

# CHAPTER VII

## INDIAN STATISTICAL INSTITUTE

7.1 The Indian Statistical Institute was set up in the early thirties for the advancement of theoretical and applied statistics in India as a result of the pioneering initiative and efforts of Professor P.C. Mahalanobis, It was registered on April 28 1932, as a non-profit distributing learned society under the West Bengal Societies Registration Act, 1860. The Institute was declared an “Institute of National Importance” by an Act of Parliament, known as the “Indian Statistical Institute Act No.57 of 1959”, which conferred on it the right to hold examinations and award degrees/diplomas in Statistics. As a result, degree courses leading to Bachelor of Statistics (B.Stat.) and Master of Statistics (M.Stat.) and Post Graduate Diplomas in SQC & OR and Computer Science were started from June 1960. The Institute was also empowered to award Ph.D./D.Sc. Degree from the same year. Subsequently, Master of Technology courses in Computer Science and in Quality, Reliability & Operations Research were also introduced. The scope was further enlarged when the Institute was empowered to award degrees/diplomas not only in Statistics but also in Mathematics, Quantitative Economics, Computer Science and such other subjects related to Statistics by virtue of “Indian Statistical Institute (Amendment) Act, 1995, No.38 of 1995” by Parliament effective from 18 September, 1995. "Sankhya – The Indian Journal of Statistics," being published by the Institute since 1933, is considered one of the leading statistical journals in the world.

7.2 Shri Pranab Mukherjee, Hon'ble Defence Minister, Govt. of India and Prof. M.G.K. Menon, FRS continued to act as the Chairman, and the President of the Institute respectively during the year. Prof. Sankar K. Pal, a Distinguished Scientist has taken over charge as the Director of the Institute w.e.f. 01 August, 2005.

7.3 The Institute is almost wholly supported by Grants-in-Aid from the Government of India. Grants-in-Aid to the Institute during the current year are indicated in the **Table-7.1** below :

**Table-7.1**

### Grants-in-Aid to ISI

	<b>BE 2005-06</b>
<b>Plan</b>	Rs.15.05 crore
<b>Non-Plan</b>	Rs.41.53 crore
<b>Total</b>	Rs.56.58 crore

Of the total Plan allocation of Rs. 1505 lakh, ongoing Plan Projects of the ISI accounts for Rs. 1116.87 lakh and new Plan Projects accounts for Rs. 388.13 lakh.

### Teaching and Training

7.4 During the academic session 2005-2006, 10,674 candidates applied for admission and were called for written selection tests for the various courses offered by the Institute viz. B.Stat. (Hons.), B. Math (Hons.), M.Stat (S-Stream), M.Math, M.S. in Quantitative Economics, M.Tech. in Computer Science, M.Tech. in Quality, Reliability and Operations Research,



*Shri Pranab Mukherjee, Hon'ble Defence Minister, Government of India attending the ISI Council Meeting for the first time on 29<sup>th</sup> October, 2004.*



*Prof. M.G.K. Menon, FRS, the President of the Indian Statistical Institute inaugurated the "Soft Computing Centre – A National Facility" at the Institute Headquarters in Kolkata on 22<sup>nd</sup> October, 2005.*

Associateship in Documentation & Information Science; Research Fellowships in Statistics, Mathematics, Economics, Computer & Communication Sciences, Physics and Applied Mathematics, Demography, Geology, Sociology, Psychology; Human Genetics and Library and Information Science. A total of 8082 candidates finally appeared for admission tests and a total of 593 candidates qualified in the written tests, and were called for interviews. Based on the performance in the written tests, interview and the academic records, 195 candidates were offered admission to various courses during the academic session under review. The annual examinations for all the regular courses were held during May 2005. The 2005-2006 academic session commenced on 18<sup>th</sup> July, 2005.

## **International Statistical Education Centre (ISEC)**

7.5 The ISEC, which was opened in 1950, is operated jointly by the International Statistical Institute and the Indian Statistical Institute, under the auspices of UNESCO and the Government of India. The Centre, as an associated body of the Institute, functions under a joint Board of Directors. The Directors represent International Statistical Institute, Indian Statistical Institute and the Govt. of India. Professor P.C. Mahalanobis was the Chairman of the Board of Directors since its inception in 1950 until his death in 1972. Since then, National Professor C.R. Rao, F.R.S., has been the Chairman of the Board. The Centre provides training in Theoretical and Applied Statistics at various levels to selected participants from countries in the Middle-East, South and South-East Asia, the Far East and the Commonwealth countries in Africa, sponsored by respective Governments. The major training programme of the Centre is a 10-month regular course. In addition, special courses of varying duration are also organised. This year, in its 59<sup>th</sup> term, 19 trainees from Srilanka (4), Myanmar (7), Tonga (1), Ivory Coast (1), Indonesia (1), Gambia (1), Bhutan (1), Thailand (1) and Bangladesh (2) joined the course. The trainees received "Statistical Training Diploma" in March 2006 after successful completion of the ISEC Regular course. Besides regular courses, ISEC conducts Special courses of various duration on different subjects. During the year, a trainee from Gambia underwent a special course on "Household Poverty Survey and Analysis".

