

International Training at the U.S. Bureau of the Census: An Insider's View

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This is dedicated to Dr. Calvert L. Dedrick, the father of international statistical programs at the Bureau of the Census, who died at age 83 on June 2, 1984. Dr. Dedrick served as Chief of the International Statistical Programs Center for 20 years, retiring in 1966 from that position. In 1977, he was elected honorary president of the Inter-American Statistical Institute; he was a Fellow of the American Statistical Association, the American Sociological Association, and the American Association for the Advancement of Science.

Abstract: The U.S. Census Bureau's International Training Program is described through a short history of its origins, and the goals of the program in terms of improving statistics, foreign policy objectives, and Third World objectives. The paper then defines practical solutions in terms of the goals, how the solutions are implemented, and describes

some unresolved issues and cooperative relationships. Finally, the article describes who the participants are and some of the practical aspects of the training program.

Key words: Statistical training; international training; International Statistical Programs Center.

1. Introduction

Any insider's view of a major program risks being both too critical and not critical enough of the components, goals, and results of the program and, worse yet, not recognizing its failings. While we will try to avoid this pitfall, we can offer no assurances of success. What we will try to do is give a taste of the flavor of our international training program, its history and roots, our goals and objectives, and some of the critical problems we face in the program.

The program is a unique blend of practical statistical and data processing training, emphasizing processes and integrated practical

applications rather than theory and academic learning. This orientation toward practical applications is deeply imbedded in the history of the U.S. Census Bureau's international programs.

2. Roots

The present-day International Statistical Programs Center (ISPC) of the U.S. Bureau of the Census has its roots in the late 1930s when the Director of the Bureau of the Census asked Dr. Calvert L. Dedrick to form a small group to assist developing countries in improving their statistical and data collection methods. At first, this mainly comprised sending experts to developing countries to assist in specific programs of those countries.

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Most of the requests at that time came from Latin America.

As demand for these consultancy services became greater in the early 1940s, the Census Bureau decided to form an organization, the forerunner to ISPC, which would exclusively handle these requests. In 1946, a training program was begun to train foreign statisticians and data processors in Washington, D.C. This was the beginning of the present-day statistical training program.

The Census Bureau's international program was undertaken as part of the U.S. Department of State's exchange programs and had three main components:

- i) to provide technical assistance to officials of developing countries in taking censuses,
- ii) to train personnel from developing country statistical offices,
- iii) to assist in the integration of census statistics into the regular statistical programs of the developing nations.

All of these programs were initially developed for Latin America (Dedrick (1946)). It was not until 1949 that the training program was opened to the rest of the world, thus expanding the program to Africa, the Middle East, and Asia (Finkner and Washabaugh (1977)). By 1948, over 50 participants were enrolled in the training program, almost all of them in census operations courses in support of the 1950 Censuses of the Americas. All of them were officials holding important statistical positions in their own countries (U.S. Bureau of the Census (1949)).

The Census Bureau also initiated a study-tour program wherein foreign statisticians and technical specialists could come to Washington, D.C. for short periods of time to discuss issues of concern with specialists in the Bureau of the Census as well as in other statistical agencies of the U.S. Government.

In the three years leading up to the 1950 round of censuses, the Bureau had completed six sets of courses for over 140 participants

from Latin America (Peel (1950)). Support for these courses came not only from the Department of State and the Bureau of the Census, but also from other agencies of the U.S. Government: the Bureau of Economic Analysis, the Bureau of Labor Statistics, the National Center for Health Statistics, and the Statistical Reporting Service of the U.S. Department of Agriculture (Finkner and Washabaugh (1977)). Through these activities, the U.S. had considerable input in the taking of the 1950 Round of Censuses of the Americas as well as a major part in helping to establish the standards for data collection and the definitions of terms and concepts used in these censuses. This legacy of combined training and technical assistance still guides our international program.

At about the same time, the Bureau of the Census began exchanging methodological and statistical data with other countries (Cooke (1963)). This evolved into a very extensive foreign statistics publication collection used both by Census Bureau staff and by the participants in the statistical training program. It is open to the public.

