

## SOME SAMPLE SURVEY DESIGN PROBLEMS IN SYRIA, NEPAL AND SOMALIA

Jane Williams Bergsten, Research Triangle Institute

Much of the information needed for governmental planning in developing countries is either unavailable or inadequate. Often the simplest and fastest way to obtain the needed information is by means of a sample survey. Survey data can be obtained by a relatively small number of people who are specifically trained to collect the needed information. This type of procedure permits better control over coverage, quality, and speed of gathering the data than a statistical system, such as for example, a vital registration system, that must rely on the cooperation of numerous diverse governmental bodies.

The conduct of surveys in developing countries, however, presents a novel challenge to the survey statistician. The information needed for designing and implementing sample surveys is often lacking. Communication by telephone can be undependable or impossible, and travel can be difficult. Language and cultural differences can complicate instrumentation and hinder data collection.

I'd like to share with you some of the frustrations and delights of designing and implementing surveys in Syria, Nepal and Somalia.

I will first provide a brief description of each of these countries and the nature of my work there. I will then describe, for the various tasks involved in designing and implementing sample surveys, some of the differences that I became aware of in these countries.

Figure 1 contains some selected characteristics about each of the three countries. As you can see, Syria is located at the eastern end of the Mediterranean Sea. It is an Arabic speaking, Moslem country of approximately 8 million inhabitants, the majority of whom live in rural areas and are illiterate. Its capital, Damascus, is the oldest city in the world, and is thought by many to be the site of the Garden of Eden.

I was in Syria in the spring of 1976 as the survey statistician on a team sent by the Agency for International Development (AID) to design a program of assistance in the area of health. The result of my particular effort was the design of a continuous national health survey capable of providing estimates of the health characteristics of the Syrian population.

The Hindu kingdom of Nepal is sandwiched between India and Tibet, and possesses some really amazing geographic characteristics. Although it stretches nearly 600 miles in width, it is only about 100 miles from north to south. Within this 100 mile span there is the low, tropical "Terai" in the south, the temperate hill area in the center, and the Himalayas in the North. Almost all of its 13 million people live in rural areas, mostly in isolated villages. The country is very poor and literacy very low.

I spent the spring of 1979 in Nepal as the statistician on another design team sponsored by AID, this one dealing with resource conservation. The cutting of trees for fire wood and the clearing and terracing of hillsides for cultivation have permitted erosion to become a severe and potentially life threatening problem in the hill area of Nepal. Our team was to design an intervention program and I was to design the sample survey component.

Somalia is a hot, arid country on the eastern coast of Africa. Sixty percent of its 3 million inhabitants are nomadic, and 95 percent are illiterate.

My comments about Somalia will be brief. The trip that I had anticipated making in late spring did not occur. My involvement with the sample design for the on-going demographic survey has thus far been long distance.

What are some of the problems associated with conducting surveys in these countries? First, let us consider the relevant training and survey experience of the professionals in these countries, and the availability of suitable personnel for staffing.

### Staffing:

Syria seemed to have well trained senior officials, but lacked well trained lower-level professionals. It was, for example, a country of many physicians but very few nurses or medical technicians. The heads of agencies seemed to have excellent qualifications, but the supporting professionals did not. There was an attempt to remedy this, however, with government-sponsored training-programs. In this type of situation, you might expect that the staffing of a new program would be extremely difficult. This was not the case. Government employees worked only 5 hours a day, finishing at 1 PM. This permitted them to take on other jobs to supplement their low government wages, and I was assured that survey staff could be selected from among workers holding relevant government jobs.

The situation in Nepal was somewhat different. I found people with relevant academic credentials, but lacking in experience and confidence. Their college courses did not prepare them for the scope and complexity of the problems they had to deal with, and they needed guidance.

### Sampling:

Sampling appeared to be a manageable task in Syria. The Central Bureau of Statistics had hand-written lists of dwelling units, which had been obtained during the decennial census and which were updated regularly as new construction occurred. Because these lists would be made available for sample selection for our survey, the sampling task appeared feasible. Procedures for updating measures of size and for including

unlisted dwellings could supplement the existing material. Drives through the country made it apparent that people lived in defined villages, and the sparseness of vegetation permitted us to see for miles. The nomadic Beduins, who would have presented a sampling problem, migrated from country to country, and were not to be included in data collection efforts.

Sampling in Nepal was another matter. While census data useful for sampling purposes existed, I was told it was simply not available for sample selection. At first I assumed that this was related to some interagency rivalry. By the time I left Nepal, I realized that tabulating the data was probably just too difficult a task. I myself had patiently waited for six weeks for some simple tabulations. The programming finally got done but the programs were never run. On two occasions during that six week period the computer was down for a week at a time. Someone had to fly in from Delhi to repair it. On another occasion the electricity was off at the computer center for almost a week.

