

Review of the activities of Indian Statistical Institute for the year 2010 - 2011

The Indian Statistical Institute, Kolkata was established on 17th December, 1931 and was registered as a non-profit learned society under the Societies Registration Act (XXI of 1860) on 28th April, 1932 and subsequently came under the purview of the West Bengal Societies Registration Act (XXVI of 1961) which was amended in 1964. For its substantial contribution to the quality of theoretical and applied statistical work, the Institute was recognised as an “Institute of national importance” by “The Indian Statistical Institute Act, 1959, No.57 of 1959” of the Parliament on 24th December, 1959. By virtue of this Act, the Institute was empowered to award degrees and diplomas in statistics. As a result, Bachelor of Statistics {B.Stat. (Hons.)}, Master of Statistics (M.Stat.) and Ph.D. programmes started in July, 1960. Scope was further enlarged by the “Indian Statistical Institute (Amendment) Act, No.38 of 1995” of the Parliament, when 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. The Institute is engaged in an integrated programme of research, training & practical application of statistics through several projects in close collaboration with the Govt. of India, maintaining a very high standard as a centre of excellence which has resulted in earning several national/international recognitions over the years.

2. The objectives of the Institute are:

- (i) to promote the study and dissemination of knowledge of statistics, to develop statistical theory and methods, and their use in research and practical applications generally with special reference to problems of planning of national development and social welfare.
- (ii) to undertake research in various fields of natural and social sciences, with a view to the mutual development of statistics and these sciences.
- (iii) to provide for and undertake the collection of information, investigations, projects and operational research for purposes of planning and the improvement of efficiency of management and production.
- (iv) to undertake any other ancillary activities in fulfillment of the objectives (i), (ii) and (iii) above.

3. The Institute has its Headquarters in Kolkata with three other centres at Delhi, Bangalore and Chennai. Apart from these centres, the North-East centre of the Institute at Tezpur, Assam is scheduled to be opened during the year 2011-2012. The Institute has also a branch at Giridih and network of service units of Statistical Quality Control and Operations Research Division across the country at Mumbai, Coimbatore, Pune, Chennai and Hyderabad besides Kolkata, Delhi, Bangalore and Chennai.

4. As envisaged in the “Indian Statistical Institute Act, 1959, No. 57 of 1959”, the Institute is fully funded by the Government of India. The major amount of internal receipts comes from the sale of prospectus, realisation from staff on account of licence fee, share of overhead charges from externally funded projects, fees from consultancy rendered by the Statistical Quality Control and Operations Research Division etc.

5. The accounts of the Institute for 2010 - 2011 has been audited by M/S L. B. Jha & Co., Chartered Accountants, Kolkata who were appointed by the Institute for the purpose after their selection by the Govt. of India in consultation with the Controller & Auditor General, India and the Institute, as per provision contained in Section 6 (1) of the “Indian Statistical Institute Act, 1959, No. 57 of 1959”.

6. The programme of work in a particular year, the financial estimates thereof and quantum of grants to be given by the Ministry of Statistics and Programme Implementation for the purpose, are decided in the light of the recommendations of a committee set up by the Ministry of Statistics and Programme Implementation under Section 8 (1) of the “Indian Statistical Institute Act, 1959, No. 57 of 1959”. The composition of the committee includes distinguished economists and scientists as well as representatives from the Govt. of India, namely the Ministry of Statistics & Programme Implementation and Ministry of Finance. The programme of work and the expenditure estimates/grants for 2010 - 2011 were accordingly worked out on the basis of the recommendations of the aforesaid committee. During 2010 – 2011, Section 8(1) Committee recommended ₹10145.80 lakhs (Government Grant ₹9920.00 lakhs and ISI internal receipt ₹225.80 lakhs) under Non-Plan (BE) and ₹3393.84 lakhs under Plan (BE). The Government approved a sum of ₹9101.12 lakhs and of ₹2800 lakhs for Non-Plan and Plan expenditure respectively. At the revised estimate stage, the Institute sought for a grant of ₹10682.50 lakhs and ₹3724.79 lakhs under Non-Plan and Plan respectively which was also recommended by the Section 8(1) Committee. The Government sanctioned a grant of ₹10420.16 lakhs (including the unutilized amount of ₹484.15 lakhs during the financial year 2009-2010) under Non-Plan (RE) while the Plan (RE) allocation was fixed at ₹4382.13 lakhs while(including the unutilized amount of ₹782.13 lakhs during the financial year 2009-2010).The grants-in-aid given to the Institute are inclusive of funds required for construction of building, purchase of equipments and hiring manpower etc.