By the late 1950s and early 1960s, the Census Bureau had a highly organized training program offering beginning, intermediate, and advanced statistical training to statisticians from foreign governments (U.S. Bureau of the Census (1952)). By then, there was a mixture of training emphasizing technical skills, administrative abilities, and professional attitudes for the participants. In addition, participants were encouraged to take part in and understand some of the cultural and institutional aspects of life in the United States.

Most of the training during this period was on a quarter-year basis although some of the training was provided on a full-year basis. Other training, undertaken in association with local universities, extended to a period of two years. Census and survey methods and proce-

Table 1. Participants by Sponsor: Fiscal Years 1959 to 1985

| Fiscal year | All participants | | Sponsor | | | | | |
|--------------|------------------|----------|---------|----------|--------|----------|--------|----------|
| | | | AID | | U.N. | | Other | |
| | Number | Per-cent | Number | Per-cent | Number | Per-cent | Number | Per-cent |
| 1959 to 1985 | 4 366 | 100 | 2 841 | 65 | 951 | 22 | 574 | 13 |
| 1985 | 148 | 100 | 39 | 26 | 47 | 32 | 62 | 42 |
| 1984 | 132 | 100 | 37 | 28 | 42 | 32 | 53 | 40 |
| 1983 | 132 | 100 | 37 | 28 | 46 | 35 | 49 | 37 |
| 1982 | 115 | 100 | 30 | 26 | 27 | 24 | 58 | 50 |
| 1981 | 166 | 100 | 44 | 27 | 49 | 29 | 73 | 44 |
| 1980 | 137 | 100 | 40 | 29 | 70 | 51 | 27 | 20 |
| 1979 | 157 | 100 | 58 | 37 | 57 | 36 | 42 | 27 |
| 1978 | 125 | 100 | 37 | 30 | 51 | 41 | 37 | 30 |
| 1977 | 136 | 100 | 71 | 52 | 29 | 21 | 36 | 27 |
| 1976 | 118 | 100 | 33 | 28 | 42 | 36 | 43 | 36 |
| 1979 to 1982 | 575 | 100 | 172 | 30 | 203 | 35 | 200 | 35 |
| 1975 to 1978 | 529 | 100 | 206 | 39 | 179 | 34 | 144 | 27 |
| 1971 to 1974 | 538 | 100 | 267 | 50 | 205 | 38 | 66 | 12 |
| 1967 to 1970 | 656 | 100 | 596 | 91 | 60 | 9 | 0 | 0 |
| 1963 to 1966 | 808 | 100 | 721 | 89 | 87 | 11 | 0 | 0 |
| 1959 to 1962 | 848 | 100 | 766 | 90 | 82 | 10 | 0 | 0 |

dures, population census and demographic statistics, agricultural statistics, industrial statistics, statistical organization and administration, housing, foreign trade, public administration in statistics, geography, sampling, and electronic data processing were all areas that were covered in the highly organized program of the early 1960s. About half of the 50 or so people from more than 15 foreign countries were training in universities, with the other half training at the Bureau of the Census (Cooke (1964)). By then the Census Bureau had sent several hundred advisors and consultants to all parts of the world.

Of the courses offered in the 1960s, not all of them were given every year. The curricula varied each year. For example, in 1964–65 the intensive training was to be in population censuses and surveys, data collection and mechanical processing, survey methodology, and economic censuses and surveys. Other courses could be taken or given on request, but generally speaking the emphasis was in a limited area covering only a part of the

possible courses that could be taken (Cooke (1964)).

Also by this time, there was considerable integration of the Bureau of the Census program with other agencies of the U.S. Government and international agencies. The agriculture program, the labor statistics program, and some of the other programs became directly associated with other U.S. Government agencies (Cooke (1964)). During this time, the U.S. Agency for International Development (AID) also became a major donor of participant fellowships, and the Bureau of the Census developed what has become a long-term relationship with AID in training statisticians and data processors. The Census Bureau also developed a pre-training orientation program with the Washington International Center that exists to this day. The program has also continued its relationships with universities, providing today's participants with the possibility of studying for an advanced (MA-level) degree in association with their ISPC training.

