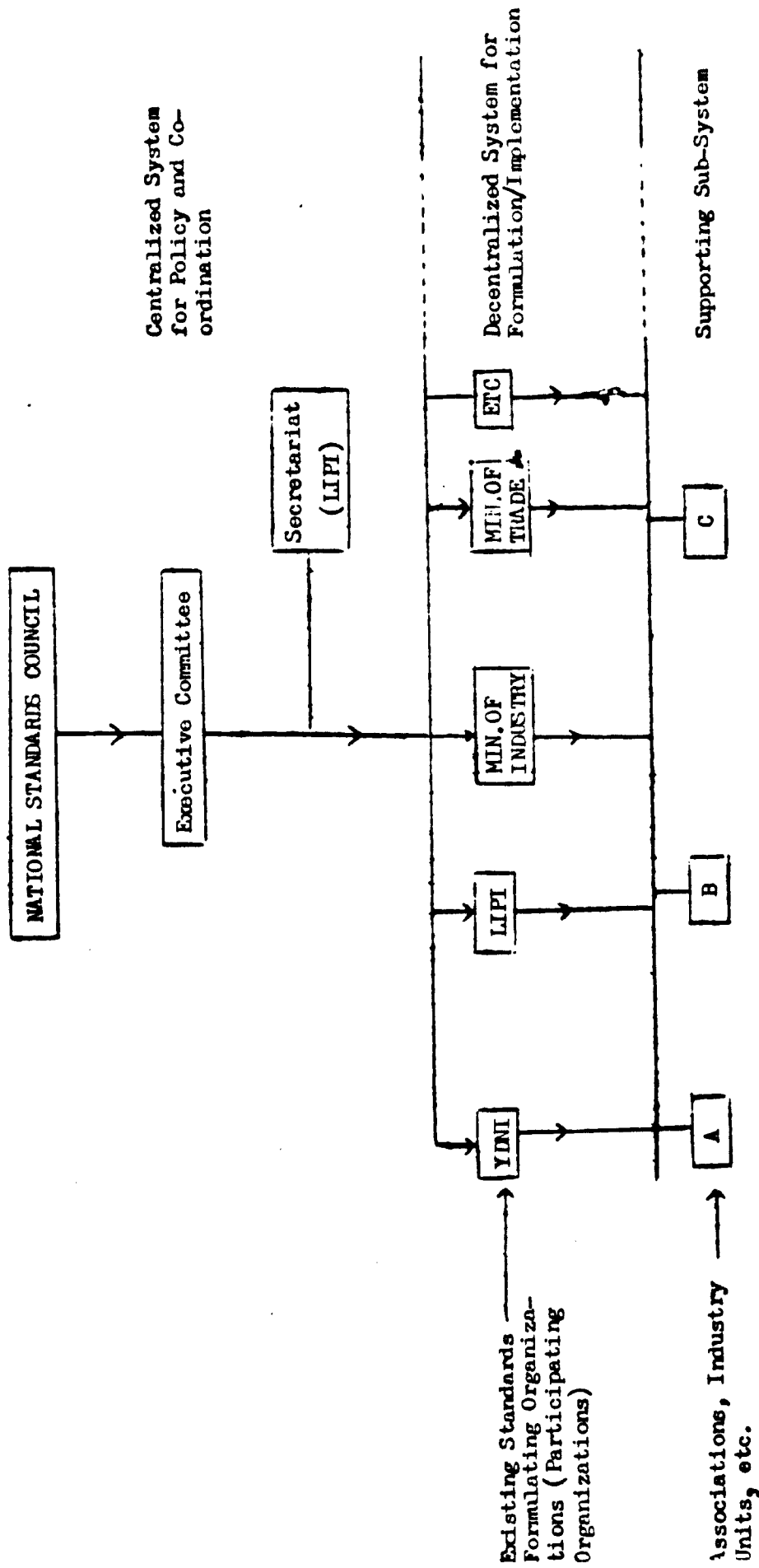


Fig. 1A Proposed Internal Organization for National Standardization System

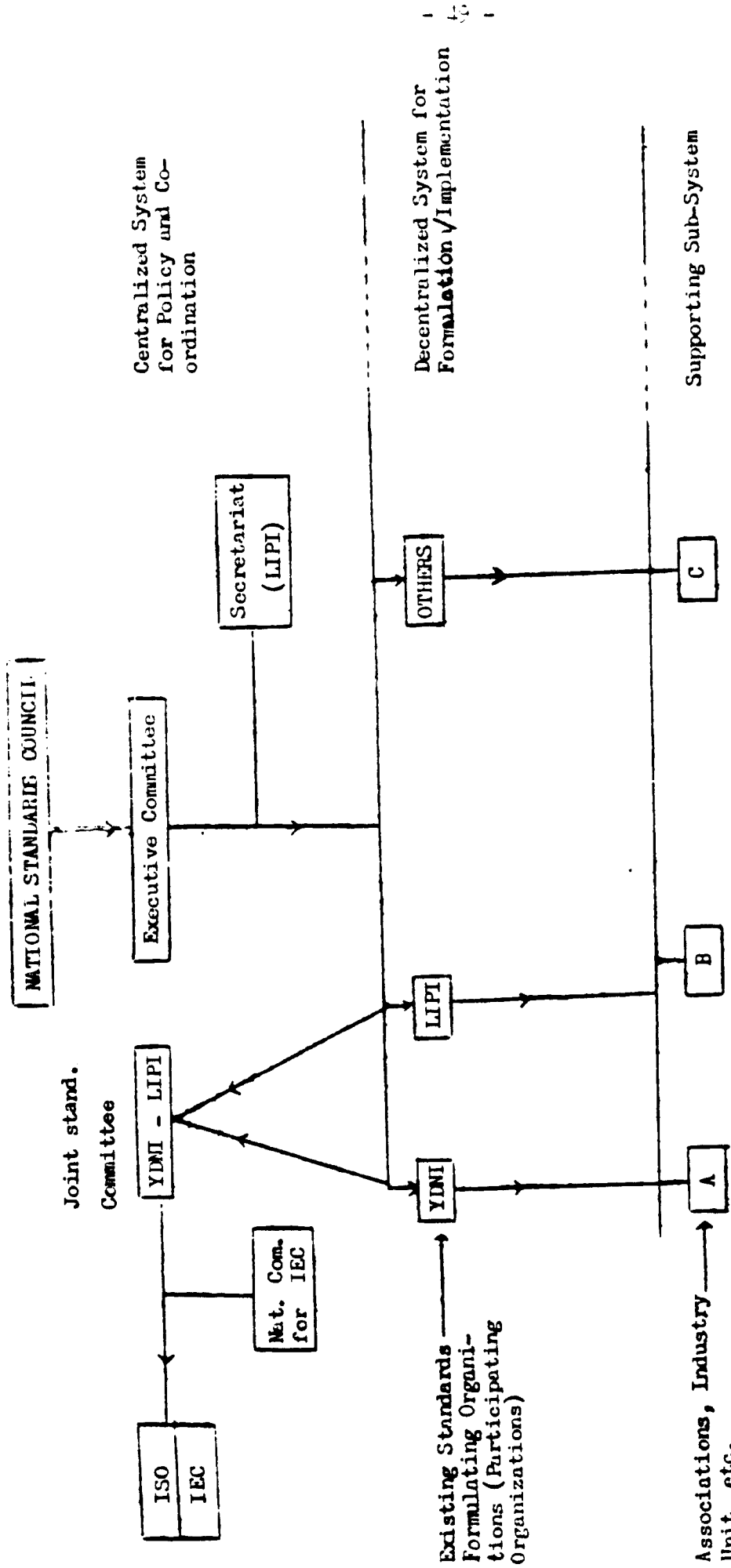


Fig. 1B Present Arrangement for Indonesian Participation in ISO/JEC

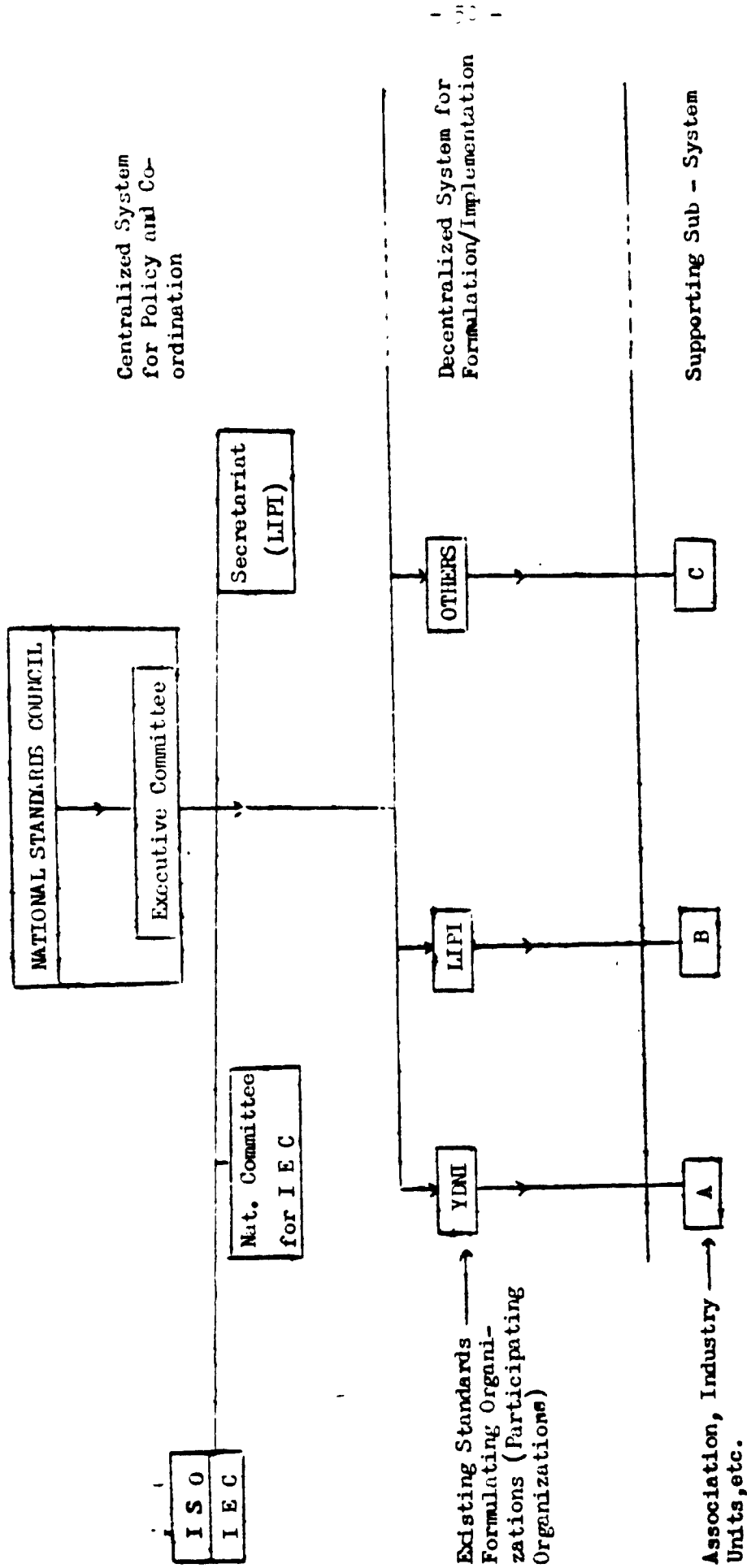


Fig. 1C Final Arrangement for Indonesian Participation in ISO/IEC

Part II. CONSULTATION PROCEDURE

1. Initiating a Five Year Standards Programme

1.1 A draft five year standards programme for Repelita III for each sector of industry will be initially prepared by a Working Group.

1.2 Drafts thus prepared will be forwarded to Participating Organizations engaged in formulating standards in the sectors covered by the drafts.

1.3 The Participating Organizations, on the receipt of the drafts, will examine the proposed programme in accordance with its own procedure and communicate its approval/ comments.

1.4 The Working Group will take all comments into consideration and propose suitable solutions for re-negotiation.

This process will continue until agreement is reached among the Participating Organizations on the five year programme, sector by sector.

1.5 The Five Year Standards Programme for Repelita III as resolved will be published by the Secretariat as a Provisional Programme (to be approved by the Council when established).

2. Up-dating the Five Year Standards Programme

2.1 Any Participating Organization may propose additional subjects to be included in the five-year programme, such proposals shall be circulated in writing to the other Participating Organizations for information.

(2.1(a) It is open to any organization or individual interested in formulation/ implementation of standards to submit a proposal to any Participating Organization for the purpose of 2.1).

2.2 The Secretariat will revise the list of subjects in the programme from time to time, taking into account the work done by the Participating Organizations and the inclusion of additional subjects. Up-dated programmes shall be published every year.

3. Formulation of Standards.

3.1 The Executive Committee shall decide how the programme of work will be shared between the Participating Organizations.

Each Participating Organization will determine priority among the subjects constituting its share of work and prepare a yearly programme, which shall be circulated to other Participating Organizations for information.

3.2 Standards shall be formulated following the yearly programme and adopted by the respective Participating Organization in accordance with its own procedure. The procedure shall be published for general information and shall incorporate the following principles —

- a) that the Committees formulating the standards shall be representative of the 'producer', 'consumer', 'technical' and 'official' (government) interests;
- b) that all interested parties shall have a fair opportunity of commenting on the standards in the drafting stage either through an open seminar called for the purpose or through wide circulation of the drafts for general comments;
- c) that all comments received on the draft standards shall be fully taken into account by the concerned Committees;
- d) that all published standards shall be revised from time to time as the experience gathered during their implementation justifies.

3.3 Each Participating Organization shall circulate the draft standards prepared by its Committees to other Participating Organizations and to the Secretariat for checking that no contradiction appears vis-a-vis other drafts/published standards.

3.4 The Secretariat shall maintain for the above purpose a Card Index of all drafts/ standards originating from the Participating Organizations, suitably designed with cross references, and inform all Participating Organizations in case any contradiction is noticed.

3.5 It shall be the responsibility of the concerned Participating Organization to reconcile contradictions (notified to it) through inter-party negotiations, failing which the issue shall be referred to the Executive Committee.

4. A Single Series of Indonesian Standards

4.1 Each standard, in addition to the designation of the Participating Organization which formulated it, shall also bear a uniform national designation to be adopted by the Council, or the designation "NI", followed by a serial number to be allocated by the Secretariat.

4.2 The use of the designation "NI" shall be the subject of an agreement between the Council and YDNI, should the Council agree on the use of "NI" designation.

Note : It is proposed that following the acceptance of this Procedure, standards so far published by the Participating Organizations should all be registered as national standards and an initial list constituting a single series of Indonesian National Standards published by the Secretariat.

4.3 For allocation of the serial number, the Secretariat shall maintain a register and the following procedure shall be followed :

- a) the Participating Organization shall forward a copy of the finalized draft to the Secretariat;
- b) The Secretariat will check that no contradiction arises between it and other standards previously registered by it;
- c) Thereafter the Secretariat will register it and intimate the serial number to the Participating Organization.

4.4 The Executive Committee shall prescribe a format for the title and preliminary pages which shall be followed by the Participating Organizations for uniformity of editorial presentation.

4.5 Each Participating Organization shall publish the standards formulated by it and arrange for their distribution/sale, until a common Clearing House is established for the latter purpose.

5. Executive Committee

5.1 The Executive Committee shall meet once in three months for the purpose of 3.1, 3.5 and 4.4 and any other matter requiring its attention.