7. During the year, the Institute continued to conduct its regular and professional courses for students leading to award degrees in B.Stat. (Hons.); B. Math. (Hons.); M.Stat. (M-Stream and S-stream); Master of Science (M.S.) in Quantitative Economics; M.Tech. in Computer Science; M.Tech. in Quality, Reliability & Operations Research (QROR); MS in Library and Information Science; Research Fellowship in Statistics, Mathematics, Quantitative Economics, Computer Sciences, Biological Anthropology, Physics and Applied Mathematics, Sociology, Geology, Agricultural and Ecology, Psychology, Human Genetics, Demography and Library & Information Science.

8. The Institute runs the International Statistical Education Centre (ISEC), an Associate Institute in Kolkata, under the auspices of the UNESCO and the Government of India. The centre provides training in theoretical and applied statistics at various levels to selected participants from the countries in the Middle-East, South and South-East Asia, the Far-East and the Commonwealth countries in Africa. Major training programme of the centre is a 10-month regular course in Statistics leading to Statistical Training Diploma. In addition, special courses of varying duration were also organized. During the year, ISEC successfully completed its training program of 64th term of the Regular Courses with 13 trainees from different countries like Afghanistan, Cuba, Gambia, Mongolia, Myanmar, Russia and Sri Lanka and awarded Statistical Training Diploma.

9. Another Associate Institute called “Center for Soft Computing Research: A National Facility”, which was established in 2004 which is primarily funded by the Department of Science and Technology, Govt. of India under its IRHPA (Intensification of Research in High

Priority Areas) scheme. The Center conducted research on these topics like Image Processing, Cognitive Vision, Evolutionary Algorithms, Swarm Intelligence, Granular Computing, Bioinformatics etc.

10. The Annual Report for the year 2010 - 2011 indicates the details of research work carried out by the Institute during the year in Theoretical Statistics and Mathematics Division; Applied Statistics Division; Computer and Communication Sciences Division; Physics and Earth Sciences Division; Biological Sciences Division; Social Sciences Division; Statistical Quality Control & Operations Research (SQC & OR) Division; and Library, Documentation & Information Sciences Division. The composition of each Division is given below:

Theoretical Statistics and Mathematics Division: Stat-Math Unit at Kolkata, Delhi and Bangalore.

Applied Statistics Division: Applied Statistics Unit and Bayesian & Interdisciplinary Research Unit.

Computer and Communication Sciences Division: Advanced Computing & Microelectronics Unit, Computer Vision & Pattern Recognition Unit, Documentation Research and Training Centre, Electronics & Communication Sciences Unit, Machine Intelligence Unit and Systems Science & Informatics Unit.

Physics & Earth Sciences Division: Geological Studies Unit and Physics & Applied Mathematics Unit.

Biological Sciences Division: Agricultural & Ecological Research Unit, Biological Anthropology Unit and Human Genetics Unit.

Social Sciences Division: Economic Research Unit, Economic Analysis Unit at Bangalore, Linguistic Research Unit, Planning Unit at Delhi, Population Studies Unit, Psychology Research Unit and Sociological Research Unit.

Statistical Quality Control & Operations Research (SQC & OR) Division: Bangalore, Chennai, New Delhi, Hyderabad, Kolkata, Mumbai, Pune and Coimbatore and a Central SQC (CSQC) Office at Kolkata.

Library, Documentation & Information Sciences Division: Central Library at Kolkata, Delhi and Bangalore.

There is also a Computer and Statistical Services Centre (CSSC) which manages the central computing facilities of ISI, Kolkata. Software packages available at the Centre are Oracle, Arc GIS, BMDP, Mathematica, SAS, SHAZAM, S-Plus and TSP. The centre manages campus-wide network and internet facilities at ISI, Kolkata, in consultation with the Committee for Extension and Monitoring of Campus Network and Internet Services. The centre also manages the inventory of computers in consultation with the Computer Purchase Committee. The centre provides statistical and numerical consultancy services to scientists and research scholars, including non-ISI scientists. The centre also conducts workshop for training ISI officials on using of computers. The centre organizes courses for North-Eastern

states of India. Members of CSSC take part in teaching different courses of the Institute. Members of CSSC supervise project work of non-ISI students studying MCA, B-Tech, etc.

