

IASE Review, October 1995

International Association for Statistical Education

The 50th ISI meeting took place in Beijing during August. In addition to the scientific programme, members of the IASE Executive Committee were involved in a number of administrative meetings. The following notes provide insights into those proceedings of particular interest to IASE members. A number of short reports on international statistical education initiatives are also included.

Update

Subscription rates are being held constant for 1996, with no reduction in membership benefits. Apart from the social and intellectual advantages of belonging to IASE, members receive a number of ISI/IASE publications free, and can take advantage of concessionary rates on conference registrations and the purchase of other ISI/IASE books and journals.

There are signs of some improvements for the IASE budget. The amount of the IASE fee retained by the ISI has been reduced from 20 to 15 Dutch Guilders per member. Also, for each ISI member who elects to have free membership of IASE, 10 DG will be credited to IASE funds. These changes, albeit modest, are in the right direction. Any increase in IASE resources is directly related to what the Association is able to offer to its membership.

IASE Membership, as at July 1995

348 members, including 5 Institutions*

Countries	Members (%)
African Countries	3.7
Argentina	4.6
Australia	7.8
Canada	2.3
China (+ Hong Kong)	2.0
France	4.6
Germany	2.0
Hungary	1.4
Italy	6.9
Mexico	1.7
New Zealand (+ Oceania)	4.9
Spain	2.0
Sweden	4.0
UK	7.5
USA	26.2
Other Asian Countries	7.5

Other European Countries 9.2
Other Latin American Countries 1.7

* Bundesamt für Statistik (Switzerland), Royal Statistical Society (UK), University of Hong Kong, CESD-TES Training of European Statisticians (Luxembourg), and Statistical Research and Training Center (Philippines)

IASE membership has increased from 303 to 348 since 1994, with 5 institutional members, but African and Asian countries are under-represented. It appears that discounted subscriptions for individuals and institutions from developing and transition countries, do not completely solve the problem.

Anne Hawkins, the new President of IASE, reported on initiatives to strengthen links between IASE and statistical educators, especially those in developing and transition countries, and to develop viable *two-way* communication. The tasks of increasing membership (both individual and institutional), of communicating IASE's activities more widely, and of finding sources of funding and sponsorship are related. They all depend on identifying and forging links with key personnel in different parts of the world. They are also tasks that exceed the scope of individuals if they are to be effective internationally. Gabriella Ottaviani, President-Elect, will co-ordinate these efforts, assisted by Manfred Borovcnik and Abdelmegid Farrag.

A first step will be to extend the activities of the National Correspondents, building on Dick Scheaffer's success during the past two years in identifying key contacts and strengthening the National Correspondents' Network. Annie Morin's work to date in establishing more links in developing countries will also be important.

Any assistance that you can give towards communicating IASE's activities to a wider audience, or introducing potential members, is very important. There is an application form for you to pass on to potential new individual members. If you have relevant contacts within an institution that is, or should be, associated with statistical education, then do urge them to consider institutional membership. The Executive Committee will be happy to provide further information about IASE to anyone, or any institution, considering joining.

Executive Committee 1995-97

President

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IASE also depends on the continuing help of a number of other people, e.g. Mary Regier (IASE representative on ISI Membership Committee), Tim Arnold (IASE Archive), Annie Morin (acting on behalf of IASE in planning programme for ISI-51, Istanbul), Lionel Pereira-Mendoza (local facilitator) and members of local conference organisation committees and programme committees, etc.

Thanks are also owed to David Moore, out-going President, who has worked hard during his term of office to ensure that IASE can grow from a sound basis, and to out-going Vice-president, Giuseppe Cicchitelli who took responsibility for IASE membership matters.

David Vere-Jones ("The Coming of Age of Statistical Education", *ISI Review*, 63 (1), April 1995) described the three-fold role of IASE as:

- a) a forum for statistical education,

b) an organisation for research into statistical education as a discipline in its own right, and

c) the education arm of the ISI, taking the lead in, and responding to, issues in statistical education and training, and supporting and promoting statistical education, especially in developing and transition countries.

Although there can be no room for complacency, progress is being made in the first two areas, through the international links forged by IASE's conference and publications initiatives, and its organisation of specialist sessions on research. The last role currently poses a greater challenge and needs the effort of the *whole* membership, not merely that of the members of the Executive Committee.

Publications

All IASE members receive the *International Statistical Review*, *Short Book Reviews*, and the *Annual Review of International Statistics*. To broaden the appeal of the *International Statistical Review*, and to make it more representative of the broad range of interests of statisticians who are members of ISI and its Sections, the ISI Executive has agreed to devolve part of the Review to Associate Editors directly representing the Sections.

