Annex E
Strengthening Statistical Systems: Technical Notes and Case Studies

Tables

Figure

Technical Note E.1 The General Data Dissemination System

The Special Data Dissemination Standard (SDDS) was established in 1996 to guide countries that have, or that might seek, access to international capital markets in the dissemination of economic and financial data to the public. The General Data Dissemination System (GDDS) was established in 1997 to guide countries in the provision to the public of comprehensive, timely, accessible, and reliable economic, financial, and sociodemographic data.

Established by the International Monetary Fund (IMF), both the SDDS and the GDDS are expected to enhance the availability of timely and comprehensive statistics and, therefore, contribute to the pursuit of sound macroeconomic policies; the SDDS is also expected to contribute to the improved functioning of financial markets.

The SDDS, in taking a comprehensive view of the dissemination of economic and financial data, identifies four dimensions of data dissemination:

- the data—coverage, periodicity, and timeliness;
- access by the public;
- integrity of the disseminated data; and
- quality of the disseminated data.

For each of these dimensions, the SDDS prescribes two to four elements capable of being monitored—good practices that can be observed, or monitored, by the users of statistics.

The data dimension lists 17 data categories that provide coverage for the four sectors of the economy, and it prescribes the periodicity (or frequency) and timeliness with which data for these categories are to be disseminated. In recognition of differences in economic structures and institutional arrangements across countries, the SDDS provides flexibility. Certain categories are marked for dissemination on an "as relevant" basis. Furthermore, some data categories or components of data categories are identified as encouraged rather than prescribed. With respect to periodicity and timeliness, a subscribing member may exercise certain flexibility options while being considered in full observance of the SDDS.

The GDDS framework is built around the same four dimensions. However, it assumes that significant deficiencies may exist in the statistical system of a country, and its primary focus is on improvement of data quality and statistical practices. It is intended to provide guidance for the overall development of economic, financial, and sociodemographic data. The framework takes into account, across the broad range of countries, the diversity of their economies and the developmental requirements of many of their statistical systems.

The data dimension includes coverage, periodicity (the frequency of compilation), and timeliness (the speed of dissemination). The data dimension addresses the development, production, and dissemination of two interrelated classes of data: (1) comprehensive frameworks for each of the four economic and financial sectors (real, fiscal, financial, and external) and (2) indicators for each of these sectors, plus the sociodemographic area. Recommendations for good practices as to coverage, periodicity, and timeliness could be accessed for comprehensive frameworks and data categories and indicators can be found at http://dsbb.imf.org/gddsindex.htm.

Technical Note E.2 International Recommendations and Good Practice for Censuses and Surveys

CIS. 1998. Analysis of the Results of Pilot Population Censuses (1997–1998) in CIS Countries.

CIS. 1998. Development of Methodological Background of Service Statistics on the Basis of International Standards (GATT, Voorburg Group, and so on): Educational Services (including preschool education); tourist services; services in trade; everyday services.

EUROSTAT. 1988. Employment Statistics: Methods and Definitions.

EUROSTAT. 1992. 1990/1991 Community Programme of Censuses of Population—Comparative Analysis.

EUROSTAT. 1992. Harmonized Statistics of Earnings: Methodology of National Surveys.

EUROSTAT. 1992. Manual on Economic Accounts for Agriculture and Forestry.

EUROSTAT. 1995. Agricultural Sector Modeling.

EUROSTAT. 1996. Community Survey of Labor Costs: Methods and Definitions 1992.

EUROSTAT. 1997. Household Budget Survey in the EU Methodology and Recommendations for Harmonization.

EUROSTAT. 1998. Labor Force Survey: Methods and Definitions.

EUROSTAT. 1999. Crop Production Glossary.

EUROSTAT. 1999. Guidelines and Table Program for the Community Program of Population and Housing Censuses in 2001: Guidelines.

EUROSTAT. Forthcoming. Population and Housing Censuses: Preparation of Guidelines for the Population and Housing Censuses.

FAO. 1965. Sampling Methods and Censuses.

FAO. 1974. Handbook of Economic Accounts for Agriculture. Provisional.

FAO. 1976. Guide to Statistics of Livestock and Livestock Products.

FAO. 1976, 1982. Fisheries Technical Papers.

FAO. 1978. Collecting Statistics on Agricultural Population and Employment.

FAO. 1980. Analysis of Food Consumption Survey Data for Developing Countries.

FAO. 1980. Assessment and Collection of Data on Post-Harvest Foodgrain Losses.

FAO. 1980. Farm and Input Prices: Collection and Compilation.

FAO. 1982. Classification and Definitions of Forest Products.

FAO. 1982. Estimation of Crop Areas and Yields in Agricultural Statistics.

ILO. 1966. Measurement of Underemployment: Concepts and Methods.

ILO. 1971. Scope, Methods, and Uses of Family Expenditure Surveys.

ILO. 1976. International Recommendations on Labor Statistics.

ILO. 1979. Integrated System of Wages Statistics: A Manual on Methods.

ILO. 1982. International Coding of Labor Statistics.

UNSD. 1964. *Handbook of Household Surveys: A Practical Guide for Inquiries on Levels of Living*, Provisional ed. U.N. Statistics Division, New York.

UNSD. 1983. *Handbook of Household Surveys,* rev. ed., U.N. Statistics Division, New York.

UNSD. 1990. *Manual on Population Census Data Processing Using Microcomputers*, U.N. Statistics Division, New York.

UNSD. 1990. *Supplementary Principles and Recommendations for Population and Housing Censuses*, U.N. Statistics Division, New York.

UNSD. 1991. *Emerging Trends and Issues in Population and Housing Censuses*, U.N. Statistics Division, New York.

