

# Training Government Statisticians in Zimbabwe

*Mark Woodward<sup>1</sup>*

**Abstract:** A brief introduction to the Central Statistical Office of Zimbabwe is followed by a discussion of that office's manpower needs. The supply of manpower in the past is discussed, and the training development that has been made in order to ensure supplies of

suitable manpower in the future is described.

**Keywords:** Government statistical services, Zimbabwe, manpower supply, training, career development.

## 1. The Zimbabwe C.S.O.

The Central Statistical Office (C.S.O.) of Zimbabwe is a centralized agency, organized into eight subject-area departments:

1. Trade
2. Agriculture
3. Demography and Health
4. Employment
5. Prices
6. Production and Distribution
7. Finance
8. National Accounts

and a number of functional specialities including computing, census, household surveys and administration.

The office has existed since 1928, and during the years of Federation it also served the present-day countries of Zambia and Malawi. At present C.S.O. is part of the Ministry of Finance, Economic Planning and Development and is situated in a modern high-rise office block in downtown Harare, the nation's capital.

Zimbabwe became independent in April 1980, following nearly 15 years of isolation from the rest of the world following its Unilateral Declaration of Independence (U.D.I.), and many years of bush warfare. The new government soon launched ambitious plans for the extensive reform of the social fabric of the country, especially in land use, housing, education, health and employment. This has had important consequences for C.S.O. who have been asked to provide extensive information on subject areas previously largely ignored, such as the rural population which accounts for about 80 per cent of the total population.

To add to the difficulties of enlarging the scope of their data collection and catching up with fifteen years of new methods and technology, C.S.O. suffered an enormous loss of manpower during the first few years of independence, particularly in the managerial posts. All of this has led to an urgent demand for statisticians, particularly those with competence in computing, survey methods and communication.

## 2. Manpower Supply - Past

Before independence the staff of C.S.O. was mainly a mixture of long-serving employees of

<sup>1</sup> Department of Applied Statistics, University of Reading, P.O. Box 217, Whiteknights, Reading, RG6 2AN, U.K.

European decent without formal training in statistics, more recent immigrants to the country with relevant degrees from European universities, and African clerks with school qualifications in mathematics. As is the case now, statistics was rarely taught as a subject in its own right at school or college, and the only substantial training in applied statistics at the University of Zimbabwe came within the degree course in economics. Despite this, no on-the-job statistical training was provided at C.S.O., presumably due to the prevailing political climate and the belief that statistics graduates would continue to immigrate or return from Europe and South Africa.

Upon independence there was an important influx to Zimbabwe of black Zimbabwean graduates of foreign universities, who benefited from donor aid during the war of independence. However, many were attracted to higher-paid work in the private sector or international aid organisations. The relatively few with relevant degrees who actually joined C.S.O. and have since stayed form the basis of the current management.

### **3. Manpower Supply – Future**

In the near future, at least, Zimbabwe can expect to receive aid for training a small number of statisticians abroad each year. However, this by itself is insufficient to satisfy the needs of C.S.O., or indeed of the country as a whole, especially if, as in the past, candidates and courses are selected in an ad hoc fashion.

In order to plan statistical training in Zimbabwe, with special emphasis on government, a training section was established in C.S.O. in late 1981, with the assistance of British aid. Since that time this section, staffed by between one and three employees, has organized and helped to teach induction courses for new entrants to C.S.O. and an

extensive sub-degree in-service training course for clerical staff. The section has also helped in planning the use of foreign training opportunities, and in training field enumerators for the household survey section of C.S.O. In a wider context, members of the Training Section have served on the Statistics Steering Committee of the University of Zimbabwe, helping to plan suitable syllabi both to provide the country with practical statisticians and also teachers of statistics. All of this has required considerable liaison work with departmental heads of C.S.O., government ministries, educational establishments and aid organizations.

One result of this activity should be a regular supply of skilled manpower for senior positions in C.S.O. of two important, yet distinct types. First graduates in statistics, mathematics, economics and computer science who will bring fresh ideas and techniques to the office. Second, existing employees with a long experience of C.S.O.'s work and trained mainly within the office itself. At the more junior level there should, eventually, be a regular supply of school leavers with basic statistical knowledge who would be ideal candidates for clerical positions within C.S.O.

Hopefully other results of the training section's work will be a raising of the standard of work within C.S.O. and a better general awareness of important statistical concepts in the general public.