In order to extend the coverage of *Short Book Reviews*, Agnes Herzberg (Department of Mathematics, Queen's University, Kingston, Ontario K7L 3N6, Canada. Tel: 613-545-2420, Fax: 2964, herzberg@qucdn.QueensU.CA) needs more non-English-language publications for inclusion in the review process, and would also like to hear of potential reviewers.

In addition to publications which the membership receive because IASE is an ISI Section, some publications are specifically aimed at IASE members;

- **IASE Review**, an occasional publication that goes to all IASE members.
- The **IASE section of the ISI Newsletter**, published 3 times a year.
- **IASE Matters**, comprising the centrefold of *Teaching Statistics*. This is published 3 times a year. *Teaching Statistics* is itself a valuable resource for statistics educators, particularly those concerned with students aged 9 to 19 years. IASE members can subscribe to this journal for 1996 at reduced rates;

UK: sterling £17.75 (IASE members pay £14.20)

Non-UK: £22.50, US \$45 (IASE - £18 or US \$36)

Contact Peter Holmes, Probability and Statistics, University of Sheffield, Sheffield S3 7RH, England (Tel: +44 114 2824117, Fax: +44 114 2824292,

p.holmes@sheffield.ac.uk) for news of special offers for new subscribers.

Dick Scheaffer is taking over editorial responsibility, and is keen to receive contributions to the IASE publications. If any IASE member has not received the publications to which their membership entitles them, please raise the matter with Daniel Berze at the ISI Head Office (isi@cs.vu.nl) or with a member of the IASE Executive Committee

The Proceedings of ISI biennial sessions, published as the *Bulletin of the ISI*, now run to several volumes, and a working group is to examine alternative solutions such as reducing the page-length of invited papers from 8 to 4, or publishing only summaries and producing a CD-ROM with the full papers, etc. Concern has already been expressed about the impact on the publication of contributed papers in the light of these proposals.

JSE Archive

<http://www2.ncsu.edu/ncsu/pams/stat/info/infopage.html>

or one-line message;

send access.methods

to;

archive@jse.stat.ncsu.edu

Archive Contents

- **Journal of Statistics Education**
An electronic refereed journal devoted to post-secondary teaching of statistics.
- **Software**
A repository of software for statisticians.
- **Searchable Archives of Statistics-Related Discussion Groups**
EdStat-L, SAS-L, SPSSx-L, and Stat-L.
- **Statistics Education Resources**
International Association of Statistics Education, EdStat-L Archives, Chance Newsletter, and more.
- **Data Resources**
Datasets useful for teaching statistics.
- **Statistics Information Sources**
Links to other statistics servers.
- **The Internet Primer Manual**
An orientation manual for the Internet.

- **Access Methods**

How to retrieve text, graphics, and software files from the JSE Information Service via e-mail, gopher, anonymous ftp, telnet, and World Wide Web. Instructions for subscribing to the Journal of Statistics Education are also included.

The Journal of Statistics Education Information Service is an electronic archive maintained at North Carolina State University by Tim Arnold (arnold@stat.ncsu.edu). In addition to the *Journal of Statistics Education*, it contains teaching resources, software and datasets, and IASE materials. A list of IASE National Correspondents, with their contact addresses, will shortly be added. Members are encouraged to suggest other additions to the IASE section of the archive.

Upcoming IASE Meetings

ICME-8 July 14-21, 1996, Seville, Spain

Topic Group 9 - *Statistics and Probability at the Secondary level*

Chief Organiser - Brian Phillips (Australia).

Local Organiser - Eliseo Borrás (Spain)

Session 1 - Three parallel 90 minute sessions

- (i) Children's understanding of the basic concepts of probability
- (ii) Data analysis in secondary schools
- (iii) Focus on Spanish teachers (in Spanish)

Session 2 - One 90 minute forum on issues of general interest introduced by a number of specialist speakers.

IASE Round Table, July 23-26, 1996, Granada, Spain.

Research on the role of technology in teaching and learning statistics

Organiser - Joan Garfield (USA, jbg@maroon.tc.umn.edu)

This will be a small 'working conference' of about 24 presenters and 10 to 15 observers.

IASE sessions in the ISI's 51st biennial meeting, Istanbul, August 18-27, 1997

- (i) Research on Teaching and Learning Statistics (IASE session)
- (ii) Data Centred versus mathematics centred training (IASE)
- (iii) Using and Teaching Probability models in the Physical Sciences (IASE/Bernoulli Society)
- (iv) The role of Bayesian Methods in Statistical Education IASE/Bernoulli Society
- (v) Technology in Teaching Statistics (IASE/IASC)
- (vi) Teaching and Training Statisticians for Sample Surveys (IASE/IASS)

A further session, jointly organised with IAOS, on *Assessment and Measurement in Education*, might be added to the list.