In the mid-1960s, the Bureau of the Census determined there was a need for developing training for specific problems in the Third World (U.S. Bureau of the Census (1965)). From this evolved the short-term workshops overseas and the development of the “case study” method. A case study, in this context, is a fully documented methodology for undertaking a specific kind of survey or census. A fictitious country is created and is provided with physical, social, and economic conditions pertinent to the developing world. Then, for the subject matter being considered, all of the pertinent characteristics are elaborated. In this case study, then, all areas of data collection are covered, from administrative, budgeting and legislative issues through planning and preparing questionnaires, data processing, table outputs, training manuals, and analysis plans. Although there are alternatives presented in the case study, a “most generalized approach” is emphasized.

Some of the early case studies were *New Florencia*, a case study in population and

housing censuses, now superseded by *Popstan*; *Providencia*, a case study in economic censuses, soon to be superseded by the new *Industria* case study; *Agrostan* for agricultural statistics; and *Atlantida*, a case study in household sample surveys which is still heavily used although the data processing unit has been superseded by technology. These were so realistic that for *Agrostan*, a flag and national anthem were composed in 1968, as well as a film.

These case studies were used in the training program, for workshops and in correspondence courses. Case studies proved to be a very effective way of effecting technology transfer as well as providing a reference handbook for the participant. Some of the case studies were translated into Spanish, Portuguese, and French, and even Chinese, Farsi, and Thai.

In the 1970s, correspondence courses were developed and offered to those who could not come to the program because of lack of fellowships or the impossibility of leaving their

Table 2. Person-Months of Training by Sponsor: Fiscal Years 1959 to 1985

| Fiscal year | Total person-months | | Sponsor | | | | | |
|--------------|------------------------|--------------|---------|--------------|--------|--------------|--------|--------------|
| | | | AID | | U.N. | | Other | |
| | Number | Per- cent | Number | Per- cent | Number | Per- cent | Number | Per- cent |
| 1959 to 1985 | 23 782 | 100 | 12 902 | 54 | 6 714 | 28 | 4 166 | 18 |
| 1985 | 1 203 | 100 | 217 | 18 | 460 | 38 | 526 | 44 |
| 1984 | 1 178 | 100 | 325 | 28 | 417 | 35 | 436 | 37 |
| 1983 | 978 | 100 | 245 | 25 | 368 | 38 | 365 | 37 |
| 1982 | 1 101 | 100 | 342 | 31 | 313 | 28 | 446 | 41 |
| 1981 | 1 233 | 100 | 345 | 28 | 516 | 42 | 372 | 30 |
| 1980 | 1 272 | 100 | 366 | 29 | 656 | 52 | 250 | 20 |
| 1979 | 1 212 | 100 | 428 | 35 | 511 | 42 | 273 | 23 |
| 1978 | 1 084 | 100 | 392 | 36 | 331 | 31 | 361 | 33 |
| 1977 | 1 126 | 100 | 524 | 47 | 259 | 23 | 343 | 30 |
| 1976 | 910 | 100 | 259 | 29 | 412 | 45 | 239 | 26 |
| 1979 to 1982 | 4 818 | 100 | 1 481 | 31 | 1 996 | 41 | 1 341 | 28 |
| 1975 to 1978 | 4 153 | 100 | 1 626 | 39 | 1 388 | 33 | 1 139 | 27 |
| 1971 to 1974 | 4 132 | 100 | 2 425 | 59 | 1 348 | 33 | 359 | 9 |
| 1967 to 1970 | 3 326 | 100 | 3 020 | 91 | 306 | 9 | 0 | 0 |
| 1963 to 1966 | 2 426 | 100 | 2 150 | 89 | 276 | 11 | 0 | 0 |
| 1959 to 1962 | 1 568 | 100 | 1 413 | 90 | 155 | 10 | 0 | 0 |

positions. These were highly successful for some participants, but not as effective for others because of the lack of direct contact with experts and teachers. While this method held significant promise, the lack of funding for the materials development did not allow the continuation of the program (Finkner and Washabaugh (1977)).

As the training program progressed into the 1970s and 1980s, more emphasis was put on shorter-term programs, that is, programs five to seven months long, as well as the one-year program. But in the other direction, more emphasis was put on university graduate training overlapping with a full year of training at ISPC.

3. Goals of the International Program

There are three basic goals or purposes for the international program at the Bureau of the Census. From the technical point of view, the first and foremost goal is to improve statistics in the developing world. Second, there are overall foreign policy objectives of the U.S. Government which may be served by the training program and the entire international program at the Bureau of the Census. Last, there are Third World objectives which are served by the international program as defined by those countries and transmitted to ISPC through interaction with Bureau of the Census advisors, consultants, and trainers during their travels and through meetings with Third World statisticians and data processors.

