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*Sri C. Subramaniam, Union Minister of Industrial Development, and Science and Technology, and President, ISI (\*) with the Governor of Tamil Nadu, Sri K. K. Shah at the inauguration of the Fifteenth Indian Standards Convention held at Coimbatore in December 1973 which was inaugurated by Sri Shah. Sri Subramaniam presided over the inauguration.*

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ISI  
27th



TWENTYSEVENTH  
**ANNUAL  
REPORT**  
APRIL 1973-MARCH 1974

INDIAN STANDARDS INSTITUTION

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THIS REPORT WILL BE PRESENTED BY THE EXECUTIVE COMMITTEE  
TO THE GENERAL COUNCIL OF ISI AT THE 1974 ANNUAL MEETING

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## A P P R E C I A T I O N

*The Indian Standards Institution records its deep appreciation for the specialized technical assistance and financial support received during the year under review, from the ever-growing circle of its members and other organizations and individuals associated with ISI work. Their valuable cooperation and help have enabled the Institution to make its contribution in the field of standardization and quality control. The interest taken by them in the activities of the Institution bears ample testimony to the growing consciousness of the importance of standardization in the fast-developing industrial economy of the country.*

*The Institution, which is regarded as one of the most progressive organizations of its kind, has clearly demonstrated that it is possible to bring together different interests like the official and the non-official, the public and the private sectors, and the producer and the consumer, and make them work in the common cause of achieving industrial and economic advancement of the country through standardization and quality control.*

*The Institution looks forward with confidence to the continued support and active participation in its work from different economic interests representing industry, trade and commerce; research, technology and science; Government; consumers and purchasers.*

## **INTRODUCTORY REMARKS**

The Indian Standards Institution completed 27 years of its service to the Nation by the end of the year 1973-74. During this period, the Institution made significant contribution to the industrial and economic development of the country through standardization and quality control. Over the years, standardization has played an important role in streamlining and increasing productivity, simplifying production processes, substituting imports, promoting exports and making optimum use of scarce resources in men and materials.

The Institution can take satisfaction in the fact that, as on 31 March 1974, it had published more than 7500 Indian Standards covering many important subjects in different fields. It is indicative of the impressive progress made by the Institution in the formulation of national standards. About 80 percent of the standards have been adopted by various Departments of Central and State Governments and industrial undertakings in public and private sectors.

The ISI Certification Marks Scheme, which has an in-built mechanism for application of Indian Standards, registered considerable progress during the period under review. About 3800 licences covering production of goods valued at over Rs 5000 million per annum were granted by 31 March 1974. Some new products of consumer interest, which were brought within the scope of the Scheme, included centrifugal pumps for agricultural



purposes, cotton yarn for hosiery, non-tinted ophthalmic glass, cement paint, handloom cotton gauze, rubber adhesives for footwear industry, domestic cooking ranges for use with LPG, gummed paper tape, hydraulic shock absorbers for automobiles, PVC rainwear, rolling shutters and grills, and 16-mm portable sound and picture cinematograph projectors.

More organizations accorded preference to products bearing ISI Mark in their manufacturing and purchase programmes. The Bihar State Electricity Board decided to exempt inspection of products manufactured under the ISI Certification Marks Scheme. Bharat Gold Mines Ltd decided to order their requirements of rubber insulated flexible trailing cables according to Indian Standard specifications. The Public Health Engineering Department of Government of Kerala agreed to do away with duplicate inspection of products bearing ISI Mark. The Department of Cooperation of the Union Ministry of Agriculture impressed upon the Registrars of Cooperative Societies of all States and Union Territories the utility of ISI-marked goods and desired that all consumer cooperative wholesale stores and departmental stores may be advised to make purchases of such goods, wherever available. The Bank of India, Calcutta, took a policy decision to make purchases of pump sets and diesel engines bearing ISI Mark. Orissa State Electricity Board decided to waive their own inspection when goods purchased by them carried ISI Mark.

The Institution continued its efforts to assist industries in the country to develop their in-plant standardization. Training programmes in Company Standardization were organized at Gorakhpur, Mussoorie, Tiruchirapalli and Bangalore. Ninety-six company executives belonging to 19 organizations participated in these programmes. So far, 884 trainees from 468 organizations have benefited from the Company Standardization Programmes of ISI. The Institution's efforts in the field of promoting company standardization practice have helped many industrial units in deriving substantial economic benefits.



It is a measure of the increasing impact of national standardization effort that major industrial complexes in the country, including those producing steel, heavy engineering equipment, petro-chemicals, etc, are gradually becoming alive to the importance of developing and applying inter-plant standards to unify and streamline their operations in the fields of design, process control, manufacture, codification, procurement, maintenance and allied functions. During the year under review, there was encouraging response from the steel industry in initiating inter-plant cooperation in this area. The benefits realized by the industry as a result should provide a trigger for other industries to follow suit.

Continuing its efforts to promote educational utilization of Indian Standards, the Institution organized some programmes aimed at acquainting technical teachers with the Institution's work so as to prepare the ground for introducing the subject of standardization in technical education. As on 31 March 1974, 1412 technical teachers and instructors had participated in the Orientation and Review Programmes organized by the Institution in different parts of the country.

The Fifteenth Indian Standards Convention was held at Coimbatore from 17 to 22 December 1973. The Convention was inaugurated on 17 December 1973 by Shri K. K. Shah, Governor of Tamil Nadu with Shri C. Subramaniam, Union Minister of Industrial Development and Science and Technology and President, ISI, in the Chair. Two General and six Technical Sessions included in the Convention dealt with the importance of standardization and quality control in diverse fields, namely, traditional designs in textiles, handloom industry, textile machinery and components, in-plant and inter-plant standardization, motor and diesel pumps for agriculture, book production, small-scale industries, and the use of the metric SI Units in engineering practice and technical education. Over 500 delegates representing government, trade, industry, scientists, engineers and others participated in the Convention and 114 technical papers were contributed in the Technical Sessions.

In order to extend its facilities in the fields of standardization and certification marking, ISI opened two new Branch Offices, one at Patna and the other at Chandigarh. Seven Branch Offices of the Institution are already functioning at Ahmedabad, Bangalore, Bombay, Calcutta, Hyderabad, Kanpur and Madras. The new offices at Patna and Chandigarh will cater to the needs of the industrial units in their respective regions.

At the international level, the Institution maintained close liaison with the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). It participated in the meetings of the ISO Executive Committee held in Geneva and the Council and Committee of Action of IEC held in Munich. Vice-Presidents of the Institution, Shri D. C. Kothari and Shri R. S. Pande along with the Director General, Shri S. K. Sen attended the Ninth General Assembly of ISO and the Council Meeting held in Washington in September 1973. The Director General was also invited to the Mexico Conference on the Role of Standardization in Economic Development, organized by ISO in Collaboration with United Nations Industrial Development Organization and the Government of Mexico.

An important event worthy of mention was the holding of ISO Group Meetings in New Delhi in February-March 1974. The Subcommittees of ISO/TC 34/SC 8 Stimulant Foods and ISO/TC 34/SC 7 Spices and Condiments of the Technical Committee ISO/TC 34 Agricultural Food Products of the International Organization for Standardization (ISO) held their Seventh and Ninth Meetings from 14 to 19 February 1974 and 20 to 26 February 1974 respectively, in New Delhi. The Secretariat of both the Subcommittees are held by India. Fifty-five delegates representing European Economic Community, Ethiopia, France, Hungary, India, Indonesia, Switzerland, Sri Lanka, UK, USA and Yugoslavia attended the meetings.

## INTRODUCTORY REMARKS

Besides, the Fifth Meeting of the Subcommittee ISO/TC 8/SC 7 Inland Navigation of the Technical Committee ISO/TC 8 Ship Building was held in New Delhi from 1 to 5 March 1974. Sixteen delegates representing Czechoslovakia, India and USSR attended the meeting.

For a number of years, the Institution has been organizing training programmes for the developing countries of Asia, Africa and Latin America. These training facilities are offered under the Technical Assistance Plans of the Government of India under which senior fellowships are offered to nominees of the governments concerned for a 15-week course to study the principles of standardization and observe their application in the work of the Indian Standards Institution and the Indian industry. During the period under report, 7 trainees from Ethiopia, Kenya, Kuwait, Philippines and the Arab Organization for Standardization and Metrology participated in the programme.

So far, 64 technical personnel from 18 countries have received training at the Institution.



## PART I

# GENERAL REVIEW

The General Review provides a resumé of the various activities and achievements of the Institution during the period April 1973 to March 1974.

**Standards Published** — During the year under review, 676 Indian Standards were printed as against 771 printed last year, and 474 new standards were sent to press. Besides, 15 existing standards were withdrawn. The number of Indian Standards in force, including those under print but excluding those withdrawn, increased from 7 301 on 31 March 1973 to 7 760 till 31 March 1974. Further, reprints of 641 Indian Standards were printed during the year against a corresponding figure of 387 printed last year.

The Institution also issued, during the year under report, 243 revisions of existing standards in addition to 474 new standards, thus bringing the total number of Indian Standards issued during the year 1973-74 to 717 against the corresponding figure of 728 for the previous year.

*Progress of Work* — The information regarding total number of Indian Standards published, standards in force, standards revised, standards withdrawn and draft Indian Standards circulated as on 31 March 1974 is given below:

a) New standards issued during the year	474
b) Cumulative total of new standards issued up to 31 March 1974	8 041
c) Revised Indian Standards issued during the year	243
d) Cumulative total of revised Indian Standards issued up to 31 March 1974	1 931
e) Total number of Indian Standards ( new and revised ) issued during the year	717



f) Cumulative total of Indian Standards (new and revised) issued up to 31 March 1974	9 972
g) Standards withdrawn during the year	15
h) Cumulative total of standards withdrawn up to 31 March 1974	279
j) Indian Standards in force up to 31 March 1974	7 760
k) Draft Indian Standards circulated during the year	737
m) Cumulative total of draft Indian Standards up to 31 March 1974	10 673

**ISI Certification Marks Scheme** — The ISI Certification Marks Scheme registered considerable progress during the year under report. Four hundred and eight new licences were granted and the value of goods covered under the Scheme increased to Rs 5 000 million (approx).

*Progress of Work* — The progress of the ISI Certification Marks Scheme during the past 10 years can be seen from the graphical representation in Fig. 1 (*see* P 13). Information regarding the number of licences granted, applications received and income earned from ISI Certification Marks Scheme during the past two years is given below:

	<i>During the Year Ended</i>	
	<i>31 March 1974</i>	<i>31 March 1973</i>
a) New licences granted during the year	408	336
b) Total number of licences granted since inception of the Scheme	3 784	3 376
c) Total number of licences in operation	2 416	2 208
d) Applications received during the year for grant of licences	681	712
e) Total number of applications received since inception of the Scheme	7 201	6 520
f) Number of applications pending grant of licences out of the applications received during the year	470	532
g) Total number of applications pending for grant of licences	1 380	1 331

	<i>During the Year Ended</i>	
	31 March 1974	31 March 1973
h) Number of applications closed for various reasons	2 037	1 813
j) Total income from Certification Marking	Rs 5.1 million	Rs 4.5 million
k) Annual value of goods covered under the Scheme	Rs 5 000 million (approx)	Rs 4 800 million (approx)

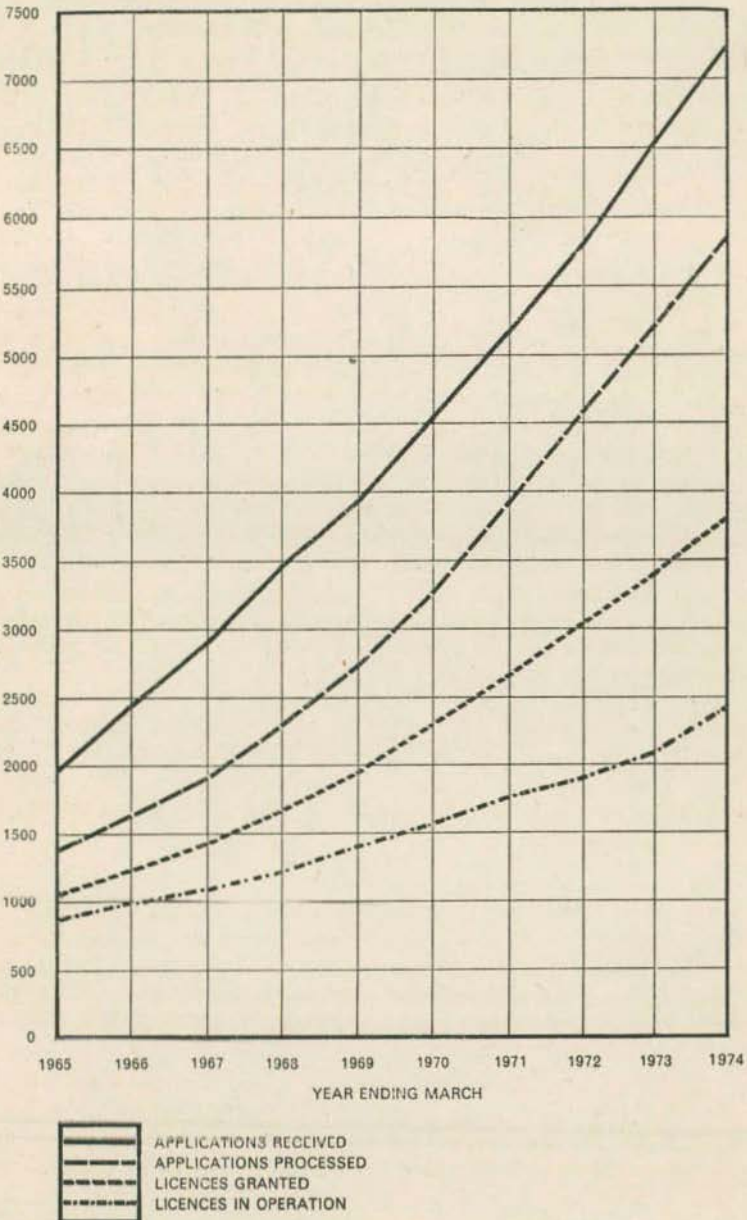
Fortytwo new products were brought under the Scheme during the year; particular mention may be made of the following products: aluminium phosphide tablets, aluminium sulphate (fertilizers grade), carbon steel cast billet ingots, cement paint, cotton yarn for hosiery, domestic cooking ranges for use with LPG, flameproof enclosures of electrical apparatus, gummed paper tape, handloom cotton gauze (absorbent), hydraulic shock absorbers for automobiles, ophthalmic glass (non-tinted), permanent rubber adhesive for footwear industry, pumps for agricultural purposes, PVC rainwear, rolling shutters and grills, sizing flannel, and 16-mm portable sound and picture cinematograph projectors.

*Applications Pending Grant of Licences* — As on 31 March 1974, in all 1 380 applications were pending for grant of licences. Of the total pending applications, action was pending with the Institution in respect of 430 applications while 950 applications were pending on account of actions to be taken by the applicants. Action pending with ISI included preliminary inspections to be carried out, samples to be tested, schemes of testing and inspection to be completed and fixing of rates of marking fees. As regards actions to be taken by applicants, these included testing facilities to be completed, marking fees to be accepted, samples of products to be offered to ISI for testing, etc.

*Inoperative Licences* — As on 31 March 1974, a total of 1 368 licences were inoperative including 200 licences during the year 1973-74. The licences become inoperative for reasons, such as lack of interest on the part of licensees, closure of firm, change in the name and constitution of the firm, difficulties in operating the Scheme resulting in unsatisfactory performance, lack of orders for ISI-marked materials, etc.

*Development of Scheme* — Efforts continued to be made to develop further the certification marking of the new products, of which specific mention may be made of flameproof electrical equipment. Fourteen licences were granted for the use of ISI Mark on this product till 31 March 1974.

FIG. 1 PROGRESS OF ISI CERTIFICATION MARKS SCHEME





*Recognition to ISI Mark* — In addition to the existing orders of the Central and a number of State Governments recommending to their purchase organizations to give preference to ISI-marked goods, wherever available, the following organizations also gave recognition to ISI Mark:

- a) The Director (Stores and Purchase), Bihar State Electricity Board, Patna, has intimated, *vide* his letter No. 2148/Purchase/Pur/MC 3-105/73 dated 14 June 1973, that they shall waive their own inspection of ISI-marked products provided the suppliers of such material produce a photostat copy of the ISI Licence to prove that they hold a valid licence from the Institution.
- b) M/s Bharat Gold Mines Ltd, Kolar — a Government of India Undertaking — have intimated *vide* their letter dated 27 April 1973 that their Chief Engineers Committee in its 15th Meeting has decided to order their requirements of rubber insulated flexible trailing cables according to the relevant Indian Standard specification.
- c) The Department of Co-operation of the Ministry of Agriculture, Government of India, *vide* their Circular No. O-12011(6)/73-C/S dated 31 August 1973 addressed to the Registrars of co-operative societies of all States and Union Territories, have impressed upon them the utility of ISI-marked goods and have desired that all Consumer Co-operative Wholesale Stores and departmental stores may be advised to make purchases of such goods, wherever available, so as to help the lay consumer in procurement of quality products.
- d) The Bank of India, Calcutta, has taken a policy decision to finance the purchase of pump sets and diesel engines which are certified by ISI.
- e) Orissa State Electricity Board (Stores and Purchase), Bhubaneswar, has decided to waive its own inspection when goods purchased by them bear ISI Mark.
- f) In the application form for obtaining machines under the Hire Purchase Scheme jointly sponsored by the UP Small Industries Corporation Ltd, and the State Bank of India, Kanpur, the following clause has been introduced:  
“viii) **Products/Items of manufacture:**  
c) Will your products conform to ISI Specifications?”
- g) In the Enrolment Form of the Bihar State Small-Scale Industries Corporation, Patna, the following clause has been introduced:  
“12 A — Whether enrolled under ISI (Certification Marks) Act?”



- h) M/s Tata Engineering & Locomotive Co Ltd in their letter No. Stdz(P)/1.4/2087/74 dated 6 February 1974, informed that they are trying to use electrical materials with ISI Certification Mark, wherever available.

*Tentative Modifications to Indian Standards* — With a view to expediting the use of the ISI Certification Mark, but without in any way affecting the quality of the products, the Director General, ISI, in exercise of the powers conferred on him under sub-regulation (4) of Regulation 3 of the ISI (Certification Marks) Regulations, 1955, tentatively modified some of the provisions of the following Indian Standards:

- a) IS : 562-1962 Specification for BHC water dispersible powder concentrates (*second revision*)
- b) IS : 3196-1968 Specification for welded low carbon steel gas cylinders for the storage and transportation of low pressure liquefiable gases (*first revision*)
- c) IS : 3309-1965 Specification for soluble coffee-chicory powder
- d) IS : 4406-1967 Specification for general requirements for hearing aids

*Recognition to Testing Laboratories* — The following outside laboratories were recognized for testing samples of products shown against each under the ISI Certification Marks Scheme:

<i>Sl No.</i>	<i>Name of Laboratory</i>	<i>Product(s)/Test(s) Undertaken</i>
1.	Small Industries Service Institute, Govt of India, Guindy, Madras	Electric motors up to 15 kW
2.	Central Electrical Testing Laboratory, Kakkalur Village & Post, via Trivallore, Chingleput Distt (Tamil Nadu)	Conductors, cables, winding wires, insulating materials including ceramic insulators of less than 1 000 V and electric motors for routine tests
3.	Quality Marking Centre (LE), (Govt of Andhra Pradesh), Industrial Estate, Sanathnagar, Hyderabad	Compression strength on timber, tiles & bricks, etc, shear and bend test, torsion testing of steel wire, Rockwell hardness testing of all metal products, magnetic crack detection for surface crack, impact testing and tin containers
4.	L. D. College of Engineering (University of Gujarat), Ahmedabad	Diesel engines

<i>Sl No.</i>	<i>Name of Laboratory</i>	<i>Product(s)/Test(s) Undertaken</i>
5.	College of Technology, Osmania University, Hyderabad	Oils, fats, detergents, fine chemicals, pharmaceuticals analysis, ceramics and refractories, physical testing of metals, surface coatings of paints and varnishes
6.	M/s Italab Pvt Ltd, Calcutta	Acids, alcohols and allied products, alkalis, clays, organic and inorganic chemicals, coke, coal, etc
7.	Phoenix Laboratory, Calcutta	Chemical testing of ferrous metals
8.	Institute for Design of Electrical Measuring Instruments ( Government of India ), Bombay	Electrical instruments, pressure gauges, thermocouples, flowmeters, control valves and process control instruments
9.	Reliability Evaluation Laboratory, Bhabha Atomic Research Centre, Bombay	Environmental tests as per IS : 1248 and IS : 3107
10.	Malviya Regional Engineering College, Jaipur	Steel and steel products, non-ferrous metals, asbestos pipes and corrugated sheets
11.	Industrial Development and Research Laboratories, Calcutta	Chemical testing of metals
12.	Wool Research Association, Bombay	Physical and chemical testing of textile products
13.	Government College of Technology, Coimbatore ( Tamil Nadu )	Diesel engines and pumps
14.	Regional Testing Laboratory, Directorate of Industries & Commerce, Government of Tamil Nadu, Madurai ( Tamil Nadu )	Acids, alkalis, organic and inorganic chemicals, oils/fats and detergents, cattle feeds and animal feeds, rubber and rubber products ( <i>except</i> abrasion test) and ink and allied products (IS : 220 & IS : 1221) <i>except</i> ultra-violet exposure test, tensile test, compression test, hardness (Vicker and Brinell test) and transverse test



*Appointment of Competent Authority* — The Central Government, under the powers conferred on it by the ISI (Certification Marks) Act, 1952 and Rules & Regulations framed thereunder and in consultation with the Institution, have appointed the Rubber Board as a Competent Authority for certification of rubber and rubber products manufactured in India.

*Certification Marks Advisory Committee* — The eighteenth meeting of the Certification Marks Advisory Committee (CMAC) was held on 18 July 1973. Presiding over the meeting, the Chairman Shri Prabhu V. Mehta stressed the need for creating demand for ISI-certified goods as a means to enthrusting manufacturers to go in for more ISI Certification Mark licences.

In regard to the proposed compulsory certification marking of food colours, Shri Mehta urged expeditious action since unapproved and sub-standard food colours were being used. There was consensus in favour of compulsory certification marking of domestic electrical appliances in view of considerations of human safety. Shri Mehta supported the suggestion of Smt Kamla Mankekar (Consumer Guidance Society, Bombay) to move the Union Government for taking immediate action in the matter. He added that the approach might be made through the Ministry of Industrial Development.

The Committee discussed at length the question whether clinical thermometers should come under the jurisdiction of the Weights and Measures Act in place of compulsory certification by ISI. It was of the view that clinical thermometers and other measuring instruments which were not used in commercial transactions should not be covered by the Weights and Measures Act. While ISI Mark essentially signified quality, the Directorate of Weights and Measures was concerned with the minimum regulations for accuracy of measurements.

The extent of responsibility of the manufacturer *vis-a-vis* the certifying authority in the event of failure or deficiency of a certified product was also discussed. Shri S. K. Sen, Director General, ISI, emphasized that a certification scheme by an independent organization like ISI was in the nature of a consultancy and technical audit service, which gave a system of quality control to the manufacturer and ensured continued check and recheck of his production. This help received by the manufacturer could not entitle him to claim that the organization keeping a check on his performance should share any legal liability in case of his failure to comply with safety and quality. Accordingly, the Committee decided that as the certifying authority acted in good faith as a third party, a suitable clause indemnifying ISI should be added in the Scheme of Testing and Inspection. The Committee also considered the question of cash compensation for substandard certified goods and decided that the present provision of replacement of the defective piece was adequate.

## ISI Laboratories

ISI Laboratory at the Headquarters, which has completed ten years of its existence, is equipped to test a large number of samples for different characteristics under the ISI Certification Marks Scheme. Over the years Laboratories on a smaller scale have also been set up at Branch Offices in Bombay, Calcutta and Madras.

At present, the bulk of the samples drawn are being tested in ISI Laboratories but still some percentage of samples is being tested by other recognized laboratories. It is hoped that with the expansion of laboratory facilities in the years to come and with the establishment of ISI Central Laboratory at Ghaziabad, it would be possible to progressively reduce dependence on outside laboratories.

*Additional Equipment Provided in ISI Laboratory at Headquarters* — During the period under review, following new equipment were installed in the Laboratory:

- a) Welding transformer,
- b) Vicat softening point apparatus for polyethylene compounds,
- c) Apparatus for carrying out endurance test on automobile hydraulic pressure switches,
- d) Thermal shock test apparatus for milk bottles,
- e) Abrasion index test machine for rubber,
- f) Vibration test system for testing electronic and automobile components,
- g) Frequency charger ( variation 45 to 55 Hz ),
- h) Impact testing machine for earthen wax tiles,
- j) Centre lathe for workshop, and
- k) Endurance testing machine for testing automobile horn switches.

*Laboratories in Branch Offices* — Laboratories at the Branch Offices were also equipped to undertake more and more items for testing which shall help in eliminating avoidable delay in testing of samples.

*Bombay* — The laboratory is testing pesticides, a few food items, dye-based inks, permanent inks and some types of cables. In order to expand the laboratory facilities, ISI has purchased a plot of land admeasuring 8 001 m<sup>2</sup> from Maharashtra Industrial Development Corporation, Bombay, for setting up a laboratory complex in Bombay.