ICOTS-5 June 21-26, 1998, Singapore

The *International Program Committee* is about to commence its work;

Chair: Brian Phillips, Australia, brp@swin.oz.au

Members:

- Rolf Biehler, Germany, rolf.biehler@hrz.uni-bielefeld.de
- Guiseppe Cicchitelli, Italy, stat7@ipguniv.unipg.it
- Abdelaz El Ghazali, Morocco, Fax 212 7 77 94 57
- Joan Garfield, USA, jbg@maroon.tc.umn.edu
- Anne Hawkins, UK, ash@maths.nott.ac.uk
- Peng Yee Lee, Singapore, leepy@am.nie.ac.sg
- James Ntozi, Uganda, isae@mukla.gn.apc.org
- Lionel Pereira-Mendoza, Canada, lmendoza@kean.ucc.mun.ca
- Dick Scheaffer, USA, scheaffe@Stat.UFL.Edu
- Shir-Ming Shen, Hong Kong, hrntssm@hkucc.hku.hk
- Teck Wong Soon, Singapore, ecsstw@leonis.nus.sg
- Ana Maria L. Tabunda, Philippines, stat@nicole.upd.edu.ph
- Kerstin Vännman, Sweden, kerstin.vannman@ies.luth.se

Local Organising Committee

Chair: Teck Wong Soon, Singapore, ecsstw@leonis.nus.sg

Secretary: Alan Wong, Singapore, ecswwk@nusunix2.nus.sg

Treasurer: Rosalind Phang, Singapore, phangr@am.nie.ac.sg

Members: Tay Li Ling, Singapore, lai@moe.ac.sg

plus several teachers

IASE/IASC Conference, June 2-8, 1996, Tartu, Estonia

Computational Statistics and Statistical Education

Rolf Biehler has acted as IASE liaison for this conference which will be held at the Institute of Mathematical Statistics, University of Tartu, Liivi 2, Tartu EE2400, Estonia [Tel: 37 27 435337, Fax: 37 27 433509, etiit@vask.ut.ee]

- Problems of Computational Statistics
- Visualisation methods
- Development of Statistical Education
- Methodology of teaching statistics using statistical software

The ISI Sections & the Permanent Office

A report, presented to the IASE General Assembly, August 1995, Beijing, by Zoltan Kenessey [Director, International Statistical Institute, PO Box 950, 2270 AZ Voorburg, The Netherlands (Tel: 31-70-3375738, Fax: 31-70-3860025)]

The Situation of ISI

The ISI Executive Committee (and the Permanent Office) is very pleased that the expansion of membership, the scientific programs and publications, the financial health, and the administrative arrangements of the Institute show a continued and solid growth. Elections of new ISI members during the last four years were about 30 percent higher (around 132 persons per year). In the scientific program - in addition to the Sessions that occur in odd numbered years - we started to have in even numbered years conferences on selected themes (on statistical confidentiality - Dublin in 1992, on the future of statistics - Voorburg in 1994, and on accuracy and timeliness of statistics - Washington in 1996).

Beginning 1996 we hope to have annually Cutting Edge Conferences on interesting current issues (preparations are made to discuss derivatives and stock market indexes; sociology and statistics; and risk assessment). In 1994 a very well received new publication was started (*Annual Report on International Statistics*) which is sent to all ISI and Section members without additional charges. (This was made possible with the generous help of INSEE in Paris.)

Regarding finances, the 1990's signified a turnaround; in contrast during the 1980's ISI suffered a deficit in most years. The cumulative losses during the previous decade amounted to about 1.5 million Dutch Guilders in most years with an alarming decrease in the Institute's reserves. During the last four years we were able to recoup about 1.0 million guilders and replenish our reserves to an important degree. Among the various improvements in the administrative arrangements (including computerisation, accounting, etc.) services rendered to the Sections are, of course, of direct interest to you as a member of IASE. Better organised and much quicker financial reporting to the leadership of Sections was generally appreciated by those interested. To the wider membership the circulation of the *IS Review* to all Section members (beginning in 1995) without additional charges was more directly visible. (This became possible with the generous help of INEGI in Mexico.) Also, ISI started to increase payments to the accounts of the Sections (for each ISI member who is also a free - non-paying - Section member) and from the Permanent Office reduced administrative charges to the Sections were initiated. The goal of these measures has been to provide more efficient services to the sections at a reduced cost to them.