UNSD. 1991. *Handbook of Population and Housing Censuses, Part II, Demographic and Social Characteristics*, U.N. Statistics Division, New York.

UNSD. 1992. *Handbook of Population and Housing Censuses, Part I, Planning, Organization and Administration of Population and Housing Censuses*, U.N. Statistics Division, New York.

UNSD. 1996. Final Report of the Expert Group Meeting on the Revisions of the *Principles and Recommendations for Population and Housing Censuses*, U.N. Statistics Division, New York.

UNSD. 1996. *Handbook of Population and Housing Censuses, Part IV (Economic Activity Status)*, U.N. Statistics Division, New York.

UNSD. 1998. *Handbook on Household Accounting: Experiences in the Use of Concepts and their Compilation, Volume I*. U.N. Statistics Division, New York.

UNSD. 1998. *Principles and Recommendations for Population and Housing Censuses,* rev. 1, U.N. Statistics Division, New York.

UNSD. 1999. *Handbook on Household Accounting: Experiences in the Use of Concepts and Their Compilation, Volume 2*. U.N. Statistics Division, New York.

UNSD. 2000. *Handbook on Census Management for Population and Housing Censuses*, U.N. Statistics Division, New York.

UNSD. 2000. *Handbook on Geographic Information Systems and Digital Mapping*, U.N. Statistics Division, New York.

UNSD. 2000. *Handbook on Population and Housing Census Editing, ST/ESA/STAT/SER.F/82*, U.N. Statistics Division, New York.

UNSD. Forthcoming. Vital Statistics and Civil Registration Systems: Revision of Principles and Recommendations.

Technical Note E.3 The Core Welfare Indicators Questionnaire

The Core Welfare Indicators Questionnaire (CWIQ) is the latest in a series of survey instruments that have been developed by the World Bank and its partners to help provide policymakers with household-level information for policy formulation and evaluation.[1]

By the mid-1990s, a reassessment of the survey instruments was undertaken in light of the experiences gained in their implementation. There was a need to develop an instrument that could provide policymakers with quicker feedback and at a more disaggregated level than was possible with the existing range of household surveys. Thus the CWIQ was developed.

E.3.1 Objectives of the CWIQ

The CWIQ is intended to monitor poverty and the effects of development policies, programs, and projects on living standards. To make useful impact assessments, researchers and policymakers require appropriate indicators of welfare status for different population subgroups. National-level indicators are usually insufficient for planning purposes, and traditional impact indicators that measure changes in welfare status, such as the percentage of the population below the poverty line and the number of malnourished children, are expensive and time consuming to collect. While the periodic collection of such impact indicators is necessary, the CWIQ is intended to be applied frequently (possibly annually), so implementation time needs to be short. The CWIQ employs simple indicators to ultimately identify who is and who is not benefiting from various actions designed to improve the social and economic status of the poor.

E.3.2 Key Features of the CWIQ Survey

- National annual survey that is quick and easy to implement
- Rapid monitoring of key indicators for different population subgroups
- Part of an overall monitoring package
- Short questionnaire and single visit
- Multiple choice questions for easy and rapid data collection
- Scannable data entry to eliminate data entry bottlenecks
- Complete validation specifications and programs
- Standard tabulation plan and programs
- Employs as large a sample as feasible, given national statistical resource constraints and the need for rapid results

E.3.3 CWIQ Indicators

The indicators available through the CWIQ survey are of two types: (1) indicators of standards of living for the household and household members and (2) indicators of access, utilization, and satisfaction with community and other basic services amenities such as education and health. The key indicators include the following:

Indicators of living standards:

- Percentage of households reporting diminishing or increasing land assets
- Home ownership
- Type of home construction
- Percentage of households using wood, charcoal, or crop residues for cooking fuel
- Type of fuel used for lighting
- Ownership of selected household goods
- Mean number of household members

- Percentage of literate adults
- Percentage of persons sick or injured in previous four weeks
- Type of sickness or injury
- Percentage of children who are malnourished

Access, utilization, and satisfaction indicators:

- Access to clean water
- Access to primary and secondary schools
- Access to local market and public transport
- Net primary and secondary enrollment rates (by gender)
- Satisfaction with school services
- Percentage of children who do not attend school
- Reasons for not attending school
- Primary and secondary dropout rates (by gender)
- Access to medical services
- Use of medical services by persons sick or injured in previous four weeks
- Satisfaction with local health service
- Reasons for nonuse of medical services
- Percentage of women with a recent birth who received prenatal care
- Percentage of births delivered in a health facility
- Percentage of births supervised by a formally trained health worker
- Percentage of children who have participated in nutrition programs
- Percentage of children who have participated in weigh-in programs
- Percentage of persons currently employed
- Percentage of persons underemployed
- Percentage of persons unemployed during the previous week

Technical Note E.4 The Living Standards Measurement Study

The Living Standards Measurement Study[2] (LSMS) survey was established by the World Bank in 1980 to explore ways of improving the type and quality of household data collected by government statistical offices in developing countries. The LSMS aims to develop new methods for monitoring progress in raising levels of living, identify the consequences for households of current and proposed government policies, and improve communications between survey statisticians, analysts, and policymakers. Although the first few LSMS surveys followed a very similar format, as time passed and countries with different circumstances were added, substantial variety arose in the surveys across the different countries.

Two characteristics distinguish LSMS surveys: (1) multitopic questionnaires designed to study multiple aspects of household welfare and behavior and (2) extensive quality control features.

E.4.1 Multitopic Questionnaires

The main objective of LSMS surveys is to collect household data that can be used to assess household welfare, to understand household behavior, and to evaluate the effect of various government policies on the living conditions of the population. Accordingly, LSMS surveys collect data on many dimensions of household well-being, including consumption, income, savings, employment, health, education, fertility, nutrition, housing, and migration.