*Calcutta* — Calcutta laboratory meets most of its requirements for testing iron and steel of different types, tee-chest battens, plywood, etc. The laboratory is also testing pesticides and a few other chemical items. The testing of cables and conductors is also undertaken. The activities of the laboratory are increasing with the passage of time.



*Madras* — Provision has been made in the laboratory to test items like pesticides, some chemicals, cables and conductors. The completion of office-cum-laboratory project which is underway will enable the laboratory to considerably increase its services.

For the office-cum-laboratory building which is under construction, National Buildings Organisation has extended its cooperation and it is being designed by them. The Government of Tamil Nadu has also given substantial help in its construction.

*Tinsukhia* — This laboratory caters entirely to the testing of plywood which is found in the vicinity. It is fully equipped to meet the requirements.

*Progress of Work* — The testing work carried out at the Headquarters and Branch Office laboratories during the year under review together with comparative figures of the preceding year and the cumulative figures since setting up of laboratories is given below:

	<i>During 1973-74</i>	<i>During 1972-73</i>	<i>Since Setting Up of Laboratories</i>
a) Samples received	12 726	11 079	68 505
b) Samples tested	12 628	10 498	65 639
c) Samples withdrawn	87	526	1 725
d) New specifications covered	38	33	589
e) Value of testing work done	Rs 876 847.58	Rs 891 246.00	Rs 5 422 890.92

Graphical representation of the work carried out at the ISI Laboratories since 1965 is given in Fig. 2 (see P 21).

*Special Items for Testing* — The testing of pesticides has been going on for quite some time and methods to find out adulterations through the help of infra-red spectrophotometer are being used to check adulteration in pesticides. The methods employed are rapid and a large number of samples can be tested with requisite accuracy.

Besides Calcutta Laboratory, the Central Laboratory undertakes the testing of different types of iron and steel for which ISI Certification Marks Scheme is in force.

ISI Laboratory has started testing paints for all tests and attempts are being made to have Fadeometer which will enable ISI to undertake complete testing of paints.

*Investigational Work* — During the period under review, investigations were completed in respect of testing of technical contents of endrin and aldrin through infra-red spectrophotometer. The method is accurate, reliable and rapid.

*Training of Personnel* — During the period under report, 56 persons were trained in different disciplines of testing.

A special programme for trainees in testing of pesticides using column chromatography and polarography was conducted with a view to helping various licensees of pesticides in finding out gamma isomer in benzene hexa-chloride (BHC).

*ISI Central Laboratory at Ghaziabad* — The work on the proposed ISI Central Laboratory at Ghaziabad is in progress. The necessary blue prints are ready. Contracts for boundary wall and water-tower have been finalized and further construction of the building is expected to be undertaken by the year end.

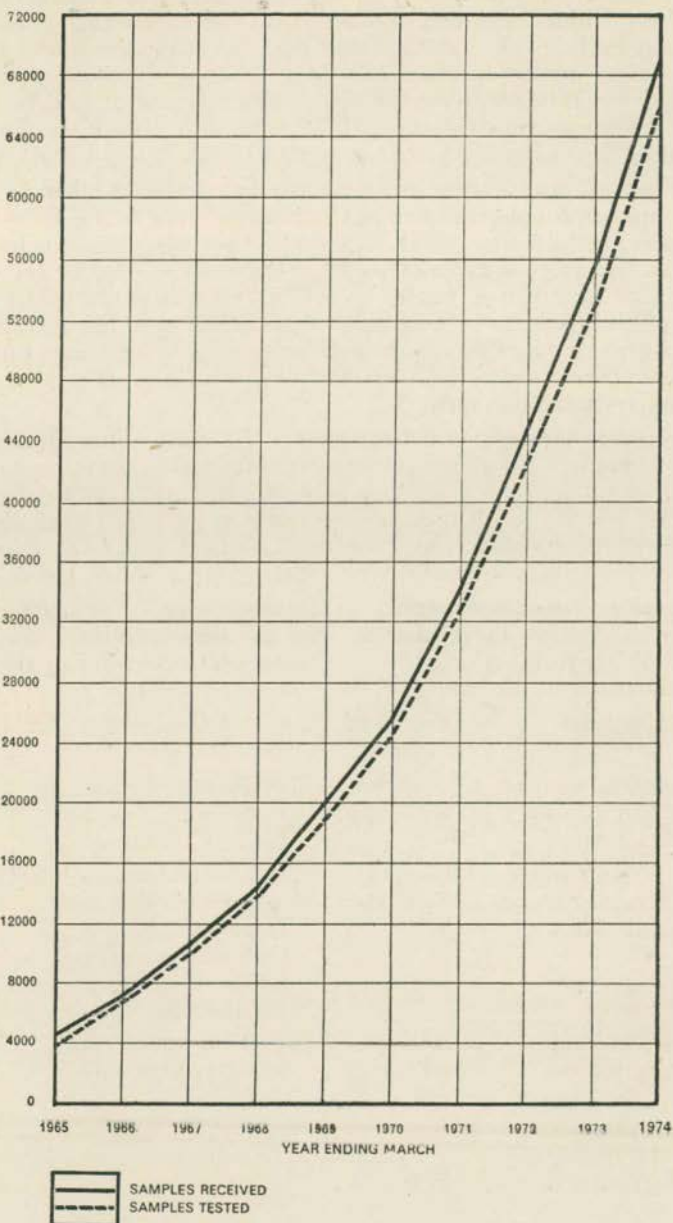
### **Implementation of Indian Standards**

*Adoption of Indian Standards* — Efforts were made and a constant vigil was maintained by the Implementation Department and Branch Offices to make sure that the decisions regarding implementation of Indian Standards taken by Central Government, various State Governments and public sector undertakings were carried out. As a result, 76 percent of Indian Standards were adopted by various governments and industries.

*Recommendations on Implementation of Indian Standards* — The following organizations took steps (as indicated against each) to implement various Indian Standards:

<i>Organization</i>	<i>Indian Standard</i>	<i>Action</i>
a) Inspector General of Police, Tamil Nadu	All Indian Standards relating to clothing articles	Intimated that in future the tenderers will be informed that due preference will be given to ISI-marked products
b) Bombay Electric Supply & Transport Undertaking, Bombay	All Indian Standards	Intimated that they proposed to indicate the relevant Indian Standard specifications on all their tender enquiries while purchasing the concerned materials

FIG. 2 PROGRESS OF TESTING IN ISI LABORATORY





*Avoiding Duplicate Inspection of Material with ISI Certification Mark* — Director (Stores and Purchase), Bihar State Electricity Board, Patna, has directed the Chief Engineer, Additional Chief Engineers and all the Superintending Engineers in the electrical circle of the State that the inspection of materials bearing ISI Mark may be waived by Board's representative. While waiving the inspection, the firm should be asked to furnish a photostat copy of the ISI Licence and only if the firm has a valid licence, the inspection clause may be waived.

*Scrutiny of Tender Notices* — To ensure that decisions taken by various organizations for adoption of Indian Standards were being followed, the tender notices published in daily paper and journals were scrutinized and cases where Indian Standards existed but were not quoted by the Government purchase authorities, public sector undertakings, electricity boards, etc, through an oversight or otherwise, were referred to the indentors. A number of organizations to whom such references were made during the period under report intimated that they would be accepting goods on the basis of Indian Standards only.

*Adoption by Manufacturers/Consumers* — To enable the Institution to provide information about manufacturers/consumers operating to Indian Standards, enquiries were made covering 807 Indian Standards, codes of practice and methods of test, on a wide range of items and the information received from the manufacturers/consumers is kept in the ISI Directorate General for dissemination as and when the enquiries are received.

**Company Standardization** — The Institution continued to provide training in company standardization for the benefit of the Indian industries. Following training programmes were conducted during the period under review:

<i>Programme</i>	<i>Venue and Period</i>	<i>Organizing Authority</i>	<i>Participants</i>
a) Appreciation Course on Company Standardization	Gorakhpur 24-27 April 1973	Fertilizer Corporation of India Ltd, Gorakhpur	24
b) Appreciation Course on Company Standardization	Mussoorie 21-24 May 1973	All India Management Association, New Delhi, in collaboration with Indian Standards Institution	15
c) Survey-cum-Training Programme	Tiruchirapalli 10-13 July 1973	Tiruchirapalli Productivity Council	32
d) Appreciation Course on Company Standardization	Bangalore 6-9 August 1973	Indian Telephone Industries	25

**Extension Services for Promoting Company Standardization and Implementation of Indian Standards**— Company Standardization activity promotes implementation of Indian Standards and has the potential to bring in substantial economic benefits in plant-level operations. ISI started promoting this activity about a decade back through symposia, management conferences, etc. This led to the need for arranging training programmes for technical personnel, a number of which have been organized in the past; so far 40 training programmes have been attended by 884 technical personnel drawn from 468 industries.

In the feed-back discussions with the engineers and executives who have already participated in the training programmes, it has been revealed that much faster progress and a wider coverage of in-plant standardization activity could be achieved if (a) a survey of the specific needs of the industrial unit is conducted prior to the training programme, and (b) ISI maintains post-training contacts for a couple of months with the participants of the course and their management. A package programme termed as 'extension services' has therefore, been offered to the industries. These services, which have been included as an additional feature of ISI's activities during the Fifth Five-Year Plan, would be available in three distinct phases, namely, Pilot Study (Phase I), System Development (Phase II) and Evaluation (Phase III).

The industries opting for these services are to meet travel and stay expenses of the ISI officers associated with the work programme in all the phases. The consultancy charges for the work in Phases I and III are Rs 400 per expert-day for the members of ISI; for non-members 25 percent extra. A reduced fee would be charged for small industries. No consultancy charges are presently contemplated for the training programme in Phase II, which is a promotional activity of ISI. It is envisaged to devote not more than 10 expert-days for each client organization, spread over Phases I and III. The following five organizations have already registered for these services during the current year:

- 1) Mahindra Sintered Products Ltd, Poona;
- 2) Bharat Bijlee Limited, Bombay;
- 3) Indian Cable Co, Jamshedpur;
- 4) Paharpur Cooling Towers Pvt Ltd Calcutta; and
- 5) Hindustan Steel Ltd (Bhilai Steel Plant), Bhilai.

These extension services would also be made available to tackle problems like metrication, so as to promote implementation of Indian Standards in metric sizes. Interest has also been shown by some organizations to utilize these services to assess the existing systems in industries regarding materials management, quality control and other technical



managerial aspects for inter-company comparisons. Technical guidance would also be given for industrial associations to organize inter-plant or industry level standardization work.

#### **Training of Standards Engineers for Developing Countries —**

The Institution continued to organize its International Training Programme in order to help the developing countries of Asia and Africa in overcoming the shortage of experienced standards engineers. The Programme is for a period of 15 weeks during which the participants acquire knowledge of principles and methodology of standardization.

During the year 1973, the International Training Programme which was held from 6 November 1973 to 15 February 1974 was attended by 7 participants from Ethiopia, Kenya, Kuwait, Philippines and Sudan.

Started in 1964, training has so far been imparted to 64 technical personnel from 18 countries, namely, Philippines, Singapore, Thailand, Sri Lanka, UAR, Burma, South Yemen, Kenya, Malaysia, Zambia, Ghana, Afghanistan, Nigeria, Cyprus, Jordan, Sudan, Ethiopia and Kuwait.

#### **Utilization of Indian Standards in Education —**

The Institution continued to promote educational utilization of Indian Standards, including educational programmes for teachers, circulation of special documents among different institutions and display of standards.

During the year under review, the following educational programmes known as 'Orientation and Review Programmes' were organized:

<i>Venue and Date(s)</i>	<i>Participants</i>	<i>Institutions Covered</i>
a) Varanasi 5-6 May 1973	Members of teaching faculties, Principal, Professors, Readers and Lecturers	Institution of Technology, Varanasi
b) Allahabad 15-16 Sep 1973	Principals, Professors, Readers, Lecturers and representatives from industries	Institutions of Allahabad

So far, 21 such Orientation and Review Programmes have been organized at different places in which about 245 Institutions took part with a participation of 1 412 technical teachers.

#### **ISI Library —**

Libraries of the Institution at the Headquarters and in the Branch Offices continued to render useful service to the Subscribing Members and Committee Members as well as to various government departments. The Library at the Headquarters, which is open to visitors, has complete sets of overseas and international standards and specifications and related indexes. It has also classified subject catalogues for consultation and retrieval of information on standardization.



During the year under review, the Library at the Headquarters accessioned 19 994 standard specifications and other technical and reference publications. Libraries at the Branch Offices were also suitably strengthened to give service to the Members in their respective regions. During the year ending March 1974, 41 bibliographies were undertaken at the request of technical staff and committee members. Besides, an important bibliography, namely, 'World List of Standards on Paper Products', was also issued. During the period under report, more than 100 technical enquiries from the industry were received and necessary information was provided. The Library also continued to prepare and circulate the following monthly information lists for the benefit of its users:

- a) List of overseas standards received in ISI Library,
- b) List of books and pamphlets received in ISI Library, and
- c) List of current published information on standardization.

The following table would show the working of the Library during the year under review:

a) Standards, specifications, technical publications, etc, available in the Library as on 31 March 1974	—	276 433
b) New publications accessioned and processed	—	19 994
c) Technical journals received	—	approx 500
d) Bibliographies prepared	—	41
e) Number of publications loaned out to Subscribing Members and Committee Members	—	55 000

**Membership** — In 1972, the General Council of ISI on the recommendation of the Executive Committee had increased the annual rate of subscription of Sustaining and Associate Members from Rs 500<sup>00</sup> and Rs 200<sup>00</sup> to Rs 1 000<sup>00</sup> and Rs 500<sup>00</sup> respectively to take effect from 1 January 1973. This decision, as was anticipated, gave a fillip to the collection of membership subscription. The total amount of subscription collected for the year 1973-74 was Rs 2.81 million as against Rs 1.9 million collected during the year 1972-73.

Due to increase in the rates of subscription of Sustaining Members and Associate Members, many Sustaining Members have converted their membership to Associate Membership and a large number of members of both categories especially Associate Members did not renew their membership at the higher rates. The total membership as on 31 March 1974 stood at 3 337 as against 3 788 on 31 March 1973.

In order to accommodate Subscribing Members who did not renew their membership due to the increase in the rates of subscription, the General Council on the recommendations of the Executive Committee decided to create a new category of membership known as 'Ordinary Members'. It is open to companies and firms having annual turnover of less than Rs 5 lakhs, institutions, non-profit making associations of small scale industry, individuals, etc. The rate of subscription has been fixed at Rs 250<sup>00</sup>. It carries the same rights and privileges as are available to Associate Members except that their representation on General Council is 1 for 200 with maximum of 2 as against 1 for 200 with maximum of 4, for Associate Members.

The new class of membership which came into existence with effect from 1 January 1974 has had a good response. About 132 members mostly out of those Associate Members which did not renew their membership due to increase in subscription rates have joined.

Detailed information on the classes of membership is given in Table 1.

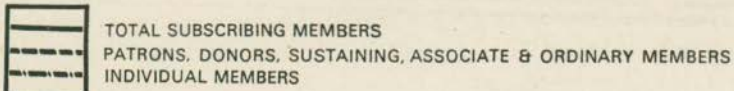
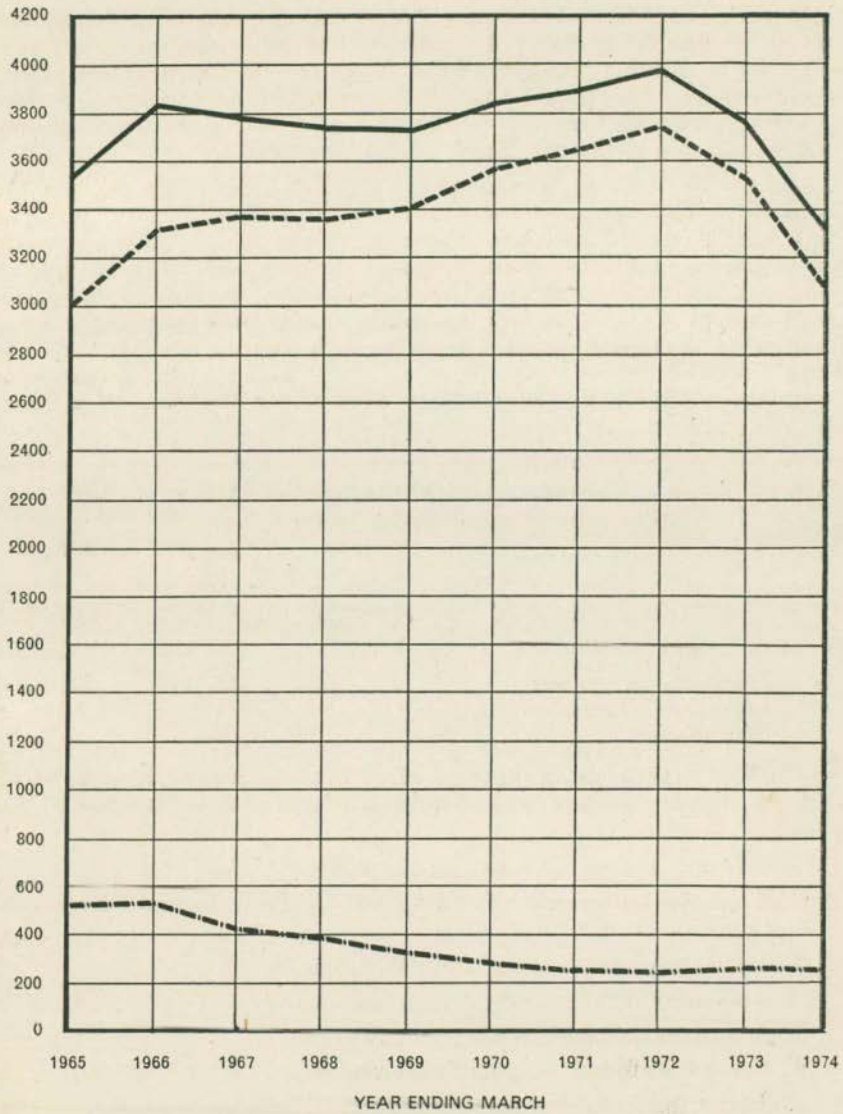
**TABLE 1 MEMBERSHIP ANALYSIS**

(As on 31 March 1974)

CLASS OF MEMBER-SHIP	NUMBER OF MEMBERS ON		LOSSES DUE TO				ADDITIONS BY			NET GAIN/LOSS
	1 April 1973	1 April 1974	Resig-nations	Laps-ing	Con-versions	Total	Admis-sion	Rein-statement	Total	
Patrons	3	3	—	—	—	—	—	—	—	—
Donor Members	38	41	—	1	1	2	—	5	5	+3
Sustaining Members	1911	1705	32	223	33	288	72	10	82	-206
Associate Members	1582	1200	69	504	4	577	190	5	195	-382
Ordinary Members	—	132	—	—	—	—	132	—	132	+132
Individual Members	254	256	7	64	—	61	73	—	73	+2
<b>Total</b>	<b>3788</b>	<b>3337</b>	<b>108</b>	<b>792</b>	<b>38</b>	<b>938</b>	<b>467</b>	<b>20</b>	<b>487</b>	<b>-451</b>

The membership position since 1965 is graphically represented in Fig. 3 (see P 27).

FIG. 3 ISI SUBSCRIBING MEMBERSHIP THROUGH THE YEAR





*Decentralization of Membership Work* — In order to have an effective contact with the subscribing members, membership work has been decentralized with effect from 1 January 1974. Subscription bills, reminders, personal contacts for realising the subscription, new enrolment, are now carried out by various branches of ISI in respect of the members falling in their regions. It is hoped that decentralization of membership work will greatly help in the early realization of subscription from existing members and also in the enrolment of new members.

*Sales Service* — The sales service at ISI Headquarters and at the various Branch Offices continued to serve the Indian industry by selling Indian and Overseas Standards. Apart from Indian Standards, a ready stock of copies of specifications issued by British Standards Institution (BSI) and International Electrotechnical Commission (IEC) is maintained for purposes of sale. Besides, a number of standards issued by overseas standards organizations, such as, DIN, JIS, ANSI, ASTM, etc, are procured for the use of subscribing members and various Government departments. ISI is the sole selling agency for the sale of overseas standards on commission basis.

A comparative statement of the sale of Indian and Overseas Standards, as also the commission earned by ISI on sale of Overseas standards for the last three years is given below:

	1971-72	1972-73	1973-74
	Rs	Rs	Rs
a) Indian Standards	1 447 525	1 531 824	1 624 170
b) Overseas Standards	732 233	738 952	955 591
c) Commission earned on sale of Overseas Standards	199 683	227 341	320 706

During the year under report, Indian Standards specifications were sold to a number of overseas standards organizations including the following:

1. British Standards Institution, London
2. Singapore Institute of Standards and Industrial Research, Singapore
3. Deutscher Normenausschuss, DNA, Berlin
4. Association Francaise de Normalisation, Paris
5. Japanese Standards Association, Tokyo
6. Bureau of Ceylon Standards, Colombo
7. Sudan Industrial Research Institute, Khartoum
8. Nigerian Standards Organization, Lagos
9. Saudi Arabian Standards Organization, Riyadh

In order to improve the quality of binders for filing Indian Standards, proper specifications were laid down in respect of the existing binders, and also binders with automatic spring locking system were introduced and put on sale, both in A4 and A5 sizes.

*Distribution Service* — Details of the distribution service for ISI publications rendered during the year under report is given below:

1. Copies of Indian Standards and Amendment Slips	1 000 000
2. ISI Bulletin	125 000
3. Standards Monthly Additions	72 000
4. Miscellaneous Publications such as Annual Report, Hand Book, etc.	5 000
5. Sectional Lists	35 000

In addition, Distribution Service is also responsible for supply of copies of the above publications to ISO Member Bodies on reciprocal basis.

**Publicity and Conferences** — With a view to publicising ISI activities, promoting widespread implementation of Indian Standards, propagation of ISI Certification Marks Scheme and creation of standards and quality consciousness, the Institution continued to make concerted efforts for furthering standards movement among different sectors of economy throughout the country through different media of publicity.

*Press Notes* — A total of 625 press notes on Indian Standards published and draft Indian Standards put into wide circulation as well as on other important activities of ISI, were issued both to technical and daily press.

*Advertising Campaign* — An advertising campaign highlighting the importance of ISI Certification Marks Scheme was launched through the medium of radio spot and film strip.

*Exhibitions* — ISI participated in the Exhibitions detailed below:

<i>Sl No.</i>	<i>Name of Exhibition</i>	<i>Organized by</i>	<i>Place</i>	<i>Period</i>
1.	Trichur Pooram Exhibition 1973	Kerala Government	Trichur	April-May 1973
2.	Exhibition of ISI Marked Products	ISI	Bombay	20-22 April 1973
3.	Industrial Exhibition	UP Government	Unnao	26 April to 2 May 1973



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<i>Sl No.</i>	<i>Name of Exhibition</i>	<i>Organized by</i>	<i>Place</i>	<i>Period</i>
4.	Consumer Protection Exhibition	Jyoti Sangh	Ahmedabad	7-8 May 1973
5.	Exhibition on Consumer Guidance	Mysore Consumer Guidance Society	Bangalore	25-26 August 1973
6.	Safety Week Celebrations	—	Madras	13-14 October 1973
7.	Golden Jubilee Exhibition	National Dairy Research Institute	Bangalore	29 December 1973 to 4 January 1974
8.	Pongal Tourist Trade Fair	Tamil Nadu Tourism Development Corpn Ltd	Madras	26 Jan to 17 Feb 1974
9.	Scientific Exhibition	Indian Speech and Hearing Assn	New Delhi	24-25 Jan 1974
10.	Bio-Medical Engineering Exhibition	Indian Institute of Technology	New Delhi	11 Feb 1974
11.	Consumer Guidance Exhibition	Southern Consumer Council	Madras	9-11 Mar 1974
12.	I. C. Engines and Combustion Exhibition	Indian Institute of Technology	New Delhi	11-13 Mar 1974
13.	Electronics and Telecommunication Exhibition	Institution of Electronics and Telecommunications Engineers	New Delhi	15-17 Mar 1974
14.	Ceramic Exhibition	Indian Ceramic Society	Madras	Feb - Mar 1974

*Buyers' Guide* — The second edition of *Buyers' Guide* was brought out. This is a more comprehensive document than the first edition published in 1971. It contains information on ISI Mark; operation of the ISI Certification Marks Scheme along with names of corresponding licensed manufacturers; complete addresses of ISI licensees; laboratories recognized



by ISI for testing certified products; and excerpts from orders issued by Central and State Governments and others to give preference to ISI marked products.