The Challenges of the Coming Years

It seems that, among the challenges, continued attention to membership matters and to the integration of the statistical profession loom rather large. Regarding membership, attention may focus on the following four challenges:

1. Increasing the very low share of women in ISI and in the Sections;
2. Enlarging the share of members from the regions of the world where membership is low. It seems that membership increases from East Asia are rather promising, but we will try work harder regarding the other continents as well, particularly Latin America;
3. Improving the age composition of ISI and its Associations by involving increased numbers of younger professionals in our membership; and
4. Maintaining, and even increasing, the membership in our traditionally strong areas such as Western Europe and North America. Obviously these goals can only be met simultaneously if the total membership increases somewhat faster in the future.

The integration of the statistical profession also will need further attention. For certain reasons (observed in other professions as well) specialisation in statistics has been advancing very fast. The growth of ISI Associations itself is a sign of this trend. However we have been less successful in reaping the intellectual benefits from integrating the statistical profession better which can come from increased interaction of various areas. Many achievements in science emerge on the borders of established disciplines and sub-disciplines. We hope that the new arrangements for editing and circulating the *IS Review* will make it a tool for integrating all statisticians in the ISI family of organisations.

It is also planned to increase the invited scientific meetings at the Istanbul session to about 60 from the 31 in Beijing. This will provide more room for both Section meetings and for joint meetings by two or more associations. It is also envisaged to involve our 'sister societies' active in biometrics, econometrics, demography, psychometrics, etc., beginning with the Session in Istanbul, by offering them the possibility of having some invited meetings.

Publications and Education

As already mentioned, the improved arrangements for the *IS Review* will be among the important features of the ISI publication program. The wider circulation of the *Short Book Reviews* to all ISI and all Section members is another step in the same direction as is the continued work on the *Statistical Theory and Method Abstracts* which is sent to subscribers only, but at a very advantageous price. Continued improvements in the contents and format of *ISI Newsletter* also must remain on the agenda.

Under the Chairmanship of Sir David Cox a Task Force is starting its work this year to evaluate the possibilities of electronic publishing. In addition, the Permanent Office is exploring the establishment of an electronic service on the World Wide Web.

Regarding our expanding book program first I mention that preparations are being made for the next edition of the *Dictionary of Statistical Terms*. In addition, work is in progress to issue a *Multilingual Glossary of Statistical Terms*, probably in both electronic and hard-copy formats. In July of this year ISI issued, under its 'Editions Voorburg' imprint the volume of the highly successful September 1994 Voorburg meeting about long-term perspectives for our profession in the book entitled *The Future of Statistics: An International Perspective*. Work started, under the editorship of Professor Chris Heyde about a historical volume entitled *Statisticians of the Centuries* (a project undertaken with the generous help of the Japan Statistical Society). Depending on the availability of funding other titles are also under consideration. [There are, for example, plans to publish *Supporting Statistics Education Through Assessment and Classroom Research*, edited by Joan Garfield and Iddo Gal, under this arrangement and bearing the IASE logo. Anne Hawkins]

The ISI World Numeracy Program, under the overall guidance of the Council and the Executive Committee and under the leadership of the WNP Advisory Board (Chairman: Professor Luigi Biggeri) involves several projects at various stages of preparation. Key are the national numeracy programs we hope national statistical societies can support in an increasing number of countries. Plans for establishing a 'Museum of Numbers' are also evaluated.

Conclusion

Last, but not least, the work of the International Statistical Education Centre (ISEC Calcutta) will receive continued attention, as well as the ideas of adding one or two additional ISECs if funding for those activities can be mobilised.

Clearly all the activities mentioned, and the many others not touched upon, will require close cooperation with the membership of ISI and all ISI Associations. The Permanent Office will do all in its power to further this cooperation.

ISI World Numeracy Project

Discussions at the 50th ISI Session in Beijing confirmed that the IASE would be a natural Section to have a major involvement in the World Numeracy Project. The Advisory Committee, of which IASE President Anne Hawkins is now a member, is chaired by Luigi Biggeri, Professore di Statistica Economica, Dipartimento Statistico, Universita degli Studi di Firenze, Viale Morgagni, 59-50134 Firenze, Italy (Tel: 055-4237225, Fax: 055-4223560, Biggeri@stat.ds.unifi.it).

The World Numeracy Program of the International Statistical Institute (ISI) aims at spreading quantitative skills all over the world, especially in developing countries. It is analogous to UNESCO's world literacy effort, even though it is on a more modest scale. As the international academy of statisticians, ISI has been promoting the development of statistical science and scientific data collection practices since its beginnings in the 19th century. In view of the weaknesses observed in quantitative skills in many parts of the world (especially in the developing countries), in addition to its more traditional tasks, ISI wishes to mobilise its elected members (about 1800 persons) and Section members (about a further 3200 persons) for the World Numeracy Program.