11. Externally Funded Project

Apart from theoretical and experimental plan research, the Institute undertook a variety of about eighty-six externally funded projects from different Government and non-Government organizations like DST, New Delhi; NBHM; Air Traffic Management Authority of India, Ministry of Civil Aviation; CSIR; WESEE, Ministry of Defence; Ministry of Science & Tecnology, Govt. of India; Intel Corporation, USA; DIT; SNLTR; EUROPEAN Union Commision; ISRO; US Army; CONACYT, Mexico; MOEF; NASI; University of Western Sydney, Australia; The NHF, The Netherlands; Fogarty International Centre, NIH; Department of Biotechnology, Govt. of India; ICMR; NABARD; MOSPI, Govt. of India; Govt. of West Bengal; The University of Melbourne, Australia; West Bengal State Council of Technical Education; ITC; Bosch; Tata BP Solar; HP Global Soft; Accenture; Qualmind Global; JK Tyre, Mysore; TVS Motor Company; Durairaj Mills; CTS; Apex Cluster; MYK; KG Hospital; TCTP; SRC; Bannari Amman Spinning Mills; FCRI; GHCL Limited; Artemis Medicare Services Limited, Gurgaon; CERC; PPAC, Ministry of Petroleum & Natural Gases; Ministry of Information & Technology; University of Trento; Govt. of Tripura; NADP; AT & S; Hinduja Global Solutions; Microsoft India; Allianz Cornhill Information Services; Beceem Communications; Bharat Electronics; Hewlett Packard; Apollo Hospitals Enterprise Limited, Chennai; D.J. Reddy Heart Surgery Associates, Chennai; Sundaram Fasteners Limited, Virudhunagar; National Institution for Quality & Reliability; Ashok Leyland Limited, Chennai; Verizon Data Services India Pvt. Limited, Chennai & Hyderabad; Elsevier Publishing Services, Chennai; TCTP, Erode; Fluid Research Control Institute, Palakad; Cognizant Technology Solutions, Coimbatore; Quislex Legal Services Pvt. Limited; APCPDCL; Solar Semiconductor; AGI glaspac; Matrix Laboratories Ltd.; Kurnool Cylinders Pvt Ltd.; Seedsman Association of AP; Larsen & Toubro Ltd.; HDFC Standard Life Insurance; Enercon India Pvt. Ltd.; Welspun Ltd., Gujrat; Reliance BPO; Asia Motor Works; HDFC Bank; Tata Capital; Ultratech; XIMB; Blue Lotus; ARAI, Pune.

12. Seminars, Workshops, Conferences, Symposiums etc. organized

During the year, the Institute organized several seminars, workshops, conferences, symposiums with the participation of leading academicians/scientist from India and abroad. A few of them are highlighted below:

Workshop on “*Micro-Seminar on Nonlinear Phenomena*”: Physics and Applied Mathematics Unit (PAMU), Kolkata, April 21, 2010.

Three-day Training Programme on “*Six Sigma Green Belt*”: SQC & OR Unit, Delhi, April 21–23, 2010.

Training Program on “*Six Sigma Black Belt*”: SQC & OR Unit, Chennai, April – December 2010.

Training Programme on “*SPC with MINITAB for L&T executives*”: SQC & OR Unit, Mumbai, May 5-6, 2010.

Advanced Instructional School in “*Representation Theory*”: Stat-Math Unit, Bangalore, June 2–24, 2010.

Training Program on “*Design of Experiments*”: SQC & OR Unit, Hyderabad, June 28-July 1, 2010.

Certification Program on “*Six Sigma Black Belt (BB-08)*”: SQC & OR Unit, Bangalore, July 5-10, 2010 (Phase-I) & September 13-18, 2010 (Phase-II).

Workshop on “*Video Analysis and Surveillance (WVAS'10)*”: Center For Soft Computing Research Center, Kolkata, July 6-10, 2010

Workshop on “*Research and Data Analysis using IBM SPSS Statistics 18*”: Biological Sciences Division, Kolkata with SPSS South East Asia and September 29-30, 2010.