*Radio Broadcasts, Group Discussions and Interviews* — The following programmes were broadcast from All India Radio as per details given below:

Sl No.	Date	Subject	Broadcast By	Station	Language
1.	20 Jul 1973	Role of Indian Standard in Technical Education	Shri A. P. Banerji, Director, ISI, Calcutta	Agartala	English
2.	21 Jul 1973	Thivai Thara Nirnayam (Wanted: Standards)	Feature	Madras	Tamil
3.	8 Aug 1973	Khanain Ki Cheezon Main Milawat	Group discussion		
			a) Dr Hari Bhagwan, Director, ISI		
			b) Col S. L. Chadha, Municipal Health Officer (Prosecution), Delhi Municipal Corporation, Delhi	Delhi	Hindi
			c) Shri B. R. Tamta, Commissioner, Food & Civil Supplies, Delhi		
4.	9 Feb 1974	ISI Mark O Agmark Ki O Keno	Shri A. P. Banerji, Director, ISI, Calcutta	Calcutta	Bengali

*Indian Standards to Ethiopia* — Ethiopian Standards Institution arranged a special function for the presentation of the gift of a complete set of Indian Standards to Ethiopia by Shri K.C. Sen Gupta, India's Ambassador to Ethiopia, on 9 August 1973 at Addis Ababa.

Speaking on the occasion, the General Manager of the Ethiopian Standards Institution referred to the assistance and cooperation extended by ISI and praised its work in the field of standardization.

Shri K. C. Sen Gupta made special reference to the training programme conducted by ISI for the technical personnel of the developing countries and expressed the hope that the two Institutions would continue to cooperate in future.

The function received a front-page coverage in 'The Ethiopian Herald' and over Radio and TV News in Ethiopia.

*Visitors to ISI* — During the year, a number of student parties from technical institutions of different universities visited ISI Headquarters. In addition, a number of persons from India and abroad visited the Institution amongst whom were the following distinguished visitors:

1. Dr Nyi, Nyi Deputy Minister, Ministry of Education, Government of Burma
2. His Excellency Dr. W. K. Chagula, Minister for Economic Affairs and Development Planning, Government of Tanzania
3. Shri P. J. Fernandes, Additional Secretary and Director General, Bureau of Public Enterprises, New Delhi
4. Dr Ake T. Vrethem, President, International Organization for Standardization ( ISO ), Geneva
5. Shri A. Sungkari, Councillor for Economic Affairs, Indonesian Embassy, New Delhi
6. Shri P. Bertrand, Coordinator for UNDP/UNIDO, Large-Scale In-Plant Group, Training Projects for Engineers, Vienna

A number of foreign delegates who came to India, took opportunity to visit the ISI Headquarters, New Delhi. In this connection, the visit of the following delegates is worthy of mention:

1. A Burmese delegation headed by Dr Nyi Nyi, Deputy Minister, Ministry of Education, Government of Burma
2. Delegates to the ISO Group Meetings, 1974, New Delhi

**Fifteenth Indian Standards Convention** — The Fifteenth Indian Standards Convention was held at Coimbatore from 17 to 22 December 1973. Attendance in Inaugural, General and Technical Sessions was very encouraging.

*Inauguration* — The Convention was inaugurated on 17 December 1973 by Shri K. K. Shah, Governor of Tamil Nadu with



Shri C. Subramaniam, Union Minister of Industrial Development, Science and Technology and President, ISI, in the Chair. The function was attended by a large number of distinguished audience including delegates, local industrialists, businessmen, officers of Central and State Governments, prominent citizens and other dignitaries.

K. L. Moudgill Prize was awarded to Dr S. R. Ranganathan, Documentationist ( Posthumous ) and Shri C. N. Modawal, Director, Quality Inspection and Quality Control, Government of India, during the inaugural function.

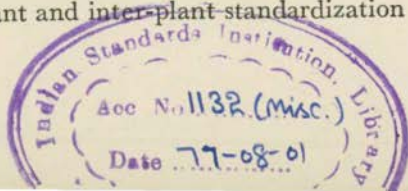
*Lal C. Verman Award* — The first Lal C. Verman Award instituted by the Lal C. Verman Research and Education Trust was awarded to Dr H. C. Visvesvaraya, Director, Cement Research Institute of India by Shri C. Subramaniam, Union Minister of Industrial Development, Science and Technology, and President, ISI, on the opening day of the Fifteenth Indian Standards Convention.

*Delegates* — A total number of 669 delegates including 39 ladies registered themselves for participation in the Convention, and 521 delegates including 23 ladies, actually attended the Convention.

*General Sessions* — Two General Sessions on the subject "Traditional Designs and Today's Textiles" and 'Standards in the Development of Handloom Industry' were included in the programme of the Convention. Shri K. Sreenivasan, Director, South India Textile Research Association (SITRA) presided over the Sessions. Prof. K. G. Subramanyan, Dean of the Faculty of Fine Arts, M. S. University of Baroda, and Shri R. Kirubakaran, Director of Handloom and Textiles, Government of Tamil Nadu, Madras, gave talks on various aspects of the subjects, which were followed by a general discussion. The talks evoked great interest and about 350 delegates took part in the deliberations of the Sessions.

*Technical Sessions and Technical Papers* — Six Technical Sessions were held during the Convention. One hundred and fourteen technical papers were contributed and discussed in the Technical Sessions on the following subjects:

- a) Standardization for motor and diesel engine driven pump sets for agriculture
- b) Role for standardization for textile machinery
- c) Standards in book production
- d) In-plant and inter-plant standardization





- e) Quality control and certification marking in small-scale industries  
 f) SI Units in engineering practice and technical education

*Publicity During the Convention* — Intensive publicity was given to ISI activities on the occasion of the Fifteenth Indian Standards Convention.

*Press Conference* — A press conference was held at Coimbatore on 16 December 1973 which was addressed by Shri S.K. Sen, Director General, ISI; Shri G. K. Devarajulu, Chairman, Reception Committee; and Dr Lal C. Verman, Industrial Consultant and former Director General, ISI.

*Radio Broadcasts* — The following programmes were broadcast from the All India Radio as per details given below :

<i>Sl No.</i>	<i>Date</i>	<i>Subject</i>	<i>Broadcast By</i>	<i>Station</i>	<i>Language</i>
1.	16 Dec 1973	Standardization	Interview of Shri S.K. Sen, Director General, ISI, by Shri W. S. Titus, Special Correspondent, <i>Hindustan Times</i> , New Delhi	Delhi (All-India hook-up)	English
2.	23 Jan 1974	ISI Certification Mark	Group Interview by Shri V. Padmanabhan, Correspondent, <i>Hindu, Madras</i> , of the following: 1. Shri S.K. Sen, Director General, ISI 2. Shri G. K. Devarajulu, Chairman, Reception Committee 3. Dr Lal C. Verman, Industrial Consultant and former Director General, ISI	Tiruchirapalli/Coimbatore/Tirunelveli	English

*Special Supplements* — Thirty one newspapers and journals published from different parts of the country, as mentioned below, brought out special supplements/features on the occasion of the convention:

*DAILIES**English*

1. The Mail, Madras
2. Western Times, Ahmedabad
3. Nagpur Times, Nagpur
4. Motherland, New Delhi
5. Patriot, New Delhi
6. Daily Action, Kanpur
7. Hitavada, Nagpur
8. Amrita Bazar Patrika, Calcutta
9. Madhya Pradesh Chronicle, Bhopal

*Hindi*

10. The Aj, Varanasi
11. Daily Jagran, Kanpur
12. Janta Express, Dehra Dun
13. Uttar Bharat, Kanpur
14. Vidrohi Bharat, Kanpur

*Urdu*

15. Daily Siyasat Jadid, Kanpur

*Tamil*

16. Daily Thanthi, Coimbatore
17. Nava India, Coimbatore

*WEEKLIES**English*

18. Commerce, Bombay
19. Engineering Times, Calcutta
20. National Investment & Finance, Delhi
21. Trade Digest, New Delhi

### *FORTNIGHTLIES*

#### *English*

22. Southern Economist, Bangalore
23. Engineering World, Bombay
24. Industrial Economist, Madras

### *MONTHLIES*

#### *English*

25. Indian Manufacturer, Bombay
26. Chemical Take-off, New Delhi
27. Farm and Factory, Madras
28. Textile Magazine, Madras
29. Industrial Herald, Madras
30. Indian Textile Journal, Bombay
31. Indian Industries, Madras

*Advertising Campaign* — A special advertisement regarding Fifteenth Indian Standards Convention was released in newspapers and journals which brought out special supplements on the occasion of the Convention.

*Film Strip* — The film strip 'Let This Not Happen to You' was released in the local cinemas of Coimbatore in December 1973 on the occasion of the Convention.

*Press Coverage* — Deliberations of the Convention received wide coverage in the press all over the country as also over the All India Radio.

*Souvenir* — A Souvenir containing articles and messages on the role of standardization from eminent personalities was brought out by the Reception Committee of the Fifteenth Indian Standards Convention. Copies of the Souvenir were distributed among the delegates to the Convention.

### **ISO Group Meetings 1974, New Delhi**

*ISO/TC 34 Agricultural Food Products* — The Subcommittees ISO/TC 34/SC 8 Stimulant Foods and ISO/TC 34/SC 7 Spices and condiments of the Technical Committee ISO/TC 34 Agricultural Food Products of the International Organization for Standardization ( ISO ) held their seventh



and ninth meetings from 14 to 19 February 1974, and 20 to 26 February 1974, respectively, in New Delhi. The Secretariat of both the Subcommittees is held by India.

Fifty-five delegates representing European Economic Community, Ethiopia, France, Hungary, India, Indonesia, Switzerland, Sri Lanka, UK, USA and Yugoslavia attended the meetings.

*ISO/TC 8/SC 7 Inland Navigation* — The fifth plenary meeting of the Subcommittee ISO/TC 8/SC 7 Inland Navigation of the Technical Committee ISO/TC 8 Ship Building was held in New Delhi from 1 to 5 March 1974.

Sixteen delegates representing Czechoslovakia, India and USSR attended the meeting.

*K. L. Moudgill Prize* — In accordance with the decision of the K. L. Moudgill Prize Awards Committee, two prizes for the years 1972 and 1973 each of the value of Rs 1 000 were awarded to Dr S. R. Ranganathan ( Posthumous ) and Shri C. N. Modawal, Director, Quality Inspection and Quality Control, Government of India, respectively, in view of their valuable contribution in the field of standardization, at the Inaugural Function of the Fifteenth Indian Standards Convention held on 17 December 1973 at Coimbatore.

*Fellowship of ISI* — Fellowship of the Indian Standards Institution conferred on 40 ( 20 each for the years 1972 and 1973 ) Chairman, Vice-Chairman and members of Division Councils, Sectional Committees, Advisory Committees ( Technical ), Subcommittees and Panels, who have made outstanding contribution to the advancement of standardization at the national and/or international level, at the Inaugural Function of the Fifteenth Indian Standards Convention held on 17 December 1973 at Coimbatore.

*Use of Hindi in ISI Work* — In pursuance of Official Languages Act adequate steps were taken for progressive use of Hindi in the day to day work of ISI.

During the year under review, almost all the letters received in Hindi were replied to in Hindi. Hindi versions of 201 gazette notifications were prepared for publication in Gazette of India. Hindi press notes and features numbering 14 on published standards and other ISI activities were issued to Hindi journals and newspapers.

Three articles covering Dr Ranganathan's contribution to standardization and ISI were, prepared for Ranganathan Number of 'Pustakalaya Vignyan' published from Banaras Hindu University.

The Hindi version of IS : 2629-1966 'Recommended practice for hot dip galvanizing of iron and steel', was sent to press for publication.

This year an Official Languages Implementation Committee was set up in ISI to review and supervise the progressive use of Hindi. The Committee held two meetings during the year and decisions regarding reply to Hindi letters in Hindi, issue of office memoranda in Hindi relating to Grade IV employees, use of Hindi in casual leave form, etc, were taken.

The Hindi Teaching Scheme of Ministry of Home Affairs is also applicable to ISI and this year, five employees received Hindi training. Cash awards for passing Hindi examinations meritoriously were sanctioned to three employees and one employee was granted increment for twelve months as incentive.

**Finances** — The total income of the Institution from various sources, such as, Government of India grant, membership subscription, sale of Indian Standards as certification marking fees, during the year 1973-74 amounted to Rs 16 267 388 as against an expenditure of Rs 15 572 568. A statement of accounts for the year 1973-74 is given in Appendix A. The audit report from the Accountant General will be tabled at the meeting of the General Council.

*Invisible Contribution* — Besides the income and expenditure during the year under review mentioned above, the Institution also received some invisible contributions. Expenses were incurred by committee members of ISI committees within the country and abroad. In addition, many organizations, both in public and private sectors, undertook testing work and supplied samples, free of cost. The total value of such invisible contributions during the year under report is estimated at Rs 937 456.

**Meetings of General Council and Executive and Finance Committees** — The twenty-ninth meeting of the General Council of the Institution was held on 8 December 1973 under the Chairmanship of Shri C. Subramaniam, Union Minister of Industrial Development, Science and Technology, and President, ISI. Shri D. C. Kothari and Shri R. S. Pande were re-elected Vice-Presidents of ISI for a period of one year ending 31 December 1974. The Executive and Finance Committees held five and four meetings, respectively, during the year.

**ISI Staff** — The following important developments took place during the period under review:

1. Dr A.K. Gupta, Deputy Director General — The period of deputation as Expert in Industrial Standardization and Quality Control in Caracas, Venezuela, under United Nations Industrial Development Organization, extended by six months with effect from 17 October 1973.



2. Shri B. S. Krishnamachar, Deputy Director General — Reverted to ISI service with effect from 2 July 1973 on expiry of the period of deputation as an Expert in Industrial Standardization to the Government of Ecuador, under United Nations Industrial Development Organization, and the period of leave.

Acted as a Lecturer and Visiting Professor Incharge of teaching in the special area of 'General Aspects from Standardization and its Basis' from 7 to 21 January 1974 for a Pan-American Course for Training Standards Engineers in Latin American Countries, organized by the Government of Mexico at Mexico.

Relieved with effect from 22 February 1974 (AN) to enable him to take up his further assignment of an Expert in Industrial Standardization to the Government of Ecuador, under United Nations Industrial Development Organization, on deputation for a period of one year with effect from 1 March 1974.

3. Shri A. B. Rao, Director — Relieved with effect from 27 April 1973 (AN) for taking up new assignment of Industrial Standardization Expert to the Government of Philippines, under United Nations Industrial Development Organization, on deputation, with effect from 30 April 1973 to 31 August 1974.

4. Shri T. C. Kapoor, Deputy Director — Attended the UNIDO In-plant Group Training Programme for Engineers in the field of Organization of Standardization Systems in Manufacturing Industries in USSR from 4 April to 1 September 1973.

5. Shri G. S. Vilku, Deputy Director — Attended the UNIDO In-plant Group Training Programme for Engineers in the field of Organization Systems in Manufacturing Industries in USSR from 4 April to 1 September 1973.

6. Shri Y. R. Taneja, Deputy Director — Attended the Group Training Course in Advanced Industrialized Building Methods and Standardization in UK under Colombo Plan from 30 April to 31 August 1973.

7. Shri T. S. Subramanian, Deputy Director — Attended the UNIDO In-plant Group Training Programme in the field of Quality Control in Sweden from 13 August to 12 October 1973.

8. Shri B. C. Kapur, Deputy Director — Attended the Group Training Course in Industrial Standardization and Quality Control in Japan under Colombo Plan from 6 January to 27 March 1974.

9. Shri R. C. Luhadia, Deputy Director — Attended the Group Training Course in Industrial Standardization and Quality Control in Japan under Colombo Plan from 6 January to 27 March 1974.



10. Shri S. L. Bali, Deputy Director — Attended United Nations Industrial Development Organization fellowship training in the field of methods for preparation of standard samples of metals and their alloys in Canada, USA, Germany and France from 21 October 1973 to 2 February 1974.

11. Shri B. Santosh Rao, Assistant Director — Relieved with effect from 4 January 1974 ( AN ) for attending the Course for Industrial Quality Instructors under the Netherlands Government Fellowship for 1973-74 in the Netherlands for five months.

12. Shri S. M. Quadri, Deputy Director — Relieved with effect from 18 March 1974 ( AN ) for attending UNIDO In-plant Group Training for Engineers in the field of Organization of Standardization Systems in Manufacturing Industries in USSR from 19 March to 18 July 1974.

13. Shri P. K. Malik, Assistant Director — Relieved with effect from 18 March 1974 ( AN ) for attending UNIDO In-plant Group Training for Engineers in the field of Organization of Standardization Systems in Manufacturing Industries in USSR from 19 March to 18 July 1974.

14. Shri R. K. Monga, Assistant Director — Relieved with effect from 18 March 1974 ( AN ) for attending UNIDO In-plant Group Training for Engineers in the field of Organization of Standardization Systems in Manufacturing Industries in USSR from 19 March to 18 July 1974.

15. Shri K. Subramaniam, Officer on Special Duty — On expiry of the period of his deputation, and leave from 15 January 1973 to 1 May 1973, proceeded to join duty as Deputy Director, Marine Engineering Training, Bombay, on reversion to Government of India service.

16. Shri R. K. Srivastava, Deputy Director/Head — Resigned from ISI service and relieved with effect from 10 December 1973 ( AN ).

17. Shri A. S. Cheema, Director — On expiry of the period of his deputation as Additional Director in Export Inspection Council of India, Calcutta, and leave, reverted to ISI service with effect from 11 February 1974 ( FN ).

18. Shri D. Das Gupta, Deputy Director General — Retired from ISI service with effect from 31 March 1974 ( AN ).

The total strength of the Institution as on 31 March 1974 was 1 310, consisting of 313 officers and 997 staff members.

**Branch Offices** — A brief resumé of the important activities of the Branch Offices is given in the following paragraphs:

*Ahmedabad* — Fifty-nine applications for grant of ISI Mark licences were received during the year, of which 15 were received from the Tata

Chemicals, Mithapur, covering their entire range of products such as methyl bromide, sodium bromide, potassium bromide, ammonium bromide, soda ash, copper oxychloride, edible common salt, bromide technical sodium carbonate, etc. Twenty-eight licences were granted covering a variety of products such as pesticides, steel billets, heald frames, top rollers for spinning frames, absorbent gauge, 18-litre tins, steel drums, nickel salts, distemper, window sections aluminium conductors, etc.

Based on discussion with Ahmedabad Textile Industry's Research Association (ATIRA), action has been initiated for the coverage of wash and wear fabrics under the ISI Certification Marks Scheme. Director, Ahmedabad Branch was associated as a member with the Expert Panel organized by Export Inspection Council for assessing the exportworthiness of products of factories in Gujarat region.

The Indian Farmers Fertilizer Co-operative which is setting up two multi-crore fertilizer units in Gujarat have informed that they will make purchase of materials in accordance with ISI specifications wherever available. They have also agreed to insist on ISI certified products. Ahmedabad Municipal Corporation has issued circular to all the departments functioning under it to quote Indian Standards in the tender notices and also to give preference to ISI certified products, other things being equal.

During the year under review, Ahmedabad Branch Office participated in a number of seminars/conferences, sponsored by various institutions and associations. Mention may be made of the Thirtieth All India Textile Conference with a special session on 'Standardization in Spinning and Weaving Store Items' which was attended by over 600 delegates.

Talks were arranged on different aspects of standardization at a number of forums, such as 'Summer School in Polytechnic Management' organized by Director of Technical Education; 'Foundry Practice Course' organized by SISI; 'Open House Discussion on In-process Quality Control for Diesel Engine' organized by SISI and Rajkot Engineering Association 'Entrepreneurship Development Programme' organized by Gujarat Industrial Investment Corporation; etc.

A seminar on 'Pumps, Turbines, Compressors, Engines and other Machinery' was jointly organized by ISI and Institution of Engineers (Baroda Sub-centre) on 24 and 25 November 1973. The Seminar included a special session on 'Standardization and Import Substitution'.

The Branch Office also participated in the 'Consumer Protection Exhibition' organized by Jyoti Sangh, Ahmedabad on 7 and 8 May 1973.

The sale of Indian Standards at the Branch Office during the period under review amounted to Rs 56 947.<sup>78</sup>.



*Bangalore* — To promote implementation of Indian Standards, a number of seminars and conferences were organized by ISI as well as other organizations, of which mention may be made of the following:

- a) Appreciation Course in Company Standardization, Bangalore, 6-9 August 1973
- b) Seminar on Impact of Standardization in Industry, Bangalore, 13 October 1973
- c) Conference on the Use of Modular Bricks, Bangalore, 16 November 1973
- d) Panel Discussion on Standardization of Exploration Techniques in Limestone prospecting, Bangalore, 12-13 January 1974
- e) Seminar on Alloy Steel Industry in India, Bangalore, 4-5 February 1974

An Advisory Committee for the Branch Office was set up during the year under report. The Committee constituted special consultative Sub-committees in several important fields.

Some of the products for which licences under the ISI Certification Marks Scheme were granted for the first time were (a) 60° dead centres for lathes (IS:2289-1963), (b) roasted chicory powder (IS : 612-1971), and (c) aluminium phosphide tablets (IS : 6438-1972).

The subscribing membership collection registered a total of Rs 131 650 as on 31 March 1974.

The sale of Indian Standards amounted to Rs 68 311<sup>45</sup> as on 31 March 1974.

*Bombay* — A conference on sports goods was held on 8 June 1973 which was presided over by Shri S. K. Wankhede, Speaker of Maharashtra Vidhan Sabha, and was attended by a large section of the manufacturers and consumers.

The Branch Office actively participated in the following seminars:

- a) 'Consumer Safety and We' organized by Electrical Merchants' Association, in Bombay
- b) 'Quality Control and Value Analysis' jointly organized by SISI Bombay and Powai-Sakinaka Industries Welfare Association, in Bombay
- c) 'National Seminar on Research Management' organized by All India Manufacturers Organization, in Bombay
- d) 'Environmental Problems Associated with Fertilizer Industry' jointly sponsored by Central Public Health Engineering Research



- Institute, Nagpur, Fertilizer Corporation of India, New Delhi, and ISI, in Bombay
- e) 'Air Pollution Control Techniques' organized by Central Labour Institute, Bombay, jointly with other organizations
  - f) 'Power — Present Problems and Planning for Future' organized by Institution of Engineers ( India ), at Poona
  - g) 'Indian Standards for Electrical Safety' organized by Electrical Contractors Association of Maharashtra, in Bombay
  - h) "Technology Forecasts for the 1980's", theme of Annual Convention of the Institute of Electrical & Electronics Engineers, India Section, in Bombay

Apart from the above, the officers of the Branch Office delivered lectures to the trainees of training programmes about standardization and quality control organized by different organizations.

With a view to taking the concepts of standardization to the technical students, lectures were delivered to the engineering students at VJTI, Bombay, and also to the students of Engineering College at Poona. Both the programmes were sponsored by the Institute of Standards Engineers, Bombay Section.

The Study Groups constituted by the Action Committee for Implementation of the National Building Code in the State of Maharashtra, concluded their deliberations and submitted their recommendations to the Action Committee. Discussions were held with the Managing Director, CIDCO, regarding some aspects of implementation of National Building Code in the New Bombay Project.

During the year under report, Bombay Branch Office continued to render assistance and advice to the Testing Committee formed by the Consumer Guidance Society.

The State Board for Literature and Culture, Government of Maharashtra, exhibited interest in translating into Marathi some of the Indian Standards which are of direct interest to the consumers. About 30 Indian Standards and a list of all the Indian Standards have been given to them for their scrutiny. The job of translation will be done by a Committee, on which ISI is co-opted as a member.

Indian Standards Institution, Bombay Office, has been given representation on the Research and Development Cell of the Silk and Rayon Textiles Export Promotion Council, Bombay. The function of the Cell is to assist in developing new products and to improve quality, design, etc of indigenous silk and rayon textiles.

The Hydraulic Department of Bombay Municipal Corporation has

issued orders that with effect from July 1973, sanitary appliances and water fittings would be purchased only in accordance with the relevant Indian Standards. ISI Certification Mark is compulsory for those products with effect from 1 April 1975.

The activities of the Institution continued to receive good publicity through lectures, seminars and other media. Exhibitions were arranged as per details given below when ISI-marked goods and a few standards relevant to the occasions were displayed:

- a) Exhibition organized by Mahila Parishad at Sangli from 29 September to 2 October 1973
- b) Exhibition organized by Institution of Engineers and others at Bombay from 21 to 26 December 1973

A feature dealing with 'Consumer Problems' was prepared by All India Radio, Bombay, and the Branch Office participated in the radio interview.

During the year under review, operation of licences for major items like LPG cylinders and valves, diesel engines, electric motors, etc, apart from the others, continued actively. One of the major items covered under the ISI Certification Marks Scheme during the year was flameproof electrical enclosures for which licences were issued to important manufacturers in Bombay. The other important items covered during the year were PVC rainwear, 16-mm projectors, and primary food colours.

The Branch Office received first applications for quite a few important items, such as surgical implements, agricultural implements, carbon steel cast billet ingots, rolling shutters, and rotating electrical machines (dc motors).

The Government of India have decided to amend the PFA Rules according to which the coal tar dyes and their preparations shall be allowed to be sold only with ISI Mark. Licences have been issued to a leading manufacturer to use ISI Mark on primary food colours. A number of applications from manufacturers of food colour preparations are under consideration.

The Indian Paints Association evinced interest in ISI Certification Mark for various products. In this connection, detailed discussions were held with the Western Regional Committee of the Association when a number of points relating to the Scheme were clarified. The Association intends to advise its members to go in for ISI Mark.

During the year under report, 92 new licences were granted covering a variety of items as against the target of 80. The number of operative licences at the end of the year stood at 419.