Ideas regarding the World Numeracy Program have been broached with the Assistant Director-General of UNESCO for Education and his staff. Some specific items listed below are related to consultations with the Statistical Division of UNESCO.

The World Numeracy Program covers several projects and the full implementation of all of these will involve 6-8 years. The program is so constructed, that the 'seed money' requested from UNESCO in 1996 and in 1997 should have a multiplying effect; in particular national numeracy programs are expected to ensue. The explanations given below about the specific projects focus on the activities envisaged for each through 1997.

Projects Proposed to UNESCO

Promotion of National Numeracy Programs

The world-wide success of the overall program requires the mounting of national numeracy drives in as many countries as possible. It is proposed to stimulate such drives both (a) via UNESCO and its national committees and contacts, and (b) by the Permanent Office of the ISI in The Netherlands, and all five ISI Sections. Particular reliance would be made on the ISI's International Association for Statistical Education. A general blue-print of a numeracy drive for

national adaptation would be developed.

TV series 'The World of Numbers'

Promoting the development of a 5-8 part TV Series by a world-known broadcasting operation. ISI has made initial contacts and ascertained general interest in the Series. ISI will secure the collaboration of the world's most outstanding statisticians as consultants and would assist in providing the scientific input required.

Survey of International Statistical Training Efforts

This project would be carried out in line with the requirements of the Statistical division of UNESCO. It would review the work of the ISI International Statistical Education Centre in respect of wider applicability, as well as activities of other centres. Also lessons obtained by EUROSTAT's Training of European Statisticians (TES) education program would be integrated into the overall evaluation.

Survey of National Statistical Training Efforts

The ultimate aim of the project is to provide an overview of national education in statistics at all levels. In the first phase, owing to technical and organisational reasons, a catalogue of national degree-granting institutions in statistics will be compiled. The review will be extended, thereafter, to national education at the middle and lower levels, as well as national on-the-job training of statisticians.

Certification of Statisticians

In several countries efforts are being made to introduce some procedures for the certification of statisticians. In 1993, ISI established a Committee on the Certification of Statisticians (Chairman, Yves Escoufier). ISI has not taken a stance on the issue as such. However, if certification were to be introduced, ISI would assist in providing an international input regarding requirements and comparability across countries. The project would develop the international component felt desirable in teaching statistics (for example the minimum knowledge needed about international statistical classifications and standards) that could also be used in certification curricula.

Multilingual Glossary of Statistical Terms

In its early editions, ISI's *Dictionary of Statistical Terms* (initially edited by Professors Kendall and Buckland, and more recently by Professor Marriott) contained a glossary of the terms (for which the definitions were provided in English) that listed the terms in French, German, Spanish and Italian as well. Glossaries of statistical terms in other languages were also developed. The project will aim at pulling together these dispersed materials and integrate them in one volume as well as in CD-ROM format.

Register of International Statistical Standards

This project aims at developing an overall register of international statistical recommendations, classifications, and standards to be used in the education of statisticians at national and at international levels.

Hall of Fame of Great Statisticians

ISI, in cooperation with the Japan Statistical Association and Japanese statistical authorities, is in the process of establishing a list of famous statisticians since the 17th century. A book describing

their activities is going to be published, with suitable illustrations for educational purposes. Longer-term plans also envisage the establishment of an international 'Hall of Fame' of statisticians in Japan. The project would involve planning and promotion for achieving this objective.

Code of Ethics in Statistics

In recent years ISI has adopted a code of ethics for statistics, which has been translated into several languages and became rather widely known. More recently the UN Economic for Europe adopted a set of fundamental principles of official statistics. The project will involve follow-up work regarding the promotion of these codes and the evaluation of the need for reviews of their implementation.

Museum of Numbers

This project involves a feasibility study regarding the establishment of an international Museum of Numbers, in which artefacts pertaining to the history of statistics, and more generally to numbers, numbering systems, computerisation, etc. could be housed.

ISI Membership

The principle of open membership of ISI is under discussion. Dr Kenessey has suggested that unity within the ISI and integration with its Sections could be achieved by simply considering the whole as a "family" of Associations and all individuals, whether ISI or Section members, as members of this family. Some members of the ISI Standing Committee on Membership expressed concern over the possible proliferation of Sections under the current system. On the other hand, there was concern that, without the introduction of new Sections, many statisticians may be unable to join the "family", either because they are not elected or because they find no natural home in any of the existing Sections.