Three different kinds of questionnaires are normally used:

- The household questionnaire, which collects detailed information on the household members
- The community characteristics questionnaire, in which key community leaders and groups are asked about community infrastructure

- The price questionnaire, in which market vendors are asked about prices. A fourth type of questionnaire, a school or health facility questionnaire, is sometimes used as well.

E.4.2 Extensive Quality Control Procedures

In order to minimize errors and delays in data processing, LSMS surveys are implemented using procedures that resolve most inconsistencies in the data before they reach the central statistical office. The following elements are distinctive in LSMS surveys, as opposed to those that LSMS surveys share with other good household surveys.

Questionnaire format. Several features of the questionnaire help to minimize interviewer error. For example, the questionnaire makes extensive use of screening questions so that the skip pattern is automatic, requiring virtually no decisionmaking by the interviewer. All of the questions are written out exactly as they are to be asked. Almost all potential responses to each question are marked on the questionnaire with a numbered code, and the interviewer writes only the response code on the questionnaire. Furthermore, the household questionnaire is designed so that the data can be entered into the computer straight from the completed questionnaire, eliminating the additional step of transcribing codes onto data entry sheets. An important element in the design of the LSMS questionnaire is that changes can be made to the questionnaire quickly and easily, either in response to the field test or over the years as policy needs change.

Organization of fieldwork. Fieldwork and data entry are highly decentralized in full-fledged LSMS surveys. The core work is performed by a team consisting of a supervisor, two interviewers, an anthropometrist, a data entry operator, and a driver. The team is based in a regional office equipped with a personal computer for data entry.

The standard fieldwork plan is as follows:

- During round one, which takes a week in each village, two interviewers each administer the household questionnaire to eight households, while the supervisor administers the community and price questionnaires. Following round one in the field, the half-completed questionnaires are taken to the field office, where the data entry operator records the data on computer diskettes. The data entry program prints out the data recorded for each household, highlighting any errors or inconsistencies.
- During round two of the interview, the team returns to the field to complete the second half of the questionnaire and to correct errors found in round one. Errors detected after round two are corrected only if they are data entry errors.
- In the final step, the diskettes of data are sent from the field office to the national office to be reviewed by the data management specialist and consolidated with data from the other field teams.

Sample size. LSMS surveys tend to use small samples, often on the order of 1,600 to 3,200 households and rarely more than 5,000 households. Although larger samples would have smaller sampling error, it was judged by survey designers that nonsampling errors would increase more than concomitantly. Having a small number of teams also economizes on the cost of supplying them with vehicles and computers.

Data management. The LSMS surveys use personal computers in the field, where all the stages of data collection, data entry, and editing are carried out. This dramatically reduces the length of time between when the fieldwork ends and when the data become available for analysis. It also improves the quality of the data. The use of commercially available packages for this purpose has now become widespread, although even today the thoroughness of the checks in the full-fledged LSMS surveys is probably well above average.

Resulting data quality. When all of these procedures are scrupulously followed, data quality can be very high. These datasets were subjected to data entry checks and corrections in the field as explained above but were not subjected to any further "cleaning" in the central office. Missing data in both surveys are extremely rare.

Turnaround times. The LSMS is noted for the short turnaround time between the end of data collection and the availability of data for analysis. Theoretically, this is a matter of only a week or two, and in several countries basic abstracts have been completed within two to six months of the end of fieldwork. This speed has contributed markedly to the relevance of the data to policymaking. The quick turnaround between the completion of fieldwork and the availability of data for analysis is largely due to the

precoding in the questionnaire, the extensive quality control during the fieldwork, and the decentralized, concurrent data entry.

Technical Note E.5 The Use of Administrative Data

The use of administrative data is being examined increasingly by national statistical offices (NSOs) throughout the world, not least because of continuing budgetary pressures to find less expensive ways of collecting data. Administrative data are normally regarded as information that accrues to agencies, usually in their capacity as regulators or monitors of certain activities and functions of government. Almost every government activity generates some form of administrative data; the challenge is to identify and evaluate these sources. It is also worth noting that the choice between using administrative data and setting up a new data collection is not always an either/or one: in many cases there is scope for using data from one type of source to supplement data from another source.

Administrative data are generally not collected in their own right, but as a by-product of other functions of an agency. For example, a system recording the attendance of children at school generally asks for and records details about the age and sex of the child, as well as other information related to academic performance. These are extremely useful data items for generating education statistics and for monitoring both school enrollment as well as performance. Why then should the NSO establish an expensive collection to collect data for this purpose?

It is inevitable that there will always be some administrative by-product data in systems outside the national statistical system (NSS) that are not being fully used. Even if agencies always consulted fully with their NSS before undertaking any systems development—and they often do not—there will always be items of potential interest to the NSS that are not really in a usable form. This frequently cannot be fully resolved because of the tradeoff between (a) the resource constraints of the NSS and (b) the specialist needs of other agencies. National statistical systems simply cannot afford to fund the cost of building their requirements into systems developed for other purposes. At best what can be sought is consultation and cooperation to minimize costs and maximize the value of data that do exist.

E.5.1 The Advantages of Using Administrative Data

The use of administrative data for statistical purposes has increased substantially in recent times. The Nordic countries have taken the lead in this regard, since administrative data have been included in censuses there for a number of years.

Censuses and household surveys are expensive undertakings in both industrial and developing countries. Administrative sources may well cover many more aspects of poverty than censuses or surveys. They are also a much cheaper source of data; for example, a recent study in Denmark estimated that data from administrative sources cost about one-seventh as the same information derived from a population census.