At another level, there are ISPC training program goals in teaching statistics, developing statistical expertise, and institutionalizing statistical and data processing capabilities in the Third World. First, ISPC seeks to teach problem-solving skills at a practical rather than theoretical level, in order that Third World statisticians and data processing experts can generalize and apply what they learn in ISPC and other statistical training programs. Second, ISPC attempts to stress the importance

of the performance-based curriculum objectives which are based directly upon the statistical and data processing needs of the Third World, at least as we perceive them through our many and varied contacts with Third World professional statisticians, data processors, planners, and the like.

3.1. Improving Statistics

In discussing the three overall major goals of (1) improving statistics, (2) pursuing foreign policy objectives, and (3) achieving Third World objectives, it is important to keep in mind the need for statistical infrastructure development of the Third World. Improving statistics is the basic objective in the Bureau of the Census program because without a working statistical system providing a statistical and informational base, it becomes difficult, if not impossible, to realistically and adequately plan resources, both financial and human, in developing a country's programs and measuring progress.

Second, in improving statistics, we also provide a basis for being better able to compare data for inter-country use as well as for intra-country use. This is important, not only for the Third World, but also for the industrialized world. The Third World needs not only to measure its progress against other countries, both developed and developing, but also to have the information available to realize the potential of their own industrial and/or agricultural bases and to improve their social and educational programs so that they will meet the needs of the future.

Third, through improving statistics we also promote standards: for example, standards for classification of foreign trade and standards for measuring social and economic goods and services. We promote the standardization of quality control procedures so that the collection, editing, tabulation, processing, analysis, and output are comparable from one year to the next, from region to region, and from country to country.

Fourth, we also try to assist countries in developing procedures which are standardized throughout the processes of data collection and processing such that there are audit trails and that the procedures used in the data processing and survey taking can be reconstructed.

And last, we try to develop within the participants a true independence of statistical thinking in the development of methodologies and techniques appropriate for their local needs and local surveys, with the hope that each country will develop a statistical system as free as possible from outside manipulation of any kind.

3.2. Foreign Policy Objectives

The foreign policy objectives of the U.S. Government in statistical training are straightforward. First, it is the full intention of the U.S. Bureau of the Census and of the U.S. Government to improve relations between U.S. and counterpart country technical agencies such as data processing agencies, statistical agencies, and planning organizations, as well as with subject-matter agencies having statistical functions.

Second, we would like to improve and foster the interchange of ideas for statistics and data processing, to foster interchanges of methods and techniques, and to continue the exchange of materials and information between the U.S. and other countries.

Third, we hope to improve the ability of countries to provide themselves with needed data for the planning and implementation of their development programs. This has become more critical over the past 10 years as financial resources from donor agencies have diminished in proportion to the work needed to be done and the demands for those financial resources.

Fourth, the Bureau of the Census and the U.S. Government have also had as their objective to foster the ability of developing

countries to monitor and evaluate their development programs. This is an area of particular difficulty not only for program monitors but for evaluators and technical experts in the field of evaluation and monitoring. The demand in this area is greater than the scientists and statisticians can supply, and the need for such information is increasing.

And last, a foreign policy objective has always been to foster relations between governments and promote technical, personal and trade interchanges, not only for government, but also for industry and businesses in the private sector of the countries.

3.3. Third World Objectives

In attempting to achieve Third World objectives through direct teaching and technical assistance (the third major goal), we must include items which are on the forefront of the statistical and data processing agenda of the Third World. Probably first among those is for Third World countries to develop and have access to more reliable data for planning and implementation of development programs. Too many times we see data collected and very little analysis completed since the processing capability is not developed enough to handle the complex data needs of the country.

Second, the developing world wants to have skills transferred to it rather than to depend on foreign technicians. Thus, one of the major objectives of the ISPC program is to develop transferable skills in mid-level technicians and managers. For this reason, ISPC's program is aimed at those who already are experienced in statistical programs and yet still have most of their career ahead of them.