5.2 The Chairman of the Executive Committee will be nominated by the Council. Secretariat will be provided by LIPI.

6. The attached Charts illustrate the procedure.

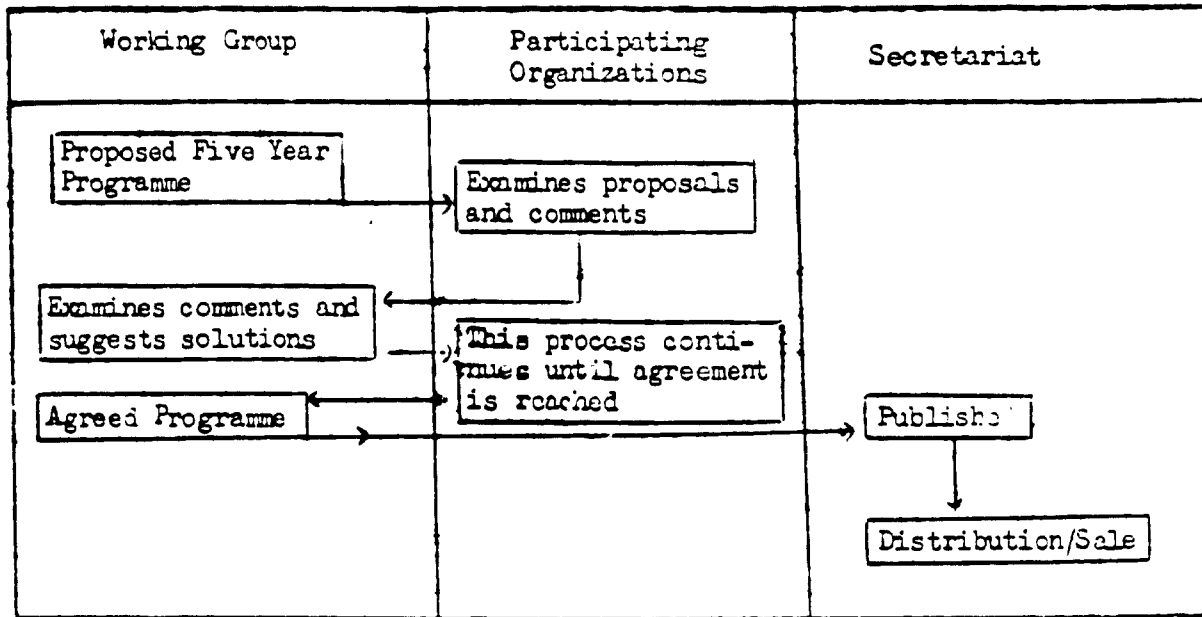


Chart 1 Initiating Five Year Standards Programme

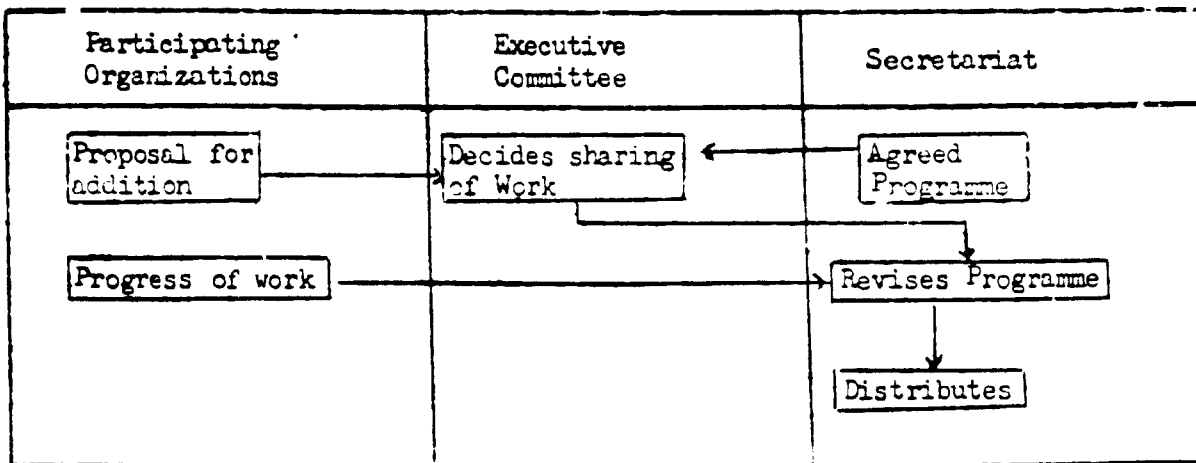


Chart 2 Updating and sharing of Work Programmes

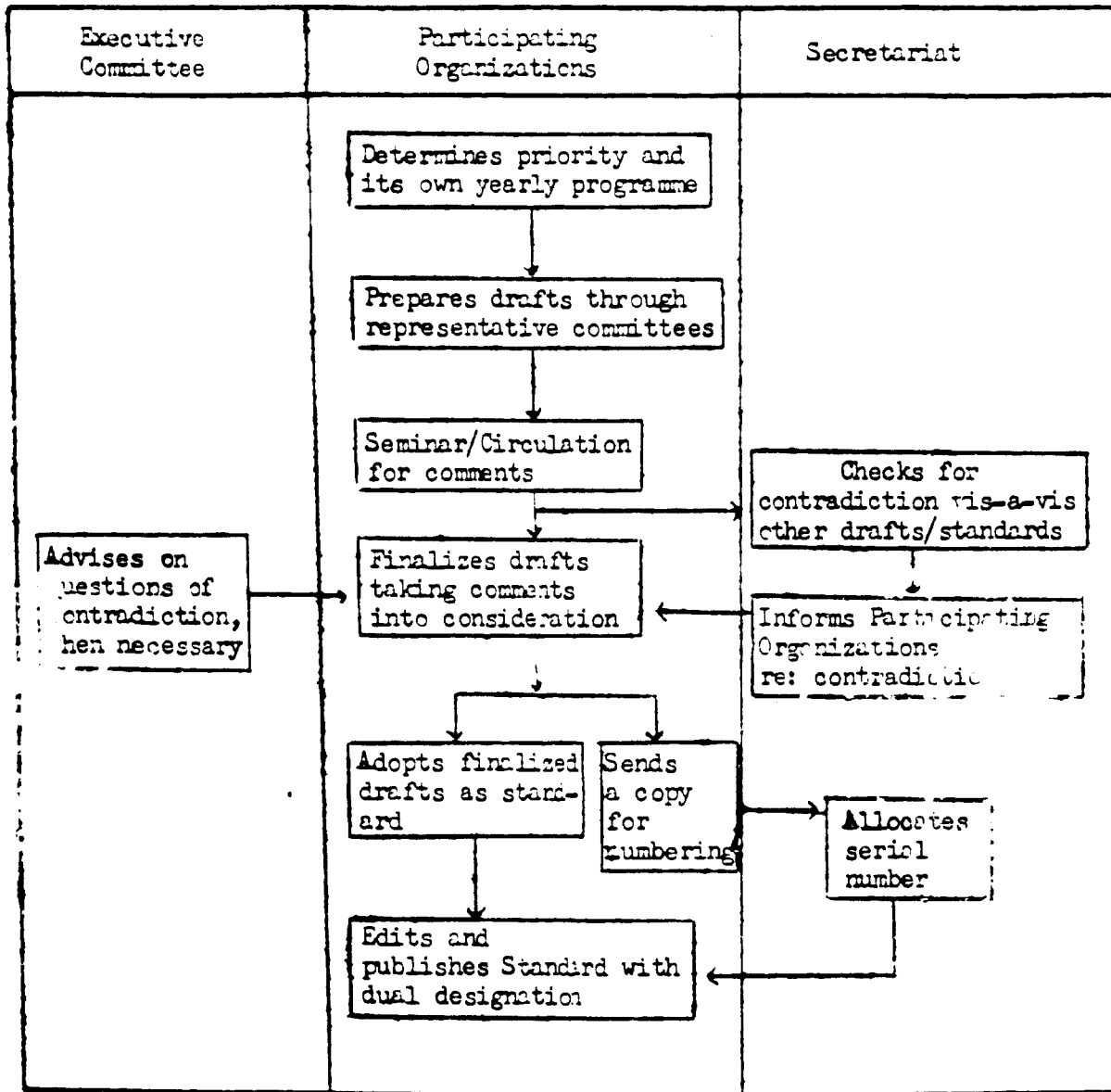


Chart 3 Formulation of Standards



Part III. PROCEDURE FOR INDONESIAN PARTICIPATION IN INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

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Indonesia is presently represented in the International Organization for Standardization (ISO) by LIPI - YDNI Joint Standardization Committee. After the establishment of the National Standards Council, it is proposed that the membership will be registered in the name of the Council. This document has the dual purpose of presenting how the ISO work is organized and the procedure for Indonesia's participation in it.

A. ORGANIZATION AND WORKING OF ISO

A.1 What is ISO

A.1.1 ISO is a non-governmental, specialized agency for standardization at the international level. Presently it comprises of the national standards institutes of 34 countries.

A.1.2 ISO has been accorded Consultative Status (Category 1) by the United Nations Economic and Social Council.

A.1.3 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 develop mutual co-operation in the sphere of intellectual, scientific technological and economic activity. The results of ISO technical work are published as International Standards.

A.1.4 ISO work is carried out through some 1900 Technical Committees, Sub-Committees and Working Groups. More than 100000 experts from all parts of the world are engaged in this work which, to date, has resulted in the publication of more than 3450 ISO standards.

A.2 How ISO Standards are Developed

A.2.1 Each ISO Standard is the result of agreement between member bodies of ISO. It may be adopted by the member bodies as such or may be incorporated in the national standards.

A.2.2 The first step towards ISO standards is a Draft Proposal, a document circulated for study within the Technical Committee. This document must pass through a number of stages to ensure that the final result is acceptable to as many member bodies as possible.

A.2.3 When agreement is reached within the Technical Committee, the document is registered as a Draft International Standard/DIS. DIS is then circulated to all member bodies for voting. If 75 percent of the votes cast are in favour

of the DLS, it is sent to ISO Council for acceptance as ISO standard.

### 3 ISO Technical Work

- A.3.1 The technical work of ISO is carried out by Technical Committees (TC), set up by the ISO Council which also determines their scopes. The TC's may in turn create Sub-Committees (SC) and Working Groups (WG) to cover different aspects of the work.
- A.3.2 Each Member Body interested in a TC, SC or WG has a right to be represented in it.
- A.3.3 Member Bodies which decide to take active part in the work are designated as "P"-members (P for Participating). They have the right to attend meetings and to vote. One of the "P" members is designated to act as the Secretariat.
- A.3.4 Member bodies which wish only to be kept informed of the work are designated as O-members (O for Observer) of the TC or SC.

### B.1.1.1.1 INDONESIAN PARTICIPATION

#### B.1.1.1.1.1 LIPI-YDNI Joint Standardization Committee

B.1.1.1.1.1 LIPI - YDNI Joint Standardization Committee presently represents the Indonesian membership in ISO.

A collaboration agreement guides all joint activities of the two organizations.

B.1.2 In dealing with ISO activities, LIPI - YDNI Joint Standardization Committee shall act as the focal point of the Indonesian National Standardization System, fully utilizing the combined resources of the Participating Organizations of the System (see Fig. 1B) and keeping them informed of the development of ISO work.

B.1.3 For dissemination of information, the Secretariat shall publish a quarterly journal (Warta Standardisasi).

B.1.4 The Secretariat shall receive and deal with ISO correspondence/documents as laid down in B.2 and B.3.

## B.2 Administrative Matters

- B.2.1 All general issues relating to ISO membership shall be referred to the LIPI - YDNI Joint Standardization Committee and replied according to its direction.
- B.2.2 The LIPI - YDNI Joint Standardization Committee shall specifically take decisions on the following questions :
- a) Nomination and Voting for ISO Presidentship;
  - b) Nomination and Voting for ISO Council election;
  - c) Voting on documents before the ISO Council;
  - d) Attending ISO General Assembly and Council meetings (as relevant).
- B.2.3 Whenever a Delegation is sent abroad, the Secretariat shall obtain necessary approval from the government authorities, but employer's consent, passport, visas, etc shall be the responsibility of the Participating Organization or the Delegates.
- B.2.4 All expenses in connection with delegation to attend ISO meetings shall be borne by the organizations to which the delegates belong or by the delegates themselves.
- B.2.5 The Secretariat shall be responsible to ensure that ISO membership obligations, particularly payment of dues, are discharged in due time.

## B.3 Technical Matters

- B.3.1 Participation status ("P" or "O" membership) in ISO TC's/SC's shall be reviewed by the LIPI-YDNI Joint Standardization Committee from time to time.
- B.3.2 If active participation ("P" membership) is considered desirable, the opinion of a relevant D.C./T.C. <sup>shall be sought which</sup> may belong to any Participating Organization of the National System. In the absence of a relevant D.C./T.C., a Specialized Institute may be consulted.
- B.3.3 On the basis of the opinion received under B. 3.2, the Secretariat shall inform ISO, after approval of LIPI - YDNI Joint Standardization Committee.
- B.3.4 There after all technical documents received by the Secretariat shall be circulated to the relevant D.C./T.C. through the concerned Participating Organization of the National System (or to the Specialized Institute in the absence of a D.C./T.C.).

- B.3.5 The relevant D.C./T.C. (or the Specialized Institute) shall formulate Indonesian comments on the technical documents and send them to the Secretariat to be communicated to the ISO/TC or SC.
- B.3.6 When a meeting of any ISO/T.C. or S.C. takes place, in which Indonesia is a "P" member, the notice of the meeting shall be circulated as in B.3.4. If the D.C./T.C. (or the Specialized Institute) agrees that an Indonesian Delegation should be sent, the following procedure shall be followed :
- a) The D.C./T.C. Chairman shall immediately intimate the names of the Delegates to the Secretariat and to the Participating Organization to which the D.C./T.C. belongs;
  - b) The Secretariat shall contact government authorities for necessary permission and keep LIPI-YDNI Joint Standardization Committee informed;
  - c) The Participating Organization shall obtain the concurrence of the employers of the proposed Delegates;
  - d) Clause B.2.3 and clause B.2.4 shall apply for such technical delegations;
  - e) The D.C./T.C. shall prepare a written statement of the Indonesian views on the agenda items of the meeting and brief the Delegates,
  - f) The Secretariat shall inform the ISO/T.C. or S.C. of the proposed Indonesian Delegation and shall give to each Delegate a Letter of Authorization to attend the meeting;
  - g) The Delegates shall be obliged to submit a report of the meeting to the Secretariat on return, which the Secretariat shall forward to the concerned Participating Organization and concerned government authorities and the D.C.
- B.3.7 All correspondence with ISO/TC's or S.C.'s shall be signed on behalf of LIPI - YDNI Joint Standardization Committee by an authorized person.
- B. 4 The attached charts represent the work-flow as described above.
- B. 5 Upon the establishment of the National Standards Council the membership in ISO will be registered in the name of the Council and this document amended accordingly.