## **Research**

7.6 The research activities of the Institute are grouped into the following Divisions : Theoretical Statistics and Mathematics; Applied Statistics; Physics and Earth Sciences; Computer and Communication Sciences; Biological Sciences; Social Sciences; Statistical Quality Control & Operations Research; and Library, Documentation & Information Sciences. In addition, the Computer & Statistical Services Centre (CSSC) has the responsibility of the management of the in-house computer system of the Institute and providing computing and statistical services to scientific workers. A brief account of the research activities done by different units of each Division of the Institute during the year are highlighted below :

### **Statistical Quality Control and Operations Research**

7.7 The SQC and OR division set up in 1953, now operates through the 10 units located at Bangalore, Baroda, Kolkatta ( 2 units) , Hyderabad, New Delhi, Mumbai, Coimbatore, Chennai, Pune. Since its inception, the division has been very active in dissemination of statistical knowledge to industries and applied research in the areas of SQC & OR. The Division has been in the forefront of the Quality movement in India for over five decades and its significant contributions have made the Institute a permanent member of "Quality Council of India". The Division also offers a specialist development programme (SDP) to provide

careers in industry through on the job training and guided development. The Division has been conducting a Two year Post graduate programme( M.Tech) in Quality Reliability and Operation Research since 1989 onwards.

## **Library, Documentation and Information Sciences**

### **(a) Central Library**

7.8 The Institute maintains a Central Research Library at Kolkata with a holding of above 2 lakhs books and bound periodicals. It has a good collection of microfiches, microfilms and photofilms. It renders regular documentation service to the Institute Scientists. It also has a well equipped Reprography and Photography Unit with the latest facilities for photo copying . The reading rooms of the Library can seat about 200 readers. The services of the Library are extended to bonafide students, scholars and academic staff members of educational and scientific Institutions of the city and its neighbouring regions.

7.9 The Library maintains contacts with research Libraries of the country through inter-library loan transactions. The Library also has an excellent collection of rare and out of print books, and official reports of various governments and international agencies and Russian language publications. To provide information support and increase the efficiency of library services, the Central Library at Kolkata has initiated the process of providing computerized library services. Apart from the Central Library at Kolkata, the libraries at Delhi and Bangalore also offer similar services. The National Board of Higher Mathematics, Department of Atomic Energy, Govt. of India has recognised the Delhi Centre Library as the Regional Library to serve the Northern Region.

7.10 During April 2005 – September 2005, the library accessioned 260 books out of which 211 were purchased and 49 books were received on complimentary basis. The Library also accessioned 750 bound volumes of journals. It placed order to 474 scholarly journal titles in print. It maintains the publication exchange programme of ‘Sankhya- the Indian Journal of Statistics’ through which the library got 99 titles during the period. More than 35 journal titles were received on complimentary basis. The library received and processed more than 2500 loose issues of journals. It classified and catalogued 406 new books and filed 2500 computer printed catalogue cards. It also processed 150 titles on government reports/data-books etc. Thus the total collection of the library stands at around 3,07,385. The library has a good collection of electronic resources on different media and has access to several online journals/databases. During the year under report, the library has added 8 CDs & floppies containing books. Thus, the total collection of CDs has risen to 761. The library has provided online access to about 350 full-text journals and online databases like MathSciNet, EconLit, Science Direct, Springer Link, IEL Online of the IEEE/IEE publications, Current Index to Statistics (CIS) on Web.

### **(b) Documentation Research and Training Centre**

7.11 The Study of various methods of knowledge representation, such as semantic nets, frames and predicate calculus etc.; The application of modern scientific management techniques to the planning and management of information system, centers and services; The Study of Internet Technology and its Applications; The development of bibliometric and scientometric measures for evaluating the use of Library and information services and scientific output respectively; The development of guidelines and software for Library house keeping operations, such as, circulation control service and acquisition control.

## **Computer and Statistical Services Centre (CSSC)**

7.12 The centre manages the central computing facility of the Institute at Calcutta. It serves about 600 user-students, research scholars and scientific workers – with the inhouse computer system consisting of SUN Enterprise 3000 Server, Six SUN ULTRA 30 workstations, DEC Alpha 4100 server and IBM AS-400 server and 55 PCs. BMDP, NAG, SAS, IMSL, SHAZAM software are available on VAX 8650. SAS and MATLAB-Base, and Mathematica. E-mail, Internet and Fax facilities of the Institute are maintained by the Centre. Statistical and computational consultancy services are also provided by CSSC. The staff members of CSSC also served as faculty in various courses of the Institute and guided projects carried out by students. They also conducted research in the areas of Database and knowledge base, Image Processing, Computational geometry, Data Mining, VLSI and Cryptology.