Not only is the basic information for constructing a sampling frame sparse in Nepal, there is really no feasible way to update or supplement it easily. Villages are remote and isolated, maps are poor, communication by telephone is nonexistent and most villages are reached only by trekking, i.e., on foot. The few roads that exist in the area are not usable at all during the summer monsoon season, and local flights are not possible then either. Sending a field team out to do something comparable to "crusing and listing", which I suppose we would call "trekking and listing", would be a most complicated, time consuming task.

Once in a village, however, the families can be easily identified and listed. The presence of an interviewer brings forth the whole village population, so that not only are the local officials of help in constructing the frame of families, but the entire population of the village helps, as well. On the project baseline survey, which had been fielded just prior to our arrival, the interviewers involved the villagers themselves in the sample selection process by asking for volunteers to reach into the hat and randomly select the families to be interviewed. This wholehearted community participation was not without its drawbacks, however, as you will see later.

Sample selection in Somalia also had its difficulties. Where maps were available for rural areas, they identified villages linearly along roadways, even though the villages themselves were some distance inland. Lists of villages in districts were available, but did not necessarily agree with the maps, and people did not necessarily live within the confines of a village. Houses in urban areas are unnumbered, paths are unnamed and housing congested, requiring the use of large segments to ensure proper coverage in a sample survey. Further complicating a sampling task in Somalia is the presence of a large nomadic population. The

current plan is to sample nomads during the dry season by using water holes as primary sampling units. Adding to the complexity of sampling nomads is the splitting of families for grazing purposes. Some members, usually the males, may go off for months with the camels, while the remainder of the family goes off independently with the smaller animals that need more frequent watering. The lifestyle of the nomad certainly does not lend itself to the efficient carrying out of demographic surveys.

#### Instrumentation:

While there appeared to be no language problems in Syria, there were many in Nepal. Nepali is the native language for only half of the population, the remaining speaking a myriad of other languages. Because Nepali was not a rich enough language to handle all of the complexities of the baseline survey questionnaire, terms from the literary Sanskrit language were sometimes used, making many questions totally unintelligible to respondents. Language differences were handled by means of on-the-spot translation for respondents who did not speak Nepali. Considering the lack of communication, isolation of villages, and language and cultural differences, instrumentation poses a very complex problem in Nepal.

#### Data collection:

In Syria, because of the health, nutrition, and family planning nature of the survey, it was felt that women interviewing female family members would be the most desirable. Such interviewers would need to be provided with both cars and drivers. There was some concern about interviewing in the presence of the mother-in-law, however, when asking family planning questions during the interview, but there was also an indication that the mother-in-law, herself, was a great determinant of family planning behavior.

In Nepal, respondents were interviewed, typically, with the entire village watching and listening. This may have had a beneficial effect for certain kinds of factual information, for example, amount of land under various types of cultivation, because the villagers would freely correct and supplement the respondent's replies. It no doubt, however, had a very serious negative effect on sensitive questions relating to number of births, family planning, etc.

The potential for response bias is indeed great in Nepal both because of instrumentation complexities and public interviewing. However, bias due to nonresponse is virtually nonexistent, for response rates of 100 percent are quite typical in Nepal.

#### Data processing:

Basically, after my experience in both Syria and Nepal, I am very distrustful of computers. They very likely will have to be shared with

other governmental bodies, they breakdown frequently, their repair can be a very slow process, and they don't work without electricity. I would be leary of making a survey completely dependent on computers, and would highly recommend having a paper-and-pencil, clerical operation as a back up.

Data analysis:

I feel that the data analysis should be kept simple and should be kept there. This really exemplifies my whole philosophy of helping developing countries do surveys. The professionals in developing countries are often operating without much training or experience, without adequate professional support-staff, with inadequate data for survey design, and with language,

cultural, communication, and transportation difficulties. Having an expatriot offer encouragement, support, and guidance can be extremely beneficial. Ending up with a survey that may not be optimally designed, but which is adequate, which they feel is theirs, which has provided them with a significant learning experience, and which will lead them in a direction of continually improving the quality of their surveys, can be a significant contribution indeed.

For the expatriot survey statistician, providing this type of assistance in a developing country can afford one a delightful change of pace, an enjoyable and invigorating experience, and a great feeling of satisfaction and contribution.

Characteristic	Syria	Nepal	Somalia
Location	Eastern end of Mediterranean Sea	Between India and Tibet	Eastern Coast of Africa
Land Area	Desert-like. Size of North Dakota.	Tropical lowlands in South, Temperate hill area in center. Himalayas in North. About size of North Carolina.	Hot and arid, slightly smaller than Texas and shaped like a large number seven.
Population	8 million	12.9 million	3.2 million
Literacy	20%	9%	5%
Population	60% rural	95% rural	60% nomadic
Language	Arabic	50% Nepali 50% other languages	Somali
Religion	Moslem	Hindu	Sunni Moslem
Capital	Damascus	Kathmandu	Mogodishu
Government	Arab republic with a president.	Constitutional monarchy.	One party republic with a president.

Selected Characteristics of Syria, Nepal and Somalia

Figure 1