While many statistical systems have strong traditions in designing and carrying out surveys, there is often less experience in exploring the use of administrative data sources. Some of the key advantages of administrative data include the following:

- Administrative data can be very relevant, since they are normally collected to meet a specific need.
- They are usually timely and may well be collected on a frequent basis in contrast to surveys, which may only be carried out infrequently and take a long time to process and analyze.
- The data are often complete; they cover the whole population reached by the administrative process.
- There may well be checks on data accuracy, particularly in relation to financial records that are subject to independent audit.
- The cost of data collection is much less than for survey data.
- The response rate is usually high and the response burden is lessened.

E.5.2 The Challenges Associated with Using Administrative Data

The most important challenge is whether the information collected is fit for statistical purposes. For example, in the United Kingdom unemployment data have been collected by recording details of people who register to receive unemployment benefits. However, this definition is not the same as the ILO definition of unemployment, since there are many people actively looking for work but who are not qualified to receive benefits. In addition, political changes to the definition of who is entitled to receive benefits will change the numbers registered as unemployed even when there has been no change in economic conditions. Statistical data derived from service delivery records, for example, in areas such as health and education only cover those people who receive the service. From the point of view of the Poverty Reduction Strategy Paper (PRSP), it may be just as important to have data on those who are not covered.

Other problems with the use of administrative data include the following:

- A lack of control of data quality: the data may change in response to changes in administrative procedures regardless of the underlying indicator examined. Some sensitive datasets may well be subject to political influence.
- Technical problems of accessing and using the data.
- Possible legal barriers to sharing of data for some datasets.
- Problems of comparability between datasets; for example, in relation to base years, geographical disaggregations, and other variables.
- Limited coverage of the administrative system. For example, a birth and death registration system may operate only in the main cities, or a business licensing system may exclude small firms with just a few employees. Typically the coverage of administrative systems is better in urban areas and less complete in more remote rural areas, where poverty is more of a problem.
- Flexibility is an issue of concern.

Table E.1 shows the advantages and disadvantages of using administrative data.

E.5.3 Opportunities for Using Administrative Data

Exploring the use of administrative data for poverty monitoring requires a process of regular consultation between statisticians and the agencies responsible for the administration. A need exists to integrate statistical systems and to use administrative data in innovative ways. Areas that need to be discussed include the use of coding systems and common geographical regions and areas and training for staff to improve data quality.

Table E.1. Administrative Data Compared with Specific NSS Data Systems

	Administrative data		Specific NSS data systems
+	No/minimal cost to NSO	-	Full cost borne by central statistical office (CSO) (except where there are partner agencies—rare)
+	Can be very secure in terms of longevity, e.g., company taxation, customs, motor vehicle registrations	+	Longevity determined largely by NSO (but increasingly subject to funding support through the annual budget process)
-	Can be vulnerable to changes in policy, e.g., abolition of certain controls	+	Changes to collection determined by NSO
+	May be associated with very strict editing and controls, e.g., revenue functions like tax and customs	+/-	Editing under control of NSO, but this can be resource intensive
-	Confidentiality – individual records may not be available to NSO for edit or query	+	All records available to NSO
+/-	Sometimes very strict reporting requirements, e.g., tax, but others can be unreliable despite apparent strength (e.g., building approvals)	+	Can impose compulsory response under statistics legislation – but does this affect data quality?
-	Data items set up for non-NSO purposes	+	Data items, definitions, scope determined by NSO
-	Control by host agency, NSO cannot impose changes	+	NSO has control
+	Coverage – normally 100% of target population, e.g., tax, customs	+/-	NSO can aim for 100% coverage, but costs often force use of samples

Table E.1. Administrative Data Compared with Specific NSS Data Systems *(continued)*

	Administrative data		Specific NSS data systems
+/-	Data accessibility – many are electronic but some require extensive manual transfer	-/+	NSO can determine nature of system processing, but data processing is often burdensome
-	Flexibility – it can be difficult to persuade other agencies to change to meet NSO needs	+	NSO can vary items and procedures at its own discretion
+	Minimizes respondent burden	-	Absolute increase in respondent burden
+	Can be benefits to host agency from NSO feedback on the data quality, specialized analyses		
+	Can lead to efficiencies in sharing specialist skills and training		
+	Establishes NSO links to other agency—maximizes chance of NSO involvement in future developments (can introduce changes at the margin)		

Source: From various resources developed by authors.

Areas that are likely to be particularly important for the PRSP include the following:

- health statistics derived from the records kept by health centers, clinics, and hospitals;
- education statistics collected from schools and other educational establishments;
- records maintained by agencies administering social safety net programs;
- vital event registration;
- records maintained by agencies responsible for water and power distribution; and
- business licensing.

Technical Note E.6 Linking Participatory Poverty Assessments and Quantitative Data

Sole reliance on either only the quantitative approach or only the qualitative approach in measuring and analyzing poverty is often likely to be less desirable than combining the two approaches. This is because there are limits to a purely quantitative approach as well as a purely qualitative approach to poverty measurement and analysis. Each approach has an appropriate time and place, but in most cases both approaches will generally be required to address different aspects of a problem and to answer questions that the other approach cannot answer as well or cannot answer at all. The need to combine the two approaches in analytical work on poverty cannot be overemphasized.

E.6.1 Combining the Quantitative and Qualitative Approaches

There are three key ways to combine the quantitative and qualitative approaches:

1. integrating methodologies;
2. confirming, refuting, enriching, and explaining the findings of one approach with those of the other; and
3. merging the findings of the two approaches into one set of policy recommendations.

