

# Speech at the opening of the International Conference in Statistics and Probability celebrating the 125<sup>th</sup> birth anniversary of Professor PC Mahalanobis

*Helen MacGillivray*

Good afternoon from Australia and good morning to India.

It is a pleasure to speak to you on the occasion of this international conference at the Indian Statistical Institute celebrating the 125th birth year anniversary of Professor PC Mahalanobis. India has made tremendous contributions in the field of statistics and Professor Mahalanobis's impact and leadership played key roles in a variety of ways.

To serve the dual purposes of honouring Professor Mahalanobis for his lifetime contributions and achievements in Statistics, and recognising and stimulating progress in Statistics in developing countries, the Mahalanobis International Award was set up in 2002 with a MoU between the International Statistical Institute and the Government of India. The award is sponsored by the Indian Ministry of Statistics and Programme Implementation and is presented biennially during the ISI World Statistics Congress. The award recognises an individual for Lifetime Achievements in Statistics in a developing country or region.

Over the past 5 years, as chair of the ISI's Awards Committee, I have worked with Professors Anil Gore and JNK Rao as chairs of the ISI Mahalanobis Selection Committees for 2015 and 2017. I also developed and obtained approval for criteria, dimensions and descriptions of scope for this prestigious award, based on the MoU; input from the Government of India; and Chairs of recent Selection Committees. I brought these together in a coherent approach intended to assist these committees in their work.

Why was this work needed? Because we needed *three* criteria to reflect and demonstrate the extent, variety and spirit of the lifetime work of Professor Mahalanobis as pioneer, innovator and leader. They are, for developing countries:

- Academic leadership;
- Professional and official leadership; and
- Inspiration and capacity-building.

Hence I am particularly pleased to speak to you today, and as I continue, you will see other reasons also.

Professor Mahalanobis grew up in a socially active and academic family. He received a Bachelor of Science degree with honours in physics in 1912 at the Presidency College, Calcutta. He then went to Cambridge where he took his Tripos in physics, followed by work at the famous Cavendish Laboratory, including a short visit to India where he was invited to take classes in physics at the Presidency College.

After returning to England, Mahalanobis was introduced to the journal *Biometrika*. This interested him so much that he bought a complete set and took them home to India. He

discovered the utility of statistics to problems in meteorology, anthropology and biology, beginning to work on problems on his journey home.

Changing from other disciplines to statistics is not unusual and still happens frequently. Although I'm nothing compared to such giants as Professor Mahalanobis, and in contrast, I was the first person on either side of my family to go to university, I share one connection – I too studied physics until I discovered the magic of statistics.

An informal group developed in the Statistical Laboratory, which was located in his room at the Presidency College. On 17 December 1931 he called a meeting with the Professor of Economics, the Professor of Applied Mathematics, and a renowned engineer and industrialist. Together they established the Indian Statistical Institute. In 1933, the Institute founded the journal *Sankhya*, and in 1938, started a training section.

Mahalanobis devised a measure of comparison between two data sets that is now known as the Mahalanobis distance. He introduced innovative techniques for conducting large-scale sample surveys and devised a statistical method called fractile graphical analysis, which could be used to compare the socioeconomic conditions of different groups of people. He also applied statistics to economic planning for flood control.

He established the National Sample Survey in 1950 and set up the Central Statistical Organization to coordinate statistical activities in India. He was also a member of the Planning Commission of India from 1955 to 1967. The Planning Commission's Second Five-Year Plan encouraged the development of heavy industry in India and relied on Mahalanobis's mathematical description of the Indian economy, which later became known as the Mahalanobis model.

Mahalanobis held several national and international portfolios. He served as the chairman of the United Nations Sub-Commission on Sampling from 1947 to 1951 and was appointed the honorary statistical adviser to the government of India in 1949. The government of India decided in 2006 to celebrate his birthday, 29 June, as National Statistical Day.

But there's more that is not as well known and with which I also have links. The ISI started in 1885, and up until World War II, it consisted of the government statisticians, ex officio, and a small number of highly distinguished scholars and civil servants from a broad spectrum of occupations. In 1948, the ISI under President Stuart Rice and the UN agreed on responsibilities, with the UN Statistical Commission taking over the collection and publishing of international statistical data and "the exertion of influence of governmental statistical practices" – a delightful phrase still relevant for today.

As part of a series of changes, Stuart Rice set up the ISI Education Committee in 1948, and persuaded the UN Statistical Commission to advance proposals to UNESCO for a shared responsibility for the development of statistical education. Until the early 1990's, UNESCO provided a grant to ISI including for the establishment and partial support of International Statistical Education Centres, the first of which (ISEC) was set up in Kolkata in 1950. The Indian Statistical Institute and the Indian Government continue to run ISEC, and in 2016, ISEC had 28 students from 15 countries with 16 students from Africa.

Professor Mahalanobis succeeded Stuart Rice as chair of the ISI's Education Committee from 1954 to 1960. Under his chairmanship, the ISI Dictionary of Statistical Terms, several bibliographies and Statistical Theory and Methods Abstracts were established and short courses and seminars initiated. He was followed as chair by other famous statisticians including Herman Wold, Gertrude Cox, James Durbin, Joe Gani and finally David Vere-Jones – an international roll call. During the 1960's, many projects relating to surveys of needs and the production of resources were undertaken and the first international roundtable on statistics education was held in 1968.

In the 1970's, the ISI began to pay more attention to promoting statistics education in schools and universities, reflecting the increasing importance of statistics in university and school programmes. The Education Committee took new directions with the establishment of a number of task forces, including the Task Force on Teaching Statistics at School Level (TOTSAS), led initially by Vic Barnett, and the Task Force on International Conferences in Statistical Education (ICOTS). The first group established a regular newsletter for ISI members and interested school and university teachers. This led to Vic and Joe Gani setting up the Teaching Statistics Trust to establish the journal *Teaching Statistics*, first issued in 1979, aimed at the practice of teaching statistics to students aged 9-19 years. From the Committee's Roundtable conferences and ICOTS, commenced in 1982, was born the International Association for Statistics Education (IASE), one of seven ISI Associations.

As a past president of IASE and organiser of ICOTS, chair of ISI's Awards Committee, and as current editor of *Teaching Statistics*, and current President of ISI, I today pay tribute to Professor Mahalanobis for his extensive lifetime achievements across all aspects of Statistics.

Thank you and best wishes for your conference and for 2018.