## **Externally Funded Projects**

7.13 Apart from theoretical and experimental plan research, the Institute also undertook about 90 externally funded projects from different Government and non-Government organisations like Dept. of Science and Technology (DST); Indian Space Research Organisation (ISRO); Council of Scientific and Industrial Research (CSIR); SUTEC; Indian National Science Academy (INSA); The INSEAD, France; DST-NSF; IRHPA; Zilla Saksharata Samiti; World Bank; The Ministry of Environment and Forestry, Govt. of India; Dept. of Biotechnology; Indian Council of Medical Research (ICMR); Fogarty International Centre, NIH, USA; International Rice Research Institute; University of Western Sydney, Australia; Indo-French Centre for the Promotion of Advanced Research (IFCPAR); Board of Research in Nuclear Science, Dept. of Atomic Energy; Robert Bosch India Limited; ACNielsen ORG-Marg Pvt. Ltd.; TMDC; Tata Iron and Steel Company (TISCO); Khadim Chain Stores Pvt. Ltd.; Multi Commodity Exchange Ltd.; Durgapur Steel Plant; DIC of India Limited; Techna Institute; Tala Hydroelectric Project Authority, Bhutan; Dum Dum Ordnance Factory; Dum Dum Valves & Bearings (P) Ltd.; East India Pharmaceuticlas Ltd.; SNPL, Nepal; Usha Martin Ltd.; Videsh Sanchar Nigam Limited (VSNL); HPCL, Coimbatore; Crompton Greaves Ltd.; ITC Ltd.; Reliance Infocom Ltd.; Rajasthan Electronics and Instruments Ltd., Jaipur; India Software Group, New Delhi; HSBC, Mumbai; MICI; SAPCO; Ashok Leyland; Bharat Heavy Electricals Limited (BHEL), Bhopal; Macmillan India Ltd.; J K Tyres; Iran Khodro Company; Larsen and Toubro Ltd. (L & T), Mysore etc.

## **Seminars, Workshops, Conferences, Symposiums Etc. Organised**

7.14 About 115 seminars and workshops were conducted by the ISI during 2005-06 on statistical themes.

## **Publications**

7.15 The internationally renowned journal, Sankhya, began publication under the editorship of Prof. P.C. Mahalanobis in 1933. From 2003, Sankhya is published in one combined series, four times a year in February, May, August and November under ISSN 0972-7671. Recent issues of the journal are available on the website <http://sankhya.isical.ac.in>. The website also has other features such as searching and online submission. The following issues were published during April 2005 to March 2006 :

- (i) May, 2005 : Volume 66, Part 2

- (ii) August, 2005 : Volume 66, Part 3
- (iii) November, 2005 : Volume 66, Part 4
- (iv) February, 2006 : Volume 67, Part 1 (scheduled)

## **Scientific Papers and Publications**

7.16 During the year about 205 scientific papers were published and about 150 papers were accepted for publication in different scientific journals of national and international importance.

## **Scientific Assignments Abroad**

7.17 About sixty scientists of the Institute visited a number of foreign countries either on invitation or under cultural exchange programmes to attend international seminars and conferences. Most of them presented scientific papers and delivered lectures in those seminars and conferences. Countries visited by ISI faculty members were France, Canada, Singapore, Norway, Thailand, USA, Iran, Bonn, UK, Australia, Italy, Russia, Switzerland, Germany, South Korea, Japan, China, Taiwan, Belgium, Spain, Netherlands, Israel, Brazil, Hong Kong, Poland, Finland, Sweden etc.

## **Visiting Scientists**

7.18 About fifty distinguished scientists from Canada, U.S.A., Japan, U.K., Hong Kong, Belgium, Australia, The Netherlands, Hungary, Finland and India visited the Institute to attend various Workshops, Conferences, Seminars etc. and to participate in collaborative research, teaching and other scientific activities of the Institute.

## **Recognition to ISI Scientists**

7.19 Several faculty members received laurels in the forms of Awards and Fellowships from organisations of national and international importance like ISCA, IEEE, INSA, etc. Several faculty members served as Visiting Professors in various universities in US and Europe; Indian Council of Social Sciences Research (ICSSR); Indian National Science Academy etc. Besides, many faculty members were invited by national and international Institute/bodies to act as chairman, member, chief editor, editor in their several committees/editorial board etc. Among those, some of the most notable recognitions earned by the faculty members are indicated below :

- Professor Probal Chaudhury has been elected Fellow of the Institute of Mathematical Statistics. He was awarded B.M. Birla Science Prize for Mathematical Sciences by B.M. Birla Science Centre and Shanti Swarup Bhatnagar Prize for Mathematical Sciences by CSIR.
- Professor B.B. Chaudhuri received Ram Lal Wadhwa Gold Medal from Institute of Electronics & Telecom Engineering for his contribution in the field of Digital Document Processing.
- Shri Mahesh Chinnagiri received the 1<sup>st</sup> Runner-up Award for his research paper titled "Nesting Six Sigma and Lean in Project Management" at the International Project Management Leadership Conference, Bangalore organised by QAI.