Some ways in which the integration of methodologies can be achieved are the following:

- using quantitative survey data to determine the individuals/communities to be studied through the qualitative approach;
- using the quantitative survey to design the interview guide of the qualitative survey;
- using qualitative work to determine stratification of the quantitative sample;
- using qualitative work to determine the design of the quantitative survey questionnaire;
- using qualitative work to pretest the quantitative survey questionnaire; and
- using qualitative analyses to refine the poverty index.

Confirming **or** ***refuting*** is achieved by verifying quantitative results through the qualitative approach. ***Enriching*** is achieved by using qualitative work to identify issues or obtain information on variables not obtained by quantitative surveys. ***Examining*** refers to generating hypotheses from qualitative work for testing through the quantitative approach. ***Explaining*** involves using qualitative work to understand unanticipated results from quantitative data. In principle, each of these mechanisms may operate in either direction, from qualitative to quantitative approaches or vice versa. ***Merging*** involves analyzing the information provided both by the quantitative approach as well as the qualitative approach to derive one set of policy recommendations. The quantitative and qualitative approaches are being increasingly combined in analytical work on poverty, but there remains scope for further strengthening the links between them. Some characteristics of quantitative and qualitative approaches are provided in table E.2.

Table E.2. Characteristics of the Quantitative and Qualitative Approach

Characteristics	*Quantitative approach*	*Qualitative approach*
Definition of poverty	People considered poor if their standard of living falls below the poverty line, i.e., the amount of associated income (or consumption) with the minimum acceptable level of nutrition and other necessities of everyday life	Poor people define what poverty means, broader definition of deprivation resulting from a range of factors (not simply lack of income/consumption) adopted
Philosophical underpinning	Positivist paradigm: existence of one reality	Rejection of the positivist paradigm: there are multiple forms of reality and, therefore, it is senseless to try to identify only one
Determination of poverty	Determination by external surveyors	Determination through an interactive internal-external process involving facilitator and participants
Nature of variables for which data are collected	Quantifiable, e.g., household expenditures on food, unemployment rate	Perception variables reflecting attitudes, preferences, and priorities; the number of similar responses with respect to each variable can be added up, but the variables themselves cannot be quantified
Interview format	Structured, formal, predesigned questionnaire	Open ended, semistructured, interactive
Sampling	Probability sampling	Purposive sampling
Sampling error	Less sampling error but prone to more nonsampling error	More sampling error but tends to reduce nonsampling error
Sample size	Usually 2,000–8,000 households	From 1-1,000 individuals or communities
Geographic coverage	Wide: typically, national	Small: typically, a few regions or selected communities
Average time	LSMS: Roughly two and a half years for the highest-quality survey in a country where year-round coverage is desired (one year for planning; one year for field work; six months for initial analytic phase of producing an abstract documenting the data, and setting up other analyses). The planning process can be abridged if (a) capacity is very high or (b) there is willingness to compromise on quality. Similarly, the interviewing period can be reduced from one year to something like three months if the ability to cover the whole year with analytic questions is sacrificed. The majority of the surveys compromise on one aspect or the other, so the actual time is almost always lower. Priority Survey: 7 months	Six to nine months for average-sized PRA component of poverty assessment; roughly four months for average-size beneficiary assessment. In some situations, the qualitative approach can be time consuming because of the lead time required for training interviewers and the lengthy process of classifying qualitative findings to analytical categories.

Table E.2. Characteristics of the Quantitative and Qualitative Approach *(continued)*

Characteristics	*Quantitative approach*	*Qualitative approach*
Average cost	LSMS: Roughly US$500,000 to $1,000,000 on average; some part of this is often provided in kind by government and international agency staff so the actual cost to the LSMS conducting agency may be lower. Priority survey: US$200,000-US$400,000 (if nationally representative)	Roughly US$50,000 to US$150,000 for (average size) qualitative component of poverty assessment. The Focused Area Study Technique (FAST), which was used to review usage of health and education facilities in Tanzania as an input to the social sector review, was conducted at a cost of about US$52,000 and took about 15 weeks to complete.
Statistical analysis	Statistical analysis forms an important part of approach	Statistical analysis makes little or no use of it. Triangulation is employed, i.e., simultaneous use of several different sources and means of gathering and interpreting information. The expectation is that bits and pieces of information gathered from different sources will yield a pattern of responses. Systematic content analysis and gradual aggregation of data based on themes from the household, group, village, district, and national levels may also be used

Adapted from Saniya Carvalho and Howard White. "Combining the Quantitative and Qualitative Approaches to Poverty Measurement and Analysis." World Bank, Technical Paper No. 366, Washington, D.C., May 1997.

Technical Note E.7 Millennium Development Goals and Indicators

Goals	*Indicators*
Economic well-being	
Reducing extreme poverty The proportion of people living in extreme poverty in developing countries should be reduced by at least one-half by 2015.	1. Incidence of extreme poverty: population below $1 per day 2. Poverty gap ratio: incidence times depth of poverty 3. Inequality: poorest fifth's share of national consumption 4. Child malnutrition: prevalence of underweight children under five
Social development	
Universal primary education There should be universal primary education in all countries by 2015.	5. Net enrollment in primary education 6. Completion of fourth grade of primary education 7. Literacy rate of 15- to 24-year-olds
Gender equality Progress toward gender equality and the empowerment of women should be demonstrated by eliminating gender disparity in primary and secondary education by 2005.	8. Ratio of girls to boys in primary and secondary education 9. Ratio of literate females to males (15- to 24-year-olds)
Infant and child mortality The death rates for infants and children under the age of five years should be reduced in each developing country by two-thirds of the 1990 level by 2015.	10. Infant mortality rate 11. Under-five mortality rate
Maternal mortality The rate of maternal mortality should be reduced by three-fourths between 1990 and 2015.	12. Maternal mortality ratio 13. Births attended by skilled health personnel
Reproductive health Access should be available through the primary health care system to reproductive health services for all individuals of appropriate ages, no later than the year 2015.	14. Contraceptive prevalence rate 15. HIV prevalence in 15- to-24-year-old pregnant women[1]