A reasonable compromise, it was suggested, would be for the ISI to *plan* for the creation of one or two additional Sections that might cover interests not already represented in the others. The title "ordinary member" was also discussed, and it was felt that the term "elected member" would be more appropriate for individuals belonging to the parent association. A first step in the direction of introducing open membership might be that the next ISI Directory be an all-inclusive one for the entire family of the Institute (i.e. including Section members).

Training Statistical Staff and Continuing Education in Developing Countries

One of the contributed papers meetings (CP24) organised by the IASE at the 50th Session of the ISI in Beijing focused on 'Training Statistical Staff and Continuing Education in Developing Countries'. In this article, Peter Wingfield Digby, organiser of the meeting, traces ISI's involvement in statistical training, and discusses issues arising from the papers presented at this meeting. [c/o Ghana Statistical Service, PO Box 1098, Accra, Ghana. Tel: 233-27-557519, Fax: 233-21-664652]

The ISI's concern with statistical training goes back a long way. As David Vere-Jones noted in a recent paper in the *International Statistical Review* ("The Coming of Age of Statistical Education", 63 (1), April 1995), the early period in the history of the ISI Education Committee, set up in 1948, was largely dominated by concerns for augmenting the supply of statistical staff available to governments.

At that time an underlying concern in both the UN and the ISI was the need for better statistical information from developing countries. A major hurdle to obtaining such information was the lack of staff within those countries to undertake the necessary data collection and analysis, and the ISI Education Committee therefore did its best, within limited means, to address this issue. In those early years, probably the most important ISI initiative in the area of training from the point of view of developing countries was the support given for the establishment in 1950 of the International Statistical Education Centre (ISEC) in Calcutta.

Over time the focus of ISI's education programme changed, away from the relatively narrow one of training statistical staff for developing countries, to a much broader consideration of statistical education as a whole. These changes are also reflected in the statutes of the newly formed IASE, which has as its objectives "...to promote the understanding and advancement of statistical education... and to foster the development of effective and efficient educational services....".

Nonetheless, in some developing countries, and particularly in Africa, this problem of a shortage of trained statistical staff still persists. This ISI contributed papers meeting in Beijing on statistical training in developing countries thus provided an opportunity to review progress to date, and to highlight some new training developments that were taking place.

It was appropriate that one paper (Bikas Sinha, 'Four Decades of Statistical Training in the Indian Statistical Institute: An Overview') focused entirely on the work of the ISEC in Calcutta and other training activities of the Indian Statistical Institute. The driving force behind founding the Indian Statistical Institute and the Directorate of National Sample Survey (NSS) was P C Mahalanobis, who was also instrumental in creating the ISEC in Calcutta.

In the context of statistical training, Mahalanobis's special contribution was his emphasis on providing rigorous on-the-job training for all workers engaged in survey work, his projection of statistics as a key technology of the century, and his attempts to spread statistical training among scientists from a wide range of disciplines. These positive developments helped to create a 'culture' of statistical training at the Indian Statistical Institute, which spread over also into the training provided by the ISEC in Calcutta, benefiting trainees not just from the Asian subcontinent, but from places further afield such as Africa.

This sort of 'culture' is also reflected in the comments made in another contributed paper, though in a very different context. In a paper entitled 'Statistics Teachers' Educational Programme: A

Refresher Course with a Difference', Saleha Habibullah described a Statistics Teachers Educational Programme (STEP), set up at a women's college in Pakistan, which is intended to provide a forum for the enhancement of teachers' knowledge, through lectures, open discussion, and group work. The STEP involves a series of two-day workshops, and is designed to inculcate in teachers a sense of pride and professional esteem, so that they can work actively to improve statistical education at the undergraduate level.

Particular features of the programme are that it has been set up by a women's college, that it covers every region of the country, and that the programme has been organised by the faculty members in the college with the collaboration of a group of students aged only 16-19. Feedback from teachers participating in the programme indicated that they found open discussion and group work especially beneficial.

Another perspective on continuing education was provided by Sohair Higazi in a paper entitled 'Quantitative Methods Courses in Business Continuing Education Programmes in Egypt'. Since 1990, two supervised university business continuing education programmes have been implemented in Egypt: an Open Learning programme affiliated to two universities (Cairo and Alexandria) and a Transfer Learning programme at Tanta University. These programmes are similar to distance learning programmes; students usually have a profession but, because of various obligations, are not able to attend normal university classes. They attend lectures at the weekends and use traditional instructional material.