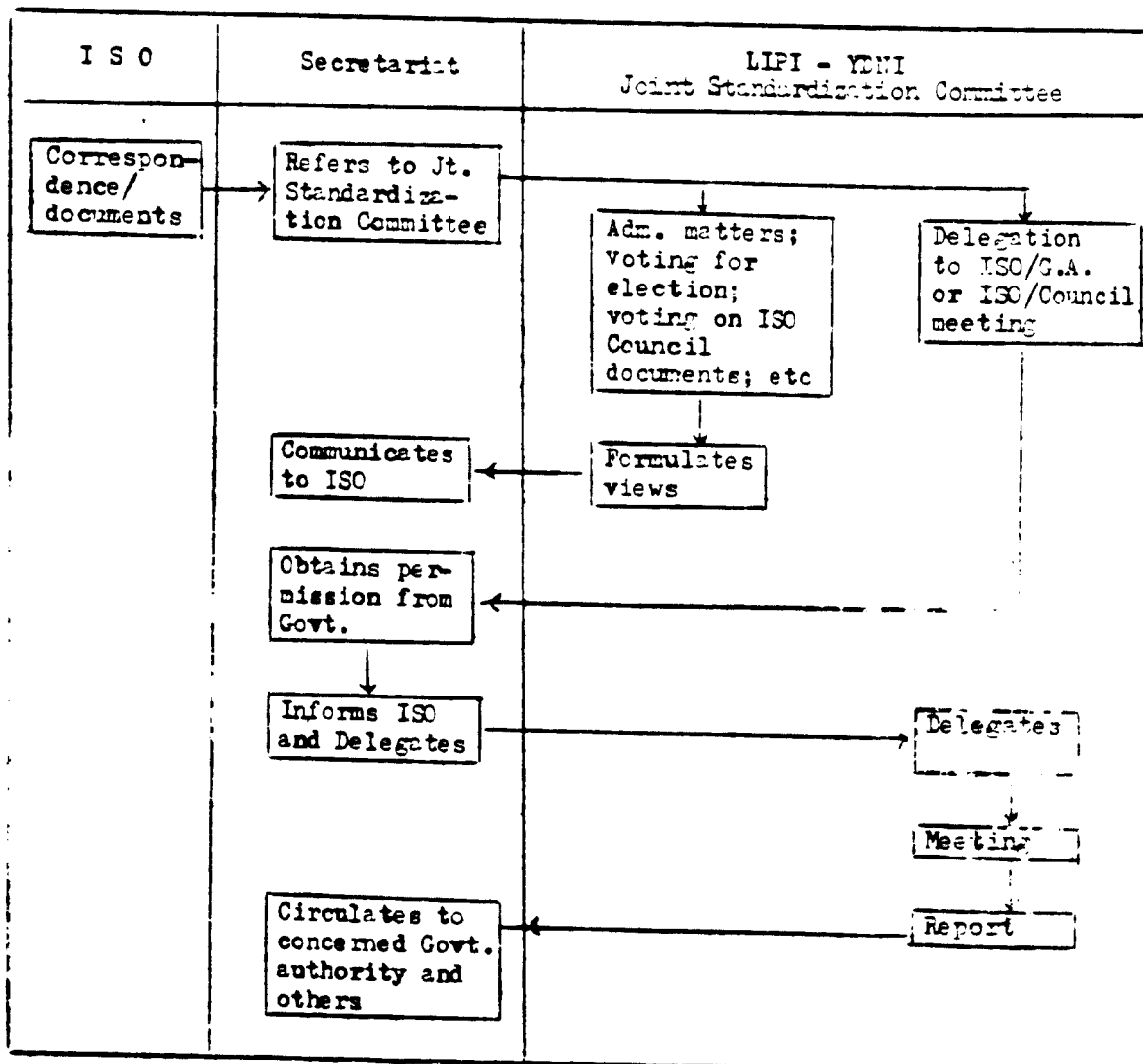


Chart 4 Work Flow for Administrative Matters

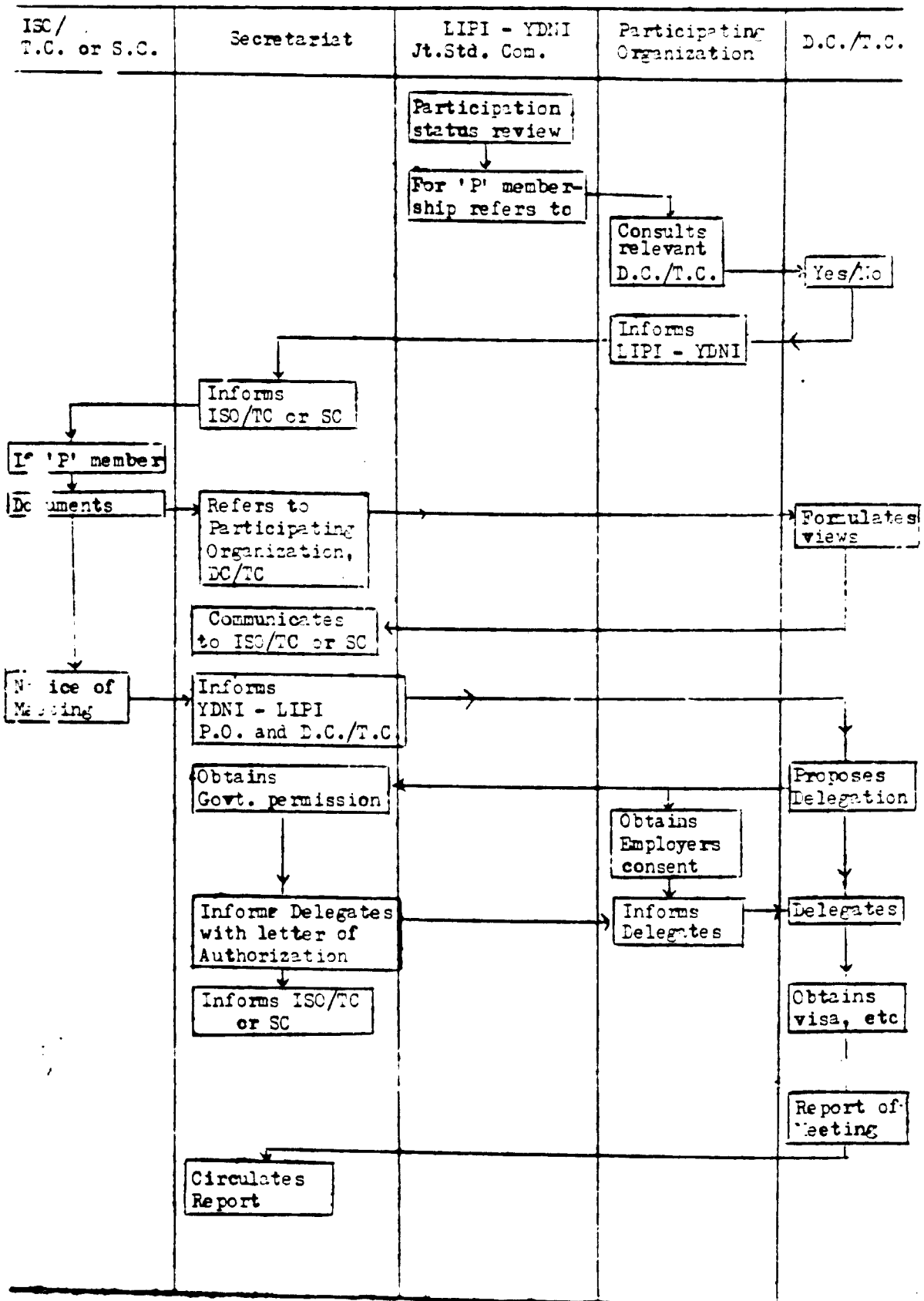


Chart 5 Work Flow for Technical Matters

Part IV. PROCEDURE FOR INDONESIAN PARTICIPATION IN  
INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)

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A. ORGANIZATION AND WORKING OF IEC

A.1 What is IEC

A.1.1 IEC is a non-governmental, specialized agency for standardization at the international level, which along with ISO form a system of international standardization as a whole. By agreement between ISO and IEC, questions related to electrical and electronic engineering fields are reserved to IEC.

Other subject areas are the responsibility of ISO.

A.1.2 IEC was formed as the result of an International Electrical Congress held at St. Louis (USA) in September 1904. Its first president was Lord Kelvin. It is presently comprised of the National Committees of 41 countries.

A.1.3 The object of IEC is to co-ordinate and unify national electrotechnical standards. Its work embraces five main categories :

- i) Common means of expression (units, symbols, vocabulary, etc) ;
- ii) Standard methods of test for assessing performance
- iii) Agreement on levels of quality;
- iv) Agreement on features affecting mechanical/electrical interchangeability;
- v) Safety of human life.

A.1.4 IEC work is carried through some 76 Technical Committees. The results of IEC work are published as IEC Publications which are normally used as Recommendations for the work on national standards.

A.2 How IEC Recommendations are Developed

A.2.1 Each IEC Recommendation is the result of agreement between the National Committees of IEC. It may be adopted by the National Committee as such or may be incorporated in the national standards in so far as the national conditions permit.

A.2.2 The first step towards an IEC Recommendation is a Draft Proposal, a document circulated for study within the Technical Committee. This document must pass through a number of stages to ensure that the final result is acceptable to as many National Committees as possible.

A.2.3 When agreement has been reached within the Technical Committee, the document is circulated to all National Committees for approval within a period of 6 months (Six Months' Rule). If necessary, amendments to the texts submitted under the Six Months' Rule are circulated for approval under a Two Months' Procedure. The proposal is adopted unless one-fifth or more the National Committees have cast a negative vote.

### A.3 IEC Technical Work

A.3.1 The technical work is carried out by Technical Committees (TC), set up by the Committee of Action which also determines their scopes. The TC's may in turn create Sub-Committees (SC) and Working Groups (WG) to cover different aspects of the work.

A.3.2 Each National Committee interested in a TC, SC or WG has a right to be represented in it.

## B. INDONESIAN PARTICIPATION

### B.1 YDNI - LIPI

B.1.1 LIPI - YDNI Joint Standardization Committee presently represents the Indonesian membership in IEC.

A collaboration arrangement reproduced in Annexure III guides all joint activities of the two organization.

B.1.2 In dealing with IEC activities, LIPI-YDNI Joint Standardization Committee shall act as the focal point of the Indonesian National Standardization System, fully utilizing the combined resources of the Participating Organizations of the System (see Fig. 1B) and keeping them informed of the development of IEC work

B.1.3 For dissemination of information, the Secretariat shall publish a quarterly journal (Warta Standarisasi ).

B.1.4 The Secretariat shall receive and deal with IEC correspondence / documents as laid down in B.2 and B.3

### B.2 Administrative Matters

B.2.1 All general issues relating to IEC membership shall be referred to the LIPI - YDNI National Committee for IEC and replied according to its direction.



B.2.2 The LIPI - YDNI National Committee for IEC shall specifically take decisions on the following questions :

- a) Nomination and Voting for IEC Presidentship;
- b) Nomination and Voting for election to the Committee of Action;
- c) Voting on documents under Six Months Rule and Two Months' Procedure;
- d) Attending IEC Council and Committee of Action meetings (as relevant).

B.2.3 Whenever a Delegation is sent abroad, the Secretariat shall obtain necessary approval from the government authorities, but employer's consent, passport, visa, etc shall be the responsibility of the Participating Organization or the Delegates.

B.2.4 All expenses in connection with delegation to attend IEC meetings shall be borne by the organizations to which the delegates belong or by the delegates themselves.

The Secretariat shall be responsible to ensure that IEC delegates' expenses, particularly payment of dues, are discharged in due time.

#### B.3. Technical Matters

B.3.1 Participation interest in IEC TC's / SC's shall be reviewed by the LIPI - YDNI National Committee from time to time.

B.3.2 If active participation is considered desirable, the opinion of a relevant Division Council (D.C.)/Technical Committee (.T.C.) shall be sought. The D.C./T.C. may belong to any Participating Organization of the National System. In the absence of a relevant D.C./T.C., a Specialized Institute may be consulted.

B.3.3 Thereafter all technical documents received by the Secretariat shall be circulated to the relevant D.C./T.C. through the concerned Participating Organization of the National System (or to the Specialized Institute in the absence of a D.C./T.C.).

B.3.4 The relevant D.C./T.C. (or the Specialized Institute) shall formulate Indonesian comments on the technical documents and send them to the Secretariat to be communicated to the IEC/TC or SC.

B.3.5 When a meeting of any IEC/T.C or S.C. takes place, in which Indonesia may be interested, the notice of the meeting shall be circulated as in B.1.3

If the D.C. T.C. for the Specialized Institute agrees that an Indonesian Delegation should be sent, the following procedure shall be followed:

- a) The D.C. T.C. Chairman shall immediately intimate the names of the Delegates to the Secretariat and to the Participating Organization to which the D.C. T.C. belongs;
- b) The Secretariat shall contact government authorities for necessary permission and keep LIPI - YDNI National Committee informed;
- c) The Participating Organization shall obtain the concurrence of the employers of the proposed Delegates;
- d) Clause B.2.3 and Clause B.2.4 shall apply for such technical delegations;
- e) The D.C./T.C. shall prepare a written statement of the Indonesian views in the agenda items of the meeting and brief the Delegation;
- f) The Secretariat shall inform the IEC/T.C. or S.C. of the proposed Indonesian Delegation and shall give to each Delegate a Letter of Authorization to attend the meeting;
- g) The Delegates shall be obligated to submit a report of the meeting to the Secretariat on return, which the Secretariat shall forward to the concerned Participating Organization, concerned government authorities and the D.C.

B.3.6 All correspondence with IEC/TC's or S.C.'s shall be signed on behalf of LIPI - YDNI National Committee by an authorized person.

B.4 The attached charts represent the work-flow as described above.

B.5 Upon the establishment of the National Standards Council, the membership in IEC will be registered in the name of the Council and this document amended accordingly.

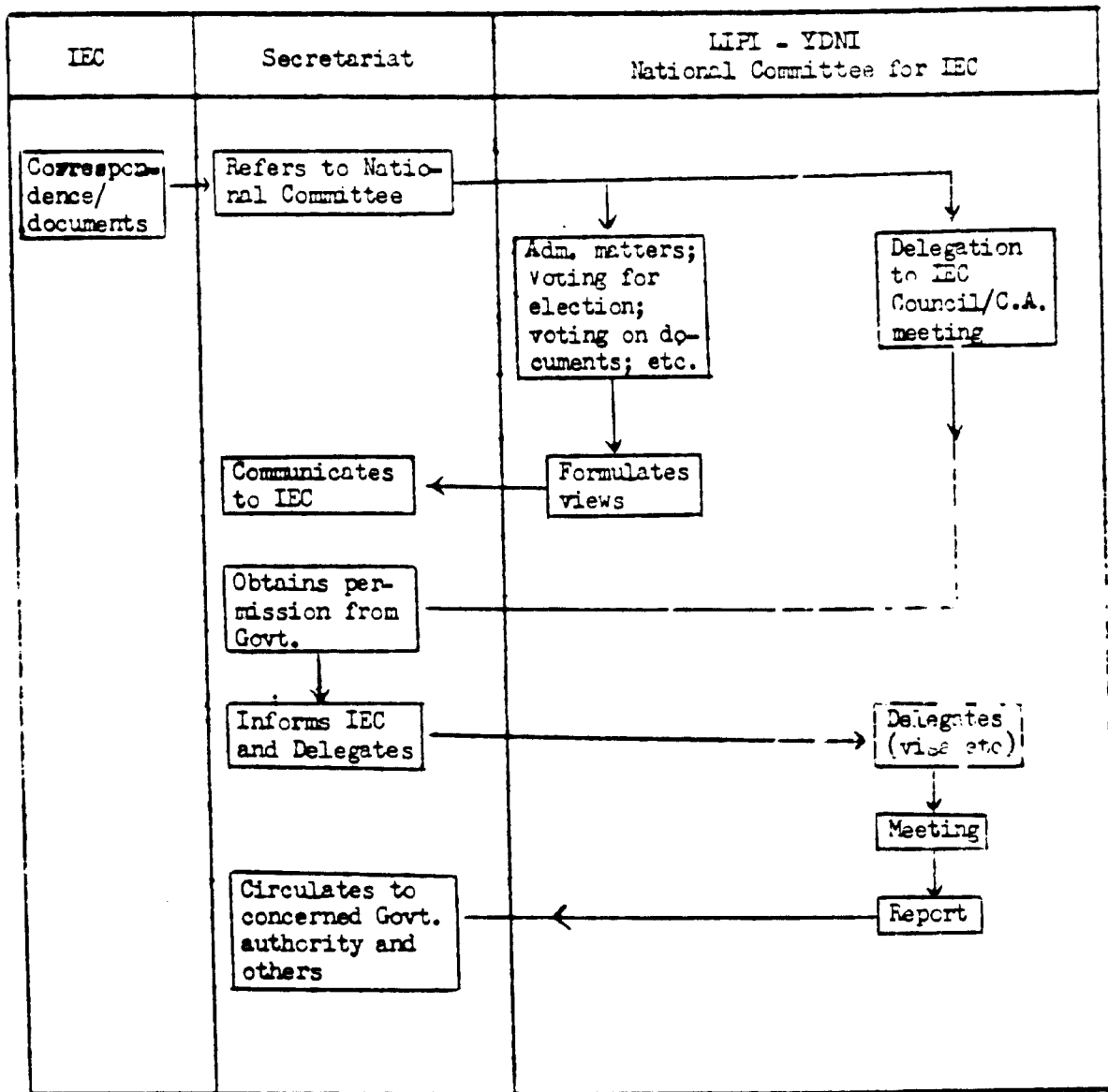
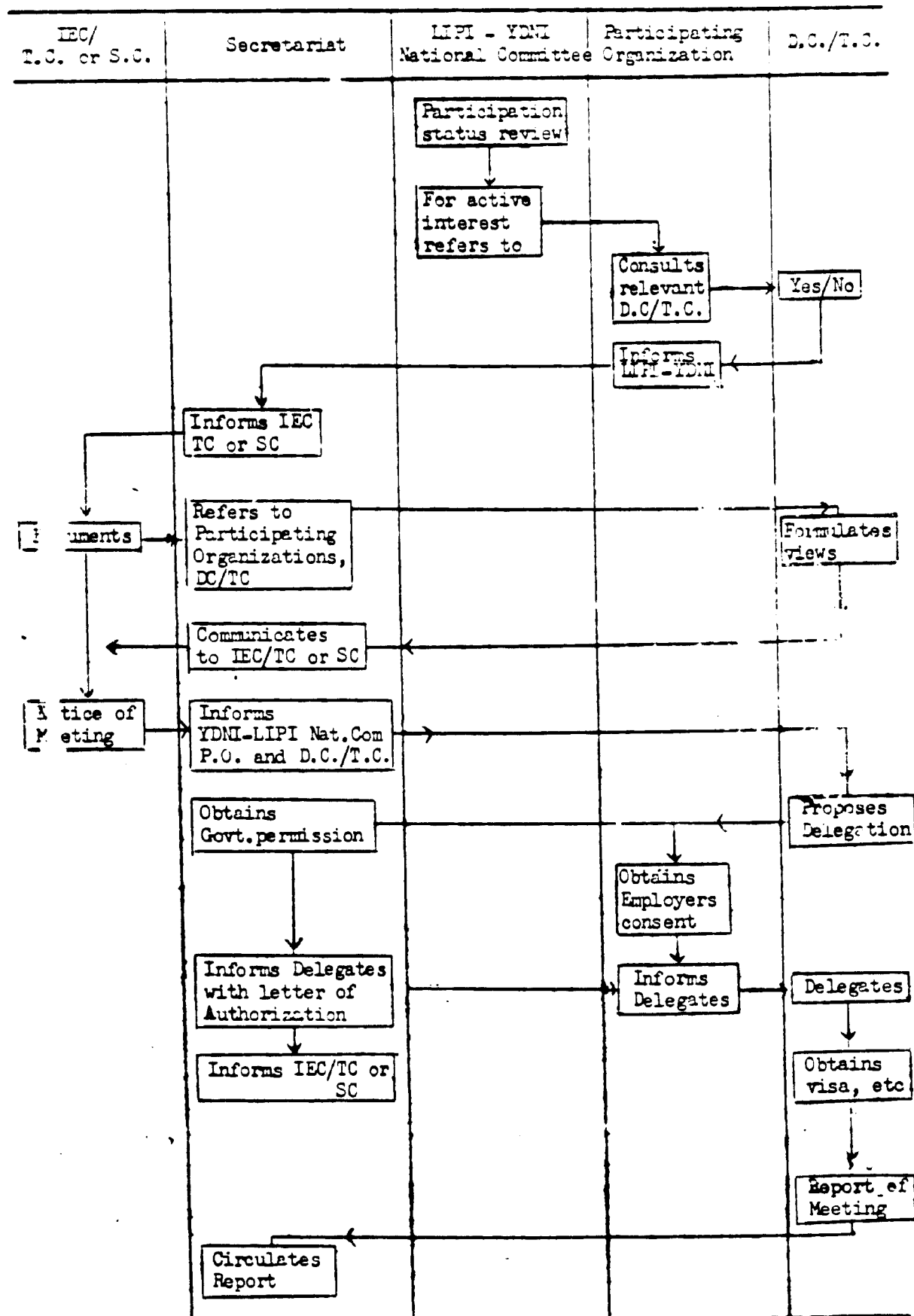