We aim our program at training the most highly motivated and promising staff in the Third World since we feel that these people can provide the largest multiplier effect of any group; considering the cost of the training program, most countries can only afford to send

their best staff to ISPC for training. It is fair to say that this has paid huge dividends through the years. For example, we recently informally surveyed people we knew around the world in the statistical agencies. At that moment, 12 countries had directors of statistics who were trained at ISPC, and in the last 40 years probably half the developing countries of the world have had directors of statistics who were trained at ISPC.

Third, documentation on methods and materials is very difficult to obtain in many of the countries of the Third World. We attempt to fill that gap through our training program and associated library and publication exchange services. This exchange program has been of central importance since the beginnings of the international programs at the Census Bureau. We also promote direct technical interchanges both in training and in technical assistance and information exchange.

Fourth, most countries also believe it is important to develop technical and personal contacts in the U.S. To this end, we provide opportunities for participants to expose themselves to social, cultural, and educational aspects of the U.S. as well as opportunities to meet with other technicians and managers both in the Bureau of the Census and in other agencies of the Government. We also sponsor field trips to businesses, universities, and state and local governments to demonstrate the kind of technical work in statistics and data processing being undertaken in those areas.

And last, contacts, not only with statisticians and data processors in the U.S., but also with other Third World statisticians and data processors, are very important. Through the ISPC program, we foster close relationships among participants which last for many years after they leave ISPC. These contacts serve as useful conduits of information exchange and methodological and technical exchange, as well as the country-to-country relationships important to all of us.

4. Defining Solutions

I think it is fair to ask at this point how ISPC defines solutions for these wide-ranging goals. One of the first things we do is identify specific needs of Third World statisticians and data processors. This is difficult because needs and requirements vary a great deal from country to country and even within countries. The training program takes advantage of contacts made through the long- and short-term technical assistance that the ISPC undertakes as part of its work. Through these contacts, which in a given year may come from 30 to 50 countries, as well as through our long-term consultants who are in-country for two years or more, we can determine, with some degree of precision, the overall country needs through conversations, technical dialogue, and written materials from these countries. The ISPC staff make upwards of 200 trips per year in undertaking their technical assistance and technical cooperation programs. Each of these trips is documented and the reports are widely read in ISPC and maintained in the library. They are, of course, of great use and interest to the training program.

Staff also attend conferences at the international level as well as conferences and informal meetings at regional and country levels. Through these kinds of contacts, the training program staff develop task analyses to document the specific needs of statisticians and data processors in the various subject-matter areas. Through this process we can design courses and curricula which directly meet the needs of the countries.

However, we do not attempt to provide a generalized program which is applicable to everyone and yet to no one. Instead we concentrate on the need to teach technical processes and analytical problem-solving skills and to develop the ability to generalize those skills to particular country needs.

We also publish a newsletter twice a year to foster interchange among statisticians and

data processors who have attended the ISPC training program. Although often this appears to be aimed more at the personal and social level, we find that the interchange promotes informal technical and methodological interchange among people with similar problems and ideas. It also serves as a basis for transferring information available on conferences, the training program, upcoming workshops, and other kinds of training of interest to Third World statisticians and data processing experts.

Workshops provide opportunities to update specific skills and techniques, which is why former long-term participants often attend them. Of course, short-term programs can only address small, specific areas of problems and techniques and are no substitute for the long-term programs which address distinctly different objectives. From the four or five workshops that we were doing each year a few years ago, we are now doing 20 to 25 workshops each year in all areas of statistics and data processing.

In accomplishing our program goals, we are also fortunate to have very good relations not only with the United States Agency for International Development missions in the developing countries, but also the U.N. and its specialized agencies, with whom we maintain direct contact throughout the year. The World Bank has also been a major source of information and support for the program. But in the main, the largest areas of support and knowledge have come from the countries themselves, through the personal contacts of the country statisticians, data processors, economists, planners, central bank officials, and the like who have expressed a need for training and have learned of ISPC's programs.

5. How Do We Do It?

Now that we have basically described the objectives of the training program and how

ISPC attempts to define these wide-ranging goals, let us look at how those goals are accomplished and what kind of problems ISPC encounters in accomplishing those goals. First, we will discuss how ISPC accomplishes the goals it sets for itself.