Goals	Indicators	
Environmental sustainability and regeneration		
Environment[2] There should be a current national strategy for sustainable development, in the process of implementation, in every country by 2005, so as to ensure that current trends in the loss of environmental resources are effectively reversed at both global and national levels by 2015.	16. Countries with effective processes for sustainable development[3] 17. Population with [sustainable] access to safe water[4] 18. Forest area as a percentage of national surface area 19. Biodiversity: land area protected[5] 20. Energy efficiency: GDP per unit of energy use 21. Carbon dioxide emissions	
General indicators		
Other selected indicators of development For reference: population, gross national product	GNP per capita Adult literacy rate Total fertility rate Life expectancy at birth	Aid as percentage of GNP External debt as percentage of GNP Investment as percentage of GDP Trade as percentage of GDP

Notes: This list is neither exclusive nor comprehensive. It covers goals selected from the series of U.N. conferences held in the 1990s and does not imply any diminished commitment to other goals accepted by the international community, at international conferences or elsewhere.

Like the goals, the indicators are interrelated and should be seen as a whole. They constitute a core set reflecting key aspects of economic and social well-being and environmental sustainability. Thus some indicators address more than one goal but for brevity are shown only once. For example, while water is an environmental resource, access to it directly affects the quality of women's lives and the health of their children. In addition to indicators related to the goals, the set includes some general indicators of development.

The indicators are disaggregated by sex where relevant to measure the extent of gender inequality. This global set covers issues relevant to each country in the world. It does not cover issues that affect only some regions or ecological areas. These should be covered in national indicator sets. Where possible and appropriate, countries should also disaggregate indicators to cover subnational groupings such as urban and rural, income groups, and administrative areas.

1. Until satisfactory data coverage is achieved on this indicator, the prevalence of HIV infection in all adults will be used.
2. In addition to the six indicators for each country, two indicators of global environmental resources will be included when presenting global totals: *ozone depletion* and the *accumulation of global warming gases in the atmosphere.*
3. The DAC Working Party on Environment and Development is currently developing guidelines on how to generate national processes for sustainable development. This work will lead to improvements in this indicator to assess the comprehensiveness of the process and the vigor of implementation. Strategies will need to include references to localized environmental issues, such as *air quality, desertification, marine quality (for example, loss of mangrove areas/coral reefs), sanitation*, and *sustainability of the use of water resources.*
4. It is proposed to develop a measure of sustainability of access to further improve this measure.
5. Biodiversity is a global issue. It is intended to improve the indicator to score the importance of the areas protected and level of protection in force.

Technical Note E.8 Recommendation for Poverty-Related Indicators

Real sector				
Data categories	***Core indicators***	***Encouraged extensions***	***Periodicity***[a]	***Timeliness***
National accounts aggregates	GDP (nominal and real)	Gross national income, capital formation, saving	Annual (quarterly encouraged)	6-9 months
Production index	Manufacturing or industrial		Monthly	6 weeks - 3 months for all indices
	Primary commodity, agricultural, or other indices, as relevant		As relevant	
Price indices	Consumer price index	Producer price index	Monthly	1-2 months
Labor market indicators	Employment, unemployment, and wages/earnings, as relevant		Annual[b]	6-9 months[b]

Fiscal sector				
Data categories	***Core indicators***	***Encouraged extensions***	***Periodicity[a]***	***Timeliness***
Central government budgetary aggregates	Revenue, expenditure, balance, and financing with breakdowns (debt holder, instrument, currency), as relevant	Interest payments	Quarterly	1 quarter
Central government debt	Domestic debt and foreign debt, as relevant, with appropriate breakdowns (currency, maturity, debt holder, instrument), as relevant	Government-guaranteed debt	Annual (quarterly encouraged)	1-2 quarters
Financial sector				
Data categories	***Core indicators***	***Encouraged extensions***	***Periodicity[a]***	***Timeliness***
Broad money and credit aggregates	Net external position, domestic credit, broad or narrow money		Monthly	1-3 months
Central bank aggregates	Reserve money		Monthly	1-2 months
Interest rates	Short- and long-term government security rates, policy variable rate	Money or interbank market rates and a range of deposit and lending rates	Monthly	[c]
Stock market		Share price index, as relevant	Monthly	
External sector				
Data categories	***Core indicators***	***Encouraged extensions***	***Periodicity[a]***	***Timeliness***
Balance of payments aggregates	Imports and exports of goods and services, current account balance, reserves, overall balance		Annual (quarterly strongly encouraged)	6 months
External debt and debt service	Public and publicly guaranteed external debt outstanding (with maturity breakdown)		Quarterly	1-2 quarters
	Public and publicly guaranteed debt service schedule		Twice yearly (with data for 4 quarters and 2 semesters ahead)	3-6 months
		Private external debt not publicly guaranteed	Annual	6-9 months
International reserves	Gross official reserves denominated in U.S. dollars	Reserve related liabilities	Monthly	1-4 weeks
Merchandise trade	Total exports and total imports	Major commodity breakdowns with longer time lapse	Monthly	8 weeks-3 months
Exchange rates	Spot rates		Daily	[c]
Sociodemographic data				
Data categories	***Core indicators***	***Encouraged extensions***	***Periodicity[a]***	***Timeliness***
Population	<u>Population characteristics</u> Size and composition of the population by standard enumeration units, derived from census, surveys, or vital registration system <u>Dynamics of growth</u> Vital statistic: births, deaths, and migration	Disaggregation of population and vital statistics data by age, sex, and geographic units, as appropriate. Reporting of mortality rates, crude birth rate, fertility rate, and life expectancy	Annual (census every 10 years)	3-6 months for annual updates 9-12 months for census

