

# Some Issues Relating to Training Junior Statistical Staff in Developing Countries

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## 1. Introduction

The term data-base is increasingly becoming popular in many governmental agencies, business organisations, and other bodies. This term is no longer restricted to the computer environment only, its meaning is being associated with that of a vast bank of statistics, as an essential component of a decision making process. It is required that such statistics be clearly defined and collected with utmost care. Responsibility for collection of statistics and preliminary compilation is vested primarily on the junior staff attached to statistical cells. It is thus necessary that these staff be trained adequately to do the assigned job correctly.

Some issues which relate to training junior staff attached mainly to governmental agencies have been discussed in this paper. An attempt has been made to look into issues in terms of developing countries' statistical systems, training options and junior staff's perspectives. Views have been expressed in light of the author's teaching and administrative experience at the International Statistical Education Centre (ISEC), Calcutta, with a focus towards smaller developing countries. ISEC is more of an academic type of statistical training centre and, since 1950, it has trained over 1100 government sponsored statistical staff from over 50 countries in the Middle-East, South and South-East Asia, the Far East and from the commonwealth countries of Africa.

Irrespective of size, countries need to collect and compile such statistics as population and vital statistics, national income statistics, trade and balance of payment statistics etc. These statistics are needed from the national level to the level of lowest developmental units as well as for international comparisons. These statistics are used by the governments for their own functioning and policy making and also to meet the requirements of other cases. In this context, statistical organisations play an important role in providing this wide ranging basic information to the users. Since the working of governments naturally generates most of these statistics, it is only appropriate that

concepts, definitions, classification procedures, methods of measurement etc. are standardised not only within a country but also for international comparisons.

## 2. General observations

Statistical responsibilities of the junior staff depend on the type of statistical organisation they belong to. Statistical organisational structure is decided by the country's geographical, political, and cultural set-up. Developing countries have mixed statistical organisations. Some countries have centralised systems and some have decentralised systems. A decentralised system may be natural for a country that has distinct cultural groups or a number of major groups speaking different languages. Since most developing countries have inadequate communication facilities by modern standards, it is not known which of the two systems is more effective in providing statistical services. Structure of the statistical system is an important issue because many countries, mostly developing, that gained independence recently, are in the process of building statistical systems. The training needs of such countries are great and different from those countries that have already had statistical organisations working for a number of years.

A country's statistical services are greatly influenced by the numeracy of its population. Adult literacy rates are low in many developing countries and consequently most people have a low level of education. It makes the public less aware of the need for quality statistics. Relatively low numeracy and public awareness of the utility of statistics makes data collection difficult, resulting in poor quality and incomplete data. The junior staff need to know techniques for handling the problems of measurement and quantification in such situations.

In most developing countries the number of junior statistical staff is often inadequate compared to the ever increasing demand for good statistics. It implies that the junior staff should be able to handle a variety of statistical activities which are multi-departmental in nature. It also implies that these staff not only should be aware of the processes by which these statistics are generated, but they also should be able to clearly understand definitions and classification procedures of these statistics. In smaller developing countries the volume of data may not be large, but there may be too much variety to be handled by only a handful of junior staff.

Even though the use of computers may partly solve the inadequacy of staff strength, there are some problems in this connection. Firstly, developing countries have high unemployment rates and public apprehension that the use of computers may further take away jobs. It is believed that the inadequacy in staff strength is not due to non-availability of personnel, but is mainly due to the lack of financial resources, and so it does not justify expenditure on equipment and infrastructure. It is also known that computers are relatively more costly in most developing countries as compared to developed ones, foreign exchange problems apart. Secondly, low level use of the computers does not generate a suitable computer culture, which makes computer training needs quite heavy. Finally, the problem of maintenance makes the computer option less attractive. Maintenance services are not made available or become very expensive unless there are a certain number of similar types of computing machines for the viability of a maintenance cell in a region. Even when maintenance service is available, spare parts

are frequently out of stock due to the rapid change in computer technology.

### 3. Training options

The above observations imply that the training requirements are interlinked to a country's statistical system, population numeracy, staff strength, communication and computing facilities within the framework of the country's political and social set-up. It is most desirable that the training facilities be made available within the country. Some developing countries have adequate facilities and the capability for training in statistics, even at a very high level, whereas there are other developing countries with very little capability to train even at a relatively low level. Officials at the high level in statistical organisations are most suitable to train their junior staff as they are most knowledgeable about their country's statistical needs. Though some organisations may have the opportunity to utilise the experienced personnel at the higher level to train junior staff, in other organisations the officials at the higher level may be more needed for administrative work. However, the countries that have gained independence recently may not necessarily have officials at the higher levels capable of training their junior staff.

When senior statistical officials are not available, the next best option is to utilise lecturers from academic institutions, if available within the country. Though the nature of training by these lecturers is more of an academic type rather than professional - the context of lectures, discussions, and illustrative data being usually national - training is more effective. This is more so when the language of lecturer-participant interaction is in the mother tongue.