Chart 6 Work Flow for Administrative Matters



Annexure III

Five - Year Standards Programme  
For Repelita III

AUTOMOBILE ENGINEERING

STANDARDS REQUIRED

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Title of Standard	Allocated Agency
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ENGINE TESTS

Code of type testing of constant speed internal combustion engines for general purposes  
Performance of constant speed internal combustion engines for automotive purposes  
Code of type testing of variable speed internal combustion engines for automotive purposes  
Performance of variable speed internal combustion engines for automotive purposes  
Vehicle performance code  
Method of analysis of exhaust of internal combustion engines

FASTENERS

Fasteners  
Keys and keyways for internal combustion engines  
King pins and ball studs

TOOLS

Screw drivers  
Combination side cutting pliers  
Engineers files  
Widths across flats for spanners  
Open jaw spanners  
Ring spanners  
Box spanners  
Battery terminal pliers  
Type levers  
Foot type inflators  
Jacks

Title of Standard	Allocated Agency
<u>CYLINDER BLOCK</u>	
Cylinder liner	
Cylinder head gasket	
Water inlet connection - dimensions	
Water outlet connection - dimensions	
Inlet valve	
Exhaust valve	
Valve spring, outer/inner	
Valve collets	
Valve guide	
Valve seat insert	
Direction of rotation and identification numbers for cylinders	
Flange mountings for internal combustion engines	
Treads for inlet and outlet openings	
Cylinder bore diameters for internal combustion engines	
<u>CRANKCASE</u>	
Breather	
Breather pipe	
Breather cap	
Oil filler neck	
Oil dip stick	
Oil level indicator	
Oil drain cock	
Oil drain plug	
Oil seal	
Oil filter	
Engine mounting - performance	
Piston	
Piston ring	
Compression ring	
Oil control ring	
Gudgeon pin (piston pin)	
Gudgeon pin retainer	

Title of Standard	Allocated Agency
Connecting rod bearing	
Shell	
Connecting rod belt	
V-belt pulley	
Starter pinion	
Flywheel ring gear	
Cam shaft bearing	
<u>CLUTCH</u>	
Fluid coupling	
Clutch lining	
Clutch thrust spring	
Clutch cable	
Clutch disc	
<u>ENGINE TIMING</u>	
Timing chain	
Roller chain (single, double, triple)	
Oil pressure switch	
<u>COOLING</u>	
Radiator (Tubular, Cellular, Block)	
Drain cock	
Drain valve	
Drain plug	
Radiator mounting	
Filler cap - dimensions	
Screw cap	
Bayonet cap - performance	
Throttle cable	
Choke cable	
<u>WATERPUMP</u>	
Inlet connection	
Outlet connection	
Water pump gland	
Water pump packing	
Drain cock	
Drain valve	
V-belt	

Title of Standard

Allocated Agency

FUEL INJECTION

Injection pump

Banjo connections for fuel injection equipment for diesel engines

High pressure connections for fuel injection equipment for diesel engines

Banjo bolts for fuel injection equipment for diesel engines

Cooper washers for fuel injection equipment for diesel engines

Methods of test for diesel engine fuel filters

Nozzle (injection)

Nozzle holder

Pressure pipe tube

Overflow oil line connection

Fuel pump assembly, methods of test

INTAKE AND EXHAUST

Air cleaner

Methods of test for performance of air filters

General requirements for positioning and routing of engine exhaust pipes in automobiles

Exhaust pipe and connection

FUEL PUMP, FUEL TANK AND FUEL LINE

Main fuel pump

Filler cap

Bayonet cap

Screw cap

Connection tube

Fuel line

Main fuel line

Auxiliary fuel line

Fuel filter

Fuel tank



Title of Standard	Allocated Agency
<u>GEAR CHANGE (GEAR SHIFT)</u>	
Vacuumreservoir	
<u>SUSPENSION</u>	
Leaf spring	
Coil spring	
Spring hanger	
Spring bushing	
Spring shackle	
Shock absorbers	
Leaf spring assemblies	
Spring pin and bushes	
<u>STEERING</u>	
Steering wheel	
General requirements for steering wheel	
<u>RIMS, WHEELS AND TYRES</u>	
Rims	
Tyres, tubes	
Wheel	
Wheel mounting bolt	
Wheel mounting nut	
Wheel rating and standard data	
<u>BRAKES</u>	
Air brake	
Brake lining	
Brake hose	
Hand brake cables	
Rivets for brake lining	
<u>ELECTRICAL EQUIPMENT</u>	
Battery	
Battery cell plug	
Battery cell cover	
Battery terminal clip	
Terminal connection piece	
Soldered connection piece	

Title of Standard	Allocated Agency
Dynamo (Generator)	
Regulator	
Regular and cut-out relay	
Starter	
Magneto (Flywheel type)	
Contact breakers	
Ignition distributor	
Ignition coil	
Spark plug	
Starter switch (push button type)	
Cutout	
Dip switches (foot or hand operated)	
Stop light switches (Rotary & pull type)	
Stop light switch (hydraulic)	
Mounting dimensions for ignition distributors	
Fuse box	
Connector bar	
Cable connector	
Fuse (cartridge)	
Fuse (strip)	
Ignition cable	
Spark plug terminal	
Wiper arm	
Wiper blade	
Direction indicator	
Flasher unit	
Flasher motor	
Lighting cable	
Starter cable	
<u>L A M P S</u>	
Main head lamp	
Masked head lamp	
Spot lamp	
Back-up lamp	
Fog lamp	

Title of Standard	Allocated Agency
Side-marker lamp	
Stop lamp	
Direction indicator lamp (Turn-signal lamp)	
Reading and interior lamp	
Parking lamp	
Number plate lamp	
Inspection lamp	
Instrument panel lamp (Dashboard lamp)	
Oil pressure indicator lamp	
Tail light	
Parking lamp	
Head lamp bulb	
Single filament bulb	
Double filament bulb	
Tubular bulb	
Spot lamp bulb	
Miniature bulb	
<u>H O R N</u>	
Horn button	
Horn ring	
<u>INSTRUMENT PANEL EQUIPMENT</u>	
Ignition key	
Lighting switch	
Ignition switch	
Heater switch	
Heater starter switch	
Dip switch (Dimmer switch)	
Foot dip switch	
Twist switch	
Light push switch	
Toggle switch	
Plug socket	
Junction box	
Speedometer	
Revolution counter	

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Title of Standard	Allocated Agency
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TACHOGRAPH

- Mileage recorder (Odometer)
- Air pressure gauge
- Oil pressure gauge
- Vacuum gauge
- Fuel consumption indicator

- Fuel gauge
- Ammeter
- Oil gauge glasses
- Water temperature gauge
- Clock
- Wheel position indicator

LUBRICATION

- Grease Nipples
- Filter and filter elements lubricating oil <sup>for</sup>

D O O R

- Door hinge pillar
- Door lock pillar
- Door lock
- Door latch
- Door pull handle
- Door hinge
- Door hinge bolt
- Door guide

LUGGAGE BOOT (TRUNK)

- Boot lid lock

EQUIPMENT

- Rear view mirror
- Reflector
- Window crank

Title of Standard	Allocated Agency
<u>NON-METALLIC MISCELLANEOUS ITEMS</u>	
Sulphuric acid (battery grade)	
Automotive hydraulic brake fluid	
Machinery and spindle oils	
Internal combustion engine lubricating oils	
Grease, L/A No. 1	
Upholstery leather	
Fuel pump diaphragm fabric,	
a) Synthetic rubber proofed	
b) Varnish proofed	
Multipurpose grease, No. 1, No. 2 and No. 3	
Water for storage batteries	
Gear lubricant, multipurpose	
Vinyl coated fabrics (leather cloth)	
Gear lubricant, regular	
Cellulose nitrate coated fabric	
Motor gasoline	
Oil, lubricating, axle, regular and premium	
Latex foam rubber products	
Gear lubricants, compounded	
Safety glass	
Rubber based adhesives for tyres and tubes, non-curing	
Rubber based adhesives for the automobile industry	
Rubber based adhesives for tyres and tubes, curing	
Radiator hoses	
Shellac jointing or gasket compounds	
Motor bensole	
Lacquer, cellulose, pigmented, finishing, glossy	
Thinner for cellulose nitrate based paints and lacquers	
Rubber component used in automobile vehicles	
Automobile polish	
Automotive air brake hose	
Automotive hydraulic brake hose	
Code of practice for finishing of automobile bodies	

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BASIC STANDARDS

A. STANDARDS PUBLISHED

<u>Title of Standard</u>	<u>Published by</u>
<u>A. 1. General</u>	
Quantities and units of periodic and related phenomena	LIPI
Quantities and units of mechanics	LIPI
Quantities and units of electricity and magnetism	LIPI
Quantities and units of lights and related electromagnetic radiations	LIPI
Quantities and units of acoustics	LIPI
Conversion factors	LIPI
Tensile test for metals	LIPI
<u>Special Publication</u> : Guide for SI units	LIPI

B. STANDARDS UNDER PREPARATION

<u>Title of Standard</u>	<u>Agency</u>
SI Units - general principles concerning quantities, units and symbols	LIPI
SI Units - basic quantities and units	LIPI
SI Units - recommendation for the use of multiples	LIPI
SI Units for university teaching	LIPI
SI Units for school teaching	LIPI
Units - heat	LIPI
Units - chemistry and physical chemistry	LIPI
Units - solid state physics	LIPI
Units - time	LIPI
Symbols and signs used in science and technology	LIPI

C. STANDARDS REQUIRED BUT NOT YET INCLUDED IN ANY PROGRAMME

Title of standard	Allocated Agency
Code for the representation of names of countries	
Writing of calendar dates in all-numeric form	
Numbering of weeks	
Symbols for language, countries and authorities	
International unification of concepts and terms	
Significance to purchasers of marks indicating conformity with standards	
Principles of operation of standards marks	
Informative labelling	
Standard atmospheres for conditioning and/or testing	
Standard reference atmosphere	
Conditioning atmosphere	
Standard reference temperature for industrial length measurements	
ISO system of limits and fits - Part I : General, tolerances and deviations	
ISO system of limits and fits - Part II : Inspection of plain workpieces	
Preferred numbers - Series of preferred numbers	
Guide to the use of preferred numbers and of series of preferred numbers	
Guide to the choice of preferred numbers and of series containing more rounded values of preferred numbers	
Safety colours	
Symbols, dimensions and layout for safety signs	
Stretchers, stretcher carriers and hospital trolleys - Dimensions	
Engineering drawing - Principles of presentation	
Engineering drawing - dimensioning	
Inscription of linear and angular tolerances	
Architectural and building drawing - Vocabulary	
Architectural and building drawings - presentation of drawings - Scales	

Title of Standard	Allocated Agency
Technical drawings - representation of springs	
Technical drawings - conventional representation of gears	
Trimmed sizes of writing paper and certain classes of printed matter	
Sizes of correspondence envelopes and pockets	
Paper - Untrimmed stock sizes for the ISO-A series - ISO primary range	
Paper - Trimmed sizes - designation - tolerances	
Paper - Untrimmed stock sizes for the ISO-A series - ISO supplementary range	
ISO general purpose metric screw threads - general plan	
ISO general purpose metric screw threads - selected sizes for screws, bolts and nuts	
Bolts, screws and studs - dimensioning	
Assembly tools for screws and nuts - nomenclature	
Machine tools test code	
Symbols for indications appearing on machine tools	
Widths and lengths of conveyor belts	
Pictorial markings for handling of goods (general symbols)	
Pictorial marking of transit packages containing photographic materials sensitive to radiant energy	
Dimensions of rigid rectangular packages - transport packages	
Freight containers - external dimensions and ratings	
Terminology relating to freight containers	
Identification marking code for freight containers	
Double-deck flat pallets for through transit of goods	
Large pallets for through transit of goods	
Principal dimensions of pallet trucks	



CONSTRUCTION INDUSTRYA. STANDARD PUBLISHEDA.1. GENERAL

NO.	TITLE	NO/TAHUN	PUBLISHED BY
1	Peraturan Pembentukan kota (Stadvoorming Verordening) S.V.V.	1948	Departemen P.U : Dit.Tata Kota & Daerah Dit.Jen. Cipta Karya
2	Pembaharuan S.V.O th.1948 S.V.V Tahun 1949	1949	Dit.Tata Kota dan Daerah Dit.Jen. Cipta Karya
3	Peraturan untuk merencanakan Jembatan Konstruksi Baja ( VOSSB )	1963	Direktorat Penyelidikan Masalah Bangunan Dit.Jen. Cipta Karya
4	Rencana Peraturan Pembiayaan Pendirian Rumah Rakyat	1951	Dit. Perumahan Dit. Jen. Cipta Karya
5	Pedoman Tata cara Penyelenggaraan Pembangunan Gedung-gedung Negara	1975	Dit. Tata Bangunan Dit.Jen.Cipta Karya
6	Syarat2 umum bagi pelaksanaan pada pembangunan dari pekerjaan umum di Indonesia.	1973	Dit.Tata Bangunan Dit. Jen. Cipta Karya
7	Standard arsitektur Dibidang Perumahan	1972	DPMB-Dit.Jen.Cipta Karya
8	Standard Rencana Perkampungan	1962	DPMB-Dit.Jen.Cipta Karya
9	Peraturan Bangunan Nasional	1977	DPMB-Dit.Jen.Cipta Karya
10	Peraturan pelaksanaan pembangunan Jalan Raya (Standard Specification for Highway Construction).	1979	Dit.Jen. Bina Marga
11	Standarisasi Analisa Biaya Pembangunan Jalan Dan Jembatan.	1973	Dit.Jen.Bina Marga
12	Peraturan Pelaksanaan Pembangunan Jembatan.	1972	Dit.Jen. Bina Marga
13	Peraturan Perencanaan Geometrik Jalan		Dit.Jen. Bina Marga
14	Peraturan mustan untuk jembatan Jalan Raya	1970	Dit.Jen. Bina Marga
15	Pedoman penentuan tebal perkerasan ( Flexible ) Jalan Raya	1974	Dit.Jen. Bina Marga
16	Standard Perencanaan Saluran dan bangunannya.		Dit.Jen. Pengairan
17	Standarisasi nomenklatur dan simbol untuk bagian2 dari sistem jaringan Irigasi		Dit.Jen. Pengairan
18	Standard notasi istilah Teknik Pengairan		Dit.Jen. Pengairan
19	Pedoman Perencanaan Saluran Terbuka		Dit.Jen. Pengairan
20	Bronjong		Dit.Jen. Pengairan
21	Krib		Dit.Jen. Pengairan

A.I. GENERAL.