Sociodemographic data *(continued)*				
Data categories	***Core indicators***	***Encouraged extensions***	***Periodicity[a]***	***Timeliness***
Health	Inputs Measures of current financial, human, and physical resources available to public and private (if significant) health system, including public expenditures on health services Capacity of health care facilities by location and type of facility, and the number of trained personnel by location and certification Process (service delivery) Measures describing the number of clients served and type of care provided by public and private care providers, including inpatient, outpatient, and preventative care; population served by public health services such as immunizations, sanitation services, and improved water supply. Outcomes Statistics on mortality and morbidity, including mortality by cause and the incidence of disease by location and patient characteristics. May also record behaviors of the population, such as the use of contraceptives and consumption of cigarettes and alcohol.	Private (household) expenditures on health services Disaggregation of data by subnational or regional units, as appropriate Measures of the responsiveness of the health system to nonhealth aspects of service delivery (for example, waiting time for service, quality of facilities, and client perceptions of the quality of service). Disaggregation of data by subnational or regional units, as appropriate Comprehensive assessment of the burden of disease	Annual	3-6 months following end of reference period
Education	Inputs Measures of current financial, human, and physical resources available to public and private (if significant) educational institutions, recorded by level of education or type of program. Process Measures of student progress through school, such as enrollment, dropout, and repetition rates, recorded by level of education and sex of students Outcomes Educational attainment measured by progress through school, level of educational attainment, or scores on standardized achievement exams	Characteristics of teaching staff, including training, experience, and terms of employment (full or part time) Expenditures by households on education (including fees and other expenses for public or private education) Disaggregation of data by subnational or regional units, as appropriate Calculation of net enrollment rates (by grade) Disaggregation of data by subnational or regional units, as appropriate Measures of literacy and numeracy in the population, by age group and sex	Annual	6-12 months following beginning of school year.

Sociodemographic data *(continued)*				
Data categories	***Core indicators***	***Encouraged extensions***	***Periodicity[a]***	***Timeliness***
Poverty	Income poverty Number and proportion of people or households with less than minimum standard of income or consumption; valuation of minimum consumption bundle. Other poverty measures Measures of deprivation or insecurity used to identify the population living in poverty, such as evidence of malnutrition, endemic diseases, educational achievement, and lack of access to basic services	Measures of the distribution of household or per capita income or consumption. Separate poverty estimates for urban and rural populations or for major regions, states, or provinces. Disaggregation of data by subnational or regional units, as appropriate	3-5 years	6-12 months following the survey

a. The GDDS should be viewed as encouraging improvements over time in the periodicity and timeliness of data dissemination that are consistent with improvements in data quality. Objectives for timeliness are set out in terms of ranges of time in recognition of the diversity of countries covered by the GDDS.

b. Periodicity and timeliness for labor indicators are recommended after consultation with the Bureau of Statistics of the International Labour Office.

c. Dissemination as part of a high-frequency (for example, monthly) publication.

Technical Note E.9 Fundamental Principles of Official Statistics

Trust of the public in official statistical information depends to a large extent on respect for the fundamental values and principles that are the basis of any society that seeks to understand itself and to respect the rights of its members.

The quality of official statistics and, thus, the quality of the information available to the government, the economy, and the public depends largely on the cooperation of citizens, enterprises, and other respondents in providing appropriate and reliable data needed for necessary statistical compilations and on the cooperation between users and producers of statistics in order to meet users' needs.

The following Fundamental Principles of Official Statistics were adopted at the Special Session of the United Nations Statistical Commission in 1994:

1. Official statistics provide an indispensable element in the information system of a democratic society, serving the government, the economy, and the public with data about the economic, demographic, social, and environmental situation. To this end, official statistics that meet the test of practical utility are to be compiled and made available on an impartial basis by official statistical agencies to honor citizens' entitlement to public information.
2. To retain trust in official statistics, the statistical agencies need to decide according to strictly professional considerations, including scientific principles and professional ethics, on the methods and procedures for the collection, processing, storage, and presentation of statistical data.
3. To facilitate a correct interpretation of the data, the statistical agencies are to present information according to scientific standards on the sources, methods, and procedures of the statistics.
4. The statistical agencies are entitled to comment on erroneous interpretation and misuse of statistics.
5. Data for statistical purposes may be drawn from all types of sources, be they statistical surveys or administrative records. Statistical agencies are to choose the source with regard to quality, timeliness, costs, and the burden on respondents.
6. Individual data collected by statistical agencies for statistical compilation, whether they refer to natural or legal persons, are to be strictly confidential and used exclusively for statistical purposes.
7. The laws, regulations, and measures under which the statistical systems operate are to be made public.
8. Coordination among statistical agencies within countries is essential to achieve consistency and efficiency in the statistical system.

9. The use by statistical agencies in each country of international concepts, classifications, and methods promotes the consistency and efficiency of statistical systems at all official levels.
10. Bilateral and multilateral cooperation in statistics contributes to the improvement of systems of official statistics in all countries.

Case Studies

Case Study E.1 Involving Statisticians in PRSP Preparation

E.1.1 The PRSP Preparation Process

While the arrangements governments put in place to manage the PRSP preparation and to monitor implementation vary from country to country, they often have a number of common components. These include the following:

- An overall political process, often a cabinet committee or a committee of ministers, chaired by the minister with overall responsibility (for example, Albania, Bolivia, Guinea Bissau, Guyana, Kenya, Moldova, Uganda, and Yemen);
- A high-level technical committee that mirrors the political process and will be made up of permanent heads of ministries and other agencies (for example, Cambodia, Cameroon, Chad, Georgia, and Rwanda);
- A technical secretariat that may either be a specially formed unit or perhaps an existing unit in the responsible ministry; and
- Specialist working groups that focus on different aspects of the PRSP, one of which may well be monitoring and evaluation.