5.1. Technical Re-Evaluation

The training program incorporates a continual process of the re-evaluation. Not only is the overall program evaluated in light of new technology or needs in the host countries, but each individual course is re-evaluated annually by the training staff to update it and to make certain that it is meeting the needs of our participants, both on a technical basis as well as on how well it is integrated into the entire curriculum. In addition, the objectives of each course are evaluated annually to determine whether the curricula and the mixture of courses are meeting the overall objectives, both of the Third World countries themselves and of the individual participants in the program.

In that evaluation we also look at modernization of the courses. We review not only new and modern statistical techniques and methodologies, but also at hardware and software modernization. For example, no participant leaves ISPC today without some "hands-on" knowledge of microcomputer technology. In addition, we also try to update and modernize our teaching techniques and to give a personalized experience to each participant in the program. This kind of constant re-evaluation results in a much more effective course throughout the training year.

5.2. Outside Training Experiences

We encourage a great deal of outside participation in courses and other educational pursuits. All participants attend various kinds of outside courses or training experiences during the training year. This may be through field

trips of a few days' duration, or courses such as the management-communication seminar where participants learn how the knowledge they have gained can be effectively transferred to their colleagues upon return to their home agency.

Outside participation in courses also includes courses for the trainers and managers of the ISPC training program. We encourage our training staff to take courses which are pertinent to the courses they are teaching in order to update their skills and their knowledge. In addition, we actively encourage the training staff to participate in technical assistance programs overseas, in which they provide statistical or data processing consulting to technicians in the Third World. This kind of experience enables the training staff to be knowledgeable and up-to-date concerning the problems and concerns of the people that they are training. Thus, outside participation in courses and other activities are an important part of our method for accomplishing the goals we have set for the training program.

5.3. Internal Evaluation

Another way of determining whether or not we are meeting our goals and how well we are accomplishing those goals is through internal evaluation from other areas of the Census Bureau's international program. The training program is undertaken in the Training Branch. However, ISPC has various other international functions (and branches) which operate independently of the training program. Those branches are charged with responsibility for overseeing various parts of the training program in order to assure that the courses and the curricula are pertinent to the needs of the participants.

Staff from those areas are highly experienced in providing technical assistance in statistics and data processing to Third World nationals and are also familiar with the countries from

which the participants come. We require, as part of their ongoing responsibilities, the critical oversight of the training program and participation in the development and implementation of the curricula and the courses. In addition, many guest lectures and some courses are given by these (non-Training Branch) ISPC staff. This is a valuable contribution to the program and provides invaluable oversight at a very practical level.

5.4. High-Level Commitment

We are able to accomplish our goals because of a strong commitment to the international training program from the very highest levels at the Bureau of the Census. The Bureau of the Census has, from the Director on down, supported the training program over the years in the strongest manner possible. It is through such cooperation that we are able to integrate into the ISPC training program the methodology, technology, and management techniques that are developed for the domestic programs. The domestic side of the Bureau has also assisted in translating domestic technology, methods and management techniques into the international context not only by participation in the training program, but also through short-term consultation trips to the developing world, guest lectures, and writing manuals, as well as participating in our long-term overseas advisors program.

5.5. Participant Review

We encourage active participation in review of our programs and courses from the participants while they are in the courses. Each participant has an advisor on the faculty and is able to talk to the advisor directly, frankly, and critically on any aspect of the program or the courses. The individual participant's evaluation of each individual course is taken into consideration.

5.6. *Self-Evaluation*

Self-evaluation is done in conjunction with occasional external evaluations. Objectives and goals can be found in the training booklet each year. They change over time as the needs of the participants and the countries themselves change. The ISPC staff evaluates the program annually to ensure that it continues to meet the changing needs of participants and countries.

6. **Unresolved Issues**

Even though the objectives of the training program are clear and the methods for measuring those objectives are multiple and constant, there are still some major problems which we have not been able to overcome completely. First of all, the program is funded totally from participant tuition. This leads to an uncertainty each year for funding of the entire program. In the past, the U.S. Agency for International Development provided base funding for curriculum development and for maintaining a core staff. But since 1978 this funding has not been available to us. We therefore must pay for the entire cost of the program through tuitions and fellowships provided by donor organizations and host countries. The return per dollar is probably as high as any kind of educational training that can be obtained. It is considerably cheaper than going to the university or getting a university degree. In addition, our combined degree program, wherein a master's degree can also be earned by taking courses which are credited both to the ISPC diploma and the master's degree, is considerably less expensive than a master's degree earned outside of the ISPC program.