NO	TITLE	NO/TAHUN.	PUBLISHED BY.
			<u>Perusahaan Umum Listrik Negara ( PLN ) :</u>
22	Instalasi Peralat Petir	1969	PLN.
23	S.K Menteri Perindustrian tentang Standarisasi industri serta Pengen- dalian mutu barang dan hasil industri yang berada dibawah wewenang Pembinaan Departemen Perindustrian.	1976	<u>Departemen Perindustrian:</u> Dep. Perindustrian
			<u>Dewan Teknik Pembangunan Indonesia (DTPI) :</u>
24	Peraturan tentang ketentuan2 persya- ratan kontraktor. Pembangunan Indonesia.	1970	DTPI
25	Peraturan Umum tentang hubungan kerja antara ahli dan pemberi tugas	1969	DTPI
26	Peraturan tentang pelelangan terbatas	1970	DTPI
			<u>Daerah Khusus Ibukota (DKI) :</u>
27	Peraturan daerah DKI Jakarta tentang pemakaman umum dalam wilayah DKI Jakarta.	2/Th.1973	DKI
28	Surat keputusan DPRGR DKI Jakarta ten- tang pengesahan rencana Induk ( Mas- ter Plan ) DKI Jakarta tahun 1965- tahun 1985.	1967	DKI.
29	Bataviasche Bouw Verordening	B.B.V 1919 -1941	DKI.
30	Batavian Building Regulation	1941	DKI.
31	Kringen En Typen Verordening	K.T.V 1941	DKI.
32	Petunjuk Membangun Di DKI	1975	DKI.
			<u>Yogyakarta :</u>
33	Tata Cara Pelelangan	Stadsblad No.145 & 146/1933	Yogyakarta.
34	Sewa Menyewa Perumahan	P.P No.49/1963 P.P No.1/1964 P.P No.17/1963	Yogyakarta.
			<u>Pemerintah Daerah Bali:</u>
35	Peraturan Daerah Propinsi Bali Tentang Peraturan Bangunan No. 33/DPRGR/1968.	1968	Pemerintah Daerah Bali

CONSTRUCTION INDUSTRY  
A. STANDARDS PUBLISHED

A.2 Specifications.

No.	TITLE	NO/TAHUN	PUBLISHED BY
1	Syarat2 untuk kapur bahan bangunan	N.I. 7/1965	Departemen P.U : DPMB-Dit.Jen.Cipta Karya
2	Peraturan semen Portland Indonesia	N.I. 3/1972	DPMB-Dit.Jen.Cipta Karya
3	Bata merah sebagai bahan bangunan	N.I. 10/1965	DPMB-Dit.Jen.Cipta Karya
4	Peraturan genteng keramik Indonesia.	N.I. 19/1969	DPMB-Dit.Jen.Cipta Karya
5	Peraturan Trass semen Merah Indonesia	N.I. 20/1970	DPMB-Dit.Jen.Cipta Karya
6	Penerangan alami siang hari		DPMB-Dit.Jen.Cipta Karya
7	Peraturan penerangan buatan dalam bangunan.		DPMB-Dit.Jen.Cipta Karya
8	Syarat2 untuk pemasangan hantaran udara		Dit.Jen. Bina Marga
9	Standarisasi spesifikasi Untuk jembatan jalan Raya Type balok gabungan.		Dit.Jen. Bina Marga
10	Standarisasi spesifikasi untuk jembatan jalan Raya Type balok gabungan 600 sampai dengan 1000 meter		Dit.Jen. Bina Marga
11	Standarisasi Pengaspalan dengan Butas.		Dit.Jen. Bina Marga
12	Standard spesifikasi untuk pelaksanaan Jalan dengan lapisan Aspal Max Adam		Dit.Jen. Bina Marga
13	Standard Jembatan Beton Bertulang untuk jembatan jalan Raya Type A 500 sampai dengan 1000 m.		Dit.Jen, Bina Marga
14	Standard Jembatan Beton bertulang untuk jembatan jalan Raya Type A 1100 sampai dengan 1500 meter.		Dit.Jen. Bina Marga
15	Standard Jembatan Beton Bertulang untuk jembatan Jalan Raya Type A Bentang 1600 sampai dengan 2000 meter.		Dit.Jen. Bina Marga
16	Standard Jembatan beton bertulang untuk B 500 sampai dengan 1000 meter.		Dit.Jen. Bina Marga
17	Standart Jembatan beton bertulang untuk Jembatan Jalan Raya Type B 1100 sampai dengan 1500 meter.		
18	Standard Jembatan Beton bertulang untuk Jembatan Jalan Raya Type B 1600 sampai dengan 2000 meter.		
19	Peraturan Perencanaan Geometik Jalan Raya.	1970	Dit.Jen. Bina Marga

No.	TITLE	NO/TAHUN	PUBLISHED BY
20	Spesifikasi dan Standard Jembatan Pelat Beton untuk pembuatan Jalan Raya .	1969	Dit.Jen. Bina Marga <u>Yayasan Dana Normalisasi</u> <u>Indonesia (YDNI)</u>
21	Peraturan Cat Indonesia	N.I.4/1961	Y.D.N.I.

CONSTRUCTION INDUSTRY  
A. STANDARDS PUBLISHED

A.3. Codes of Practices

No.	TITLE	NO/TAHUN	PUBLISHED BY
			<u>Departemen P.U :</u>
1	Peraturan Beton Bertulang Indonesia	N.I.2/1971	DPMB-Dit.Jen.Cipta Karya
2	Peraturan Umum untuk bahan bangunan Indonesia ( PUBI )	N.I.3/PUBL/70	DPMB-Dit.Jen.Cipta Karya
3	Peraturan Konstruksi Kayu Indonesia	N.I.5/1973	DPMB-Dit.Jen.Cipta Karya
4	Peraturan Muatan Indonesia	N.I.18/1970	DPMB-Dit.Jen.Cipta Karya
5	Peraturan pengawetan dan kekeringan kayu Bangunan Perumahan dan Gedung	1977	DPMB-Dit.Jen.Cipta Karya
6	Pedoman kerja pembuatan jalam		Dit.Jen. Bina Marga
7	Manual pelaksanaan kegiatan Pengaspalan dengan butas secara dingin (Cold Mix).		Dit.Jen. Bina Marga
			<u>Lembaga Ilmu Pengetahuan Indonesia ( LIPI ) :</u>
8	Peraturan Umum Instalasi Listrik Indonesia.	N.I.6/1977	LIPI

CONSTRUCTION INDUSTRY

A. STANDARD PUBLISHED

A.4 Test Methods .

No.	TITLE	NO/TAHUN	PUBLISHED BY
			<u>Dep. Perindustrian :</u>
1	Standar cara2 pengujian dan syarat mutu barang untuk lembaran asbes semen.	15/S.I/72	Dep. Perindustrian
2	Standar cara2 pengujian dan syarat mutu barang untuk lembaran serat semen	16/S.I/72	Dep. Perindustrian
3	Standar cara2 analisis dan syarat mutu barang untuk semen Portland.	13/S.I/72	Dep. Perindustrian
4	Standar cara2 analisis dan syarat mutu barang untuk ubin2 semen.	14/S.I/72	Dep. Perindustrian
5	Standar cara2 analisis dan syarat mutu barang untuk <u>Bata Tahan Api dan Semen Tahan Api Jenis Chamotte Biasa</u>	20/S.I/73	Dep. Perindustrian
6	Standar cara2 analisis dan syarat mutu barang untuk <u>bata merah untuk bahan bangunan.</u>	21/S.I/73	Dep. Perindustrian
7	Genting	22/S.I/73	Dep. Perindustrian
8	Standar cara2 analisis dan syarat mutu barang untuk <u>UBIN ( Tegel ) Keramik</u>	23/S.I/73	Dep. Perindustrian
9	Kapur Bangunan	24/S.I/73	Dep. Perindustrian
10	Standar cara2 analisis dan syarat mutu barang untuk <u>Besi Beton (Baja Batang Tulangan)</u>	35/S.I/73	Dep. Perindustrian
11	Cara penentuan besar butir agregat untuk aduk dan beton	51/S.I/74	Dep. Perindustrian
12	Agregat beton dan cara2 pengambilan contohnya.	52/S.I/74	Dep. Perindustrian
13	Cara penentuan kadar bagian yang lemah, kadar zat organik, kekerasan pasir, kekerasan batu pecah.	53/S.I/74	Dep. Perindustrian
14	Rencana syarat2 pengujian baja-beton	1964	Dep. Perindustrian <u>Daerah Khusus Ibukota</u> <u>( DKI ) :</u>
15	Ketentuan2 pengujian bagi jenis barang hasil industri bahan2 bangunan Bata merah, genteng keramik, ubin, semen, asbes semen .	1976	DKI
16	Ketentuan2 pengujian bagi jenis barang hasil industri bahan bangunan semen Portland, Pasir, kapur, bata press, baja tulangan, bata beton, asbes semen gelombang dan saluran air dan gas kota.	1977	DKI

CONSTRUCTION INDUSTRY  
B. STANDARD PREPARATION

B.I. General.

NO	TITLE	NO/TAHUN	PUBLISHED BY
1	Pedoman Plambing Indonesia	1974	<u>Departemen P.U :</u> Dit.Teknik Persehatan Dit.Jen. Cipta Karya
2	Rancangan peraturan pokok teknik persehatan mengenai air minum dan air buangan	1968	Dit.Teknik Persehatan Dit.Jen. Cipta Karya
3	Rancangan pedoman perencanaan lingkungan perumahan untuk kota2 di Indonesia.	1972	DPMB-Dit.Jen.Cipta Karya
4	Standard lingkungan perumahan dan rumah Sederhana.		DPMB-Dit.Jen.Cipta Karya

C. STANDARDS REQUIRED BUT NOT YET INCLUDED IN ANY PROGRAMME

Title of Standard	Allocated Agency
<u>AGGREGATES, CONCRETE</u>	
Aggregates, Coarse and fine, from natural sources for concrete	
Methods of test for aggregates for concrete	
Part I Particle size and shape	
Part IV Mechanical properties	
Sand for masonry mortars	
Sand for plaster	
Standard sand for testing of cement	
<u>ASBESTOS CEMENT PRODUCTS</u>	
Asbestos cement building boards	
Asbestos cement flat sheets	
Asbestos cement pressure pipes	
Part I Corrugated sheets	
Part II Semi-corrugated sheets	
Asbestos cement sheets, unreinforced corrugated and semi-corrugated	
Methods of test for asbestos cement products	
<u>BRICKS AND BLOCKS</u>	
Brick kiln, design and construction of, guide for	
Burnt-clay hollow blocks for walls and partitions	
Burnt-clay perforated building bricks	
Classification of burnt clay solid bricks	
Clay building bricks, method of test of	
Common burnt clay building bricks	
Dimensions for special shapes of clay bricks	
Hand-made common burnt clay building bricks, guide for manufacture of	
Lime-cement-cinder hollow concrete blocks	
Lime-cement-cinder blocks	
Load bearing hollow concrete blocks	
Load bearing lightweight concrete blocks	
Paving bricks	
<u>C E M E N T</u>	
Masonry cement	
Ordinary, rapid hardening and low heat Portland cement	
Portland-pozzolana cement	



Title of Standard	Allocated Agency
<u>CONCRETE DESIGN AND CONSTRUCTION</u>	
Plain and reinforced concrete, code of practice for Prestressed concrete Ready-mixed concrete	
<u>CONCRETE TESTING</u>	
Part I Determination of unit weight or bulk density and moisture content	
Part II Determination of drying shrinkage	
Part V Determination of compressive strength	
Part VI Strength, deformation and cracking of flexural members subject to bending-short duration loading test.	
Part VII Strength, deformation and cracking of flexural members subject to bending-sustained loading test	
Sampling and analysis of concrete	
Splitting tensile strength of concrete cylinders, method of test for	
Strength of concrete	
<u>CONSTRUCTION EQUIPMENT</u>	
Cold asphalt macadam mixing plants	
Concrete finishers	
Concrete mixers, batch type	
Concrete vibrating tables	
Concrete vibrators, immersion type	
Hand-operated concrete mixers	
Hot asphalt mixing plants	
Mason's tools for plaster	
<u>CONSTRUCTION PRACTICES</u>	
Anti termite measures in building	
Part I Constructional measures	
Part II Pre-constructional chemical treatment measures	
Part III Treatment for existing buildings	
<u>DOORS AND WINDOWS</u>	
Aluminium doors, windows and ventilators	
Selection, installation and maintenance of timber doors and windows, code of practice for	
Timber door, window and ventilator frames	

Title of Standard	Allocated Agency
Timber panelled and glazed shutters	
Part I Door shutters	
Part II Window and ventilator shutters	

DRAWING OFFICE PRACTICE AND EQUIPMENT

Architectural and building drawings, code of practice for

FIRE FIGHTING EQUIPMENT

Automatic fire alarm system, code of practice for

Carbon dioxide cartridge for fire extinguishers

Chemical fire engine, soda-acid type

Design and construction of fire service drill-tower, code of practice for

Design and installation of fixed carbon dioxide fire extinguishing system, code of practice for

Dry powder for fighting fires

Fire bell

Fire escape, wheeled

Foam compound for producing mechanical foam for fire fighting

Industrial safety helmets

Portable chemical fire extinguisher, soda acid type

Portable chemical fire extinguisher, water type (gas pressure)

Portable fire extinguishers, carbon dioxide type

Portable chemical fire extinguisher, foam type

FIRE SAFETY

Electrical installation, fire safety of buildings (general)

Fire fighting equipment and its maintenance including construction and installation of fireproof doors, fire safety of buildings (general), code of practice for

Fire resistance test of structures

Fire safety of non-industrial buildings, code of practice for

First-aid fire fighting arrangements in public buildings, recommendations for providing

General principles and fire grading, fire safety of buildings (general)

Industrial buildings: general storage and warehousing including cold storages, code of practice for fire safety of

Installation of internal fire hydrants in multi-storey buildings, code of practice for

Title of Standard	Allocated Agency
Materials and details of construction, fire safety of buildings (general), code of practice for Personal hazard, fire safety of buildings (general), code of practice for	
<u>FLEXIBLE FLOOR COVERINGS</u>	
Linoleum sheet	
<u>FLOOR FINISHES</u>	
Laying and finishing of cement concrete flooring tiles, code of practice for	
Laying burnt clay brick flooring, code of practice for	
Laying in situ cement concrete flooring, code of practice for	
Laying in situ terrazzo floor finish, code of practice for	
Laying of hardwood parquet and wood block floors	
Laying of rubber floors, code of practice for	
Linoleum floors, laying and maintenance of	
<u>FOUNDATION ENGINEERING</u>	
Part I Foundations for reciprocating type machines	
Part II Foundations for impact type machines (drop and forge hammer foundations)	
Part III Foundations for rotary type machines (reinforced concrete foundations for steam turbo generators)	
Part IV Foundations for rotary type machines of low frequency	
Part V Foundations for impact type machines other than hammers (forging and stamping press, pig breaker, elevator and hoist tower)	
Part I Load bearing concrete piles	
Part II Timber piles	
Design and construction of raft foundations, code of practice for :	
Part I Design	
Site investigations for foundations, code of practice for	
Structural safety of buildings : foundations, code of practice for	
Design and construction of simple spread foundations	

Title of Standard	Allocated Agency
<u>FUNCTIONAL DESIGN OF BUILDING</u>	
Acoustical design of auditoriums and conference halls, code of practice for	
Colours for building and decorative finishes	
Daylighting of buildings, code of practice for	
Daylighting of factory buildings, code of practice for	
Natural ventilation of residential buildings, code of practice for	
Recommendation for dimensions of spaces for human activities	
Recommendations for buildings and facilities for the physically handicapped	
<u>FURNITURE</u>	
Anthropometric dimensions for school children.	
Part I Age group 5-11 years	
Part II Age group 12-16 years	
Joints used in wooden furniture, code of practice for	
<u>GYP SUM PRODUCTS</u>	
Gypsum building plaster	
Gypsum plaster boards	
Part I Plaster and concrete, methods of test for	
Part II Gypsum products, methods of test for	
<u>LIME, BUILDING</u>	
Field testing of building lime, method of	
Lime kilns, design and installation of, code of practice for	
Lime-pozzolana mixture	
Preparation of lime mortar for use in buildings, code of practice for	
Building limes	
<u>LOADING STANDARDS, STRUCTURAL SAFETY</u>	
Structural safety of buildings: loading standards, code of practice for	
<u>MEASUREMENT AND ESTIMATION OF CIVIL ENGINEERING WORKS</u>	
Part I Earthwork	
Part II Cement concrete works	
Part III Brickwork	
Part IV Stone masonry	
Part VII Hardware	
Part XI Paving and floor finishes	
Part XII Plastering and pointing	