Special inspections continued to be undertaken by the Bombay Office on behalf of Government of India, Ministry of Health (NMEP) of ISI-marked BHC water dispersible powder which is an insecticide for prevention of malaria. Similarly, several inspections were also undertaken on behalf of the Government of Maharashtra for supply of ISI-marked endrin emulsifiable concentrates and other products for agricultural purposes.

For the benefit of the technical personnel employed in the diesel engine manufacturing units, a Quality Control Training Programme was organized by the Indian Diesel Engine Manufacturers Association at Poona in collaboration with ISI in September 1973. Also, a Statistical Quality Control Training Programme for pesticide licensees in the western region was held in Bombay in November 1973.

One of the notable features of the year under review was acquisition of a plot of land at Marol Industrial Area, Andheri, Bombay, measuring 8 001 m<sup>2</sup> at a total cost of Rs 264 100 for the purpose of construction of a building for housing the regional laboratory and office.

The Branch Office Laboratory, both chemical and electrical continued to expand their activities during the year and the total number of samples tested was 412, the total testing charges being over Rs 36 000.

The total sale of Indian Standards during the year stood at Rs 2·94 lakhs.

The membership collection during the year under report amounted to Rs 9·51 lakhs (inclusive of collection by Ahmedabad Branch Office).

*Calcutta* — With the implementation of 14-point programme by the West Bengal Government for economic regeneration, the tempo of Certification Marks work was retrieved considerably and as a result the target of 100 licences was exceeded by 4 percent. The significant addition to the range of items already covered included flame-proof enclosures, steel ingots, pork meat canned, ferro-alloys, etc.

The review meeting took place on 17 August 1973 to assess performance of the licensees for plywood panel on the basis of the data obtained at weekly inspection. In accordance with the mutually agreed criteria, the licensees were graded on the basis of the statistical scrutiny of the data obtained on investigation to effect further improvement for satisfactory operation of the ISI Certification Marks Scheme.

As a part of the special investigation scheme undertaken for the plywood licensees, a seminar on 'Role of Glue in Plywood Certification' was held at Tinsukia on 27 October 1973. The Seminar, inaugurated by Shri P. Gogoi, Minister for Revenue & Forest, Government of Assam, made a number of valuable recommendations and Indian Plywood



Industries Research Institute (IPIRI) was requested to formulate a comprehensive guideline to help plywood industries in operating the scheme.

A joint meeting of the manufacturers and consumers of LPG steel sheets and LPG cylinders was held at Rourkela on 24 April 1973 to identify the problems and to find out ways and means for their solution. The meeting took a few important decisions for implementation of Indian Standards by the concerned interests.

A meeting of the representatives of mines and manufacturers of safety footwear was held on 8 December 1973 at the Branch Office under the chairmanship of the Director General, Mines Safety in connection with the use of safety footwear in mines.

The State Governments of Orissa, West Bengal and Meghalaya and the Commissioners of the centrally administered areas of the Eastern Region, on requests made by the Branch Office, have empowered the Presidency and the First Class Magistrates of the respective States to try offences punishable under ISI Certification Marks Act.

New testing facilities were added to the Laboratory at the Branch Office to cover the testing of licensed items such as milk bottles, alcoholic drinks, rubber and rubber products, and non-destructive testing. During the year, 4 946 samples were tested against the various requirements of the relevant Indian Standards, representing an increase of 1 656 samples over the last year.

As a part of implementation programme a number of seminars/conferences were held of which the following are particularly noteworthy:

<i>Date</i>	<i>Place</i>	<i>Subject</i>	<i>In Association With</i>
17 Jul 1973	Tripura	Role of Indian Standards in Technical Education	Department of Industries and Technical Institutions of Tripura
5 Nov 1973	Calcutta	Adoption of Modular Bricks in West Bengal	Chief Engineer, PWD, West Bengal and Brick Manufacturers
7 Nov 1973	Patna	Adoption of Modular Bricks	Government of Bihar
10 - 11 Jan 1974	Agartala	Standardization in Public Works	Public Works Department, Tripura
17 Jan 1974	Cuttack	Utilization of Indian Standards in Technical Education	Government of Orissa

In order to create standards-consciousness amongst the cross section of technical personnel, Director and other officers of the Branch Office gave a number of talks sponsored by various organizations as detailed below:

<i>Talk Given By</i>	<i>Subject</i>	<i>Sponsored By</i>
Shri A. P. Banerji	Role of Standardization and Quality Control	Indian Society for Quality Control
do	Company Standardization Practice	Calcutta Productivity Council
do	Export Marketing and Standardization	Calcutta Management Association
do	Role of Standards in Quality Control	Indian Association for Productivity, Quality and Reliability
do	Role of Standards Engineers in our country	Institution of Engineers (India)
Shri H. P. Ghose	a) Activities of Indian Standards Institution b) Standardization and Control	M/s. Guest, Keen, Williams, Howrah

The activities of the Branch Office continued to receive due coverage from the local press, both Bengali and English as also from All India Radio. The press gave due publicity to the important activities of ISI from time to time while the Calcutta Station of All India Radio broadcast features, talks, news items, etc. A number of periodicals brought out by different techno-commercial organizations also continued to publicise the activities of the Institution.

In addition to publicity through the Press and the Radio, the Branch Office also participated in the following exhibitions:

<i>Date</i>	<i>Place</i>	<i>Organized By</i>
10-11 January 1974	Agartala	Government of Tripura and Indian Standards Institution



<i>Date</i>	<i>Place</i>	<i>Organized By</i>
17 January 1974	Calcutta	Joint Director of Industries (Technical), Government of Orissa and Indian Standards Institution
February 1974	Calcutta	Institution of Engineers (India)

The accommodation available to the Branch Office at 5 Chowringhee Approach proved inadequate to meet the increasing demands on its services and consequently, additional accommodation measuring about 233 m<sup>2</sup> at P-6, C.I.T. Road, Calcutta-700014, was taken to house Steel and Jute Cells. The Inspection Office at Durgapur also moved out to a new spacious accommodation provided by the Durgapur Steel Plant.

During the year, the sale of Indian Standards amounted to Rs 2.65 lakhs while revenue from membership subscription stood at Rs 6.64 lakhs.

*Chandigarh* — A new Branch Office at Chandigarh started functioning from 18 October 1973. Ninth in the series, the Branch Office made concerted efforts to cater to the needs of the various industrial units in the region in the fields of standardization and quality control. Steps were taken to promote wider implementation of Indian Standards, popularise ISI Certification Marks Scheme and generally familiarize industry, trade and commerce with the aims, objects and activities of ISI through various agencies.

*Hyderabad* — Following programmes were organized to promote implementation of Indian Standards in various industries:

- a) Seminar on standards utilization in export promotion
- b) Panel study on quality development in industrial safety equipment used in Andhra Pradesh
- c) Spot survey of standards utilization in metal industrial units in Vijayawada area
- d) Faculty dialogue on concepts in standardization — Lecture programme for technical teachers in Anantapur and Hyderabad
- e) Standards appraisal for transport ancillaries in Andhra Pradesh [ in collaboration with Institution of Engineers (IE) and Institution of Standards Engineers (SEI) ]
- f) Quality control review for metal castings industry ( in collaboration with SEI )
- g) Standardization and productivity ( in collaboration with Andhra Pradesh Productivity Council )
- h) Standards and variety reduction ( in collaboration with EME, NPC, Madras and Hindustan Aeronautics Ltd, Hyderabad )



- j) Role in marketing (in collaboration with Material Management Association)
- k) Quality development in small scale industry (in collaboration with SIET, Small Industries Service Institute, Material Management Association, and Hyderabad Management Association)

Consultative Panels working for industrial groups relating to electronics, electrical, leather, chemicals and paints, construction materials, agricultural implements surveyed the districts of Srikakulam, Mehboobnagar, Modak, Khammam, Guntur, Visakhapatnam, Nellore, Hyderabad, Krishna, and East Godavari.

During the year under report, the Institution participated in the following conferences/seminars:

- a) Seminar on collaboration between technical institutions and industries
- b) Andhra Pradesh Business Conferences
- c) Seminar on 'Quality Management' organized by Indian Association for Quality and Reliability, Hyderabad
- d) Seminar on 'Motivation on Safety' organized by National Safety Council and Chief Inspector of Factories

Standards expositions relating to the specific fields of materials handling and management, transport ancillaries, motivation on safety, and standards utilization in export promotion were arranged.

A brochure on standards utilization for development in Andhra Pradesh and a souvenir on Standards appraisal and utilization in export promotion were brought out.

As a result of intensive campaigning for quality development in various industrial units, 250 industrial units expressed interest in obtaining ISI Certification Marks Licences.

In collaboration with the Industries Department, a scheme for long range development of testing facilities for industrial products in technical institutions of Andhra Pradesh was drawn up. The following new testing facilities were approved in Andhra Pradesh:

<i>Organization</i>	<i>Products Tested</i>
a) Regional Engineering College Warrangal (Departments of Metallurgical Engineering and Electrical Engineering)	Metal products, electrical materials and equipment
b) Osmania University, Hydera- bad (College of Chemical Technology)	Chemicals and construction materials

The collection from subscribing membership registered a total of Rs 62 000 as on 31 March 1974. The sale of Indian Standards during the year under review amounted to Rs 63 498·59.

*Kanpur* — The Branch Office participated in the Industrial Seminar organized at Unnao on 28-29 April 1973. The Seminar was inaugurated by Shri Uma Shanker Dixit, Union Home Minister and the main address was delivered by Shri T. A. Pai, Union Minister for Heavy Industries. One of the points discussed in the seminar was that the small scale units should go in for Certification Marking of their products and the Government departments should not only go in for ISI-marked products but also provide some price preference as is being done in other states. A Package Assistance Camp was also organized from 28 to 30 April 1973 to render on the spot assistance to entrepreneurs and small scale industrial units. ISI along with various government departments participated in the Camp.

The Branch Office also participated in the Industrial Exhibition at Unnao from 28 April to 6 May 1973.

Besides, the Branch Office organized/or participated in the following programmes:

- a) Four-day appreciation Course on Company Standardization at Fertilizer Corporation of India (FCI), Gorakhpur, 24-27 April 1973
- b) Orientation Programme for Utilization of Indian Standards in Technical Education at Central Training Institute for Instructors, Kanpur, 18-19 June 1973
- c) Two-day Orientation and Review Programme organized at Motilal Nehru Engineering College, Allahabad, 15-16 September 1973
- d) Training Programme in Statistical Quality Control for Pesticides Industry, Agra, 11-14 March 1974

During the period under review the following new items were brought/enquired for being brought under ISI Certification Marks Scheme:

- a) Glass making sand according to IS : 488-1963
- b) *PAPAD* according to IS : 2639-1972
- c) Friction surface rubber transmission belting according to IS : 1370-1965
- d) Carbon steel cast billet ingots for rolling into structural steel (standard and ordinary qualities) according to IS : 6914-1973 and IS : 6915-1973.



Forty-nine applications for grant of licence were received. 20 new licences were granted and 186 samples were drawn for testing. The number of operative licence as on 31 March 1974 was 112.

As on 31 March 1974, the total Membership subscription amounted to Rs 100 800.

The sale of Indian Standards during the year stood at Rs 52 818·57.

*Madras* — The fifteenth Indian Standards Convention was held at Coimbatore during the period under review in which over 600 delegates from various parts of the country participated.

A two-day seminar on Standardization and Marketing was organized at Madras by the Institute of Marketing and Management, Southern India Regional Council, jointly with ISI in November 1973.

For the benefit of the pesticides licensees in the region, a training programme for Statistical Quality Control in pesticides manufacture was organized in Madras in March 1973.

A Building Planning Committee was set up under the auspices of the Madras Advisory Committee of ISI to make recommendations for the award of contract for the construction of the Regional Laboratory-cum-office Building. The contract was awarded to the lowest tenderer and building construction work was started. The day-to-day supervision of construction was being exercised by the Directorate of Technical Education, Tamil Nadu. It was expected that the building, would be ready for occupation by the middle of the next financial year.

In connection with a project for quality grading of cement currently produced in the country, certain investigations were to be conducted with the active participation of all cement factories in the country, a few selected CSIR laboratories and the ISI. The standard sand processed and marketed by the Tamil Nadu Public Works Department, Ennore, has been recognized by the ISI as the only source of Indian Standard Sand in the country. A substantial quantity of this standard sand for cement testing, valued at over Rs 33 000 was obtained free of cost from the Tamil Nadu Government.

A conference for adoption of modular bricks was held in Madras when a time limit of two years for switch over to the modular size of bricks was adopted. A decision was also taken that from April 1975 only modular bricks will be manufactured and used in the State of Tamil Nadu. Over 100 bricks manufacturers attended the conference.

A meeting of manufacturers of domestic electric appliances in Tamil Nadu and Pondicherry was convened at Madras in September 1973, with



a view to intensifying efforts for implementation of Indian Standards for domestic electric appliances and their possible certification marking.

Following the discussions last year, further consultations were held with leading tile manufacturers and their associations in Calicut and Mangalore for certification marking of clay tiles. These served to clear certain technical difficulties in marking of tiles and it was expected that the manufacturers would now be able to seriously consider applying for ISI Certification Marking of tiles.

A meeting of rubber manufacturers in Kerala State was organized in March 1974 at Kottayam, with the cooperation of the Rubber Board, to apprise manufacturers of the standards for various rubber and rubber products and the manner in which these products could be covered under the ISI Certification Marking Scheme. The Conference was inaugurated by the Chairman of the Rubber Board and was presided over by the Director of Industries and Commerce, Kerala. Over 60 representatives of manufacturers of rubber and rubber products attended the meeting. A scheme for covering all the raw rubber manufacturers under the ISI Certification Marks Scheme in collaboration with the Rubber Board was planned.

Over 625 tender notifications issued by Purchase Departments of State and Central Governments were carefully scrutinized. On occasions, tender enquiries addressed direct to registered suppliers also came to the attention of the Branch Office for clarification on specification details. It was found that in a few cases, references to overseas standards were still being made though corresponding Indian Standards were available. There were also instances where references were made to editions of Indian Standards which had become obsolete consequent on revision. In all these cases, the purchasing departments concerned were informed about the latest Indian Standards that were available and could be used for procuring their requirements.

During the period under report, the Director, Madras Branch Office served on Curriculum Committee for Metrology and Inspection Course in Polytechnic Institutions and Study Group of the Curriculum Development Centre at the Indian Institute of Technology, Madras, for drawing up the curricula for undergraduate programme in Mechanical Engineering.

Certification marking activities were further diversified and fresh ground was covered by processing varied items such as coal tar food colour preparations, grey iron castings, grey cotton yarn, liquid gum, cement concrete flooring tiles, bicycle rims, valve grinding paste, dynamos, starters, paraffin wax, etc.

Thirty-six new licences were issued during the year under report bringing the total number of operative licences to 302. Seventy-four new applications were received for grant of licences to use ISI Mark. Among

the products for which new licences were granted special mention may be made of (a) rolling shutters and grills (IS:6248), (b) shock absorbers for automobiles (IS:5423), (c) automobile head lamps (IS:1606), (d) cast steel billet ingots (IS: 6914 and IS: 6915), and (e) flameproof enclosures for electrical apparatus (IS: 2148).

The facilities at the Branch Office Laboratory for testing of certified products were further augmented and the laboratory was equipped for complete testing of products such as common salt, wafer biscuits, soluble coffee powder, tobacco, *BIDIES*, plain-knitted cotton vests, etc.

For the benefit of Certification Mark licensees manufacturing pesticides, training programmes for estimation of gamma isomer content by partition column chromatographic method were organized in which pesticides licensees in the region took part.

During the year under review, over 1 122 samples were tested in the Branch Office Laboratory.

A revenue of Rs 3.56 lakhs and Rs 1.77 lakhs was earned from membership subscription and sale of standards respectively.

*Patna* — To promote implementation of Indian Standards and ISI Certification Marks Scheme the ISI Advisory Subcommittee for Bihar in its tenth meeting on 17 November 1973 decided to constitute four regional subcommittees for Tirhut, Chhotanagpur, Bhagalpur and Patna regions.

A conference on adoption of modular bricks in Bihar was organized on 7 November 1973 in the Institution of Engineers, Patna, jointly by ISI, PWD and Bihar State Housing Board. The conference was inaugurated by Dr Ramraj Prasad Singh, Minister for Housing, Local Self Government and Public Health Engineering, Bihar. An action committee for changeover to modular bricks was formed and it was recommended that the changeover should be completed in 1975 burning season. On the occasion, two local English dailies brought out one-page supplements.

The Bank of India and the Allahabad Bank have confirmed that they are insisting on ISI-marked goods while financing the purchase of products to be hypothecated to the Banks.

In order to promote quality control and ISI Certification Marking the Bihar State Industries Department decided to set up a Central Laboratory at Patna and three or four regional laboratories. A gazette notification was issued by the Bihar Government Industries and Technical Education Department announcing composition of a managing committee under the chairmanship of Industrial Development Commissioner, Bihar, to establish these laboratories. ISI will provide the necessary technical guidance and know-how.



The sale of Indian Standards made from the Branch Office amounted to Rs 13 919.<sup>30</sup> during the year.

**Standardization Abroad and at International Level**— The Institution participated actively in the work of organizations devoted to standardization at international level including International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Commonwealth Standards Conference (CSC) with the objects of promoting standards activity at international level and developing international trade. The Institution also made concerted efforts to establish cooperative relations with the standards bodies of other countries, particularly those of the developing nations.

During the year under report, the Institution participated actively in the work of 115 committees of ISO and almost all committees of IEC. In addition, India provided the chairmanship of IEC/TC 43 Electric Fans for Domestic and Similar Use and the Institution held the Secretariats of the following 22 technical committees, subcommittees and working groups, dealing with subjects of interest to the country:

1. ISO/TC 50 Lac
2. ISO/TC 56 Mica
3. ISO/TC 88 Pictorial Markings for Handling of Goods
4. ISO/TC 113 Measurement of Liquid Flow in Open Channels
5. ISO/TC 149 Cycles
6. ISO/TC 8/SC 11 Ship-Building Details/Terminology, Symbols, Drawings, etc
7. ISO/TC 8/SC 9/WG 3 Solid Lifesaving Apparatus
8. ISO/TC 38/SC 8 Physical Testing of Fabrics, and Fabric Terminology
9. ISO/TC 12/SC 1 Inter-conversion of Values
10. ISO/TC 34/SC 7 Spices and Condiments
11. ISO/TC 34/SC 8 Stimulant Foods
12. ISO/TC 17/SC 2 Classification and Designations of Steels
13. ISO/TC 17/SC 8 Dimensions of Hot-Rolled Steel Sections
14. ISO/TC 45/WG 4 Rubber and Rubber Products — Physical Properties
15. ISO/TC 54/WG 7 Oil of Vetiver
16. ISO/TC 113/WG 1 Measurement of Liquid Flow in Open Channels — Velocity Area Methods
17. ISO/TC 113/WG 2 Measurement of Liquid Flow in Open Channels — Notches, Weirs and Flumes



18. ISO/TC 113/WG 3 Measurement of Liquid Flow in Open Channels — Glossary of Terms
19. ISO/TC 113/WG 4 Measurement of Liquid Flow in Open Channels — Dilution Methods
20. ISO/TC 113/WG 5 Measurement of Liquid Flow in Open Channels — Flow Measuring Instruments and Equipment
21. ISO/TC 113/WG 6 Measurement of Liquid Flow in Open Channels — Sediment Transport
22. IEC/TC 43 Electric Fans for Domestic and Similar use

Shri D. C. Kothari and Shri R. S. Pande, Vice-Presidents, ISI, and Shri S. K. Sen, Director General, ISI represented India at the ISO General Assembly which met in Washington on 10-14 September 1973 under the chairmanship of Dr Francis L. LaQue, ISO President. They also represented India at the twenty-seventh meeting of the ISO Council held in Washington on 5-7 September 1973.

At the Annual Group Meetings of the International Electrotechnical Commission (IEC) which were held in Munich (Germany) from 18-30 June 1973, India was represented by Shri J. S. Zaveri, Bharat Bijlee Limited, Bombay; Shri Y. S. Venkateswaran, Deputy Director General, ISI; Brig D. Swaroop, Department of Defence Production, Ministry of Defence; Shri V. A. Krishnamurthy, Central Public Works Department, New Delhi; and Prof J. K. Choudhury, Jadavpur University, Calcutta.

India was represented by Shri S. K. Sen, Director General, ISI, at the Conference on the 'Role of Standardization in Developing Countries' organized jointly by International Organization for Standardization (ISO), United Nations Industrial Development Organization (UNIDO), and the Government of Mexico held at Mexico on 17-21 September 1973.

A delegation headed by Director General, ISI, visited Moscow from 22-28 August 1973 with the object of identifying the scope and procedure for developing bilateral, scientific and technical cooperation between USSR and India in the field of standardization and metrology.

Dr Ake T. Vrethem, President, ISO, was on a two-day official visit to India on 13-14 February 1974. India was the first country which he visited in his capacity as ISO President. During his visit to ISI, he addressed a selected gathering of Standards Engineers at the Indian National Science Academy, New Delhi, on 13 February 1974.

## 0. INTRODUCTION

**0.1** Part II of the Report gives, in brief, a record of the technical work done during 1973-74 by different divisions and departments of the Institution in respect of the formulation of Indian Standards.

It does not attempt to cover in detail all the work done and that under consideration, but it deals only with the more important developments in different spheres of ISI activities.

**0.2 Formulation of Standards** — During the year 1973-74, a total of 474 new standards were adopted and sent to press, 243 standards were revised, 233 new proposals for formulation of Indian Standards were received and 163 proposals (including some made during the previous year) were accepted and referred to various committees for further processing.

Graphical representation of the growth of Indian Standards since 1965 is given in Fig. 4.

**0.3 Technical Committees of ISI and Their Membership** — As on 31 March 1974, 2 004 technical committees with a total membership of 27 983 experts representing various interests, namely, manufacturers, consumers, scientists, technical and research organizations, government departments and purchasers, were engaged in the task of formulation of Indian Standards.

During the year under report, a total of 807 committee meetings were held for the work relating to formulation of standards.

The growth since 1965 in the number, membership and activities of the technical committees is shown in Fig. 5 and 6.