Workshop on “*Estimation of Technical Manpower Requirement in West Bengal Through Effective Means for Improving Quality of Training of Technicians*”: Population Studies Unit, Kolkata, October 8, 2010.

Workshop on “*Honouring Prof. Jean Serra*”: Systems Science and Informatics Unit (SSIU), Bangalore, October 26-27, 2010.

Workshop on “*Economics-Physics Interface*”: Economic Research Unit in association with Saha Institute of Nuclear Physics, Kolkata, November 19, 2010.

Workshop on “*Industry and Service Sectors using Computer Software*” (under North-East Programme): SQC & OR Unit, Kolkata, held at Dera Natung Govt. College, Itanagar, Arunachal, November 23-26, 2010.

Workshop on “*Winter School on Functional Analysis*”: Stat-Math Unit, New Delhi, December 6-22, 2010.

Training Program on “*Control Valves and Actuators*”: SQC & OR Unit, Coimbatore, held at FCRI, Palakad, December 8-10, 2010.

Workshop on “*Koha and NewGenlib*”: Documentation Research and Training Centre (DRTC), Bangalore, December 15-16, 2010.

6th Annual Conference on “*Growth and Development*”: Planning Unit, Delhi, December 16-18, 2010.

Winter School on “*Soft Computing*” (under North East Programme): Machine Intelligence Unit (MIU), Kolkata, with Tezpur University, Assam held at Tezpur University, Assam, December 20-23, 2010.

Winter School on “*Information Retrieval Systems and Experimentation*”: Computer Vision and Pattern Recognition Unit (CVPRU), Kolkata and SQC & OR Bangalore, held at ISI Bangalore, December 21–23, 2010.

National Seminar on “*Dalit Households in Village Economies*”: Sociological Research Unit, Kolkata, January 7-8, 2011.

Workshop on “*Data Analysis Using Statistical Packages*” (under North-East Training Programme): Applied Statistics Unit (ASU), Kolkata, held at Manipur University, January 21-15, 2011

7th Annual Conference on “*Models and Methods in Economics*”: Stat-Math Unit, Kolkata, February 02–03, 2011.

Workshop and Exhibition on “*Astronomy and Astrophysics: Concepts and Challenges*”: Central Library, Kolkata with Physics and Applied Mathematics Unit (PAMU), Kolkata, February 2-4, 2011.

Three-day Workshops and Orientation Courses on “*Vertebrate Paleontology and Evolution*”: Geological Studies Unit (GSU), Kolkata with Geological Survey of India held at GSI, Kolkata, November 30, 2010, February 10, 2011.

5th National Workshop on “*Indian Languages Corpora Initiative (ILCI)*”: Linguistic Research Unit (LRU), Kolkata with Department of Post Graduate Sanskrit, Utkal University, held at Utkal University, Bhubaneswar, February 21–23, 2011.

Workshop on “*Regional Student Convention 2011*”: Electronics and Communication Sciences Unit (ECSU), Kolkata with Computer Society of India, Kolkata Chapter, February 25, 2011.

Workshop on “*Combinatorial Image Processing and Algorithms (WCIPA 2011)*”: Advanced Computing and Microelectronics Unit (ACMU), Kolkata, March 3-4, 2011.

Workshop on “*Small Area Estimation: Theory and Applications in Health Sciences*” (under North-East Programme): Bayesian and Interdisciplinary Research Unit (BIRU), Kolkata, held at Department of Statistics, Gauhati University, Guwahati, March 10-12, 2011.

13. Publication

The internationally acclaimed Statistical journal of the Institute, Sankhya was founded by Late Professor P.C. Mahalanobis which began its journey from 1933 under his editorship. The journal devoted to original research articles in Applied Statistics, Mathematical Statistics and Probability. Reviews and discussion articles in areas of current research activity are also published. Many seminal articles in the above areas are appeared in Sankhya and these include contributions from scientists within the Institute as well as outside. Sankhya receives articles from all over the globe and publishes only those which pass through the rigorous peer review process. The Editorial Board of Sankhya includes internationally acclaimed scholars in their relevant areas from all over the world. From 2008, Sankhya is being published in two series, Series A and Series B. Series A, published in February and August each year, covers Theoretical Statistics and Probability while Series B, published in May and November each year, the Applied and Interdisciplinary Statistics. The Institute had entered into a co-publishing agreement with Springer from 2010 and the Springer is handling the publication and circulation of all international issues of Sankhya.