A number of difficulties are associated with the training of junior staff in the absence of training facilities within the country. It is true that more training for junior staff will enhance the capability of their statistical organisation to meet the country's needs more successfully, but the problem faced is to identify priority areas for training the junior staff. If professional courses can be organised within the country (country courses) with foreign experts as teachers, the utility of such training is more for meeting immediate needs in priority areas. But, a difficulty with country courses is that there may not be foreign experts available to cover all areas in which training is needed. If professional courses are organised in a foreign country for junior staff belonging to a similar type of country, an overall training programme may be very good, but the country specific impact is far less because there are less opportunities to go into details of country specific problems except in a few cases by way of illustration. Also, such courses may not necessarily cover the priority areas of participating countries, and the staff may not have the opportunity to immediately utilise their knowledge in the areas they have been trained.

A country may be unable to have professional country courses within the country or may be unable to find useful professional courses in foreign countries. In such situations, junior staff are sent to be trained in standard general courses in various areas of statistics. Such courses always tend to be more of an academic type for building the foundations of understanding, and for methodology appreciation. These general courses are regular in nature, are designed to answer more of why rather than how, and often use tailor-made short data sets to illustrate the statistical principles and methods. A staff member has to have an appropriate educational background to clearly understand

the principles and methods to be able to successfully use the training to provide the statistical activities back in the country. Usually the least developed of the developing countries gain least from standard courses because of the lack of immediate applicability. Since the standard courses may not have country specific emphasis, some principles may not even be relevant for some countries.

Whereas the country courses are usually of relatively shorter duration, regular courses are of longer duration. It is most difficult for smaller developing countries to send staff for long duration courses. When the staff strength is seldom adequate, the duration of training becomes an important issue, particularly for smaller developing countries that can ill afford to spare staff. When senior officials are available to train their staff, short duration or part-time courses are most practical. Even when a country has otherwise capable senior staff, such staff may not be fully equipped to train junior staff due to continuous modernisation, newly developed areas and concepts, or they may be involved in administrative work. In such cases part-time or short duration courses are difficult to organise. Also, unless the junior staff are located in the same area where the senior staff are located, junior staff are unable to utilise the part-time course facilities. Because of inadequate infrastructural and communication facilities, most of the developing countries have not been able to utilise the full potential of TV and video training possibilities. However, for most countries there is also very little appropriate material for training through TV and video. The video training option is most suitable for smaller developing countries with only a few statistical staff.

#### 4. Junior staffs' perspective

Most developing countries depend on donor countries and external funding agencies for financial support to train their staff abroad. Since the number of slots available to a country for training abroad is limited, depending on priority areas, countries utilise the facilities to train their nationals in engineering, medicine, agriculture, forestry, aquaculture, marine science etc. and certainly not with a bias towards statistics. This is also due to the fact that statistical training facilities are limited as compared to more established areas as listed above. For the smaller developing countries that have gained independence recently, statistics is unlikely to be as important as agriculture, science, etc. Whereas it is a fact that without relevant statistics no major policy decision can be made, the importance of statistics is hardly appreciated by the public, particularly in those developing countries that have a low literacy rate. Consequently the statistical wings are not treated as being as important as the offices to which these wings are attached. This is reflected through recruitment priorities, insufficient funding, inadequate appreciation for work pressure, future prospects of the staff etc. Lack of appreciation and opportunities leave the junior staff dissatisfied.

Also, the morale of junior staff is decreasing since they are treated as less than equal by user wings, being essentially service staff, and not being able to satisfy the users in providing them with data on time, without gaps and inconsistencies. Often the fault is not with the junior staff but lies elsewhere. It is felt that the prevailing conditions are getting worse for the collection of statistics, particularly those statistics which are not obligatory. This leads to large data gaps. Since the best of the available

manpower is attached to priority areas, it is assumed that the junior staff in statistical wings are not the most competent ones and they are paid less. Whereas the junior statistical staff are recruited from general disciplines, except perhaps with a numeracy bias, it is natural that many may lack exposure to many fields of statistical activities. This may directly affect data consistency in some fields and their feeling for correctness of statistics in areas where they lack exposure.

In many developing countries, the junior staff have formal educational qualifications below that of graduate level and often only that of high school level. Unlike basic sciences and arts, statistics is non-existent, or at best optional, in school curricula. Most junior staff are taught that statistics is the collection of numerical facts, which is their main job, and not about probabilistic reasoning. Many junior staff are uneasy even with high school algebra and may even hate mathematics. The part-time courses and the country courses play an important role in enhancing the capabilities of the junior staff in professionally handling statistical activities, but such courses do not add to their academic standing. It works well in countries where the population in general has lower academic aspirations. But, given an option, eligible junior staff would opt for formal training programmes leading to some academic recognition rather than the part-time or the country courses.

At ISEC, Calcutta, the number of applicants more than doubled after the 10 month regular certificate course was named as a diploma course. Career prospects are the main consideration of the junior staff. It is known that the career prospects of those undergoing the part-time or the country course are not as good as those who undergo courses leading to a diploma or degree. Another reason why the junior staff opt for a recognised academic type of training is that it enables a successful participant to go on to higher studies.