The first programme is offered to older General and Commerce secondary school graduates, while the second is limited to Commerce secondary school graduates who work with the Ministry of Education. An evaluation of the second programme suggests that many participants derived satisfaction from learning new methods and techniques, but had some difficulty and slowness in reaching correct solutions to the problems set. For most of the participants in the second programme, their main objective in joining the programme was to improve their economic and social status and to be qualified as certified school teachers.

With the 50th Session of the ISI taking place in Beijing, it was appropriate that one paper for the meeting dealt specifically with statistical training in the People's Republic of China. Guido Ferrari, in a paper entitled 'Training Statistical Staff for the First Agricultural Census in China', reported on the experiences of a project run jointly by Italy, the Food and Agriculture Organisation, and China, to train staff in Beijing and in provincial centres for the agricultural census. The purpose of the Beijing training was three-fold: to train statisticians for future statistical activities; to prepare statistical material for the training of officials at the provincial level; and to provide the training for provincial trainers.

Problems were experienced with respect to: timetabling the training programme; poor language comprehension among trainees since many trainees had no, or only a very rudimentary, grasp of English, the medium of instruction; and the weakness of many participants in mathematics, statistics and economics. The project highlighted the need for: fellowships abroad, in order to improve the quality of participants' training and to broaden their experience through exposure to similar projects overseas; access to high quality international experts, especially in computer hardware and software; adequate supply of support facilities (computers, photocopiers, audiovisual equipment and reference books); and good co-ordination among the various parts of the project, both national and international.

Finally, two other papers presented at the ISI meeting dealt specifically with statistical training in Sub-Saharan Africa. Enock Chinganda and James Ntozi, in their paper 'Training Employees for African Statistical Offices', provide an overview of the efforts made during the last 20 years to establish, improve and expand the facilities in Africa for training middle level and professional staff. They focused particularly on the activities carried out initially under the Statistical Training Programme for Africa (STPA), and subsequently under the Statistical Development Programme for Africa.

Over the 15 years of the STPA existence, 16 STPA centres were established, guide syllabuses were prepared to assist in standardising curricula and qualifications, and the teaching staff were strengthened through fellowships and visiting lectureships. However, STPA suffered from various problems: the small number of women graduates; lack of adequate training facilities in Portuguese-speaking countries; inadequate research; too few scholarships for staff development; the loss of skilled staff; and inadequate financial resources. When funding support for STPA ended, some centres were forced to close, whilst others had their funding massively reduced.

The particular needs of a national statistics office were examined by Ackim Jere in his paper 'Training Statistical Staff for the National Statistical Service in Zambia', which was presented on his behalf by Jeremiah Banda. He stressed the value of having an in-service training programme, designed to upgrade the statistical skills of sub-professional staff in the office. Zambia offers two such courses for its staff, both run on a full-time basis and conducted mainly by senior staff of the office: a six-month course at the primary level, and a ten-month course at the intermediate level. Those who successfully complete the latter course qualify to join the STPA diploma course at the Eastern African Statistical Centre (EASTC) in Tanzania. Staff from the Zambia office have followed a variety of overseas short-term and degree programmes; for example the statistics degree programme offered by the Institute of Statistics and Applied Economics (ISAE) in Uganda.

These various training programmes have helped to improve the quality of statistical work in the office, but some major constraints remain: the lack of sufficient funds for advanced training abroad; the loss of highly trained staff; and the absence in Zambia of a statistical institution of higher learning.

Although these two papers on statistical training in Africa indicate that there have been some positive developments, at both the national and regional levels, this needs to be seen within the context of the general decline in the quality and quantity of African statistics over the last 20 years. The Strategy for the Implementation of the Addis Ababa Plan of Action for Statistical Development in Africa in the 1990s, adopted by the 1992 ECA/Conference of Ministers responsible for economic development and planning states clearly that: "the (current) state of African statistics has to be redressed with great urgency".

Training is a key element in current efforts to promote African statistical development. This fact has been acknowledged by the Co-ordinating Committee on African Statistical Development (CASD) which has assigned one of its four sub-committees to work solely on this topic.

Teaching Statistics in Non-specialist Courses in Higher

Education

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IASE organised several sessions at the ISI 50th Session in Beijing 21-29 August 1995. The session relating to statistical teaching, within non specific mathematics or statistics courses in higher education, was well attended. The contributors provided papers on topics where the use of computer technology played a prominent role. Statistical education using computers to elucidate important and relevant points is a medium that the contributors advocated.