FIG. 4 GROWTH OF INDIAN STANDARDS

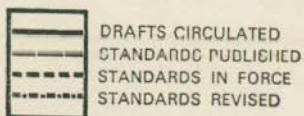
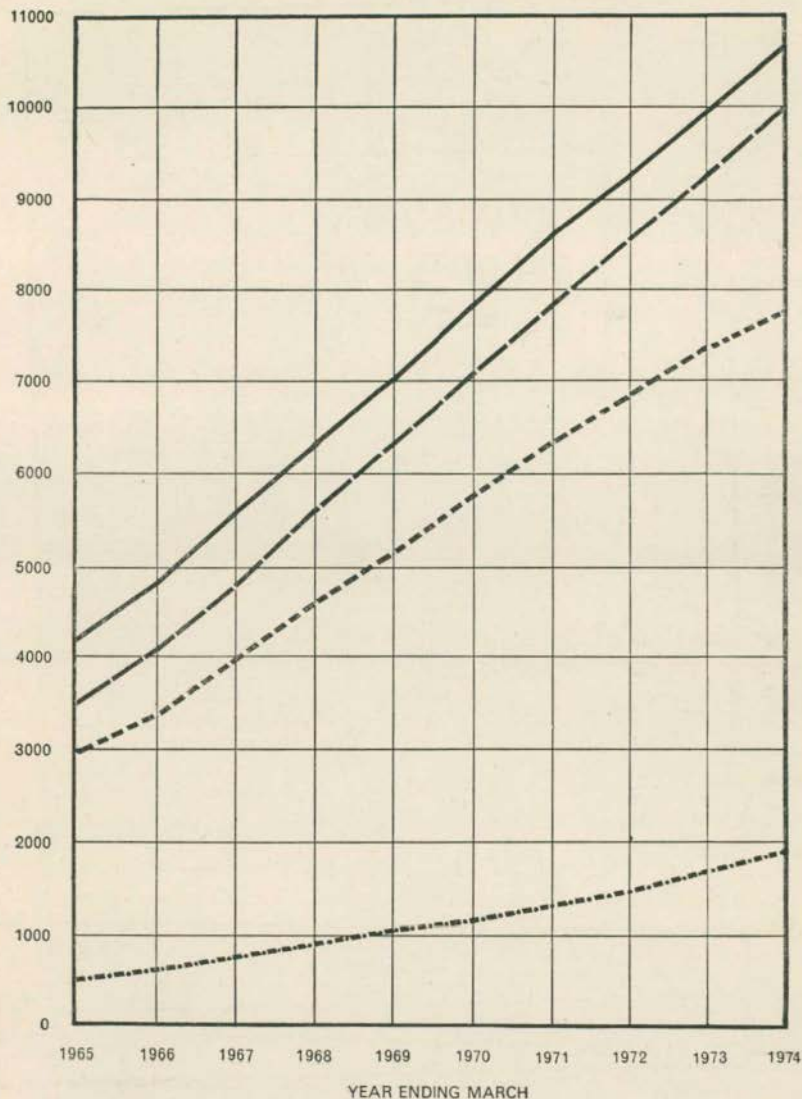
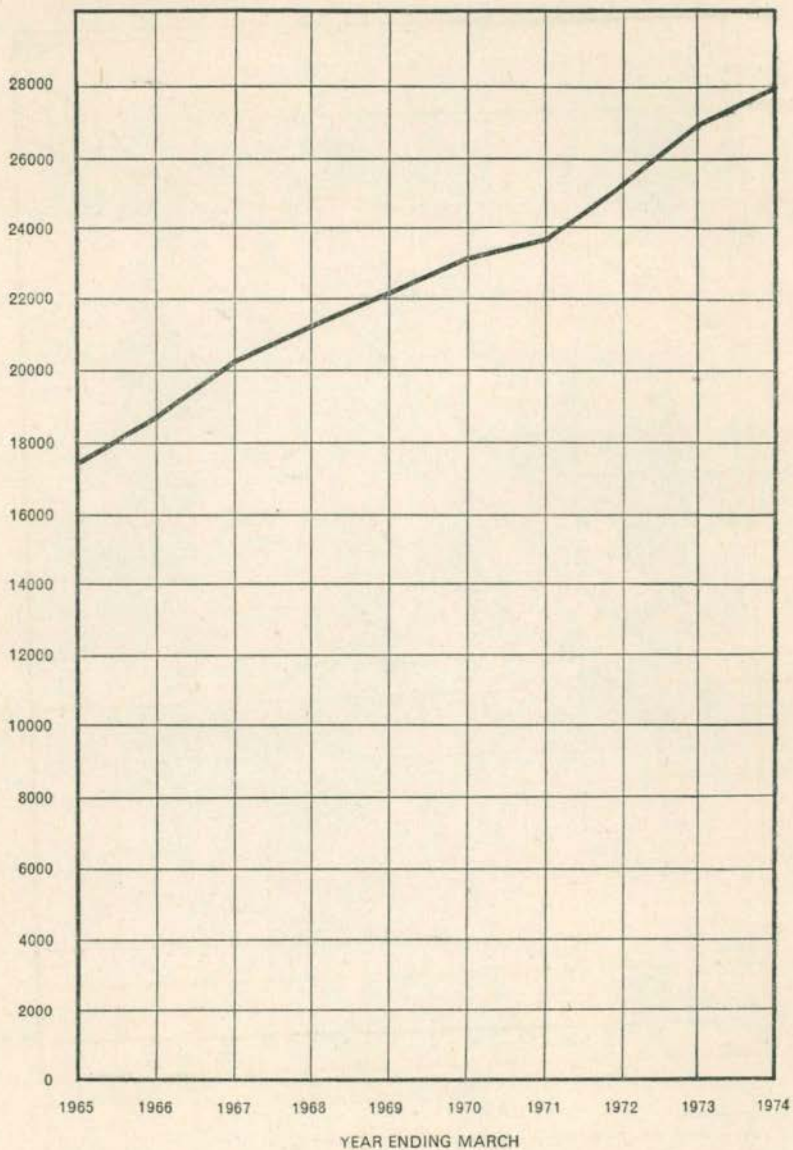


FIG. 5 GROWTH OF COMMITTEE MEMBERSHIP




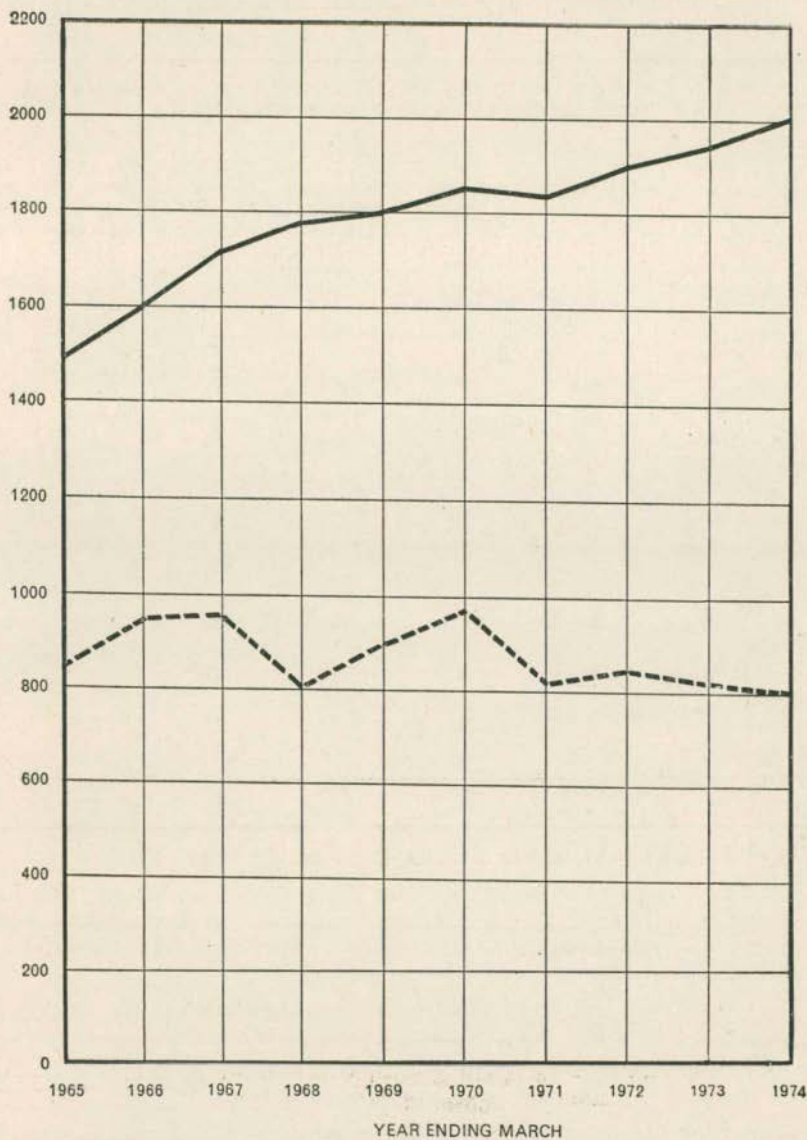
 No. OF COMMITTEE MEMBERS



FIG. 6 GROWTH OF COMMITTEES AND THEIR ACTIVITIES



— No. OF COMMITTEES  
- - - No. OF MEETINGS HELD

**0.4 Record of Work** — Cumulative information about the work pertaining to different divisions and departments of the Institution is given in Table 1.

**TABLE 1 RECORD OF WORK OF ISI TECHNICAL DIVISIONS AND DEPARTMENTS ( FOR THE YEAR 1973-74 )**

DIVISION OR DEPARTMENT	NO. OF COMMITTEES	NO. OF MEETINGS	NEW AND REVISED STANDARDS PUBLISHED AND UNDER PRINT	AMENDMENTS TO STANDARDS	DRAFT STANDARDS CIRCULATED	NEW SUBJECTS TAKEN UP
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Agricultural and Food Products	145	60	80	18	108	20
Chemical	414	188	120	46	138	64
Civil Engineering	285	122	103	37	99	20
Consumer Products & Medical Instruments	96	42	60	3	87	—
Electrotechnical	187	78	75	64	48	1
Marine, Cargo Movement & Packaging	87	38	44	3	45	17
Mechanical Engineering	284	87	103	38	81	14
Structural & Metals	341	92	75	22	61	23
Textiles	109	67	51	25	67	—
Miscellaneous	56	33	6	1	3	4
Total	2 004	807	717	257	737	163

## 1. AGRICULTURAL AND FOOD PRODUCTS DIVISION

**1.1** During the year under report, the Agricultural and Food Products Division Council formulated 80 Indian Standards on important subjects relating to agricultural, animal husbandry, dairying and food products. Details of some of these standards are given below:

- Specifications for protein-rich food supplements for infants and pre-school children, fermented milk products and table wines.
- Specifications for gum ghatti, carob bean gum and tragacanth gum.
- First of the three parts of the exhaustive code for fumigation for agricultural produce related to methyl bromide, ethylene dibromide and aluminium phosphide.

- d) Specifications for disposable artificial insemination gloves and blood-meal as livestock feed.
- e) Code for hygienic conditions for production, processing, transportation and distribution of milk.
- f) Guides for storage of tomatoes, citrus fruits and testing of physical conditions in cold stores.
- g) Glossary of important fish species of India.
- h) Code for handling, processing, quality evaluation and storage of poultry.

**1.2** In addition, the following Indian Standards were formulated in continuation of the work already initiated:

- a) Specifications for sugar-cane crushers, power maize shellers and seed-cum-fertilizer drills were added to the large number of standards on farm implements and machinery.
- b) For ingredients required for microbiological analysis where urgent need has been felt for testing before marketing, specifications were compiled for proteose peptone, tryptone and casein hydrolysate.
- c) A comprehensive method of test for pesticidal formulations was compiled and specifications were added for fenitrothion dusting powder, carbaryl water dispersible powder concentrates, carbaryl dusting powder, pyrethrum extracts, aldrin emulsifiable concentrates, 2, 4-D esters, etc.

**1.3** Besides formulating new Indian Standards, due care was also taken to ensure that standards more than 5 years old were revised to meet industry's requirements effectively. These revisions included standards on liquid glucose, condensed milk, carbonated beverages, cube sugar, fish meal as livestock feed, and grading for green coffee. The standard relating to the nomenclature for spices was also revised alongwith the method of test for spices.

**1.4** The ninth meeting of the Standing Working Committee of Agricultural and Food Products Division Council (SWCAF) was held in New Delhi on 6 November 1973 under the chairmanship of Dr M. S. Swaminathan, Director General, Indian Council of Agricultural Research. The SWCAF decided to explore the possibilities of bifurcating the Storage and Marketing Structures for Agricultural Commodities Sectional Committee (AFDC 28) into the following two Sectional Committees in order to have a more homogeneous group of experts on them:

- a) Storage Structures and Storage Management Sectional Committee (AFDC 28), and
- b) Regulated Market Yards Sectional Committee (AFDC 40)



**1.5 ISI Certification** — During the year under review, the total number of operative ISI Certification Mark Licences against the standards prepared by AFD rose from 555 to 618 showing a growth at the rate of 11.3 percent. The number of new items brought under ISI Certification during the year under review are as under:

- a) Desiccated coconut ( IS : 966-1962 ),
- b) Ethylene dibromide ( IS : 1311-1966 ),
- c) Erythrosine ( IS : 1697-1960 ),
- d) Indigo carmine ( IS : 1698-1960 ),
- e) Ponceau 4R ( IS : 2558-1963 ),
- f) Carmoisine ( IS : 2923-1964 ),
- g) Fast red E ( IS : 2924-1964 ),
- h) Dimethoate emulsifiable concentrates ( IS : 3903-1966 ),
- j) Endosulfan dusting powders ( IS : 4322-1967 ), and
- k) Aluminium phosphide tablet formulation ( IS : 6438-1972 ).

**1.6** Eighty Indian Standards were formulated by Agricultural and Food Products Division Council and sent to press during the year under review.

## **2. CHEMICAL DIVISION**

**2.1** During the year under report, greater emphasis was laid on updating of existing standards; the work which would enable optimum utilization of natural resources, particularly scarce raw materials and by-products; and the work which would effect import substitution.

**2.2** During the period under report, some significant developments concerning the work done by the Chemical Division Council were specially encouraging. In the field of fertilizers, there were many complaints that due to shortages and high prices, wide-spread adulteration was taking place. The National Commission on Agriculture and the Committee of Experts for Fertilizers and Manures in the Ministry of Agriculture recommended to the manufacturers to cover their products under ISI Certification Mark. The Development Council for Paper Industry also recommended certification marking of the entire paper production. In the field of cosmetics which are an item of consumer interest, the Ministry of Health proposed to enforce all the various Indian Standards for these materials under the provisions of Drugs and Cosmetics Act.

**2.3** The work on environmental protection which had assumed great importance in the last few years gained momentum. The Prime Minister's Secretariat addressed a communication to various Chambers of Commerce and Industry and Ministries in the Government of India drawing their

attention to the need for urgent action to protect the environment drawing their specific attention to the work being done by ISI in this field.

2.4 During the year 120 standards were published on various subjects falling under the purview of the Chemical Division Council. Of these, special mention may be made of the following:

**IS : 1290-1973 Mineral Gypsum ( Second Revision )** — In view of the depleting resources of good quality gypsum, the standard has been revised prescribing lower grades of gypsum for some of the industries where the lower grades can be used without any detriment.

**IS : 5411 ( Part II )-1972 Specification for Plastic Emulsion Paint: Part II For Exterior Use** — The use of plastic emulsion paints for exterior purposes has been on the increase over the last few years and these paints have gained popularity because of their ease of application, quick drying properties, non-objectionable odour and good washability, etc. Plastic emulsion paints have eliminated the use of solvents for thinning as the thinner used here is water.

**IS:6044 (Part II)-1972 Code of Practice for Liquefied Petroleum Gas Storage Installations: Part II Industrial, Commercial and Bulk Storage Installations** — Since a large number of LPG storage installations are coming up in the country, this code has been prepared with a view to recommending basic safety requirements and practices for design, construction and safe operation of storage and ancillary facilities for LPG.

**IS : 6609 ( Part I )-1972 Methods of Test for Commercial Blasting Explosives and Accessories: Part I Gun Powder; and IS : 6609 ( Part III )-1973 Methods of Test for Commercial Blasting Explosives and Accessories: Part III Detonators** — These are pioneering documents as no other standards organization has published standards on this object. The committee had set up a panel of experts who examined all the test methods which were in vogue with different manufacturers in other countries. Choice was made in favour of those methods for which sufficient experience and experimental data were available in the country and which were mutually acceptable to all concerned, namely, the producers, the inspecting organizations and the consumers in the field.

**IS:6917-1973 Glass Lenses for Automobile Head-Lights ( Replaceable Bulb Type )** — These lenses are made in large quantity varying considerably in pattern, geometry and dimensions, depending on the head-light on which they are used. This standard prescribes a basis for selecting or manufacturing these lenses so that they are able to withstand normal mechanical impacts, thermal shocks and atmospheric conditions without any significant loss in clarity and transmission of light, besides providing for properly distributed beams of light. Suitable methods of



sampling and test and criteria for judging the quality of lenses have been covered in this standard.

**IS : 6931-1972 Methods of Test for Printing Inks** — It is a significant standard as no other overseas standards organization has prepared standards on this subject. BSI has, no doubt, published a standard which covers methods of testing resistance of prints to various media, namely, solvents, alcohols, soap, spices, fats, alkalis, etc, but it does not cover methods of testing the various characteristics of inks which have been covered in the Indian Standard, namely, hue, strength, dispersion, strike-through, tack, drying time, setting time, coverage, etc.

**IS : 6948-1973 Specification for Ready Mixed Paint Undercoat Synthetic for Ships; and IS : 6951-1973 Specification for Ready Mixed Paint, Finishing, Exterior, for Ships** — These two standards have been formulated basically to cater to the special needs of Indian Navy and merchant shipping for undercoating and finishing synthetic paints. So far there were no Indian Standards for paints for ships on synthetic base. These standards have achieved alignment with corresponding Defence Specifications.

**IS : 6980-1973 Tetrasodium Pyrophosphate** — In view of the varying quality of rock phosphate which is imported in this country, the standard has been formulated keeping in view the difficulties faced by the manufacturers without, at the same time, affecting the need of the consuming industries.

**IS : 6988-1973 Fine China Dinnerware** — A high degree of refinement in its finish and appeal in its shape and design are essential for the china dinnerware. Besides this, the ware should be able to withstand day to day handling without breaking or chipping. This standard while having ample scope for the designer to create a variety of shapes, prescribes methods of sampling and test and classification of defects as major or minor for the guidance of the selector.

**IS : 7029-1973 Code of Practice for Inhibition of Corrosion of Internal Combustion Engine Coolant Water** — Water is almost universally used as a coolant for internal combustion engines. In order to protect the engines against corrosion and prevention of scale formation, this code has been prepared which prescribes a method for cleaning of coolant system of internal combustion engines free from scales and subsequently inhibiting the coolant with suitable materials.

**IS : 7240-1974 Code of Practice for Application and Finishing of Thermal Insulating Materials Between 80°C and 40°C** — This standard which gives all the practical details of application and finishing of thermal insulating materials between 80°C and 40°C took almost seven years to prepare.



**IS : 7330-1974 Methods of Test for Ion-Exchange Resins** — The use of ion-exchange resins has become so widespread in industry and for domestic purposes throughout the world that there is scarcely an industry which does not employ this technique. The usefulness of an ion-exchange material is dependent upon both its chemical and physical properties. Therefore, for a complete characterization of an ion-exchange resin, a number of individual tests of specific properties must be made and judgement based on the results obtained. The methods of test for ion-exchange resins have been laid down in this standard.

**2.5** During the year a meeting of the Chemical Division Council was held. Composition of the Standing Working Committee of Chemical Division Council ( SWCC ) and Standing Working Committee for Petroleum, Coal and Their Derived Products ( SWCPG ) were reviewed. In addition, the composition of Dye-Intermediates Sectional Committee, CDC 46, was reviewed and the Committee was reconstituted.

### **3. CIVIL ENGINEERING DIVISION**

**3.1** During the period under report, Indian Standards on a number of important subjects relating to civil engineering were published while work on many other important draft standards and subjects made considerable progress.

**3.2** Of the important standards, special mention may be made of the Code of practice for design and construction of pile foundation, Part III Under-reamed pile foundations; Safety code for working with construction machinery; Specifications for concrete spreaders and finishers; Guidelines for design, installation and testing of timber seasoning kiln; functional requirements for carbon dioxide tender for fire brigade use; Specification for flocculator device; Recommendations for labour output constants for building work, Part I North Zone; Guide for operation of reservoirs; Code of practice for inspection and maintenance of cross drainage works; Criteria for design of generator foundation for hydel power stations; Specification for penstock and turbine inlet butterfly valves; Specification for turbine inlet spherical valves; Code of practice for planning, design and construction of ports and harbours, Part I Site investigation and Part III Loadings.

**3.3** Of the draft Indian Standards taken up during the period under report, particular mention may be made of Code of practice for domestic hot water installations; Criteria for design of reinforced concrete chimneys; Guidelines for allocation of cost amongst different purposes of a multipurpose river valley projects; Code of practice for embankment design and stability analysis for earth dams; and Code of practice for operation and maintenance of barrages and weirs.

**3.4** The progress in the formulation of standards for river valley projects continued to be maintained satisfactorily and so far 120 standards have been printed or are under print.

**3.5** The drive for implementation of standards formulated under the Civil Engineering Division was continued during the year. In this connection special mention may be made of the Seminar on Standardization in Public Works held at Agartala in Tripura on 10 and 11 January 1974.

**3.6 National Building Code** — During the year under report, special efforts were made for the implementation of the National Building Code of India. The Action Committees set up in most of the States met periodically and the Institution also offered and rendered assistance regarding the drafting of building bye-laws. Special mention may be made in this connection of the assistance rendered by ISI in the revision of Calcutta Municipal Corporation bye-laws.

A drive for implementation of modular bricks was undertaken and conferences for this purpose were held at Madras, Calcutta, Patna and Bangalore, wherein it was agreed to complete the changeover to modular bricks by March 1975.

**3.7** The Civil Engineering Division Council held its twentieth meeting on 31 October 1973, under the chairmanship of Dr K. L. Rao. The Council discussed a number of technical issues, the more important of which were the formulation of a code for industrial buildings and a code for tall buildings. It was noted that the present codes on design either using steel or concrete for buildings covered general building construction and found wanting in certain additional criteria required to cover operational aspects of industrial structures. It was therefore felt that a separate code on industrial structures highlighting these important additional features based on operation of that particular industry be taken up. Regarding tall buildings, keeping in view the recent trend of going vertical in metropolitan areas in so far as housing and office buildings are concerned, it was felt that a code be established to cover all the aspects of tall buildings, especially architectural and structural planning, design and construction.

While discussing the implementation of the National Building Code, the Council noted that though most of the States had agreed in principle to adopt the Code, the physical act of translating this in their various bye-laws and specifications had not yet come up. It was felt that States should take more vigorous steps to ensure adoption of the Building Code directly.

Efforts made for getting modular bricks adopted have met with some success already in four States, namely, Bihar, Karanataka, Tamil Nadu and West Bengal had agreed to adopt modular bricks. The drive for getting the other States to accept modular bricks is being continued.

**3.8** The Indian Standards relating to multipurpose river valley projects were exhibited in the various sessions of the Central Board of Irrigation



& Power (CBI & P) which has recommended the adoption of these standards. Implementation conferences at the project sites were also recommended. The subject will be further discussed at the meeting of Irrigation & Power Ministers' Conference.

**3.9** During the year under report, 103 Indian Standards were formulated by the Civil Engineering Division Council.

#### **4. CONSUMER PRODUCTS AND MEDICAL INSTRUMENTS DIVISION**

**4.1** The Consumer Products and Medical Instruments Division deals with surgical instruments, medical equipment and appliances and consumer items like utensils, domestic hardware, oil and gas burning appliances, etc. During the period under report, the medical group of items maintained its momentum; out of 60 standards printed by the Division, as many as 53 belonged to this particular field.

**4.2** In the medical field, the Surgical Instruments Sectional Committee (CPDC 11) considered the difficulties faced by industry in implementing IS : 3319-1965 'Specification for surgical scalpels with detachable blades (Bard Parker type)' and IS : 3320-1965 'Specification for surgical scalpels'. In the light of comments and suggestions received, the Committee brought out revised version of these two standards. The Committee also finalized standards on handles for surgical blades, post-mortem chisel and brain knife.

The Medical Glass Instruments and Appliances Sectional Committee, (CPDC 12) finalized the dimensional and other requirements of Bijou bacteriological bottles, culture tubes and culture flasks of various sizes used in pathological work. The Committee also finalized specification for drip counter with filter used in blood transfusion apparatus.

The Anaesthesia, Resuscitation and Allied Equipment Sectional Committee (CPDC 13) finalized the requirements for reinforced endotracheal tubes and portable anaesthetic apparatus.

Hospital equipment manufacturers pointed out certain difficulties in implementing our specifications on dressing drums and instrument sterilizers. The Hospital Equipment Sectional Committee (CPDC 14) examined these difficulties and suggestions in detail and brought out revised versions of these standards. It also brought out specifications on post-mortem table, medicine trolleys, revo ving stool and bed lifter.

The Dental Equipment Sectional Committee (CPDC 15) finalized the specifications for the instrument cabinet trays.



The Artificial Limbs Sectional Committee (CPCD 20) finalized specifications on cerebral palsy chair (both domestic model and institutional model), polycentric knee joint, pan knee joint, cruciform below-knee joint.

The Orthopaedic Instruments and Accessories Sectional Committee, (CPCD 24) was quite active. During the period under review, it finalized as many as 12 specifications covering various rush, pins, bone screws, staple punch, staple inserter and extractor, nail extractor, etc, used in orthopaedic surgery.

The Obsteric and Gynaecological Instruments and Appliances Sectional Committee (CPCD 25) finalized the dimensional and other requirements of much awaited suction abortion apparatus. It also finalized specifications on artificial insemination cannula of various types of forceps for obstetric surgery.

**4.3** In the consumer group, standards on items such as milk boiler, commercial gas baking and roasting oven, steel trunk, meat-mincer, handloom ribbed coir door mats were finalized. Sports goods for which standards were formulated included chess pieces and abdomen guard.

**4.4** The first meeting of the Standing Working Committee of Medical Instruments was held on 11 September 1973 in which four new Sectional Committees were set up to expedite the standardization work in specialized fields, like, ENT, eye, thoracic and cardio-vascular surgery and Neuro surgery.

**4.5 Implementation Work** — In order to ensure better implementation of standards in the medical field an up-to-date list of standards formulated by this Division was circulated to the various hospitals, medical colleges and health departments of State Governments. We have been assured by various authorities that as far as possible they would follow ISI specifications while purchasing surgical instruments and medical equipment.

**4.6** The fourth All India Symposium on Bio-medical Engineering was held in New Delhi from 11 to 13 February 1974. It was inaugurated by the Union Education Minister Prof Nurul Hasan. About 150 delegates were present. ISI participated in the Symposium and presented the following three papers:

- a) Implants for Surgery — Standardization
- b) Standardization of Surgical Instruments and Medical Equipment — A Techno-Medical Achievement
- c) Glass Instruments in Haematology — Standardization

The papers were well received by the delegates who appreciated the standardization work undertaken by ISI. They desired that more and more items from medical field should be taken up for standardization.

**4.7** The ISI is associated with the Advisory Committee for the development of medical instruments and appliances of the Ministry of Industrial Development. The Committee recently expressed the view that the quality of surgical instruments and medical equipment, though very important, was still not up to the mark. It set up a Quality Control Board under the Chairmanship of Shri Y. S. Venkateswaran, Deputy Director General, ISI to study the whole problem of quality of surgical instruments in detail and suggest ways and means to bring about improvements in their quality. The Board has met once and studied the problems in detail.

## **5. ELECTROTECHNICAL DIVISION**

**5.1** During the period under report, 75 Indian Standards were published or were under print, 18 existing Indian Standards were revised, 73 draft standards were finalized for publication and 48 were issued in wide circulation to the various interests concerned for eliciting technical comments. Preliminary draft standards on a number of new subjects were prepared. Seventy-nine meetings of Sectional Committees, Subcommittees and Panels were held during the year.