We also feel that we need more outreach capabilities. People who know about the program can generally get a fellowship to attend. But those who need the program but do not know about it are not being reached. At the

same time, it is very difficult to justify the use of tuition fees for an outreach program. We have not found a solution for this problem. These two areas are probably the most difficult ones for the training program at this time.

7. **Cooperative Relationships**

Over the years, some significant cooperative arrangements have been developed and nurtured. There are currently three joint master's degree programs conducted by ISPC. Each of these degree programs requires that the participant successfully complete the full-year program at ISPC as well as classes at the Georgetown or George Washington University Graduate School requiring an additional four to six months after completion of the ISPC program. Graduate credit is thus given for certain courses during the one-year ISPC participant program and during the four- to six- month extension for full-time university training. A regular master's degree from the university is awarded to each participant who successfully completes the joint program. Approximately 20 percent of the participants each year continue in the master's degree program.

The master's degree program falls into three areas. In cooperation with George Washington University there are two master's degree programs: the master of science in social and economic statistics, and the master of arts degree in management information systems. The third combined-degree program, with Georgetown University, offers a master of arts degree in demography.

The training program has had close relationships with many other institutions over the years. First and foremost, as mentioned previously, is the relationship with the Agency for International Development (AID) and its predecessor agencies. The training program was an early adjunct to that agency's technical assistance program.

AID also was instrumental in establishing training courses in the Bureau of Labor Statistics and the Bureau of Economic Analysis, covering their particular specialties. The ISPC also has cooperated very closely with those training programs over the years, and in fact every year some ISPC participants take advantage of those programs.

In the 1960s, demand for agriculture statistics and training in undertaking an agriculture census led to a joint FAO/U.S. training program conducted at the Bureau of the Census in association with the U.S. Department of Agriculture (U.S. Bureau of the Census (1970)). This program was rejuvenated with the initiation of a food and agricultural statistics training program in September 1985.

The United Nations has also been a major source of participants coming to the ISPC program over the years. All areas of the U.N. including UNICEF, UNFPA, UNDP, FAO, ILO, and other parts of the U.N. have sent participants for varying lengths of time to the program. They include students of demography, agriculture, survey sampling, data processing, and more than a few in the longer-term degree program. Cooperation with the U.N. continues at a high level to this day.

It is also noteworthy that the World Bank has recently encouraged some of its loan recipients to attend the courses in statistics at ISPC.

In its 40 years of existence, the training program has been funded in various manners. In the early years, funding came almost entirely from the Agency for International Development, the United Nations, and other donor agencies. During the middle years, as many more participants came to ISPC, funding sources for fellowships became more varied. Currently, fellowships are obtained by participants as follows: about 20 percent from the Agency for International Development of the U.S. Government; 45 percent come from other donor agencies such as the U.N.; and

35 percent come from the participants' own governments.

8. Who are the Participants?

Participants come from a wide range of backgrounds and experience. Generally speaking, a typical participant from a Third World country has been in a statistical office or an agency which produces or uses statistics for five years or more. This figure varies considerably, from participants who have had much less experience to some who are experienced directors of statistical offices in their countries. Many participants come from non-statistical agencies; that is to say, line or subject-matter agencies such as a ministry of health, ministry of agriculture, and the like, or from the central banks and planning agencies. In addition, many participants come from data processing centers in their countries.

Table 3. *Participants by Region: Fiscal Years 1970 to 1984, in Percent*

| Region | Fiscal year | | |
|------------------------------------|--------------------|--------------------|--------------------|
| | 1970 to 1974 | 1975 to 1979 | 1980 to 1984 |
| All regions | 100 | 100 | 100 |
| Africa | 22 | 40 | 38 |
| Asia and Middle East | 56 | 46 | 58 |
| Europe | 2 | <.5 | <.5 |
| Latin America and the Caribbean | 20 | 14 | 4 |
| Oceania | <.5 | <.5 | <.5 |

We have had trainees from more than 100 different countries around the world, and although we still occasionally get a participant from a new country, most participants come from countries and ministries where there have been participants over the years. We have also had participants who have come from private sector and quasi-official organizations in their countries.