The theme of the session was how statistics is taught to students in higher education on non specialised statistics courses. The students on these courses are the users of statistics and need the statistical skills to enhance their own field of study. A consensus formed advocating the use of teaching material that was relevant and supportive for the students' main course of study. In some cases, integration of more than one field of study is essential. An example of this was from Sweden in Kerstin Vännman's paper entitled 'Some Experiments of Teacher Cooperation involving Statistics, Geochemistry, and a Computer in the Classroom'. For this course students need knowledge in geography, Chemistry and Statistics. This paper was particularly interesting because Kerstin not only outlined a new teaching strategy by integrating the specialist teachers, students and the use of computers in the classroom but also identified the relevant advantages and disadvantages of using this mode of instruction in a realistic and practical environment.

The paper by Philippe Aegerter *et al* outlined the use of hypertext for the study of epidemiology. This was distinguished by its original approach since epidemiology is a science that stands on statistics but where the emphasis is more on design and detection of bias. The authors felt that available teaching programs did not take enough account of the specificity of epidemiology so they developed EPIDEAO, a computer-assisted instruction package. The main object of using computer-assisted instruction was to present case studies to the student. Students answer relevant questions and the system then evaluates their responses. An interesting feature of this system is that the student can refer to an on-line text book while answering the questions.

One paper considered ways of trying to improve teaching to non statistics students by comparing different modes of instruction and measuring the students' learning outcomes. The authors Schuyten, Goeminne & Dekeyser posed the poignant question 'Is there an effect of learning style on academic achievement?', generating interest among delegates who could then consider their own teaching styles and how effective these were.

The common themes that emerged were the use of topical and relevant examples; that technology should be used as a tool for data analysis, and that the use of various instructional techniques is beneficial to both teachers and students alike. To sum up, contributors agreed that learning statistics should be achieved through doing real life practical problems that bring theory into practice.

Data Bank on Postgraduate Training for Statisticians in Europe

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At the beginning of the nineties Eurostat, the Statistical Office of the European Communities, decided to develop a project aimed at creating truly European vocational training and staff development opportunities.

A small organisation, the Training of European Statisticians (TES) Secretariat, was set up in Luxembourg, under the directorship of Prof R Teekens, with the task of designing and organising annual vocational training programmes. At the time it was decided that TES programmes would benefit from the support of an international training team, consisting of highly qualified practitioners and university professors and would aim at:

- promoting a convergence of the practices of National Statistical Institutes (NSI) by means of common training measures and by creating a context in which methodological (but unofficial) comparison may be made of national statistical systems and experiences, thus contributing to the harmonisation of concepts and methods;
- training and/or retraining statisticians in the use of new and efficient operational methods and tools and exploring technological frontiers in the field of applied statistics;
- offering to young people trained in other disciplines the possibility of specialising in statistics, in a broader context, where account is taken of the Community dimension of problems and presenting to statisticians the new statistical requirements, which have resulted from changes in European society and stimulate reflection on different models.

For the achievement of these aims TES was entrusted with the organisation of annual professional training programmes for statisticians and the creation of a data bank on post-university training courses in Europe relevant to statisticians.

The first TES training programme started in 1990 with about three hundred participants. The programme rapidly gained popularity amongst professional statisticians and was enrolled by more than nine hundred candidates from thirty-four countries in 1994-1995. TES programmes have been attended by public and private sector statisticians from the European Union, the EFTA and Eastern and Central European Countries.

In the past year TES has started implementing the database on postgraduate statistical training by identifying those training institutes and universities that offer courses of interest for the data bank, and building up contacts with these institutions aimed at establishing a continuous data flow on their current and future activities.

The data bank will contain information on courses, seminars and conferences, and vocational short-term training courses at postgraduate level, organised by:

- universities and other institutes of higher education;
- national and international statistical societies and scientific associations;
- EU institutions and International Organisations;
- private companies active in the statistical field.

A bulletin will advertise *ad hoc* events in the statistical field (courses, seminars, workshops, conferences), and disseminate their programmes and relevant practical information. In spite of difficulties encountered in obtaining information from the contacted institutions, TES will pursue the implementation of this project, in the belief of the growing importance of statistical training in the labour market and the relevance of the project for the achievement of the original objective of promoting a European integration in the statistical field.

ISI Committee on Women in Statistics

At its General Assembly held in Beijing, China, the International Statistical Institute (ISI) established a new committee with the general purpose of promoting and strengthening the participation of women statisticians in the activities of the ISI and its Sections. The ISI Committee on Women in Statistics, whose members will represent as many different geographical regions as possible, will be chaired by Dr Mary Regier of the Statistics Department at Case Western Reserve University.

One of the first tasks of the committee will be to collect information on women in statistics, and - among other matters - its agenda is expected to address the various concerns of women statisticians both in and outside the ISI family. Any information, suggestions, or other communication from interested readers relevant to the work of this committee will be welcomed by the committee chair;

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