### **4. The In-Service Training Course**

Lectures are given, during the working day, mainly to clerks with a minimal mathematics qualification from school, and one or more years of service. The benefit of an in-service course in an environment where there is insufficient manpower is obvious, but this does place quite a strain upon the participants, who are often still expected to do a normal week's

work. The majority of the course members come from C.S.O., although a considerable number have come from other ministries and semi-government organisations. The Training Section has produced, with help from subject specialists within C.S.O., very detailed hand-outs for the entire course, to be given to all course participants. Some of these notes have also served as manuals of working practice for the sections of C.S.O.

The training course is modelled around the present examinations structure (currently being revised) of the Institute of Statisticians (I.S.). The Institute's syllabi have long served as a standard in government statistical offices in the Commonwealth, and provide the basis for the recommended syllabi produced by the Statistical Training Programme for Africa. Candidates normally take the Institute's exams in four stages, leading eventually to Membership, which is considered equivalent to an honours degree in statistics by, for example, the British and Zimbabwean C.S.O.'s.

Participants in the Zimbabwe in-service training programme are given lectures and practicals covering material roughly equivalent to the first two stages of I.S. exams. The programme is divided into two distinct parts, 'A' and 'B', with entry to 'B' conditional on success in 'A'. Both parts terminate in exams containing questions of local relevance expressed in local terminology, with the final assessment of Part B also depending upon a project. Some examples of projects completed so far are investigations into the contribution to the national economy of street craftsmen, the siting of telephone exchanges in Zimbabwe and the services provided for commuters in Harare. As with most other projects these mentioned included an exercise in data collection as well as analysis and presentation.

Assessment is initially made by the C.S.O. Training Section. Exam papers are then sent to an external examiner nominated by the

Institute of Statisticians. The Institute recognizes this as equivalent assessment to that provided by its own first two stages. Successful candidates are given a certificate to this effect signed by the Institute's examiner.

The benefit of I.S. involvement is threefold. First, C.S.O. has an international measure of the technical competence of its own trained employees, which rationalizes the allocation of duties and career development. Second, the I.S. qualification provides candidates with the essential pre-requisite for future training, thus allowing further up-grading of C.S.O.'s staff. Third, the candidates themselves are motivated by the knowledge that their reward for success is a qualification which will serve them in their career as statisticians, whether or not they remain in their present employment, and open the pathway to further qualifications.

Once they have successfully completed their in-service training, participants are able to apply to study the equivalent of the next I.S. stage at the Eastern Africa Statistical Training Centre in Tanzania. Unfortunately no centre anywhere offers full-time study to the last I.S. stage at the time of writing, so this has to be studied by correspondence course, with help from members of C.S.O.'s Training Section. If future demand justifies it, there is a possibility of these final two stages being taught in Zimbabwe, but at present this does not seem to be a viable proposition because of small student numbers. Alternatively some arrangement for equivalent follow-up study at the University of Zimbabwe has been suggested as a possible development.

## **5. Syllabus**

Each part of the in-service training course is divided into five units, with the emphasis being placed upon applied statistics. The mathematics is included purely as a basis for future statistical material, so as to give partici-

pants the necessary foundation to continue their studies. Each part of the course takes roughly a year to complete.

#### Part A (260 hours)

- A1 Theoretical Statistics I (60 hours): accuracy and approximation, tables and diagrams, measures of location and dispersion and index numbers.
- A2 Mathematics I (50 hours): sets, sequences and series, polynomials and common functions.
- A3 Economics I (50 hours): neoclassical microeconomics, Marxist economics and introductory macroeconomics.
- A4 Practical Statistics (60 hours): including methods of data collection, questionnaire design, implementation of census and sample surveys, processing and presentation of results.
- A5 Government Statistics (40 hours): sources of official statistics in Zimbabwe and methods used in collecting, processing and presenting data.

#### Part B (360 hours plus project)

- B1 Theoretical Statistics II (125 hours): probability, random variables, estimation, hypothesis tests, correlation, simple linear regression, time series and demography.
- B2 Mathematics II (85 hours): permutations and combinations, inequalities, equations and graphs, matrices, limits, continuity, differentiation and integration.
- B3 Economics II (50 hours): neoclassical macroeconomics, Marxist economics and applied economics.
- B4 Computer Science (100 hours): introduction to computers and how they work, software, flowcharts and a course in FORTRAN.
- B5 Statistical Project.

#### 6. Reference

Statistical Training Programme for Africa (1982): Guide Syllabus for Middle Level Personnel in Statistics. Economic Commission for Africa ST/ECA/STPA/DM.2/3/Rev. 1, Addis Ababa, May 1982.

Received February 1985