**5.2** Among the standards printed during the period under report, special mention may be made of the standards relating to insulation co-ordination, Part I Definition and basic principles (first revision of IS:2165) aimed at bringing the latest concepts in insulation co-ordination; method of measurement of optical focal spot size of X-ray tubes (first revision of IS:4096); specification for 35 mm portable motion picture projectors; specification for overhead projectors; flexible (pliable) non-metallic conduits for electrical installations; radiographic cassettes; specification for transistorized ballasts for fluorescent lamps; cross-linked polyethylene-insulated PVC sheathed cables, Part II For working voltages from 3.3 kV up to and including 33 kV (which will help import substitution of lead for PILC cables); guide for testing synchronous machines; megaphone and electrical controls for household appliances.

**5.3** Seventeenth meeting of the Electrotechnical Division Council and fourteenth meeting of Standing Working Committee of Electrotechnical Division Council (SWCET) were held on 23 April 1973 and 16 November 1973 respectively. Shri J. S. Zaveri, Managing Director of Bharat Bijlee Ltd and Chairman of Electrotechnical Division Council and Standing Working Committee, presided over these meetings. Arising out of these two meetings, the compositions of 15 Sectional Committees were revised and reconstituted for another term of three years subject to a few changes in the membership of some of them in order to make them more representative of the concerned interests. Seven Chairmen of the Sectional Committees were also appointed during these two meetings in place of those who had either resigned or retired from the services of their organizations.



**5.4 New Committee Set-Up** — Aircraft Electrical Equipment Sectional Committee (ETDC 55) was set up at the Division Council meeting held in April 1973 with the following scope of work:

‘To prepare suitable Indian Standards relating to aircraft electrical equipment and other allied equipment. This Committee will not deal with such of aircraft electrical equipments which are already explicitly covered by the scopes of other committees, such as aircraft batteries, aircraft lamps, etc.’

**5.5** Consequent to Shri B. R. R. Iyengar's relinquishing the Vice-Chairmanship of Division Council after having been relieved from Central Water and Power Commission to take up his new assignment, the Council unanimously elected Maj Gen K. K. Mehta, Chief Controller, Research & Development, Ministry of Defence, as its new Vice-Chairman.

**5.6** During the year under report, a seminar on use of aluminium in electrical engineering was held at Madras between 14 and 16 December 1973. The Seminar considered problems relating to the increasing use of aluminium in electrical engineering industries and standardization and optimization of use of aluminium in the industry with particular reference to electrical engineering purposes.

**5.7** The Electrotechnical Division Council which is also the Indian National Committee of the International Electrotechnical Commission (IEC) continued to take active part in the deliberations of the various committees of that organization. A detailed account of activities of the IEC of interest to India is given in Part III of this Report.

**5.8** Seventy-five Indian Standards were formulated by the Electrotechnical Division Council and sent to press during the year under report.

## **6. MARINE, CARGO MOVEMENT AND PACKAGING DIVISION**

**6.1** During the period under report, the Marine, Cargo Movement and Packaging Division had formulated Indian Standards on a number of important subjects and work was initiated on many new subjects. Forty-four Indian Standards had either been published or were under publication, 48 draft standards were finalized for publication and 47 draft standards were issued into wide circulation for eliciting technical comments.

**6.2** The above standards cover containers and pallets for sea-going vessels as well as for air transport as also standards for primary and transport containers, etc. This work is in consonance with the concept of ‘total pack’ which is gaining importance all over the world. Under this concept, it is envisaged to achieve maximum dimensional coordination among primary containers, transport packages, pallets to carry these

packages; holds of sea-going ships and air cargo spaces. Maximum economy of transportation and distribution is achieved as a consequence of the dimensional co-ordination, transshipments of cargo are made easy and insurance charges are slashed down to a great extent. While preparing the above mentioned standards due weightage has been given to international co-ordination wherever possible.

**6.3** A few Indian Standards have been published and some more are under preparation on accessories and machinery components that go on board-ship. These are expected to help in the development of supporting industries for shipbuilding.

**6.4** Meetings of 10 sectional committees, and 22 subcommittees and panels were held during the period under report.

**6.5** During the year under report, the Marine, Cargo Movement and Packaging Division formulated and sent to press 44 Indian Standards.

## 7. MECHANICAL ENGINEERING DIVISION

**7.1** The Mechanical Engineering Division maintained the steady pace of progress in its activities during the year under report. 103 Indian Standards, including revision of 23 existing standards, were sent for printing. Seventy-eight draft standards were finalized for publication while 81 draft standards were issued into wide circulation for eliciting comments. Besides, 77 new draft standards were also prepared during the year. A new Sectional Committee was created making a total of 43 Sectional Committees.

**7.2** During the period under report, Indian Standards were formulated on the following important subjects:

**Engineering Metrology** — A comprehensive standard on the technical supply conditions for gauges (IS : 7018-1973) which lays down the materials used in the manufacture of various gauges, the hardness, methods of identification, marking and other details was printed.

**Abrasives** — Revised version of IS : 1991-1962 'Safety code for the use, care and protection of abrasive wheels' was sent for publication. The code is intended to provide a thorough guidance to an operator on the shop-floor as well as to serve as a guide for the safe design of grinding equipment.

**Machine Tools** — Fourteen standards for testing of geometrical accuracies and the recommended sizes of wood working machines were sent for publication while a number of standards on various types of machine tools including standards of basic nature, test chart for determining accuracies and also dimensional requirements of interchangeable components were processed.



**Gas Cylinders** — The Gas Cylinders Sectional Committee (EDC 16) finalized seven standards relating to gas cylinders and valve fittings used in conjunction with such cylinders. The more important among these standards were those for acetylene cylinders, high pressure gas cylinders and miniature welded gas cylinders of capacity less than 15 litres. Also, IS : 3196 dealing with LPG cylinders was fully revised incorporating the latest technological advancements in gas cylinders and taking note of the indigenous experience with gas cylinders.

**Internal Combustion Engines** — Draft revisions of testing standards for constant speed and variable speed type internal combustion engines (IS : 1600 to IS : 1603) were prepared, and the standard on automotive radiators of the copper brass core construction type was finalized for publication.

**7.3** The Mechanical Engineering Division Council (EDC) held its annual meeting on 11 June 1973 at New Delhi under the Chairmanship of Shri K. B. Rao. The Council reviewed the composition of its Standing Working Committee and four Sectional Committees working under it. The Council also discussed the existing scope of Compressors Sectional Committee (EDC 62) and decided to enlarge it so as to include gas compressors. The revised scope reads as under:

‘Standardization in the field of compressors (Terminology, definitions and symbols, methods of test, safety requirements, accessories for compressed air systems, codes of practice regarding uses of compressed air and gases)’.

**7.4** The Standing Working Committee of the Mechanical Engineering Division (SWCE) met on 15 November 1973 under the Chairmanship of Shri K. B. Rao.

The SWCE appointed new Chairman for four Sectional Committees besides reviewing the composition of another eight Sectional Committees.

On the recommendation of the Instrumentation Co-ordination Committee set up under Mechanical Engineering Division Council, the Standing Working Committee of the Mechanical Engineering Division decided to set up a new Sectional Committee to initiate work on the standardization of instruments and equipment used in schools and college laboratories.

**7.5** Inaugural meeting of Mountaineering Equipment Sectional Committee (EDC 76) was held on 26 February 1974 at New Delhi. The Committee discussed its scope of work and allotted priorities to deal with the work assigned to it.

**7.6** A seminar on pumps, turbines, compressors, engines and other machinery, co-sponsored by the Institution of Engineers (India) and ISI, was held at Baroda in November 1973. It discussed the common problems associated with design, application, manufacturing and materials of construction of rotating/reciprocating machines. Besides standardization, import substitution aspects were also considered.

**7.7** During the year under review, meetings of 24 Sectional Committees and 57 Subcommittees and Panels were held. Five new Subcommittees and Panels were also set up under various Sectional Committees.

**7.8** One hundred and three Indian Standards were formulated by the Mechanical Engineering Division Council, and sent for publication during the year under report.

## **8. STRUCTURAL AND METALS DIVISION**

**8.1** The Structural and Metals Division maintained steady pace of progress in its activities during the year under report. Indian Standards on a number of important subjects were published while work on many new subjects was initiated. Seventy-five Indian Standards including revision of 34 existing Indian Standards were processed. Besides, 71 draft standards were issued in wide circulation for eliciting technical comments. Meetings of 26 Sectional Committees, and 67 Subcommittees and Panels were held. Three Subcommittees and six Panels were set up under the various Sectional Committees.

**8.2** Of the important standards sent for publication, mention may be made of the following:

**IS: 7072-1973 Glossary of Terms Relating to Spectrographic Analysis** — Glossary of terms used in emission spectroscopy are sometimes interpreted differently by different people. In order to avoid this confusion, standard definitions have been established to help the industry in the correct interpretation of the terms.

**IS: 7088-1973 Code of Practice for Anodizing of Aluminium and Its Alloys** — Anodizing of aluminium and its alloys is being widely used for various applications. This code of practice will give the guidelines to the anodizer for obtaining good anodic coatings on this material. It also includes guidelines for selection of proper wrought and cast aluminium and its alloys for decorative and/or protective and hard anodic coatings suitable for wear resistance and engineering applications.

**IS: 7092-1973 Aluminium Alloy Tubes for Irrigation Purposes** — Aluminium tubes are being used increasingly in the country for irrigation purposes. This standard will serve as a reference for minimum requirements to irrigation equipment manufacturers, engineers, suppliers



and other concerned with irrigation systems. This standard includes requirements of extruded or welded aluminium alloy tubes used for irrigation purposes.

**IS : 7215-1974 Tolerances for Fabrication of Steel Structures**

— This standard covers the tolerance on the dimensions of structural steel work fabricated by riveting, bolting and welding. This standard will go a long way in guiding the designers and fabricators as regards the limitations on the deviations in the various dimensions of structural components.

**IS : 7225-1974 Specification for Cobalt-Chromium Casting Alloy**

— Cobalt-chromium alloys are being preferred to gold alloys because they are lighter in weight and possess good mechanical properties and corrosion resistance and less expensive than gold alloys. This standard has been brought out to cover the requirements of these alloys used in removable partial denture prostheses and appliances other than surgical implants.

**IS : 7226-1974 Cold Rolled, Medium High Carbon and Low Alloy Steel Strip for General Engineering Purposes**

— This standard has been prepared purely from the import substitution point of view and covers the requirements for strip for hacksaw and razor blades industries. It is hoped that with the publication of this Indian Standard a better understanding may be established amongst the producers of strips and manufacturers of hacksaw and razor blades.

**IS : 7270-1974 Bright Bars ( Standard Quality ) and IS : 7271-1974 Bright Bars ( Ordinary/Commercial Quality )**

— These standards have been prepared with a view to avoiding confusion and ambiguity prevailing in the bright bar industry. An attempt has been made to rationalize and unify the sizes, dimensions, tolerances and permissible depths of surface defects for bright bars.

**IS : 7283-1974 Hot-Rolled Bars for Production of Bright Bars**

— This standard has been prepared with a view that the bars purchased against this specification should be used for the production of bright bars, ( ordinary/commercial quality ) conforming to IS : 7271-1974 and bright bars ( standard quality ) conforming to IS : 7270-1974 and care has been taken to rationalize the sizes of hot-rolled bars which may be of great help to the bright bar industry.

**IS : 7291-1974 High Speed Tool Steels**

— This standard prescribes the quality requirements for several popular grades of high speed tool steels that are being used in the country. The implementation of this standard by the trade industry is expected to lead to rationalization of the numerous varieties of high speed tool steels that are being used. The standard particularly aims at increasing the use of molybdenum-tungsten type of high speed steels.

**IS : 7307 ( Part I )-1974 Approval Testing of Welding Procedures: Part I Fusion Welding of Steels, IS : 7310 ( Part I )-1974 Approval Testing of Welders Working to Approval Welding Procedures: Part I Fusion Welding of Steel and IS : 7318 ( Part I )-1974 Approval Testing of Welders When Welding Procedure Approval is not Required: Part I Fusion Welding Steel** — Welding is a skill to be attained by proper training and constant practice. With the increased use of welding for fabrication and repair of structurals and other sophisticated process equipment the above Indian Standards relating to approval of welders and welding procedures will help the industry in ensuring that the welders and welding procedures are approved for the particular process or job in question.

**8.3** Of the standards revised during this period, mention may be made of IS : 1993-1974 'Cold reduced tinplate and cold reduced black plate (*first revision*)', IS : 4824-1973 'Bead wire for tyres (*first revision*)', IS : 2826-1974 'Dimensions of wrought copper and copper alloy bars, rods and sections for general engineering purposes (*first revision*)', IS : 814-1973 'Covered electrodes for metal arc welding of structural steel products other than sheets (*fourth revision*)', and IS : 1030-1974 'Steel castings for general engineering purposes (*second revision*)'.

**8.4** Draft standards issued in wide circulation included Code for designation of steels ( Part I ), Classification of steels, Method for elongation conversion of steel, Tolerances for steel drop forgings, upset forgings, press forgings and forged bars and malleable cast iron pipe fittings.

**8.5** The sixteenth meeting of Structural and Metals Division Council ( SMDC ) was held in New Delhi on 7 November 1973. Besides reviewing the activities and composition of various Sectional Committees working under it, the council approved 23 new subjects for preparation of Indian Standards and also agreed to set up (a) a new Sectional Committee on Industrial Furnaces ( SMDC 32 ), and (b) two standing working committees — one to co-ordinate the work on metallurgical engineering ( SWCME ) and the second to co-ordinate the work on structural engineering ( SWCSE ).

**8.6** Seventy-five Indian Standards were formulated by Structural and Metals Division Council ( SMDC ) and sent for publication during the year under review.

## **9. TEXTILE DIVISION**

**9.1** During the period under report, 51 Indian Standards on various subjects were processed for publication, including revision of certain existing standards.

**9.2** Of the standards published, special mention may be made of the following:



**IS : 3523-1974 Specification for Metal Travellers for Ring Spinning Frame** — This standard has been revised with a view to incorporating the conventional traveller numbers in place of weight of 1 000 travellers based on R20 series as the industry had not acquainted itself with these weights.

**IS : 7033-1973 Commercial Moisture Regain Values of Wool and Its Products** — The weight of a consignment of wool or its products changes depending upon the atmospheric conditions and the environment, leading to ambiguities since wool is highly hygroscopic. With a view to overcoming such a situation, this Indian Standard recommends the commercial moisture regain values, the need for which has been keenly felt by the industry and the trade.

**IS : 7085-1973 Specification for Polyester Cotton Shirting and IS : 7104-1973 Specification for Poplin ( Market Variety )** — The work of formulation of standards on market varieties of cotton or blends of man-made fibres with cotton was taken up with a view to specifying certain parameters for ensuring minimum performance requirements of fabrics from the point of view of consumer to give him his money's worth. These standards specify characteristics, such as shrinkage, tolerance on length and width, colour fastness ratings, major and minor flaws. In addition, the crease recovery angle has also been specified to ensure wash-and-wear characteristics.

**IS : 7175-1974 Specification for Cots for Top Rollers** — This standard prescribes material, hardness, recommended dimensions and method of buffing. This standard is very important for new small-scale manufacturers of cots as established cot manufacturers are following specifications of their collaborators.

**9.3** The Government of India have decided to enforce statutorily IS : 271-1969 'Indian Standard grading of white, tossa, and *daisee* uncut Indian jute (*revised*)' in the trade and industry with effect from 1 July 1974. This would bring a discipline to the system of grading raw jute transactions amounting to Rs 400 crores a year.

**9.4** Fifty-one Indian Standards were formulated by the Textile Division Council and sent to press during the period under review.

## **10. SECTIONAL COMMITTEES UNDER THE EXECUTIVE COMMITTEE**

**10.1 Documentation ( EC 2 )** — The twenty-eighth meeting of the Documentation Sectional Committee ( EC 2 ) was held on 31 October 1973. The Committee finalized three Indian Standards, namely (a) IS : 7150-1974 Specification for library catalogue and abstract card, (b) IS : 7160 ( Part I )-1974 Guide for print area, margins and type sizes for textbooks:

Part I Textbooks in English, and (c) IS : 7160 ( Part II )-1974 Guide for print area, margins and type sizes for textbooks: Part II Textbooks in Hindi.

**New Subjects Approved** — Guides for print area, margins and type sizes for textbooks to cover all the Indian languages.

During the year, two Indian Standards, namely, (a) IS : 6660-1972 Guide for illustrations in books, and (b) IS : 6666-1972 Frequency notation for periodical publications, were published.

The Executive Committee of ISI revised the composition of EC 2 on completion of its three-year tenure and redefined its scope of work to cover the following aspects relating to documentation:

- a) Micro-document reproduction ( microfilm, microfiche, etc );
- b) Indexing and abstracting;
- c) Bibliographical references;
- d) Alphabetization and abbreviation;
- e) Terminology;
- f) Forms and records;
- g) Cataloguing and classification;
- h) Automated information handling systems;
- j) Transliteration;
- k) Book numbering; and
- m) Any other aspects relevant to documentation processing and handling.

**10.2 Quality Control and Industrial Statistics Sectional Committee ( EC 3 )** — The tenth meeting of the Sectional Committee was held on 14 February 1974. The Committee finalized two draft Indian Standards, namely, (a) Methods of regression and correlation, and (b) Presentation of statistical data: Part I Tabulation and summarization. Two draft Indian Standards on (a) Analysis of variance, and (b) Methods for statistical quality control during production: Part II Control charts for attributes, were approved for putting into wide circulation for eliciting comments.

**10.3 Work Study Sectional Committee ( EC 9 )** — The fourth meeting of the Committee was held on 8 February 1974. The Committee finalized draft Indian Standard on Glossary of terms in network analysis.

**10.4 Publications and Graphic Technology Sectional Committee ( EC 10 )** — The Executive Committee of ISI set up a new Sectional



Committee 'Publications and Graphic Technology' (EC 10). This Committee would be concerned with the following:

- a) Book production — manuscript preparation, structuring, organization, preliminary pages, selection of type page, page layout, binding, etc;
- b) Illustrations ( design, symbols for correction of illustrations and their proofs );
- c) Plate and block making;
- d) Printing;
- e) Manuals of style in English and Indian languages; and
- f) Any other aspects relevant to publications and Graphic Technology.

The Sectional Committee will maintain liaison with ISO/TC 130 Graphic Technology at the international level.

EC appointed Shri S. N. Guha Ray, Managing Director, Sree Saraswaty Press Ltd, Calcutta, as its first Chairman.

## 11. STATISTICS DEPARTMENT

**11.1** An important feature of the work of the Department during the year under report was the organization of three training programmes in statistical quality control ( SQC ) for pesticides industry at Bombay, Agra and Madras for the benefit of ISI Licensees and other pesticides manufacturing organizations in different regions. Such training programmes assume great importance as they assist in the assimilation and implementation of the principles and modern techniques of statistical quality control and standardization for producing quality control at an economic level. Forty-four participants representing 37 organizations benefited from these training programmes by way of lectures and also getting their day-to-day practical problems solved through group discussions. On the basis of problems encountered by individual firms and facilities available, the participants were assigned different project works on various aspects dealing with production, inspection, process control, organization of quality control, inplant standardization, etc.

The Department was also actively engaged in the formulation of a number of Indian Standards on methods for sampling of different types of materials as also basic standards on quality control, industrial statistics and work study, etc. Collection and analysis of extensive data were also undertaken with a view to arriving at realistic specification limit for various products and recommending practical sampling procedures for different materials.

**11.2** The Department continued to scrutinize the draft Indian Standards with the object of introducing, wherever possible, statistical quality control concepts in them. During the year under review, 593 draft Indian Standards were scrutinized and in 154 cases statistically sound sampling plans were recommended. In most of the cases these recommendations were accepted by the concerned technical committees. In this connection, mention may be made of the following Indian Standard specifications:

- IS : 1723-1973 Specification for pork (*first revision*)
- IS : 1803-1973 Specification for cotton embroidery threads (*first revision*)
- IS : 6773-1973 Specification for sodium silicates for use in foundries
- IS : 6831-1973 Specification for caustic potash, technical and analytical
- IS : 6946-1973 Specification for flexible (pliable) non-metallic conduits for electrical installations

**11.3** Fifty-one routine inspection schemes referred to the Statistics Department in connection with issue of licences under the ISI Certification Marks Scheme were scrutinized. The routine inspection data collected from different licensees in accordance with the recommended schemes were also statistically analyzed to find out the adequacy of the recommended frequencies of testing and inspection as also the need for further relaxation or tightening in the quantum of inspection.

**11.4** Extensive investigations and statistical analysis were carried out by the Department on diverse aspects of standardization work such as:

- a) evaluation of specification limits for various characteristics of products like dextrose monohydrate, besan, DWT laminated bags, hessian fabrics used for packing cotton products, etc;
- b) establishing the correlation between different characteristics of a product with a view to minimizing the testing on more cumbersome tests as was done for bursting strength and puncture resistance of solid and corrugated fibre board boxes;
- c) comparing the precision of testing procedures as in the case of levine method for the determination of 'caffeine content', usage of shorter lengths of specimens for determining the weight per metre of round bars, etc; and
- d) examining the adequacy of the frequencies of testing and inspection for certified products like diesel engines, carbaryl dusting powders and water dispersible powders, etc.



**11.5** Comments and suggestions were sent for the improvement of a number of draft proposals of the International Organization for Standardization (ISO) and other overseas standards bodies in respect of sampling of products like baby food, manganese ores, ferroalloys as also basic standards on sampling procedures and tables for inspection by attributes as also inspection by variables.

## **12. RESEARCH AND INVESTIGATIONS**

**12.1** The Institution continued to undertake research and analytical studies in different fields with the active collaboration and assistance of national, state and private laboratories, testing organizations and research institutions. Details of research and investigations carried out during the year under report are given in the following paragraphs.

**12.2 Agricultural and Food Products Division** — During the year under review, testing and research investigations were in progress in the following areas:

- a) Changeover of 11.04 ml milk pipettes by 10.75 ml milk pipettes.
- b) Methods for qualitative identification and quantitative estimation of admixtures of edible gums;
- c) Methods for quantitative estimation of coal tar food colours and checking their impurities;
- d) Suitability of germination papers manufactured in India;
- e) Estimation of loose ends and shorts in cigarettes;
- f) Microbiological studies of condensed milk;
- g) Suitability of indigenous xylenes for preparing insect repellents (diethyl toluamides);
- h) Repeatability and reproducibility of protein efficiency ratio (PER);
- j) Determination of cocoa in cocoa products;
- k) Quantitative estimation of base material in chewing gum and bubble gum;
- m) Fall in suspensibility of BHC water dispersible powders at the initial period.

**12.3 Chemical Division** — Research and investigations conducted during the period under report related to determination of carbonates; use of EDTA method for determination of aluminium; colour of carbon tetrachloride in Hazen units; determination of free aniline in acetanilide; tests on the presence of trichlorophenol in pentachlorophenol; determination of the mass of asphalt in liquid petroleum products; investigations on

deep cup case thermometer; analysis of fused calcium magnesium phosphate fertilizer; evaluation methods for crankcase lubricating oils and engine tests; optimum performance of *vis-a-vis* smoke point and sulphur content; storage stability tests for diesel fuel; correlation between Pensky Martens and Cleveland (open) cup flash point for lubricating oils; specification requirements for formic acid; acetaldehyde content in acetic acid; sulphuric acid test on normal butyl alcohol; determination of total base number of lubricating oils; testing of samples of combing oil for physical and chemical properties; testing of samples of Class B ceramic towers for crushing strength and resistance to arsenical alkaline solution; collection of test data on samples of ceramic filter candles; testing of samples of PVC to find out its suitability as a material for toothbrush handles; collaborative investigations for the determination of catechin in *kattha*; deflagration test for permitted explosives; stretching test for detonating fuse; effect of free fall on detonating fuse; adsorption capacity of silica gel; acid value of copper naphthenate; determination of potassium oxide in potassium silicate; ageing tests for duplicating ink; sedimentation tests for fountain pen inks; testing of samples of cheque paper for their requirements for the preparation of an Indian Standard; testing of samples of stamp cap paper used in judicial work; and testing of dibenzothiazyl disulphide for assay and melting point.

**12.4 Civil Engineering Division** — It had been possible through the various planning groups of National Committee on Science and Technology (NCST) to include the problems identified by the committees of Civil Engineering Division Council (CEDC) of ISI as research and development tasks to be undertaken.

**12.5 Consumer Products and Medical Instruments Division** — The following investigational work done during the period under review is worth mentioning:

- a) **Testing of Detachable Blades (Bard Parker Type)** — As the industry in the field of surgical blades has gained footing, the existing standard of the blade has been revised taking into account experience gained during manufacture. The extensive testing of a variety of blades for heat treatment, visual examination under magnification for nicks, feathers and other surface defects were carried out in ISI Laboratory on 10 different sizes of Indian and Foreign make blades.
- b) **Portable Type Operation Table** — To provide medical aid in remote areas and in the war field, a need was felt to produce a portable type operation table. A design of such a portable table was studied in the ISI Laboratory for sturdiness, strength, portability and aseptic requirements.
- c) **Wheel Chairs for the Handicapped** — A common complaint in this regard was that the indigenous wheel chairs were not



passing through the average doors in the Indian household. Even the hospital doors which are designed to have no architectural barrier for the handicapped were found inadequate for the Indian wheel chairs. To overcome these lacune, the Artificial Limbs Sectional Committee, CPDC 20, examined over 20 different makes and models of wheel chairs, both imported as well as local ones. The various physical dimensions were examined with the anthropometric study of the Indian people. The standard was finalized only after the results of extensive investigations were available.