Title of Standard	Allocated Agency
Part XIII Whitewashing, colour washing, distempering and other finishes	
Part XV Painting	
Part XVI Laying of water and sewer lines including appurtenant items	
Part XIX Water supply, plumbing, drains and sanitary fittings	
Part XXI Woodwork and joinery	
Measurement of building works, methods of	
<u>MODULAR CO-ORDINATION</u>	
Modular co-ordination - application of tolerances in building industry, recommendations for	
Modular co-ordination of dimensions in the building industry, recommendations for	
Modular co-ordination rules for modular planning, recommendations for	
Preferred dimensions for storey-heights, recommendations for	
<u>P I P E S</u>	
Asbestos cement building pipes, gutters, and fittings (spigot and socket type)	
Concrete pipes, methods of tests for	
Concrete pipes (with and without reinforcement)	
Concrete porous pipes for underdrainage	
Prestressed concrete pipes	
<u>PLANNING, REGULATION AND CONTROL</u>	
Building byelaws, code of practice for	
Stacking and storage of construction materials at site, recommendation on	
<u>PLASTER, PAINT AND ALLIED FINISHES</u>	
Application of lime plaster finish, code of practice for	
Part I Operations and workmanship	
Painting asbestos cement building products, code of practice for	
Part I Operations and workmanship	
Part I Pretreatment	
Part II Painting	
Whitewashing and colour washing, code of practice for	

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Title of Standard	Allocated Agency
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PLYWOOD AND ALLIED PRODUCTS

- Fire retardent plywood particle boards
- Particle boards for insulation purposes
- Plywood for concrete shuttering work
- Plywood for general purposes
- Plywood, method of test for
- Preservative treated plywood
- Veneered decorative plywood
- Veneered particle boards
- Wood particle boards (medium density) for general purposes
- Wood wool building slabs
- Wood wool for general purposes

POLES

- Design of wood poles for overhead power and telecommunication lines, code of practice for
- Wood poles for overhead power and telecommunication lines code of practice for maintenance of
- Wood poles, method of testing
- Wood poles for overhead power and telecommunication lines

POZZOLANAS

- Burnt clay pozzolana
- Fly ash
- Part I For use as pozzolana
- Part II For use as admixture for concrete
- Part III For use of fine aggregate for mortar and concrete
- Methods of sampling fly ash
- Methods of test for pozzolanic materials

REINFORCEMENT, CONCRETE

- Bending and fixing of bars for concrete reinforcement, code of practice for
- Cold twisted steel bars for concrete reinforcement
- Deformed bars for concrete reinforcement, hot rolled mild steel and medium tensile steel
- Fabric for concrete reinforcement, hard-drawn steel wire
- High tensile steel bars used in prestressed concrete
- Indented wire for prestressed concrete
- Mild steel and medium tensile steel bars and hard-drawn steel wire for concrete reinforcement :

Title of Standard	Allocated Agency
Part I Mild steel and medium tensile steel bars	
Plain hard-drawn steel wire for prestressed concrete : Recommendations for detailing of reinforcement in reinforced concrete works.	
<u>ROOF AND ROOF COVERINGS</u>	
Construction of reinforced concrete shell roof, code of practice for	
Fixing rain-water gutters and downpipes for roof drainage, code of practice for	
Laying and fixing of sloped roof covering, code of practice for	
Roofing with wooden shingles, code of practice for	
<u>SAFETY IN CONSTRUCTION</u>	
Scaffolds and ladders safety code for :	
<u>SOIL ENGINEERING</u>	
Classification and identification of soils for general engineering purposes	
Load test on soils, method of Soils, methods of test for	
Stabilized soils, methods of test for :	
<u>STONES, BUILDING</u>	
Dimensions and workmanship of natural building stones for masonry work, recommendations for	
Durability of natural building stones, method of test for	
<u>STRUCTURAL DESIGN</u>	
Design construction of precast concrete trusses, criteria for	
Design and installation of joints in buildings	
Design of reinforced concrete arches, criteria for	
Design of reinforced concrete shell structures and folded plates, criteria for.	
Earthquake resistant construction of buildings, code of practice, criteria for.	
Earthquake resistant design of structures, criteria for	
<u>TAR AND BITUMEN</u>	
Bitumen emulsion for roads	
Bitumen mastic for bridge decking and roads	
Bitumen mastic for flooring.	

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Title of Standard	Allocated Agency
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T I L E S

Burnt clay flat terracing tile  
Ceramic unglazed vitreous acid-resistant tiles  
Clay ridge and ceiling tiles  
Clay roofing tiles, Mangalore pattern  
Flooring tiles, cement concrete  
Flooring tiles, clay  
Glazed earthenware tiles  
Roofing slate tiles

T I M B E R

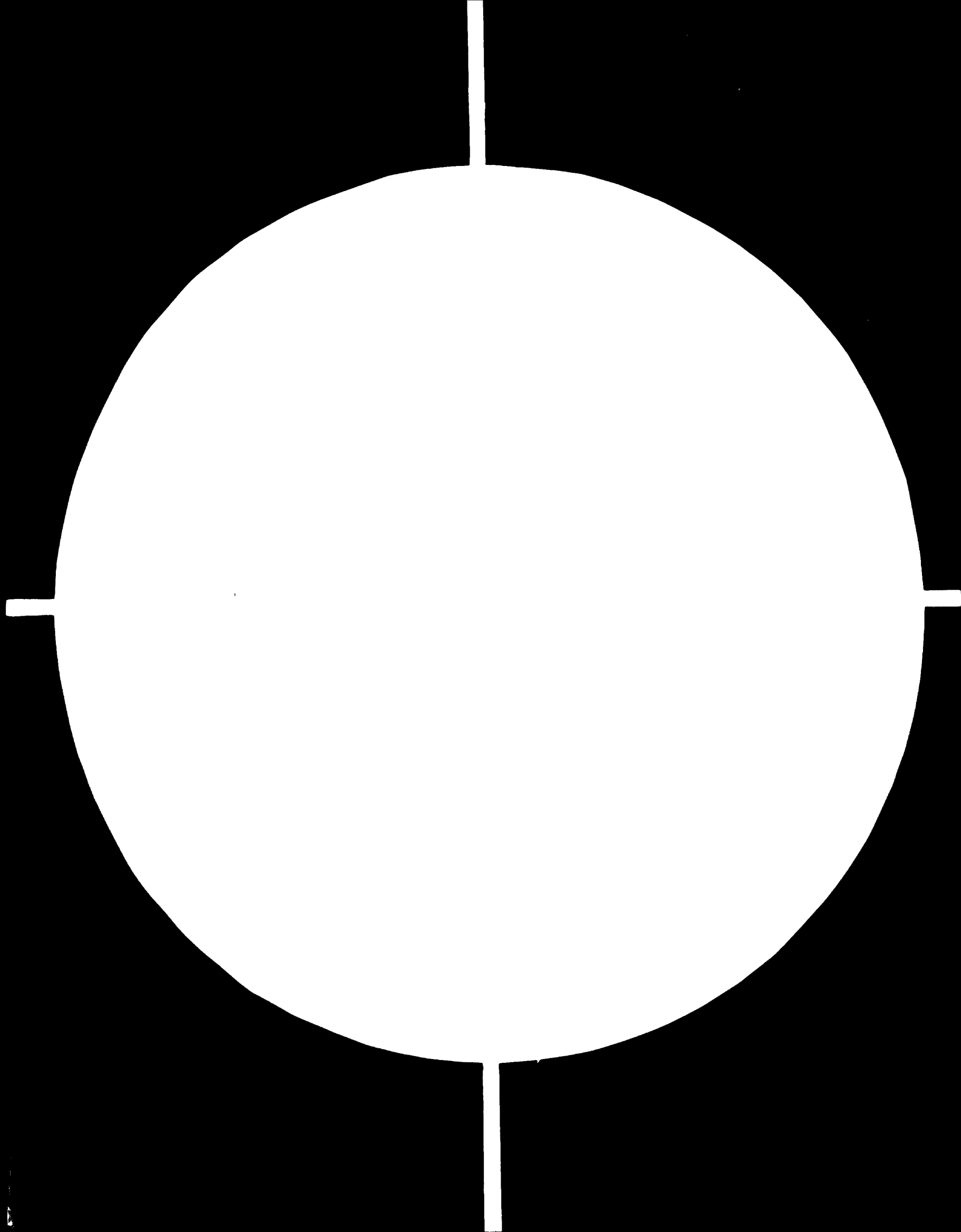
Bamboo and cane, preservation of, for non-structural purposes, code of practice for  
Classification of commercial timbers and their zonal distribution  
Coniferous logs  
Cut sizes of timber  
Grading rules for teak logs  
Grading rules for teak squares  
Guide for hand-sawing of timber  
Guide for installation of pressure impregnated plant for timber  
Guiding principles for grading and inspection of timber  
Key for identification of commercial timbers  
Logs for plywood  
Method for laboratory testing of wood preservatives against fungi.  
Method of laboratory test for efficacy of wood preservatives against soft rot  
Method of sampling of modal trees and logs for timber testing and their conversion  
Method of test for the efficacy of preservatives and evaluating the natural durability of timbers used in cooling towers  
Method of testing natural durability of timber and efficacy of the wood preservatives against marine borers  
Method of testing timber connectors  
Method of test for round bamboos



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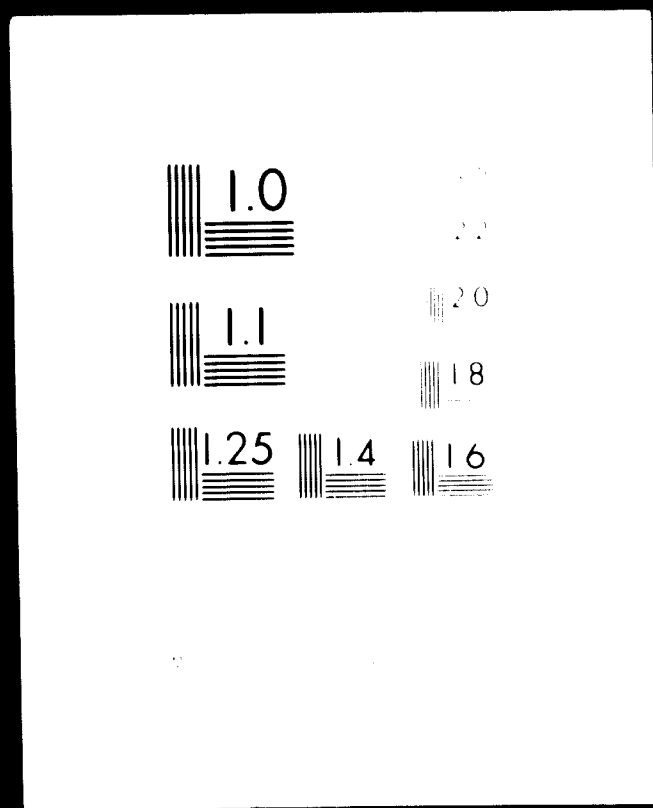


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Title of Standard	Allocated Agency
Methods of testing small clear specimens of timber	
Preservation of timber, code of practice for	
Preservatives in treated timber and in treating solutions.	
Seasoning of timber, code of practice for	
Structural timber in building	
Tables for volumes of cut sizes of timber	
Timber for cooling towers	
Timber for use in aircraft construction	
Wooden fence posts	

TIMBER DESIGN AND CONSTRUCTION

Construction of timber ceilings, code of practice for  
Construction of timber floors, code of practice for  
Design and construction of nailed laminated timber beams  
Design of structural timber in building, code of practice for  
Bail-jointed timber construction, code of practice for  
Nail-jointed timber trusses, method of test for.  
Wood stairs, design and struction of, code of practice for

WALL AND CEILING FINISH

Application of cement and cement-lime plaster finishes, code  
of practice for  
Brickwork, code of practice for  
Construction of autoclaved cellular concrete block masonry, code  
of practice for  
Construction of hollow concrete block masonry, code of practice for  
Construction of light-weight concrete block masonry, code of  
practice for  
Lime mortar in buildings, code of practice for preparation and  
use of  
Preparation and use of masonry mortars, code of practice for  
Structural safety of buildings: masonry walls, code of practice for  
Wall coverings, code of practice for fixing

WATERPROOFING AND DAMP-PROOFING

Application of bitumen mastic waterproofing of roofs, code of  
practice for  
Bitumen mastic for tanking and damp-proofing.  
General design details preparatory work for dampproofing and  
waterproofing of buildings, code of practice for

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Title of Standard	Allocated Agency
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Integral cement waterproofing compounds

Laying lime concrete for a waterproofed roof finish, code of practice for

Waterproofing of roofs with bitumen felts, code of practice for

WATER SUPPLY, DRAINAGE AND SANITATION

Ancillary structures in sewerage system, code of practice for.

Basic requirements for water supply, drainage and sanitation

Building drainage, code of practice for

Design and construction of septic tanks, code practice for

Laying of asbestos cement pressure pipes, code of practice for

Laying of cast iron pipe, code of practice for

Laying of concrete pipes, code of practice for

Laying of glazed stoneware pipes, code of practice for

Laying of welded steel pipes for water supply, code of practice for

Selection, installation and maintenance of domestic water meters, code of practice for

Water supply in building; code of practice for.

UNCLASSIFIED

Animal glue for general woodworking purposes.

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DOCUMENTATION AND INFORMATION TRANSFER

<u>Title of Standard</u>	<u>Agency</u>
<u>A. Standards Published</u>	
International code for abbreviation of titles of periodicals	LIPI
Layout of title page of books	LIPI
Layout of title page of reports	LIPI
Catalogues, main entries	LIPI
Indexing of publications	LIPI
Statistical data for libraries	LIPI
<u>B. Standards Under Preparation</u>	
Bibliographic descriptors (ISBD)	LIPI
Bibliographic descriptors in Indonesian language	LIPI
Rules for non-book catalogues	LIPI
General structure of preliminary pages of a book	LIPI
International library statistics	LIPI
<u>C. Standards Required but Not Yet Included in any Programme</u>	
Terminology (principles)	LIPI
International unification of concepts and terms	LIPI
Guide for the preparation of classified vocabularies	LIPI
Vocabulary of terminology	LIPI
Layout of multilingual classified vocabularies	LIPI
Lexicographical symbols particularly for use in classified defining vocabularies	LIPI
International colour code for languages	LIPI
Layout of monolingual classified vocabularies	LIPI
Format for terminological data interchange	LIPI
<u>Presentation of documents</u>	
Layout of periodicals	LIPI
Short contents list of periodicals or other documents.	LIPI
Bibliographical strip	LIPI
Presentation of contributions <sup>to</sup> periodicals	LIPI
Writing paper and certain classes of printed matter-Trimmed sizes- A and B series	LIPI
Guide for abbreviations of word in titles of periodicals using Roman alphabet	LIPI
Practice for table of contents	LIPI
Presentation of translation	LIPI

Title of Standard	Agency
Guide for layout of learned periodicals	LIPI
Guide for preparation of manuscript of an article	
Presentation of technical reports	LIPI
Numbering of divisions and subdivisions	LIPI
Guide for selection of type and page layout in textbooks	LIPI
Recommendation for frequency notation for periodical publications	LIPI
Guide for illustrations in books	LIPI
<u>Bibliographic references and descriptions, abstracts and indexing</u>	
Abstracts for publication and documentation	LIPI
Bibliographical references—essential and supplementary elements	LIPI
Bibliographical references—abbreviations of typical words	LIPI
International list of periodical title word abbreviations	LIPI
Code for the presentation of names of countries	LIPI
Symbols for languages, countries and authorities	LIPI
Patent documents—bibliographic references—essential and complementary elements	LIPI
Canons for making abstracts	LIPI
Practice for alphabetical arrangements	LIPI
Rules for making alphabetical indexes	LIPI
Abstract sheets in serial publications	LIPI
Indexing principles	LIPI
International standard book numbering	LIPI
International standard serial numbering	LIPI
International standard recording code	LIPI
International standard Record Number	LIPI
<u>Proof corrections, other related standards</u>	
Proof corrections for printers and authors	LIPI
Guide for drafting standards	LIPI
<u>Librarianship, Libraries</u>	
Directories of libraries, information and documentation centers	LIPI
Librachine (mobile library)	LIPI
Library catalogue and abstract card	LIPI
Packages for use of libraries	LIPI
Practice for alphabetical arrangement	LIPI
Practice for layout of library catalogue code	LIPI