The ISPC participants are a diverse group. This diversity, which enriches the experience of all participants, also causes problems for us in teaching to a general level. On the other hand, one of the beneficial outcomes of such diversity is the very valuable exchange of ideas and experiences between participants. Learning from the experiences of others is fostered in the program so that participants can capitalize on others' successes and experiences. The sharing of knowledge and experience in an atmosphere of practical training and learning is a very important element of the ISPC program.

In the last few years, we have had approximately 125 participants each year in the training program. Participants' interests remain just as varied as in the past. They take courses in agriculture, demography, survey methods, sampling, economic statistics, data processing; many today, of course, are interested in the new microcomputer technology. Attendance in classes is rigorously monitored and grades are given at the end of each of the five training periods. The emphasis in the courses is naturally on training in statistics and data processing. However, we also feel that the cultural and social learning that takes place in a new and different country is also important to the participants, and we encourage them to take an active part in outside activities while in the U.S. Participants are housed in private apartments and are provided a subsistence allowance in order to pay their expenses.

The courses also emphasize the need for transferring skills and the ability to transfer technology when they go back home. We stress the management and administration of statistical data collection and processing operations, and try to emphasize personnel needs, budgeting needs, and the administration of statistical operations as well. The courses are extremely practical, with much "hands-on" experience, including the final training period in which each participant par-

Table 4. Participants by Specialization: Fiscal Years 1970 to 1984, in Percent

| Specialization | Fiscal year | | |
|---|--------------------|--------------------|--------------------|
| | 1970 to 1974 | 1975 to 1979 | 1980 to 1984 |
| All specializations | 100 | 100 | 100 |
| Sampling and Statistical Methods | 8 | 7 | 9 |
| Agricultural Statistics | 16 | 21 | 15 |
| Demographic Statistics | 25 | 17 | 15 |
| Economic Statistics | 17 | 17 | 13 |
| Computer Data Systems | 25 | 23 | 21 |
| Survey Methods | 0 | 0 | 4 |
| Other (cartographic methods, printing and publication, library skills, etc) | 8 | 16 | 23 |

takes in an actual field demonstration survey, either in an agriculture or socioeconomic survey.

During these demonstration surveys in the State of Pennsylvania, the participant conducts interviews, does mapping and sampling, undertakes the data processing and editing of questionnaires, and learns all about the practical, logistical, and administrative aspects of a field survey. In preparation for these activities, analytical plans are put together, tables are outlined, sampling is done, maps are developed, questionnaires are designed, editing specifications are written, logistics are planned and tested, a pretest is completed, data processing plans are specified and written, and all preparations for undertaking an actual field survey are practiced by the participant in a very real atmosphere.

The objective is not only for the participant to collect good data and to see how good data are collected, but to understand the processes that are needed in order to complete a successful survey from beginning to end and to understand the linkages between the various components necessary to undertake a successful data collection effort. In all these activities,

experiential learning of the linkages and processes of a data collection effort are emphasized over rote learning of techniques.

9. Conclusions

In summing up this brief, informal evaluation of the International Statistical Programs Center training program, I think it is important to enumerate the general principles under which the program operates:

- First, we feel it is important always to try to improve the program. I have enumerated various ways in which we work to do that, but it is very important to keep that principle foremost.
- Second, we should not get too esoteric; that is, we should maintain our position of providing practical training in statistics and data processing and not encroach on areas best handled by universities or other kinds of academic schooling.
- Third, we think that skills-building and problem-solving must be emphasized in the program. The processes under which a survey or a census are taken are the important practical elements to be learned, and the skills and the problem-solving requirements associated with those undertakings should be emphasized in our training program.
- Fourth, we think it is important to make sure that each individual participant is able to transfer the knowledge gained at ISPC to their colleagues and compatriots in their home agency. Our idea is to provide formal and informal training so that training can be transferred and used not only by the participant trained, but also by the people that he or she works with and the people that he or she can train in turn.
- And finally, we think it is important that the participants gain exposure to the United States, not only the statistical or the data processing part of the United States but also to our social, cultural, economic, and tech-

nical way of life. It is in this flood of new experiences, friendships, and interchanges that true training and practical knowledge can be developed.

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