- d) **Suture Needles** — A variety of suture needles are available to the medical profession. To reduce many varieties to a few and to have a standard on the subject, a study has been made in the ISI Directorate covering many varieties of suture needles available, their sizes and shapes, the requirements and other features. Data collection and investigations are still in progress.
- c) **Substitution of Linen Threads by Cotton Threads for Stitching of Sports Leather Balls** — During the last few years it has been observed by the sports industry that the quality of linen thread was deteriorating and the supply position was also becoming irregular. The Sports Goods Sectional Committee (CPDC 4) examined suitable alternatives for linen threads and received a suggestion about inclusion of cotton threads in the Indian Standard for football, volleyball, basketballs, etc. After detailed investigations for breaking strength and other physical characteristics and after conducting extensive field trials by using footballs made from cotton threads on different kinds of playing surfaces, the Committee found that cotton thread could stand the trial as effectively as the flax one. Cotton threads were then included in the revision of IS: 416-1963 'Specification for cricket and hockey balls' as an alternative material to flax threads for stitching of these balls.

**12.6 Structural and Metals Division** — During the year under report, research and investigation on the following items were continued:

- a) Standard sand for foundry sand control,
- b) Evaluation of core oils, and
- c) Determination of spalling resistance of fireclay refractories.

**Production of Reference Radiographs for Steel Welds and Castings** — Fifty-nine radiographs on steel welds which were finalized for reproduction adequately represent all the categories of Radiographs appearing in the set prepared by the International Institute of Welding (IIW). Work regarding their reproduction is now under progress.

Work regarding the collection of radiographs of steel casting is also under progress.

**INTERNATIONAL  
ACTIVITIES****1. INTERNATIONAL ORGANIZATION FOR  
STANDARDIZATION ( ISO )**

**1.1** Out of 146 technical committees of the International Organization for Standardization ( ISO ), as on 31 March 1974, ISI was a participating Member of 115 Technical Committees and an Observer Member of 26 others. Of these, the Institution held the Secretariats of 5 Technical Committees, 7 Subcommittees and 9 Working Groups.

**1.2 ISO General Assembly** — The ISO General Assembly met in Washington on 10-14 September 1973 under the Presidency of Dr Francis L. LaQue. About 450 delegates from various member-countries participated. India was represented by Shri D. C. Kothari and Shri R. S. Pande, Vice-Presidents, ISI, and Shri S. K. Sen, Director General, ISI. Dr Ake T. Vrethem ( Sweden ) was elected President of ISO for the next three-year term beginning January 1974. Lively debate took place on the report of the Long Range Planning Committee. As a result of India's advocacy for greater attention to the problems of the developing countries in international standardization, a new cell for developing countries was proposed to be established in ISO Central Secretariat. Shri S. K. Sen, Director General, ISI, was invited as a Panel Member on one of the Open sessions 'How to Develop International Metric Standard'.

**1.3 ISO Council** — Twenty-seventh meeting of the ISO Council was held in Washington on 5-7 September 1973. India was represented by Shri D. C. Kothari and Shri R. S. Pande, Vice-Presidents, ISI, and Shri S. K. Sen, Director General, ISI. The subjects discussed by the Council related mainly to policy and organizational matters, financial issues and progress of work of the Council Committees. Among the highlights of the meeting was the re-election of Shri S. K. Sen, Director General, ISI, as member of the Executive Committee for a three-year term ending December 1976.



**1.4 Executive Committee** — This was the first meeting (9-11 April 1973) of the Executive Committee which was attended by the Director General, ISI, after his appointment as its Member in September 1972. Among the important matters dealt with were revision of Directives for the technical work of ISO, policy on reference to standards, establishment of Fund for safeguarding ISO and the ISO budget for 1974. The Executive Committee set up a Working Group to prepare a detailed document on the use of standards in legislation and regulations of which Director General, ISI, was appointed a Corresponding Member.

**1.5 ISO Long Range Planning Committee** — At its meeting on 2-5 April 1973 the Long Range Planning Committee, which was set up as a result of a paper entitled "International Standardization in 1980's" by Director General, ISI, finalized its report for submission to the General Assembly. The report is comprehensive in its coverage and contains 46 recommendations dealing with various questions of policy, programme and organization of ISO. One of the recommendations, which is of great importance to developing countries, was the Director General's proposal for setting up a new unit for developing countries in the ISO Central Secretariat.

**1.6 ISO Planning Committee (PLACO)** — The Planning Committee which is responsible for coordination of the technical work of ISO and approval of new subjects before they are taken up by the ISO Council, met twice during this period on 6 April 1973 and 4 September 1973.

**1.7 ISO Technical Committees** — The Institution participated in the work of most of the technical committees, subcommittees and working groups of ISO. However, a brief report on the work of such committees which are of direct interest to India is given in the following paragraphs.

**ISO/TC 5 Metal Pipes and Fittings** (*Sectt: Switzerland*) — The following draft International Standards were received and India's approval was conveyed to ISO Central Secretariat:

- a) No. 2546/2 Seamless plain end tubes made from unalloyed steel and without quality requirements;
- b) No. 2547/2 Welded plain end tubes made from unalloyed steel without quality requirements;
- c) No. 2937 Plain end seamless steel tubes for mechanical application; and
- d) No. 3151 Steel tubes for facade scaffolding.

**ISO/TC 8 Shipbuilding** (*Sectt: Netherlands*) — Eighth meeting, 24 October to 1 November 1973, Tokyo, together with the following four of its 14 subcommittees:

ISO/TC 8/WG 1 Lighters

ISO/TC 8/SC 9 Lifeboats and Lifesaving Equipment

ISO/TC 8/SC 11 Terminology, Symbols, Drawings, etc

ISO/TC 8/SC 12 Ship Holds and Decks in Relation to Unitized Cargo

India was represented by Shri S. Parmanandhan, Director (Naval Designs), Indian Navy.

Two new proposals relating to the European Free Trade Association (EFTA) Scheme for reciprocal acceptance of tests and inspections by participating authorities, as well as introductory note on computer applications in the shipbuilding industry for design, management and production (DMP) were considered. A steering committee was set up to examine these new proposals as well as any other proposals. India nominated a representative to function on the Steering Committee. Further, it was decided among others, to hold in India (New Delhi) the next meeting of ISO/TC 8/SC 9 together with the second meeting of ISO/TC 8/SC 11 during December 1974.

**ISO/TC 8/SC 7 Inland Navigation** (*Secc: USSR*) — Fifth meeting, 1-5 March 1974, New Delhi (India). An eight-man Indian delegation headed by Shri P. C. Mitra, Chairman, Calcutta Port Commissioners attended the meeting. Over 25 draft proposals on various subjects were discussed and about 30 resolutions were adopted. These proposals covered standardization of wooden hatch covers, stockless anchors, custom's locks, welded bollards and fairleads as well as other equipment that would go on inland ships. The subject of lifeboats and work boats for inland ships as also freight lighters were discussed. India was appointed as the coordinator for the work on lifebuoys intended both for inland vessels and sea-going vessels. India holds the Secretariat for WG 3 of ISO/TC 8/SC 9 Lifeboats and Life Saving Equipment — Solid Life Saving Apparatus.

**ISO/TC 8/SC 11 Terminology, Symbols, Drawings, etc** (*Secc: India*) — First meeting, 24 October 1973, Tokyo. Eight ISO draft proposals relating to conventional signs to be used in schemes for installations of pipeline and ventilation systems, identification colours in schemes for ventilation systems, terminology on profiles and hydro-dynamic terms, numbering of equipment and structural elements in ships, symbols for fire control plans of ships and marking of hatchway beams, were considered for further processing as ISO standards. The committee decided to hold its second meeting in India during December 1974. Shri S. Parmanandhan attended the first meeting on behalf of India and also acted as its Chairman.

**ISO/TC 17 Steel** (*Secc: UK*) — Eleventh meeting, 10-14 September 1973, Washington DC, USA. India was represented by Shri B. S. Krishnamachar, Deputy Director General, ISI. Shri R. F. Johnson (UK) was elected Chairman for the meeting. At this meeting, 32 documents relating to Methods of mechanical testing and chemical



analysis of steel, dimensional tolerances of hot rolled steel flats, round and square bars, cold reduced tinplate and cold reduced black plate, hot rolled and cold rolled carbon steel sheets of commercial and drawing qualities, ball bearing, stainless, pressure vessel and structural steel, were approved for further processing as ISO standards. Resolutions were also adopted for the transformation of ISO Recommendations into International Standards and for units for stress and tensile strength to be used in ISO Standards in terms of  $N/mm^2$ .

**ISO/TC 17/SC 2 Classification and Designation of Steels** (*Sectt : India*) — Revised ISO Proposals on Classification of steels and a new ISO Proposal on Code designation of steels based on letter symbols were circulated to member countries for their examination and comments.

**ISO/TC 17/SC 10 Pressure Vessel Steels** (*Sectt : Germany*) — Fourth meeting, 20-23 March 1973, Dusseldorf (West Germany). Jointly with ISO/TC 11/SC 1 Materials for Boilers and Pressure Vessels. India was represented by Shri S. C. Dey, Chief Inspector of Boilers, Prof S. S. Pani, Hindustan Steel Ltd, Rourkela and Shri S. M. Razvi, Director Mechanical Engineering Department, ISI. Draft ISO Proposals relating to longitudinally and spirally welded austenitic steel tubes, submerged arc welded steel tubes, hot quenched and tempered weldable fine grain steels with high elastic limit for pressure purposes, steel plates and strips for welded gas cylinders in addition to DIS 2604 to 2607 Steel products for pressure purposes — Quality requirements, were considered.

**ISO/TC 23/SC 9 Equipment for Sowing, Planting and Distributing Fertilizers** (*Sectt : Germany*) — Third meeting, 24-25 January 1974, Frankfurt (Germany). Documents relating to terminology, working widths, granulates, uniformity of distribution and accuracy of metering of seeds and fertilizer, spacing drills, planters, loading light and corrosion, were discussed. Indian Standard Test code on seed-cum-fertilizer drill was discussed at the meeting.

**ISO/TC 26/SC 1 Methods of Chemical Analysis of Copper and Copper Alloys** (*Sectt : Canada*) — India's approval on the following draft International Standards was conveyed to the ISO Central Secretariat:

- No. 3110 Copper alloys — Determination of aluminium as alloying element — Volumetric method
- No. 3111 Copper alloys — Determination of tin as alloying element — Volumetric method
- No. 3112 Copper and copper alloys — Determination of lead — Extracting titraload method
- No. 3220 Copper and copper alloys — Determination of arsenic — Photometric method

considered in detail. It was decided to take up the work at ISO level under three lists of items of information which would essentially describe the following types of textile floor coverings:

- a) Machine-made carpets with pile
- b) Machine-made textile floor covering without pile
- c) Hand-made carpets

**ISO/TC 38/SC 12/WG 3 — Test Methods for Hand-Made Carpets** (*Sectt: Iran*) — Third meeting, 28 June 1973, the Hague (Netherlands). India was represented by Shri S. M. Chakraborty, Director (Textile), ISI. Draft proposal 'Selection of areas of test and sampling for chemical analysis and physical tests for hand-made carpets' was approved for submitting to ISO/TC 38/SC 12 for further processing.

**ISO/TC 43 Acoustics** (*Sectt: Denmark*) — Eleventh plenary meeting, 17 January 1973, the Hague (Netherlands). The Committee recommended the following revised scope of the Committee to ISO Council for approval, after adoption by ISO/TC 43 Members:

'Standardization in the field of acoustics, including methods of measuring acoustical phenomena, their generation, transmission and reception, and all aspects of their effects on man and his environment.

*Excluded*: Electroacoustics and the implementation of specifications of the characteristics of measuring instruments for acoustic purposes.'

**ISO/TC 44 Welding** (*Sectt: France*) — No meeting was held during the year. India's approval was conveyed to ISO Central Secretariat on the following draft International Standards/Amendments:

- No. 547 Electrodes for the welding of mild steel and alloy high tensile steel — Lengths and tolerance (Revision of ISO/R 547-1967)
- No. 864 Solid wires for gas-shielded metal-arc welding of mild steel — Dimensions of wires, spools, rims and coils (Revision of ISO/R 864-1968)
- No. 3041 Welding requirements — Categories of service requirements for welded joints
- No. 3088 Welding requirements — Factors to be considered in specifying requirements for fusion welded joints in steel (technical influencing factors)
- No. 3253 Hose connections for equipment for welding, cutting and related processes



**ISO/TC 45 Rubber** (*Seckt: UK*) — Twenty-first meeting, 20-29 September 1973, Paris (France). Along with this meeting, all the 14 Working Groups, a number of Sub-Groups and Task Groups also met. India was represented by Shri Lalit Mohan Jamnadas and Shri M. M. Patel (Convener of Working Group 4 dealing with Methods of Test for Physical Properties of Rubber). More than 60 documents relating to methods of test and specifications for natural and synthetic rubber; natural rubber latex; vulcanized rubbers; treated fabrics and glossary of terms used in the rubber trade and industry were discussed.

**ISO/TC 69 Application of Statistical Methods** (*Seckt: France*) — The following meetings of the Subcommittees and Working Groups were held during the year under review. However, India could not be represented in any of these meetings:

<i>Committee</i>	<i>Meeting No.</i>	<i>Date</i>	<i>Place</i>
ISO/TC 69/SC1 Terminology and Symbols ( <i>Seckt: France</i> )	5th	15-17 May 1973	Lisbon (Portugal)
ISO/TC 69/SC 2 Interpretation of Statistical Data ( <i>Seckt: Belgium</i> )	6th	14-15 May 1973	do
ISO/TC 69/WG B Precision of Test Methods ( <i>Seckt: France</i> )	4th	18 May 1973	do
ISO/TC 69/WG C Sampling by Variables ( <i>Seckt: UK</i> )	1st	16 May 1973	do

At the plenary meeting of ISO/TC 69 held at Budapest in October 1972, it was agreed that Working Group A 'Control of Characteristics' should be renamed as 'Sampling by Attributes'. The secretariat of this working group is held by UK. ISO/DIS 2823.2 Draft International Standard Statistical vocabulary and symbols—Third series of terms and symbols, was received for voting. India has cast a positive vote since most of our comments on an earlier version of the document had been accepted.

**ISO/TC 72/SC 2 Winding and Weaving Preparatory Machinery** (*Seckt: Germany*)—Ninth meeting, 19-20 June 1973, Berlin (Germany). India was represented by Shri S. M. Chakraborty, Director (Textile), ISI. The following documents were considered:

- a) Weaver's beams—Terminology—Main dimensions
- b) Warper's beams—Terminology—Main dimensions

- c) Cylindrical tubes, recommended values
- d) Cones for yarn winding (cross wound), half angle of the cone  $9^{\circ}15'$  (revision of ISO/R 110)
- e) Cones for yarn winding (cross wound), half angle of the cone  $4^{\circ}15'$  (revision of ISO/R 111)
- f) Cones for cross winding for dyeing purposes, half angle of the cone  $4^{\circ}20'$  (revision of ISO/R 324)
- g) Transfer cones, half angle of the cone  $4^{\circ}20'$  (revision of ISO/R 575)
- h) Pirn winders — Terminology — Basic terms and definitions (revision of ISO/R 476)
- j) Cone winders — Terminology — Basic terms and definitions (revision of ISO/R 477)

**ISO/TC 102 Iron Ores** (*Sectt : Japan*) — India's approval to Draft International Standard No. 3086 Iron ores—Experimental methods for checking bias of sampling, was conveyed to the Central Secretariat of ISO.

Draft International Standard No. 3087 Iron ores—Determination of moisture content, was disapproved on behalf of India alongwith certain comments.

**ISO/TC 102/SC 1 Iron Ores/Sampling** (*Sectt : Japan*) — Eighth meeting, 25-29 June 1973, Kiruna (Sweden). India was represented by Dr B. N. Singh, Director (Statistics), ISI. Draft ISO Proposals relating to Methods of mechanical sampling and mechanical preparation of samples of iron ores, sample division of iron ores, determination of moisture content of adhesive ores, sampling of dusty ores, sampling of slurry ores and effect of rainfall on moisture content of iron ores, were considered.

**ISO/TC 102/SC 4 Size Determination of Iron Ores** (*Sectt : UK*) — Draft ISO Proposal on size determination of iron ores by sieving (Doc: 102/4 N 204) was received from the secretariat. The investigation on wet and dry index of fine iron ores was completed by India and the results are being statistically analyzed with a view to estimating the repeatability and also the reproducibility of the test method.

**ISO/TC 113 Measurement of Liquid Flow in Open Channels** (*Sectt : India*) — The following draft International Standards were received and circulated:

- a) ISO/DIS 3454 Sounding and suspension equipment
- b) ISO/DIS 3455 Calibration of current meters in straight open tanks



- c) ISO 555 Dilution methods — Constant rate injection method
- d) ISO 748 Velocity area methods
- e) ISO 772 Vocabulary and symbols
- f) ISO 1088 Collection of data for determination of errors in velocity area methods
- g) ISO 1100 Determination of stage discharge relation

**ISO/TC 113/WG 5 Flow Measuring Instruments and Equipment** (*Seckt: India*) — Meeting, 15-18 October 1973, Washington (USA). India was represented by Shri K. Raghavendran, ISI, and Shri K. K. Framji, Managing Director, Consulting Engineering Services (India) Pvt Ltd. Documents on: (a) Water level measuring equipment, and (b) Cable-way system, were discussed and certain modifications were made. It was agreed to take up recording devices and stilling wells as a part of water level measuring equipment.

**ISO/TC 113/WG 6 Sediment Transport** (*Seckt: India*) — Meeting, 18-19 and 22 October 1973, Washington DC (USA). India was represented by Shri K. Raghavendran, ISI, and Shri K. K. Framji, Managing Director, Consulting Engineering Services (India) Pvt Ltd. Document on requirements and characteristics of suspended sediment load samplers was discussed and approved, and the document on analysis of sediment was considered and certain modifications were made.

**ISO/TC 146 Air Quality** (*Seckt: Germany*) — Second meeting, 6-7 September 1973, Washington DC (USA). India was represented by Shri B. S. Krishnamachar, Deputy Director General, ISI. About 50 delegates from various national standards bodies and international organizations attended the meeting. The Committee reviewed the work done by the various Working Groups and passed a number of resolutions giving directives for future work. Twenty-two documents relating to the work on air quality were discussed. Along with this meeting, different Working Groups and the Study Groups under the Technical Committee also met.

**ISO/TC 147 Water Quality** (*Seckt: USA*) — Second meeting, 11-14 September 1973, Washington DC (USA). Its two Subcommittees SC1 and SC 2 also met during the period. It was decided to cover all types of water, including natural, fresh and brackish water, sea water and brines, drinking water, industrial water and municipal and industrial waste water. Priorities were fixed for various determinations as suggested by the Indian delegation comprising Dr G. J. Mohanrao of Central Public Health Engineering Research Institute, Nagpur. The Committee chalked out a detailed programme of work for ensuring close liaison with other International Organizations engaged in activities relating to water quality.

The Committee of Action received reports on the results of the work of the Technical Committees that met in Munich. These included the approval of 129 drafts for circulation under the Six Months' Rule, which represent the equivalent of 2 300 pages of future IEC Publications, touching on as wide a variety of subjects such as hydraulic turbines, radio-communications equipment, high voltage switchgear and controlgear, electrical installations in ships, power electronics (semiconductor converters), lamps and related equipment, electric fans, electrical equipment of industrial machines, semiconductor devices and integrated circuits, environmental testing, sound and video recording, industrial process measurement and control.

**IEC/TC 4 Hydraulic Turbines** (*Sectt: USA*) — 18-23 June 1973.

The documents on thermodynamic method for measuring the efficiency of hydraulic turbines and storage pumps and on hydraulic turbine governing system guide specification were approved for circulation under the Accelerated Procedure while the document on commissioning, operation and maintenance was approved for circulation under Six Months' Rule. The progress on revision of IEC Publications 41 and 198 was reviewed.

**IEC/SC 12A Radio Receiving Equipment** (*Sectt: Netherlands*) —

25-28 June 1973. The documents of immunity of a television receiver to radiated interference, mutual isolation between system outlets of a wired distribution system, information guide for subjective listening tests and for the application and evaluation of viewing tests to television receivers were approved under Six Months' Rule while the revision of IEC Rule 107 was approved for circulation under Accelerated Procedure.

**IEC/SC 12B Safety** (*Sectt: Netherlands*) — 25-29 June 1973. Three

documents relating to resistors, electrical connections and testing of high-voltage cables were approved for circulation under Accelerated Procedure. The subjects of mains switches, flammability, identification of components related to safety, ionizing radiation, requirements for indoor TV aerials, mechanical strength, requirements for apparatus with output circuits for connection to external wiring, external flexible cords, flammability aspects of components and the general revision of Pub 65 were included in the future programme of work.

**IEC/SC 12D Aerials** — 22-23 June 1973. The following new terms of reference were agreed upon:

'To prepare definitions and methods of measurement and to establish performance standards (blank specification sheet) and to recommend minimum performance requirements for particular types of aerials in common use (for example, domestic aerials).'



Two documents relating to revision of IEC Pub 138 and 138A and base or fixed station antenna for land-mobile communication were approved for circulation under the Accelerated Procedure.

**IEC/SC 12F Equipment Used in the Mobile Services** — 19-21 June 1973. The documents relating to selective calling equipment, definitions and conditions of measurement and methods of measurement for receivers and transmitters of base bandwidth not exceeding 10 kHz were approved for circulation under Six Months' Rule. The Subcommittee also agreed on a revised publication plan entailing separate booklets on transmitters and receivers.

**IEC/SC 17C High-Voltage Enclosed Switchgear and Control-gear** — 28-30 June 1973. The draft on high voltage metal enclosed switchgear and controlgear for rated voltages equal to or higher than 72.5 kV was approved for circulation under Six Months' Rule.

**IEC/SC 34B Lamp Caps and Holders** — 18-19 June 1973. The documents relating to starters for fluorescent lighting fittings and lighting for tubular fluorescent lamps, incandescent filament lamps, aircraft electrical filament lamps, high pressure mercury vapour lamps, heat test source lamps, general lighting service and preheat conditions for fluorescent lamps for starterless operation were approved for circulation under Six Months' Rule.

**IEC/SC 34C Auxiliaries for Discharge Lamps** — 21-22 June 1973. Documents relating to ballasts for high pressure mercury vapour lamps and low pressure sodium vapour lamps, capacitors for tubular fluorescent lamps high pressure sodium vapour discharge lamps were approved for circulation under Six Months' Rule.

**IEC/TC 43 Electric Fans for Domestic and Similar Use** (*Seclt: India*) — 21-22 June 1973. Shri Coutries (France) chaired the meeting, which was attended by 15 delegates from 9 countries.

The Committee considered the respective scopes of IEC/TC 43 and ISO/TC 117 and agreed that the scope of IEC/TC 43 should be amended to deal with electric fans intended mainly for domestic and similar use and that the title of this Committee be changed accordingly to read: Electric Fans for Domestic and Similar Use. These amendments were approved by the Committee of Action.

A draft dealing with air circulator and air blast cooling fans and regulators was approved for circulation under the Six Months' Rule. The title will be changed to 'Jet Fans and Regulators'.

A document containing amendments to IEC Publication 342 'Safety requirements for electric fans and regulators', was considered and a new

draft will be issued in order to bring this publication in line with IEC Publication 335-1 prepared by TC 61.

**IEC/TC 44 Electrical Equipment of Industrial Machines**—25-28 June 1973. The important item of the Agenda was the revision of IEC Pub 204-1 and 204-2. It was agreed to bring out a combined document with the title 'Basic requirements applicable to all kinds of machines'. The concerned Working Group was requested to prepare a new draft proposal taking into account the discussion held at the Munich meeting.

Another important item discussed at the meeting was the question of interface between numerical controls and industrial machines. The document relating to interface current carrying capacity and short circuit protection of cables was approved for circulation under Six Months' Rule.

**IEC/TC 47 Semiconductor Devices and Integrated Circuits**—18, 23, 28, 29 June 1973. A number of drafts dealing with discrete devices, acceptance and reliability testing, mechanical and climatic testing and outline dimensions were approved for circulation under Six Months' Rule.

**IEC/SC 47A Integrated Circuits**—19-22, 25-27 June 1973. Documents on digital integrated circuits, videoamplifiers, integrated circuit attenuators, voltage and current regulators and preferred voltage for recommended operating conditions were approved for circulation under Six Months' Rule.

**IEC/TC 50 Environmental Testing**—26-29 June 1973. The documents dealing with tests for soldering, resistance to soldering, accelerated ageing, sulphur dioxide, hydrogen sulphide, salt mist were approved for circulation under Six Months' Rule.

**IEC/SC 65A System Consideration**—28-29 June 1973. One document relating to analogue dc signals for process control system was recommended for circulation under Six Months' Rule which is intended to be a supplement to IEC Pub 381. Documents relating to analogue dc voltage signals and assurance of operation of industrial process control systems will be redrafted for circulation and further discussion.