14. Scientific Papers and Publications

During the year, about 428 scientific papers were published for publication in different journals of national and international repute.

15. Scientific Assignments Abroad

Seventy Scientists of the Institute visited a number of foreign countries either on invitation or under cultural exchange programme for attending 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 China, Spain, USA, Canada, Japan, UK, Brazil, Austria, Italy, France, Malaysia, Belgium, Netherland, Australia, Germany, Poland, Thailand, Egypt, Nepal, South Africa, Bangladesh, Singapore Paris, Czech Republic, Turkey, Israel, Sweden, Cuba, Moscow, Berlin, Philippines, Kuwait, Taiwan, Indonesia etc.

16. Visiting Scientists

One hundred thirty scientists from Italy, Iran, Canada, Korea, USA, Germany, Belgium, Netherland, Spain, Poland, France, UK, Mexico, Australia, Japan, Singapore, Denmark, Brazil, Turkey, New Zealand, Bulgaria, Bangladesh, Sweden, Portugal, Finland, Switzerland, Norway and India visited the Institute to attend various Workshops, Conferences, Seminars etc. and also to participate in collaborative research, teaching and other scientific activities of the Institute.

17. Recognition to ISI Scientists

In appreciation and recognition to the high standard of research and scientific excellence maintained by the researchers of the Institute, several faculty members received laurels in the forms of Awards, Fellowship from organizations of national and international importance like DST, IEEE, INSA, etc. Several faculty members served as Visiting Scientist, Honorary Professor, 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, members, chief editor, editor in their several committees/editorial board etc. Among those, some of the most notable recognitions earned by the faculty members during the year 2010-2011 are indicated below: -

Prof. Arup Bose has been selected the Member of the Sectional Committee for Mathematical Sciences of the Indian National Science Academy.

R. Bhatia has been elected the Fellow of Academy of Sciences for the Developing World.

Arindam Chatterjee has been awarded for the Microsoft Young Faculty Award, 2010.

Laishram Shanta has been awarded for the Microsoft Young Faculty Award, 2010.

Ashis SenGupta has been elected the Fellow, National Academy of Sciences, Allahabad; also re-appointed as Advisor, Scientific Advisory Board, Institute of Statistical Mathematics, Tokyo, Japan and also appointed as Citizen Ambassador, American Statistical Association,

Delegation to Beijing, Xian and Shanghai, China for 2011. He elected President, Mathematical Sciences Section, Indian Science Congress Association in 2011.

B.B. Chaudhuri has been awarded for J.C. Bose Fellowship for the year 2010.

Nikhil R. Pal has been elected the Fellow of the Indian National Science Academy and he also appointed the IEEE Computational Intelligence Society Distinguished Lecturer by the AdCom of the IEEE Computational Intelligence Society.

S. Bandyopadhyay has been awarded Shanti Swarup Bhatnagar Prize in Engineering Sciences by CSIR, New Delhi, 2010 and elected Fellow of National Academy of Sciences India, Allahabad, 2010. She has been also awarded for Humboldt Fellowship for Experienced Researchers at Max Planck Institute for Informatics, Saarbrucken and University of Heidelberg, Germany for 2010-2011.

Malay K. Kundu has been elected Fellow of the International Association for Pattern Recognition (IAPR), 2010.

Saswati Bandyopadhyay has been awarded Sharda Chandra Gold Medal, Palaeontological Society of India, Lucknow, 2010.

Satya R. Chakravarty has been awarded Fellow of Human Development and Capability Association, USA.

Abhiroop Mukhopadhyay has been awarded Sir Ratan Tata Senior Fellowship (at the Associate Professor Level), Institute of Economic Growth for 2010–2011.

U.H. Acharya has been elected the Team leader for Southern Zone in Rajiv Gandhi National Quality Award Assessments, 2010.

G.S.R. Murthy has been selected Member of the Rajiv Gandhi National Quality Award Evaluation Committee, Western Zone.

S.S. Ray has been awarded Microsoft Young Faculty Award, 2011.