Title of Standard	Agency
<u>Library and archives building, library furniture, lighting</u>	
Primary elements in the design of buildings for archives, code of practice	LIPI
Primary elements in the design of library buildings, code of practice	LIPI
Library furniture and fittings	LIPI
Code of practice for library lighting	LIPI
Drawing filing equipment	LIPI
Metal filing cabinet for general office purposes	LIPI
Metal shelving racks	LIPI
Metal shelving cabinets	LIPI
Sizes of folders and files	LIPI
Wooden shelving cabinets	LIPI



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ELECTRICAL AND ELECTRONIC INDUSTRIES

A. STANDARDS PUBLISHED

Title of standard	Published by
<u>A. 1. General</u>	
Standard voltage	State Power Company
Part 1 : Standard voltage for distribution networks (PLN)	
Part 2 : Voltage variations identification and marking for insulated cables and wires	PLN
Electrical symbols	LIFI
Electrical terminology	LIFI
<u>A. 2 Specifications</u>	
Specification for low voltage ceramic insulators	PLN
Specification for copper and aluminium conductors used for insulated cables and wires	PLN
Specification for PVC-compound used for electrical cables and wires with nominal voltages up to 0.6/1 kV	PLN
Low-frequency cables and wires with PVC insulation and PVC sheath. ( 7 parts )	State Telecommunication company
Specification for PVC-insulated wires with nominal voltage up to 1000 V (NYA)	PLN
500 V PVC-insulated and sheathed cables	PLN
0,6/1 kV PVC-insulated and sheathed cables without shielding	PLN
Terminal block for copper conductor	LIFI
Power transformer	LIFI
Safety requirements for electrical apparatus	LIFI
Degree of protection of enclosures for low voltage switchgear and controlgear	LIFI
Specification for amplitude modulated radio receiver	LIFI

Title of Standard	Published by
<u>A. 3 Codes of Practice</u>	
Grounding of low voltage distribution network and of installation	PLN
Neutral grounding of transmission, sub-transmission and distribution systems	PLN
Commissioning, maintenance and operation of hydraulic turbine	LIPI
General code for electrical installations, 1977	LIPI
<u>A. 4 Test Methods</u>	
Test methods for low voltage ceramic insulators	PLN
Methods of measurement on amplitude modulated radio receiver	LIPI

B. STANDARDS UNDER PREPARATION

<u>Title of Standard</u>	<u>Agency</u>
<u>B. 1 General</u>	
Terminology for generation, transmission and distribution of electricity	LIPI
Graphical symbols for electricity	LIPI
Insulation coordination	PLN
<u>B. 2 Specifications</u>	
Specification, dimension and strength of wooden poles	LIPI
Specification for diesel engines for generating electric power up to 500 kVa	LIPI
Switchgear for ships	LIPI
Luminaires, ballast and capacitors for discharge lamps	Industrial Department
Bare copper conductors, hard drawn	PLN
Bare copper conductors, half-hard drawn	PLN
Specification of rubber compound for electric wires and cables with nominal voltage up to 1000 V	PLN
Rubber insulated wire for nominal voltage up to 1000 V	PLN
Bare all-aluminium conductors	PLN
Bare aluminium-alloy conductors	PLN
Aluminium conductors, steel reinforced	PLN
PVC insulated flexible wires (NYAF)	PLN
500 V PVC sheathed and insulated flexible cables	PLN
380 V PVC insulated 2 and 3 twin flexible wires	PLN
Twin cables up to 5 wires PVC insulated and sheathed for operation voltage up to 0,6/1 kV (NYBF NYBY)	PLN
Specification for PVC conduits for electrical installations	LIPI
Threads for conduits and fittings	LIPI
<u>B. 3 Codes of Practice</u>	
Preservation of wooden poles	LIPI

Title of Standard	Agency
Guide for operation, maintenance and acceptance test of hydraulic turbines	LIPI
Electrical installation in ships	LIPI
Cable installation for ships	LIPI
Degrees of protection of enclosures for low-voltage switchgear and controlgear	LIPI
Safety requirements for mains operated electronic and related equipment	LIPI
Safety requirement for radio transmitting equipment	LIPI
<u>B. 4. Test Methods</u>	
Recommendations for alternating current watt-hour meters	PLN
Recommendation for direct acting indicating electrical measuring instruments and their accessories	PLN
Test methods of low voltage cables with PVC insulation	PLN
Pressure impregnated woodon poles	LIPI
High voltage testing methods	PLN
Methods of measurement for radio transmitters	LIPI
Recommended methods of measurement on receivers for amplitude modulation broadcast transmissions	LIPI
Recommended methods of measurement on receivers for television broadcast transmissions	LIPI
Methods of measurement of essential electrical properties of receiving aeriials in the frequency range from 30 MHz to 1000 MHz.	LIPI

C. STANDARDS REQUIRED BUT NOT YET INCLUDED IN ANY PROGRAMME

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Title of Standard	Allocated Agency
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C. 1 General

Cables and Conductors

Identification of insulated and bare conductors by colours

Marking of insulated conductors

Signs, Symbols and Diagrams

Graphical symbols used in electrotechnology

Classification and definitions of diagrams and charts

Electrical installations in buildings

Electron tubes

Letter symbols and signs used in electrotechnology

Letter symbols, abbreviations for electron tubes and valves

Recommendations for the preparation of circuit diagrams

Switchgear

Identification by hour numbers of the phase conductors of 3-phase electric systems

Short circuit calculation

Marking and identification in power plants and switch yards

Vocabulary

Electrotechnical vocabulary :

Fundamental definitions

Acoustics, Section 1 physical acoustics

Acoustics, Section 2 acoustical and electro-acoustical systems

Acoustics, Section 3 sound recording and reproduction

Acoustics, Section 4 acoustical instruments

Electron tubes, common terms

Electrical measurements :

Lighting, Section 1 general aspects

Lighting, Section 2 general illumination, fittings, lighting, for traffic and signalling

Transformers

Title of Standard	Allocated Agency
<u>C. 2 Specifications</u>	
<u>Batteries and Cells</u>	
General requirements and tests for dry cells and batteries	
Dry batteries for general purpose	
Radio batteries, leclanche type	
Dry batteries for flash-lights	
Lead-acid starter batteries	
<u>Cables and Conductors</u>	
Aluminium and steel cored aluminium conductor for overhead power lines	
Aluminium conductors for insulated cables	
Twisted aluminium with cross linked polyethylene insulation	
Polyethylene insulation and sheath of electric cables	
PVC insulated and PVC sheathed solid aluminium conductored cables of voltage rating not exceeding 1 100 V.	
PVC insulated cables (for voltage up to 1100 volts) : Part I with copper conductors, Part II with aluminium conductors	
Copper conductors, cotton covered, round and rectangular	
Cables for motor vehicles	
Adhesive insulating tapes for electrical purposes :	
Part I tapes with cotton textile substrates	
Part II tapes with PVC substrates	
<u>Domestic Appliances Fittings</u>	
Air circulator type electric fans and regulators	
Fans and regulators, ceiling type	
Fans and regulators, table type	
Electric stoves	
Electric water boilers	
Electric irons	
Electric call bells and buzzers for indoor use	
Plug, socket outlet and switches for domestic use	
Flashlights	
<u>Electronics</u>	
Dimension of electron tubes :	

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Title of Standard	Allocated Agency
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Part I Miniature 9-pin novel type  
Part II Miniature 7-pin novel type  
Part III Octal base type  
Part IV Magnoval base type  
Part V Loctal base type  
Ceramic dielectric capacitors type I  
Ceramic dielectric capacitors type II  
Ceramic for telecommunication and allied purposes  
Fixed capacitors for fan  
Loudspeakers, recommended mounting dimensions  
Loudspeaker systems for community radio receivers  
Radio receiver  
Radio transmitter  
Radio antenna

Laboratory Equipment

Laboratory electric ovens

Lighting

General service lamps  
Discharge lamps, lamp caps and holders  
Flame proof electric lighting fittings  
Luminaries for street lighting  
Lifts :  
Outline dimensions  
Passenger and goods lifts  
Service lifts  
Lift cables

Rotating Machinery

Specification of steam turbines  
Specification of hydraulic turbines  
Specification of hydraulic turbine governors  
Carbon brushes for electrical machines

Switchgear

Factory built assemblies for low voltage switchgear  
and controlgear  
Switchgear panel components

Title of Standard	Allocated Agency
High voltage metal enclosed switchgear and controlgear	
<u>Transformers</u>	
Power transformers	
Power transformers, fittings and accessories	
Safety transformers	
<u>C. 3 Codes of Practice</u>	
<u>Building Codes</u>	
Electrical installation in buildings, method of measurement	
Guide for electrical wiring installations (system voltage exceeding 650 V)	
Electrical wiring installations (system voltage not exceeding 650 V)	
Protection of building and allied structures against lightning	
Code of practice for installation, operation and maintenance of service lifts	
Code of practice for installation and maintenance of escalators	
Code of practice for installation, operation and maintenance of electric passenger and goods lifts	
<u>Cables and Conductors</u>	
Storing, right of way and laying of underground cables	
Guide to the selection of high voltage cables	
Calculation of the continuous rating of cables (100 % load factor)	
Joining of underground cables	
<u>Electronics</u>	
Mains-operated radio receivers, code of safety requirements	
Indoor amplifying and sound distribution systems, code of practice for installation	
<u>Lighting</u>	
Electric lighting fittings, general and safety requirements	
Guide for street lighting	
Guide for indoor lighting	
Guide for library lighting	



Title of Standard	Allocated Agency
Design of electrical street lighting installations	
<u>Rotating Machinery</u>	
Commissioning, maintenance and operation of diesel generators	
Rules for electric traction motors	
Rules for electric traction equipment	
Rules for rotating electrical machines for rail and road vehicles	
<u>Transmission and Distribution</u>	
Guide for safety procedures and practices in electrical work	
Guide for rural electrification	
Design, installation and maintenance of overhead power lines :	
Part I lines up to and including 11 kV, design	
Part II lines up to and including 11 kV, installation and maintenance	
Rules for overhead transmission lines	
Rules for safety distances and clearances in the neighbourhood of overhead transmission lines	
Rules for line work on transmission lines	
Guide for inspection and maintenance of wooden poles	
Earthing	
Earthing transformers	
Code of practice for installation and maintenance of transformers	
Commissioning of power transformers	
Guide for oil-immersed transformer loading	
Guide for operation and maintenance of relaying equipment	
Climate proofing of electrical equipment	
Installation and maintenance of ac induction motor starters (voltage not exceeding 1000 V)	

Title of Standard	Allocated Agency
<u>C. 4 Test Methods</u>	
<u>Domestic Appliances and Fittings</u>	
Testing of plugs and socket outlets for domestic and similar general use	
Testing of lamp caps and lamp holders	
<u>Electronics</u>	
Methods of measurement for radio equipment used in the mobile services	
Methods of measurement for equipment used in terrestrial radio-relay systems	
Loudspeakers and loudspeaker systems, methods of measurements	
Radiations from television receivers, methods of measurements	
Environmental test for electronic and electrical equipment :	
Part I general	
Part II damp heat (cycling) test	
Part III cold test	
Part IV dry heat test	
Part V low air pressure test	
Part VI rapid change of temperature	
Part VII bump test	
Part VIII impact of shock test	
Part IX drop test	
Part X water immersion test	
Part XI water spray test	
Part XII dust test	
Part XIII mould growth test	
Part XIV constant acceleration test	
Part XV gas-tightness test	
Part XVI vibration test	
Part XVII simulated solar radiation at ground level	
Part XVIII Salt mist test	
<u>Rotating Machines and Traction</u>	
Rules for acceptance test of speed governing systems for hydraulic turbines	

Title of Standard	Allocated Agency
Rules for acceptance test of steam turbines	
Rules for acceptance test of <b>hydraulic</b> turbines	
Rules for acceptance test of gas turbines	
Rules for testing of rail vehicles equipped with thermal engines or electric transmissions, after completion of construction and before entry into service	
Rules for acceptance test of electric traction rolling stock on completion of construction and before entry into service	
<u>Sampling</u>	
Method for random sampling	
Manual for lot sampling	
Methods for lot determination of sample size for lot inspection	
Sampling inspection tables :	
Part I inspection by attributes	
Part II inspection by variables	
<u>Transmission and Distribution</u>	
Method for determination of the electric strength of insulating oils	
Method for assessing the oxidation stability of insulating oils	
Specification for new insulating oils for transformers and switchgear	
Maintenance and supervision guide for insulating oils in switchgear	
New liquid hydrocarbon dielectrics (other than mineral transformer and switchgear oils)	
Test method for oxidation stability of inhibited mineral insulating oils	
Method of sampling liquid dielectrics	
Guide to the checking of sulphur hexafluoride (SF <sub>4</sub> ) taken from electrical equipment	
Insulating materials	
Determination of insulation resistance of solid insulating materials	
Preconditioning, conditioning and testing of solid electrical insulating materials	

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Annexure III

LIPI STANDARDIZATION PROJECT

OBJECTIVE, ORGANIZATION AND PROCEDURE

1. Objective

1.1 The Standardization Project of LIPI has the following objectives :

- A. To strive for the establishment of a National Standardization System in Indonesia;
- B. To formulate standards in accordance with a collaborative programme with other standards formulating organizations to meet the country's needs for standards to promote internal production and distribution;
- C. To represent Indonesia in the International Organization for Standardization (ISO), the International Electrotechnical Commission (IEC) and in regional standardization bodies as may be set up from time to time.

2. Organization

2.1. Committee for the Development of a National Standardization Network (CDSN)

2.1.1 For the purpose of Objective A, a Committee for the Development of a National Standardization Network (CDSN) has been established by a Decree of the Minister of State for Research whose principal functions are :

- a) to consider and approve organizational and procedural concepts for the national standardization system;
- b) to consider and initiate measures towards the establishment of the national standardization system; and
- c) to make a suitable recommendation to the Government for this purpose at an appropriate time.

2.2 LIPI Standardization Project Council (ISPC)

2.2.1 For the purpose of Objective B, the LIPI Standardization Project Council (ISPC), established by a Decree of LIPI Chairman, is vested with authority to take necessary policy decisions and actions for the implementation of the Project.

In particular ISPC will be required :

- a) to consider, approve and direct the work of the Project relating to formulation of standards;

- b) to consider, approve and direct the development of a certification scheme for certifying the quality and safety of products by means of a mark of conformity with standards;
- c) to consider, approve and recommend yearly budgetary allocation for the Project.

### 2.3 LIPI - YDNI Joint Standardization Committee (JSC)

2.3.1 Set up under a Collaboration Agreement between LIPI and YDNI.

LIPI - YDNI JSC presently represents Indonesia in the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC).

It is proposed that, when a National Standards Council is established for the National Standardization System, the membership in ISO and IEC will be registered in the name of the National Standards Council.

2.3.2 National Committee for IEC -- By the constitution of IEC, each member country has to set up a National Committee to whom all correspondence are addressed by the IEC Central Secretariat. The present National Committee is being reconstituted by a Decree of the LIPI - YDNI Joint Standardization Committee.

### 2.4 Secretariat

2.4.1 LIPI provides the Secretariat of CDSN, LSPC and LIPI - YDNI JSC.

### 2.5 Divisional Councils and Technical Committees

2.5.1 LSPC will form Divisional Councils (D.C.) and Technical Committees (T.C.) from time to time to carry out the technical work of the Project. Each D.C./T.C. will have a specific scope of work, function and composition.

2.5.2 Fig 1 presents the Organizational Chart of the Project.

## 3. Procedure

### 3.1 Establishment of the National Standardization System

3.1.1 The Secretariat, upon the formation of the CDSN, shall present to it a plan of actions for the establishment of the System. Further action will follow the directions of CDSN.

### 3.2 Formulation of Standards\*)

3.2.1 Each Division Council shall prepare a yearly programme of work with appropriate priority for the subjects under its consideration.

3.2.2 Thereafter the Secretariat shall prepare a budget on the basis of the yearly programme and submit the programme with the budget to LSPC for approval.

3.2.3 The Division Councils are responsible for the preparation of the standards in accordance with the approved programme, in association with Technical Committees, Working Groups.

3.2.4 During consideration by the D.C./T.C., each draft shall be either circulated widely to all interested parties or discussed in an open seminar for eliciting comments.