**IEC/SC 65B Elements of Systems**—27-28 June 1973. At this meeting it was agreed to recommend its title and terms of reference as follows:

*Title*—Elements of Systems.



*Terms of Reference* — To prepare international recommendations and reports relating to the dimensions, performance and evaluation procedures of primary measuring elements to final control elements as used in industrial process measurement and control.

A draft on control valves was approved for circulation under Six Months' Rule.

### **3. CONFERENCE ON THE ROLE OF STANDARDIZATION IN DEVELOPING COUNTRIES**

**3.1** Organized jointly by International Organization for Standardization (ISO), United Nations Industrial Development Organization (UNIDO), and the Government of Mexico, the Conference which was held at Mexico on 17-21 September 1973, was attended by about 34 countries and international organizations. India was represented by Shri S. K. Sen, Director General, ISI. Shri Sen acted as one of the discussion leaders for three out of five Discussion Groups, namely, 'Role of the National Standards Body in a Developing Economy', 'Role of Standardization in Technology Transfer' and 'Measures to Promote Implementation of Standardization in Less-Developed Countries' for which he had submitted four papers. His thesis of integrated approach to standardization dovetailing standardization, quality control and quality improvement in a spiral development from one to the other received wide acclaim and was incorporated in the recommendations of almost all the groups.

### **4. BILATERAL SCIENTIFIC AND TECHNICAL COOPERATION BETWEEN THE USSR AND INDIA IN THE FIELD OF STANDARDIZATION AND METROLOGY**

**4.1** In pursuance of the Inter-governmental Agreement between USSR and India on Cooperation in the field of Applied Science and Technology, a five-man delegation headed by Shri A. M. Nikiforenko, Vice-President of USSR State Committee of Standards visited ISI from 19 to 26 March 1973 for collaboration in standardization and metrology. A delegation headed by Director General, ISI, paid a return visit to Moscow from 22 to 28 August 1973 to identify the scope and procedure for the collaboration. A plan of bilateral cooperation consisting of 16 items has been agreed upon and a Working Group set up to review the progress of the collaboration.

### **5. INDO-IRAN JOINT STUDY GROUP ON STANDARDIZATION**

**5.1** The Committee of Industries of the Indo-Iran Joint Commission for Economic, Trade and Technical Cooperation had set up in December 1970

## INTERNATIONAL ACTIVITIES

an Indo-Iran Joint Study Group on Standardization to study the standards and specifications in India and Iran with a view to establish equivalents and to facilitate the adoption of common standards and testing and certification procedures wherever possible. On 28 April 1972, Director General, ISI, had the first meeting with his counterpart in Teheran to discuss preliminary matters and procedures. Availing of the opportunity of his visit to Geneva, he met him again in Teheran on 14-15 April 1973. A report on the discussions was submitted to the Government of India.



# APPEN

## INCOME AND EXPENDITURE ACCOUNT FOR

### EXPENDITURE

PREVIOUS YEAR	SL No.	HEADS OF EXPENDITURE	AMOUNT
Rs			Rs
	1.	<i>Pay</i>	
2 300 397		1.1 Officers	2 637 959
2 120 419		1.2 Staff	4 203 613
	2.	<i>Allowances</i>	
1 199 522		2.1 Officers	1 421 051
2 711 949		2.2 Staff	1 457 202
208 287	3.	CGHS and Other Medical Charges	201 887
223 065	4.	Provident Fund Contribution	271 051
334 897	5.	Pension Fund	425 438
30 000	6.	Gratuity Fund	30 000
37 425	7.	Staff Welfare	36 825
	8.	<i>TA</i>	
90 093		8.1 Overseas	123 380
453 427		8.2 Officers and Staff	464 726
29 756		8.3 Committee Members	16 562
	9.	<i>Subscription to International Organizations</i>	
302 995		9.1 ISO	374 000
155 793		9.2 IEC	195 226
	10.	<i>Production</i>	
522 302		10.1 Standards	578 307
353 351		10.2 Bulletin	304 966
53 546		10.3 Calculation Aids	79 080
63 742		10.4 Other Publications	42 356
341	11.	Research and Consultation	—
121 437	12.	Testing Fees	114 255
177 855	13.	Laboratory Apparatus and Stores	157 770
	14.	<i>Publicity</i>	
195 702		14.1 Exhibition	25 990
107 286		14.2 Advertising	138 364
11 788		14.3 Miscellaneous	10 540
17 447	15.	Conferences	38 962
13 037	16.	Training Programmes	20 304
11 835 859		CARRIED OVER	13 369 814

# DIX A

THE YEAR ENDED 31 MARCH 1974

## INCOME

PREVIOUS YEAR	SL NO.	HEADS OF INCOME	AMOUNT
Rs			Rs
1 901 592	1.	Membership Subscription	2 847 406
	2.	<i>Sales</i>	
1 446 844	2.1	Indian Standards	1 544 415
84 980	2.2	Calculation Aids	79 755
227 341	2.3	Overseas Publication ( Commission )	320 706
177 037	3.	Bulletin Advertisements	152 168
4 489 392	4.	*Certification	5 203 245
19 809	5.	CGHS Contributions	24 420
—	6.	Conference ( Delegates Fees )	15 751
17 780	7.	Training Fees	24 944
67 507	8.	Miscellaneous	74 578
8 432 282		Total :	10 287 388
	9.	<i>Government Grant</i>	
5 660 000	9.1	Normal Activities	5 980 000
16 957	9.2	For ASAC Meeting	—

14 109 239

CARRIED OVER

16 267 388

\*Income under this Head has been taken on cash basis and not on accrued basis.

( Continued )  
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## INCOME AND EXPENDITURE ACCOUNT FOR

EXPENDITURE			
PREVIOUS YEAR	SL NO.	HEADS OF EXPENDITURE	AMOUNT
Rs			Rs
11 835 859		BROUGHT FORWARD	13 369 814
39 053	17.	<i>Library</i>	42 461
	18.	<i>Office Expenses</i>	
343 010	18.1	Stationery	310 259
258 336	18.2	Postage	228 107
224 444	18.3	Telephones and Telex	221 040
3 181	18.4	Recruitment	9 695
21 260	18.5	Refreshment and Entertainment	29 440
30 793	18.6	Liveries	33 274
53 556	18.7	Conveyance and Cartage	50 990
28 804	18.8	Insurance and Bank Charges	27 341
48 920	18.9	Miscellaneous	63 454
39 601	19.	<i>Furniture and Equipment ( Maintenance )</i>	41 923
	20.	<i>Buildings</i>	
421 357	20.1	Rent and Taxes	302 380
163 285	20.2	Electricity and Water	156 112
115 302	20.3	Maintenance	140 988
72 183	21.	<i>Local Transport ( Maintenance )</i>	84 122
8 648	22.	Audit Fees and Legal Charges	20 583
—	23.	Staff Training	1 325
436 427	24.	<i>Depreciation</i>	445 260
16 957	25.	ASAC Meetings	—
<u>14 160 976</u>		Excess of Income over Expenditure	<u>15 572 568</u>
<u>14 160 976</u>		Total :	<u>16 267 388</u>

**THE YEAR ENDED 31 MARCH 1974 — Contd**

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**I N C O M E**

PREVIOUS YEAR	SL No.	HEADS OF INCOME	AMOUNT
Rs			Rs
14 109 239		BROUGHT FORWARD	16 267 388

14 109 239			16 267 388
51 737		Excess of Expenditure over Income	—
14 160 976			16 267 388
		Total :	16 267 388

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## LIABILITIES

PREVIOUS YEAR	SL No.		AMOUNT
Rs			Rs
		<b>1. Capital Account</b>	
	1.1	As per last Balance Sheet	7 299 259
	1.2	<i>Add: Cost of Projects Capitalized:</i>	
	a)	Lab Equipment	322 580
	b)	Second Building	22 362
	c)	Xerox Copying Equipment	242 000
	d)	Lab Building at Ghaziabad	1 079
			<u>588 021</u>
			7 887 280
	1.3	<i>Add: Transferred from Annexed Income and Expenditure A/c</i>	694 820
			<u>8 582 100</u>
		<i>Less: Unspent Govt Grant refunded</i>	63 494
7 299 259			<u>8 518 606</u>
		<b>2. Reserve and Funds</b>	
12 433	2.1	K.L. Moudgill Prize Fund	12 633
2 34 995	2.2	Gratuity Fund	2 50 868
	2.3	<i>Building Fund</i>	
	a)	As per last Balance Sheet	462 757
	b)	Receipt during the year (Rental Income)	220 061
			<u>682 818</u>
462 757	c)	<i>Less: paid to L &amp; DO</i>	(-) 392 728
	d)	<i>Less: transferred to Capital Account</i>	(-) 22 362
			<u>267 728</u>
	2.4	<i>Lab Expansion Fund (unspent)</i>	
	a)	Govt Grant received	400 000
	b)	<i>Less: amount spent last year from suspense now-adjusted</i>	40 091
		<i>Less: transferred to Capital Account</i>	322 580 (-) 362 671
			<u>37 329</u>
<u>8 009 444</u>		CARRIED OVER	<u>568 558</u> <u>8 518 606</u>

AT 31 MARCH 1974

## ASSETS

PREVIOUS YEAR	SL NO.		AMOUNT
Rs			Rs
		<b>1. Fixed Assets</b>	
		<b>1.1 Buildings</b>	
		a) As per cost value	4 899 341
		b) Additions during the year	22 362
			<u>4 921 703</u>
		c) Less depreciation w/o	
		i) up to 31.3.73	(—) 1 098 635
		ii) during 1973-74	(—) 152 134
3 800 706			<u>3 670 934</u>
		<b>1.2 Lab Building at Ghaziabad (under construction)</b>	
		a) As per last balance sheet	198 921
198 921		b) Additions during the year	1 079
			<u>200 000</u>
		<b>1.3 Building at Madras (under construction)</b>	
		a) as per last balance sheet	19 700
19 700		b) Additions during the year	147 726
			<u>167 426</u>
		<b>1.4 Land for Branch Offices</b>	
		a) as per last balance sheet	116 941
119 941		b) Additions during the year	264 100
			<u>381 041</u>
		<b>1.5 Xerox Copying Equipment</b>	
		a) as per last balance sheet	178 810
178 810		b) Additions during the year	63 190
			<u>242 000</u>
		<b>1.6 Lab Equipment</b>	
		a) As per cost value up to 31.3.73	2 022 685
		b) Additions during the year	322 580
			<u>2 345 265</u>
		c) Less: Depreciation w/o	
		i) up to 31.3.73	(—) 656 446
		ii) during 1973-74	(—) 168 888
1 366 230			<u>1 519 931</u>
5 681 317		CARRIED OVER	<u>6 181 332</u>

(Continued)



## BALANCE SHEET AS

## LIABILITIES

PREVIOUS YEAR	SL No.		Rs	Rs	AMOUNT
Rs					Rs
8 009 444		BROUGHT FORWARD		568 558	8 518 606
	2.5	<i>Xerox Copying Equipment</i>			
		a) As per last Balance Sheet	242 000		
242 000		b) Less transferred to Capital account	(—) 242 000	—	
	2.6	<i>Silver Jubilee Fund</i>			
		a) As per last Balance Sheet	41 726		
		b) Add Receipt during the year	100		
			41 826		
41 726		c) Less expenditure during the year	(—) 41 826	—	
	2.7	<i>Madras Bldg Project</i>			
		a) As per last Balance Sheet (Payment includes of Rs 5 601 taken on Assets side)	216 290		
210 689		b) Add Receipt during the year	6 386		
			—	222 676	
	2.8	<i>Land for Central Lab Building</i>			
		a) As per last Balance Sheet (unspent)	1 079		
1 079		b) Less transferred to Capital account	(—) 1 079	—	
	2.9	<i>Government Grant for Land for BBO</i>		300 000	
1 750 749	2.10	<i>Pension Fund</i>		2 102 670	
6 810 611	2.11	<i>CPF</i>		7 282 453	
1 518 558	2.12	<i>GPF</i>		1 905 059	
				—	12 381 416
	3.	<i>Loans</i>			
		From Govt of India for conveyance advance			384 500
394 000					
	4.	<i>Current Liabilities</i>			
1 684 701	4.1	Advance subscription (1974)		1 795 589	
	4.2	<i>Sundry Creditors</i>			
267 445		a) Inland		736 996	
278 158		b) Abroad		781 243	
27 967		c) Earnest money		31 113	3 344 941
				—	
21 237 127		CARRIED OVER			24 629 463

AT 31 MARCH 1974 — *Contd*

		A S S E T S			
PREVIOUS YEAR	SL No.			AMOUNT	
Rs				Rs	
5 681 317		BROUGHT FORWARD		6 181 332	
		1.7 <i>Furniture and Equipment</i>			
		a) As per cost value up to 31.3.73		1 336 441	
		b) Additions during the year		178 162	
				1 514 603	
		c) Less Refunds (—)		129	
		d) Less: Depreciation w/o		1 514 474	
		i) up to 31.3.73 (—)		721 761	
614 680		ii) during the year (—)		101 541	691 172
		1.8 <i>Vehicles</i>			
		a) As per cost value up to 31.3.73		216 110	
		b) Less: refunds (—)		1 295	
				214 815	
		c) Less Depreciation w/o			
		i) up to 31.3.73 (—)		101 331	
114 779		ii) during the year (—)		22 697	90 787
		1.9 <i>Library Books</i>			
		a) as per cost value		150 476	
150 476		b) Additions during the year		62 484	212 960
		2. <i>Investment at Cost</i>			
		2.1 Deposits with bank		501 060	
		2.2 Shares of ISI Employees Consumers' Co-op Store		7 500	
		2.3 Shares of Jay Engg. Works (A/c K.L. Moudgill Prize Fund)		11 400	
		2.4 Pension Fund		2 102 670	
		2.5 CPF		7 282 453	
10 497 318		2.6 GPF		1 905 059	11 810 142
		3. <i>Current Assets</i>			
		3.1 Stock of printing paper (valued at cost)		218 241	
		3.2 <i>Sundry Debtors</i>			
		a) Sale of Publications		561 930	
		b) Bulletin Advertisement		98 972	
810 419					879 143
17 868 989		CARRIED OVER			19 865 536

(Continued)



**BALANCE SHEET AS**

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**LIABILITIES**

PREVIOUS YEAR	SL No.		AMOUNT
Rs			Rs
21 237 127		BROUGHT FORWARD	24 629 463

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21 237 127

Total

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24 629 463

AT 31 MARCH 1974

		ASSETS	
PREVIOUS YEAR	SL No.		AMOUNT
Rs			Rs
17 868 989		BROUGHT FORWARD	19 865 536
	4.	<i>Loans and Advances</i>	
	4.1	<i>Advances</i>	
372 055	a)	Concyance Advance	384 435
105 766	b)	For purchases	175 082
11 780	c)	Festival	9 400
11 553	d)	Flood	9 269
60 991	4.2	Security Deposits	71 117
95 765	4.3	Pre-paid expenses	57 926
	4.4	Due from Min. of Fin. (A/c Colombo Plan Trainees)	15 855
27 634	4.5	Due from Min. of Ext. Affairs (A/c ITEC Trainees)	21 664
20 280	4.6	Due from Min. of EA/MOF(A/c Tuition Fee)	—
4 575			744 748
	5.	<i>Cash and Bank Balances</i>	
2 627 152	5.1	With Bankers	3 982 678
18 045	5.2	In Hand (including Imprest)	22 802
12 542	5.3	Postage Stamps	13 699
		Total	4 019 179
<u>21 237 127</u>			<u>24 629 463</u>

( Figures have been rounded off to whole rupee )



**APPENDIX B**  
**Principal Officers of**  
**INDIAN STANDARDS INSTITUTION**  
**( As on 31 March 1974 )**

<i>General Council ( GC )</i>	
President	SHRI C. SUBBRAMANIAM Union Minister of Industrial Development, and Science and Technology, Government of India
Vice-Presidents	SHRI D. C. KOTHARI SHRI R. S. PANDE
<i>Executive Committee ( EC )</i>	
Chairman	SHRI D. C. KOTHARI
<i>Finance Committee ( FC )</i>	
Chairman	SHRI R. S. PANDE
<i>Agricultural &amp; Food Products Division Council ( AFDC )</i>	
Chairman	DR M. S. SWAMINATHAN
Vice-Chairman	DR B. L. AMLA
<i>Chemical Division Council ( CDC )</i>	
Chairman	DR J. S. BADAMI
Vice-Chairmen	DR A. LAHIRI DR S. P. VARMA
<i>Civil Engineering Division Council ( CEDG )</i>	
Chairman	DR K. L. RAO
Vice-Chairmen	SHRI Y. K. MURTHY SHRI M. S. BHATIA
<i>Consumer Products &amp; Medical Instruments Division Council ( CMIDG )</i>	
Chairman	COL R. D. AYYAR
Vice-Chairman	BRIG HARBANS LAL
<i>Electrotechnical Division Council ( ETDC )</i>	
Chairman	SHRI J. S. ZAVERI
Vice-Chairman	MAJ-GEN K. K. MEHTA
<i>Marine, Cargo Movement &amp; Packaging Division Council ( MCPDC )</i>	
Chairman	SHRI C. P. SRIVASTAVA
Vice-Chairmen	SHRI B. K. GUPTA SHRI A. RAY
<i>Mechanical Engineering Division Council ( EDC )</i>	
Chairman	SHRI K. B. RAO
Vice-Chairman	SHRI ABHIJIT SEN

*Structural & Metals Division Council ( SMDC )*

Chairman

SHRI R. S. PANDE

Vice-Chairmen

DR R. V. TAMHANKAR

SHRI M. DHAR

*Textile Division Council ( TDC )*

Chairman

SHRI G. K. DEVARAJULU

Vice-Chairman

SHRI D. N. SHROFF

*Certification Marks Advisory Committee  
( CMAC )*

Chairman

SHRI PRABHU V. MEHTA

*Advisory Committee on Implementation of Indian  
Standards ( ACI )*

Chairman

DIRECTOR GENERAL, SUPPLIES AND  
DISPOSALS, NEW DELHI*Industrial Safety Advisory Committee ( ISAC )*

Chairman

BRIG G. R. CHAINANI

*Women's Advisory Committee ( WAC )*

Chairman

SHRIMATI LILAVATI MUNSHI

*Ahmedabad Branch Office Advisory Committee*

Chairman

SHRI M. SIVAGNANAM

*Bangalore Branch Office Advisory Committee*

Chairman

DR S. M. PATIL

*Bombay Branch Office Advisory Committee*

Chairman

SHRI PRABHU V. MEHTA

*Calcutta Branch Office Advisory Committee*

Chairman

SHRI K. N. MOOKERJEE

*Hyderabad Branch Office Advisory Committee*

Chairman

SHRI T. G. V. NAIDU

*Kanpur Branch Office Advisory Committee*

Chairman

SARDAR INDER SINGH, MP

*Madras Branch Office Advisory Committee*

Chairman

SHRI D. C. KOTHARI



## STAFF

( As on 31 March 1974 )

Director General: SHRI S. K. SEN

Deputy Directors General: SHRI Y. S. VENKATESWARAN  
SHRI D. DAS GUPTA

### **Agricultural & Food Products Department**

Director

DR HARI BHAGWAN

### **Chemical Department**

Deputy Director/Head

DR G. M. SAXENA

### **Civil Engineering Department**

Director

SHRI D. AJITHA SIMHA

### **Consumer Products and Medical Instruments Department**

Deputy Director General

SHRI Y. S. VENKATESWARAN

### **Electrotechnical Department**

Director

SHRI N. SRINIVASAN

### **Marine, Cargo Movement & Packaging Department**

Deputy Director/Head

SHRI T. PURNANANDAM

### **Mechanical Engineering Department**

Director

SHRI S. M. RAZVI

### **Structural and Metals Department**

Director

SHRI C. R. RAMA RAO

### **Textile Department**

Director

SHRI S. M. CHAKRABORTY

### **Accounts Department**

Director

SHRI R. K. SATIA

### **Personnel Management**

Secretary

SHRI HARBANS LAL

### **General Services**

Director

SHRI P. CHATTERJEE

### **Central Marks Department**

Director

SHRI C. B. CHANDORKAR

### **Certification Marks Department, Delhi**

Director

SHRI A. S. CHEEMA

### **Implementation Department**

Director

SHRI S. R. KUPPANNA

<b>Laboratory</b>	
Director	DR S. GHOSH
<b>Library</b>	
Deputy Director/Head	SHRI V. P. VIJ
<b>Publications Department</b>	
Director	SHRI RAM D. TANEJA
<b>Public Relations &amp; Publicity Departments</b>	
Director	SHRI MANOHAR LAL
<b>Statistics Department</b>	
Director	DR B. N. SINGH
<b>Ahmedabad Branch Office</b>	
Director	SHRI M. RAGHUPATHY
<b>Bangalore Branch Office</b>	
Deputy Director/Head	SHRI R. I. MIDHA
<b>Bombay Branch Office</b>	
Director	SHRI S. SRINIVASAN
<b>Calcutta Branch Office</b>	
Director and Head	SHRI A. P. BANERJI
Director, Steel Cell	SHRI H. P. GHOSE
Director, Certification Marks	SHRI S. P. BATTOO
<b>Chandigarh Branch Office</b>	
Deputy Director/Head	SHRI SOM PRAKASH
<b>Hyderabad Branch Office</b>	
Deputy Director/Head	SHRI S. P. RAMAN
<b>Kanpur Branch Office</b>	
Deputy Director/Head	SHRI M. S. SAXENA
<b>Madras Branch Office</b>	
Director	SHRI S. SUBRAHMANYAN
<b>Patna Branch Office</b>	
Deputy Director Head	SHRI N. C. TYAGI
Officer on Special Duty ( Director	SHRI G. L. GULATI



# **INDIAN STANDARDS INSTITUTION**

## **—THE NATIONAL STANDARDS ORGANIZATION OF INDIA**

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The Indian Standards Institution, commonly known as ISI, was established in 1947 by a resolution of the Government of India, with the active support of industrial, scientific and technical organizations in the country.

The aims and objects of the Institution include preparation of standards relating to products, commodities, etc, and their promotion on national and international levels; provision of registration of standardization marks applicable to products, commodities, etc.

### **INDIAN STANDARDS**

Indian Standards are the national standards of the country specifying requirements necessary for the production of quality goods, such as methods, dimensions, performance, finish, tests, etc. Standards are formulated through a network of technical committees on which are taken experts representing manufacturers; consumers; scientific, research and technical organizations; purchasers and government departments. Committees are appointed by the nine Division Councils responsible for the work of standardization for different industries, namely, agricultural and food products; chemicals; civil engineering; consumer products and medical instruments; electrotechnical; marine, cargo movement and packaging; mechanical engineering; structural and metals and textiles.

Indian Standards are implemented by industrial undertakings, business organizations, corporations, firms and others in their manufacturing and purchase programmes. Central and State Governments and local bodies have taken policy decisions to adopt Indian Standards.

### **ISI CERTIFICATION MARKS SCHEME**

For providing practical utility of standards to the ordinary consumer, the Institution operates ISI Certification Marks Scheme, under the authority of the ISI Certification Marks Act, 1952 ( as amended in 1961 ), passed by the Parliament. Under the Scheme, licences are issued to manufacturers

producing goods in conformity with the relevant Indian Standards to apply ISI Certification Mark on their products.

Strict quality control and vigilance are exercised over the production of such goods. Regular and surprise inspections of the licensees' factories are carried out and samples of their products are drawn from factories and from the open market and subjected to tests in ISI and other independent laboratories.

The Scheme provides an assurance to the consumer about the quality of ISI-marked products and helps the manufacturer in reaping the advantages of standardization.

### **ISI LABORATORIES**

For testing products under the ISI Certification Marks Scheme, the Institution has set up its main Laboratory at the Headquarters, and laboratories on smaller scales in ISI Branch Offices at Calcutta, Madras and Bombay.

### **TRAINING PROGRAMMES**

**Company Standardization** — The Institution assists Indian industries in promoting and developing organized in-plant standardization through training and survey programmes, conferences and factory visits.

**Centralized Training Programme** — ISI provides facilities for training technical personnel of developing countries of Asia and Africa in principles, procedures, methodology and organization of standardization.

**Utilization of Indian Standards in Education** — Educational utilization of Indian Standards is promoted through training programmes for teachers, circulation of special documents and display of standards.

### **SUBSCRIBING MEMBERS**

Central and State Governments, local bodies, industrial organizations, business undertakings, corporations, firms, institutions and individuals join ISI as Subscribing Members in any one of the different categories, namely, Patrons, Donor Members, Sustaining Members, Associate Members, Ordinary Members and Individual Members, and avail of the specialized services in standardization and quality control extended by the Institution.

### **INTERNATIONAL COLLABORATION**

For standardization at the international level, the Institution participates actively in the work of International Organization for

Standardization (ISO), International Electrotechnical Commission (IEC), Commonwealth Standards Conference (CSC) and Asian Standards Advisory Committee (ASAC).

### **BRANCH OFFICES**

For keeping close liaison with and for rendering efficient service to industry, trade and commerce in different regions of the country, the Institution has opened its Branch Offices in Ahmedabad, Bangalore, Bombay, Calcutta, Chandigarh, Hyderabad, Kanpur, Madras and Patna.