3.2.5 All comments (on the drafts) shall be fully considered by the D.C./T.C. before finalizing the documents for adoption.

3.2.6 The Division Council Chairman is hereby authorized to adopt the finalized documents on behalf of LIPI.

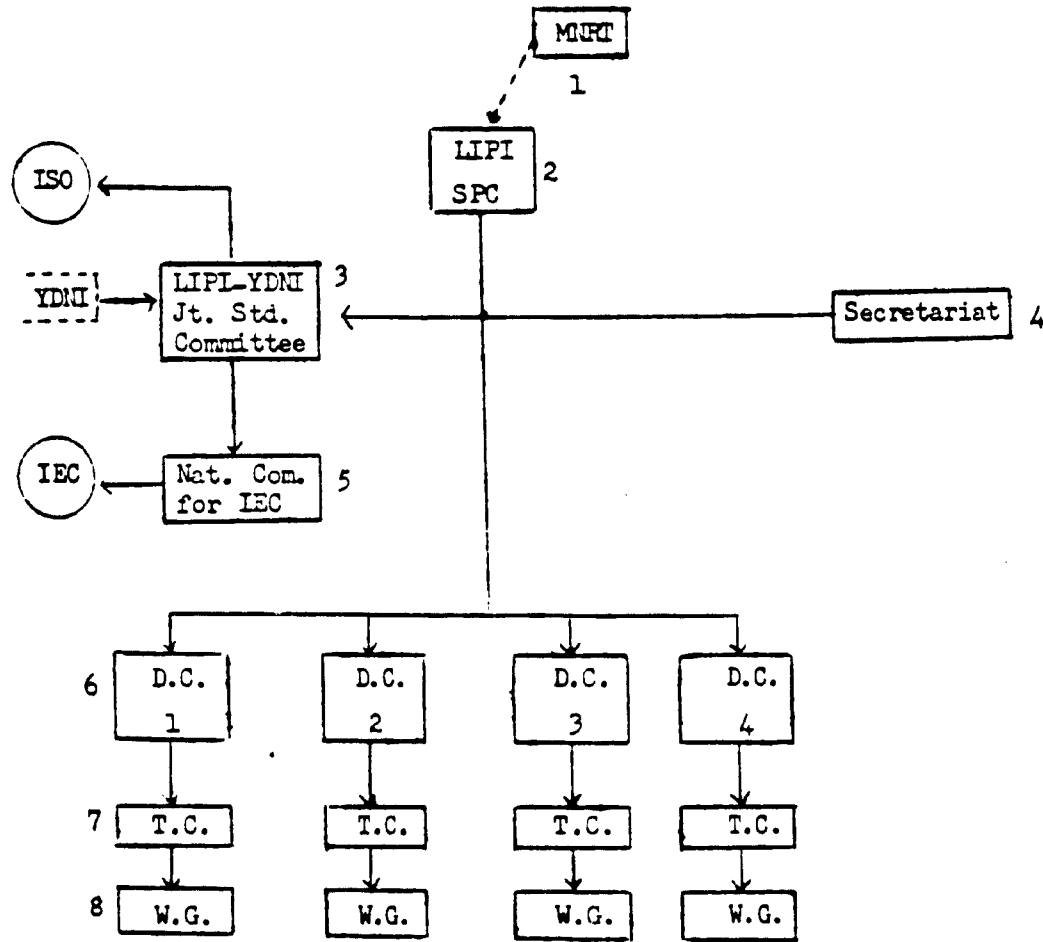
3.2.7 Documents thus finalized shall presently be published as a LIPI Special Publication with the designation "LSP" followed by a serial number to be allocated by the Secretariat indicating the sequence of publication of the document. After the National Standardization System comes into operation, each document shall also bear the national designation.

Note : LSPC may consider whether in place of the designation "LSP", the designation "NI" of YDNI is preferable, in which case an agreement with YDNI will have to be worked out for the use of its designation.

3.2.8 In all other respects, the procedure that may be established under the National Standardization System shall be followed.

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\*) By "Standards" are meant not only specifications, codes, etc, but also publications useful for the work of standardization.



**Legends**

- 1. MNRT - Minister of State for Research & Technology
- 2. LIPI - SPC - Lipi Standardization Project Council
- 3. LIPI - YDNI Joint Standardization Committee
- 4. Secretariat - LIPI Standardization Departement
- 5. National Committee for IEC
- 6. Division Councils
- 7. Technical Committees
- 8. Working Groups

Fig. 1 Organization of LIPI Standardization Project

Annexure V

Scheme for Recruitment and Training of Professional Staff

0. Introduction

0.1 The work projection for the next five years (1979 - 1983) presents the following programme and staff requirement :

	1979	1980	1981	1982	1983
<u>(Figures indicate targets in number)</u>					
<b>A. Work Programme</b>					
i) Standards under development :					
yearly	35	40	40	40	40
Cumulative	60	100	140	180	220
ii) Standards to be published:					
yearly	20	25	30	35	35
Cumulative	34	59	89	124	159
iii) Certification :					
No. of Licences (cumulative)	—	5	15	25	35
Yearly inspections	—	30	90	150	210
<b>B. Staff Requirement</b>					
Chief (cumulative)	1	1	1	1	1
Senior Professional (cumulative)	2	3	4	5	5
Junior Professional (cumulative)	9	13	17	21	35



0.2 Thus by 1983, 21 professional staff should be in position. Presently the Project is manned by a total of six such persons, of which three have no engineering background. These statistics highlight the problem faced by LIPI for management of the Project.

0.3 This Scheme of Recruitment and Training is designed to meet the above situation. It is proposed to recruit and train an adequate number of Professional staff in Four Years (1978 - 1981) so that the above Five-Year need can be met after taking into account that a few of the trainees may drop out and a few more may leave LIPI after training.

1. Recruitment

1.1. Number of Trainees - The following figures indicate the minimum level. Should budgetary allocations permit, a slightly larger group will be recruited:

Year	Training Period	No. of Trainees
1978	July '78 - June '79	10
1979	Jan '79 - Dec '79	10
1980	Jan '80 - Dec '80	10
1981	Jan '81 - Dec '81	10

1.2 Qualifications of Trainees - The nature of the work requires that the Professional Staff should have a Bachelor Degree in any Engineering Discipline or a Master Degree in any Branch of Natural Science. Exceptionally a Diploma Engineer may be taken. (In case the required number of trainees cannot be recruited with the above qualifications, relaxation may be considered by the appropriate authority in each individual case).

2. Broad Outline of Training

2.1 The training will consist of three parts, as below :

- i) Training in English Language - 3 months
- ii) Training in Laboratory Testing - 3 months
- iii) On-the-job training and lectures  
in standardization principles and  
practice 6 months

Total period 12 months

2.2 English Language - Access to world standardization literature needs an adequate knowledge of a foreign language, of which English is the most profitable. It can be expected that trainees will have an elementary knowledge of English. It should therefore be sufficient to arrange for an Intensive Course for 3 months or so.

LIPI has, in the past, organized such courses with the help of the British Council in Jakarta. Their help will be sought again in designing the course in details and in executing it.

2.3 Laboratory Testing - Some familiarity with laboratory testing in accordance with standards is a must for the professional staff. It would help in gaining an initial understanding of how standards are set and used. The scope for training in this area is vast and therefore a selection has to be made for the purpose of the present Scheme. Accordingly, the following four areas are chosen for the time being, which may be reviewed as the training proceeds.

- i) Materials Testing Laboratory - Tests to be covered are : Physical testing of metals (e.g. iron and steel, aluminium, copper, etc); Physical testing of non-metals (plastic, rubber, etc); dimensional measurements and gauging practices.
- ii) Chemical Testing Laboratory - General and instrumental analytical techniques (particularly analysis of food articles, other consumer products, agricultural inputs and essential oils).
- iii) Electrical Testing Laboratory - Calibration of meters; testing of cables, conductors and insulators; testing of switches; testing of house - hold electrical accessories and equipment.
- iv) Building Materials Laboratory - Testing of cement, aggregates and concrete; testing of timber; testing of house-hold building accessories.

Trainees will be grouped - and each group will be assigned to one of the above laboratories. Obviously co-operation of existing laboratories in Jakarta and Bandung, both within and outside the LIPI complex, will have to be sought, but it should present no great difficulty in enlisting such co-operation.

2.4 On-the-Job Training - After training in English language and laboratory techniques, the Trainees will be assigned regular jobs in the Project as understudy to senior Professional staff. They will be assisted to learn different aspects of Technical Committee work, drafting of standards and their processing

from beginning to final adoption.

2.5 Lectures in Standardization Principles and Practice - An essential feature of the on-the-job training will be a series of lectures on standardization principles and practice. Assistance from UNDP/UNIDO will be sought for this part of the training (para 2 . 4 and 2 . 5). The sequence and subjects of lectures will necessarily have to be laid out in consultation with the UNDP/UNIDO Expert. However attempt will be made to follow generally the course content developed by the International Organization for Standardization.

### 3. Higher Training

3.1 From successful trainees completing the course laid down in this scheme, some will be nominated for Fellowship under UNDP/UNIDO Projects to attend standardization courses organized in UK (by ESI) or India (by ISI).

3.2 It is also contemplated that one senior Professional staff would be encouraged to become a Trainer in due course, for whom the following drill is proposed :

- i) an initial training in UK or India;
  - ii) one year's training work in association with the UNDP/UNIDO Expert responsible for on-the-job training under para 2 . 4 and 2 . 5;
  - iii) a second training course in Japan.
-

Annexure III

Decree of the Minister of Trade

No. 266/Kp/X/76

Concerning Standards for Commodities  
(Export Quality Standards)

Minister of Trade

- Considering :
- a. With a view to improving the quality of Indonesian Export commodities, to improve its position in world market competition and to increase the earning of foreign exchange, it is considered necessary to set a standard for each commodity;
  - b. that the standards implemented in trade should be a consensus standard which should take into consideration the interests of trade, producers and consumers;
  - c. the Seminar on Standardization and Quality Control of export commodities<sup>held in June 1974 in</sup> cooperation with the Ministry of Agriculture, Ministry of Industry, other institutions both government and private and universities, attended by representatives of professional organizations and exporters, have reached a consensus on export quality standards;
  - d. the second Seminar on Standardization and Quality Control of January 1976 in Jakarta organized by the Ministry of Trade in cooperation with the Ministry of Agriculture, Ministry of Industry, Ministry of Health, scientific institutions, universities, and attended by representatives of exporters, have reached a consensus on other export quality standards;
  - e. that the consensus standards as agreed upon in Seminar I and II should immediately be implemented;

- in view of :
- 1) Law No. 10, 1961
  - 2) Cabinet decree no. 51/EK/Kep/10/1966.
  - 3) Presidential decree no. 260, 1967.
  - 4) Presidential Instruction no. 7, 1969
  - 5) Presidential decree no. 9, 1973.
  - 6) Presidential decree no. 44, 1974.
  - 7) Presidential decree no. 45, 1974
  - 8) Decree of the Minister of Trade no. 110/Kp/V/75, 1975.

Decrees

This Decree of the Minister of Trade for export quality standards.

Article 1

Export quality standards are established on the following commodities :

- |                            |                      |
|----------------------------|----------------------|
| 1. maize                   | 25. tapioka          |
| 2. cassava chips           | 26. kayu putih oil   |
| 3. copra cakes             | 27. clove leave oil  |
| 4. citronella oil          | 28. nutmeg oil       |
| 5. nilam oil               | 29. cendana oil      |
| 6. kenanga oil             | 30. frozen shrimp    |
| 7. akar wangi oil          | 31. frozen frog leg  |
| 8. palm oil                | 32. peanut           |
| 9. palm kernel             | 33. copra            |
| 10. palm kernel oil        | 34. tengkawang       |
| 11. pepper                 | 35. jarak seed       |
| 12. nutmeg                 | 36. coconut oil      |
| 13. nutmeg flake           | 37. peanut oil       |
| 14. cassia vera            | 38. jarak seed oil   |
| 15. coffee                 | 39. terpine          |
| 16. black tea              | 40. gondorukem       |
| 17. pickled cow leather    | 41. rottan           |
| 18. wet blue cow leather   | 42. gambir           |
| 19. pickled sheep leather  | 43. damar            |
| 20. wet blue sheep leather | 44. cocoa            |
| 21. kras sheep leather     | 45. cashew nut       |
| 22. sorghum                | 46. clove            |
| 23. palm kernel cake       | 47. vanilla          |
| 24. peanut cake            | 48. distilled nutmeg |

Article 2

The implementation regulations of these export quality standards should be established by regulations issued by the Directorate General of Foreign Trade.

Article 3

This Decree shall come into force on the date it is decreed.

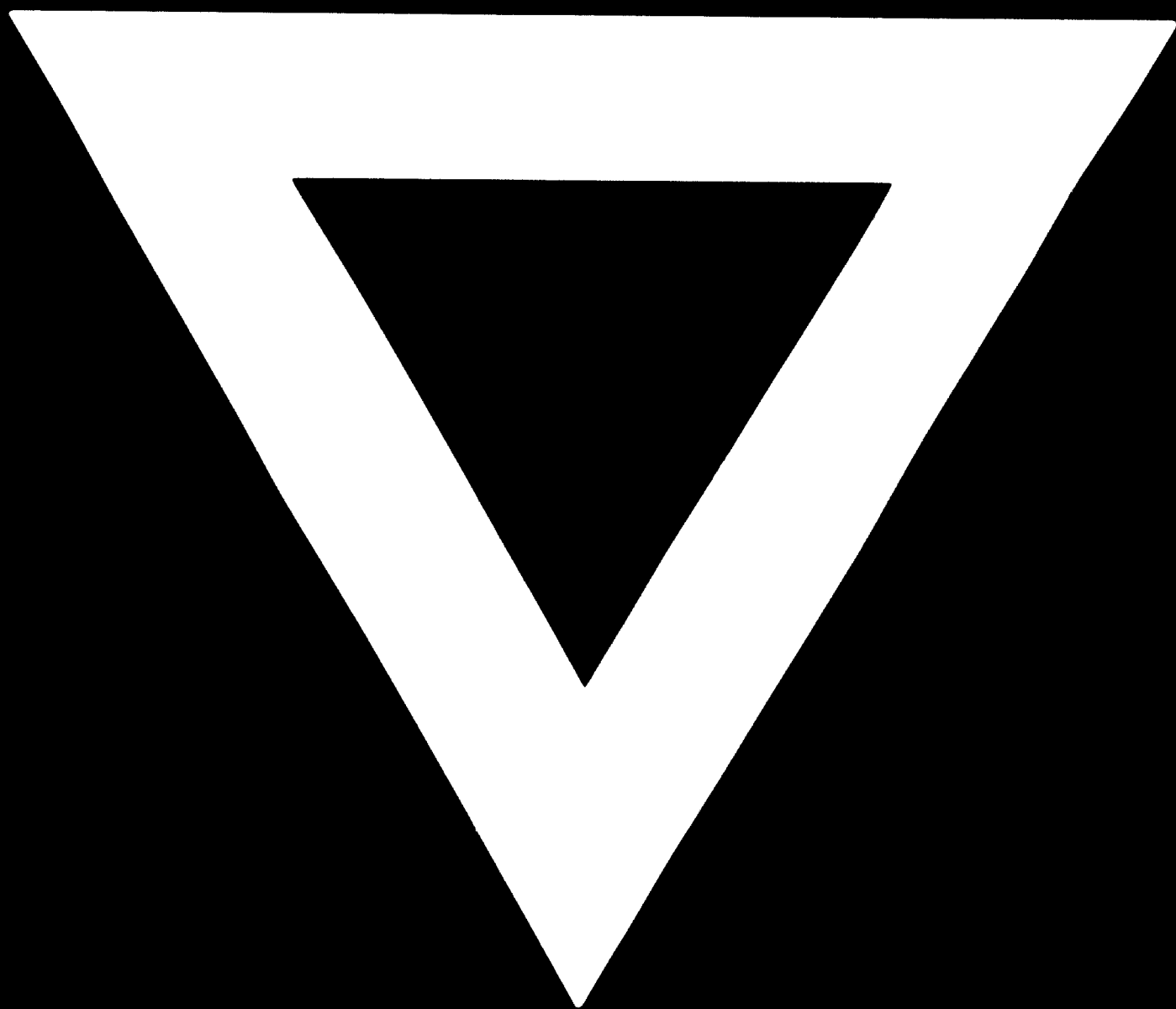
Decreed in Jakarta  
on October 26, 1976.

Minister of Trade



We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche

**C-385**



**81.01.12**