E.1.2 Monitoring and Evaluation

In many countries a number of different agencies may be involved in different aspects of monitoring and evaluation. Coordination of this work may be done through a committee or a working group (for example, Tanzania, Guinea Bissau, São Tome, and Principe), through the technical secretariat, (for example, Cambodia, Lesotho, and Madagascar), or perhaps by an existing agency (Kenya, Mali, and Yemen). Many countries distinguish between responsibility for data collection and analysis and use.

E.1.3 Involving statisticians

The managers of statistical agencies become involved in the PRSP process in a number of ways. In some cases they are members of the overall coordinating bodies, usually at the technical level, but elsewhere they act as advisors, providing information on demand. In many countries there are clear gaps in the desired indicator set and the involvement of statisticians at an early stage does appear to facilitate the preparation of statistical development plans.

Burkina Faso. In the course of implementing the national statistical information strategy drawn up in 1994, and with the help of development partners, the government has conducted several surveys with a view toward raising the quantity and quality of statistics available for users. Ongoing improvements in information output will be achieved by consolidating and strengthening already existing surveys and the data derived from routine management of government departments, such as the statistics produced by the Ministry of Basic Education and Literacy for school staff and infrastructure. Future efforts will also be geared to devising and conducting new surveys likely to improve knowledge of priority areas in the PRSP. This whole set of data-generating activities will feed a minimum statistical program to support the poverty reduction effort. Moreover, execution and impact indicators will become increasingly important in coming years. To that end, a unit will be set up specifically to coordinate the work needed to achieve the following:

- Ensure the availability and reliability of pre-identified indicators.
- Prepare the new indicators required to expand monitoring and evaluation of outcomes in all key program areas.
- Provoke fresh thinking on optimal ways to distribute financing based on indicator values.
- Finally, the appropriateness of creating a national poverty observatory will be studied in the course of 2000.

Cameroon. With a view toward (a) monitoring the execution of agreed-on actions, (b) measuring the results obtained and their impact on target groups, and (c) taking the corrective steps deemed necessary, the government intends to introduce appropriate statistical mechanisms in the area of poverty reduction. These should make it possible to produce timely and reliable indicators selected on the basis of the guidelines, orientations, and constraints identified in the strategy. The government has already begun discussions with the IMF, within the context of the general data dissemination system (GDDS) project, on a list of indicators that will be disseminated through that system's site.

The government intends to organize this approach in such a way as to ensure the production of indicators on the various dimensions of poverty, particularly monetary poverty and the living conditions and standards of the population. In the medium term, availability of the various indicators will be ensured through statistical gathering based on the results of the third general population census currently being prepared and on a set of surveys on household living conditions. Administrative sources will also be employed, providing annual indicators measuring progress in the supply of key social services.

As regards dissemination of the indicators produced, the government intends to set up sociodemographic databases and establish a Web site. In this context, and in cooperation with the United Nations Population Fund and the World Bank, work on introducing the sociodemographic database has begun, and a Web site will be created at the Directorate of Statistics and National Accounting during 2001.

The government intends to seek external assistance (technical and financial) in order to improve the production of statistics on a regular basis. The government will work to improve collaboration between the National Statistics Office and sectoral statistical services, particularly in social sectors. The National Statistical Council has already established a medium-term plan for the production of statistics. A three-year rolling implementation program has been set up, as a result of the plan, and will be launched in budget year 2000-01. This program attaches great importance to the compilation of monitoring indicators specifically designed to measure progress on poverty reduction.

Guyana. Program monitoring will involve a large number of institutions, including the State Planning Secretariat, Executive Implementation Unit, and the Bureau of Statistics, Social Impact Amelioration Program (SIMAP), Basic Needs Trust Fund (BNTF) and line ministries. A Program Coordinating Unit will be established. Monitoring will be structured on two main levels. First, monitoring of intermediate outputs will focus on progress in reducing income poverty, improving health, raising educational achievement, and enhancing the voice of the participation of the poor. Most of the information for such outcome monitoring will be drawn from (a) household surveys and repeated exercises under the Statistics Bureau, the Ministries of Health and Education, and the SPS; (b) public sector investment programs; and (c) input and output indicator statistics from the line ministries.

Secondly, there will be regular monitoring of the inputs required for action against poverty. This will involve the tracking of public expenditures on poverty-reducing activities. Such tracking will include periodic analysis of the benefit of public spending and of the effectiveness of sectors in using funds. In some instances, monitoring will also involve information on key inputs needed in sectors to deliver services effectively: teachers and books in education or drugs supplies in health care facilities. It will also include continued monitoring and public debate about the composition of expenditures.

Nongovernmental organizations (NGOs) will play a key role in the implementation of the poverty program, as public sector resources and implementation capacity is limited. In this context, government will support the creation of an NGO umbrella organization to coordinate NGO activities; the establishment of NGOs by village communities; and the involvement of neighborhood democratic councils in the planning and execution of programs.

Nicaragua. The government will evaluate the evolution of poverty and assess the poverty reduction strategy performance in reducing poverty, based on agreed-on targets and intermediate indicators. Parallel and complementarily to this monitoring and evaluation, the government will maintain surveillance of related macroeconomic indicators and compliance with agreed-on structural reforms.

The Technical Secretariat of the Presidency (SETEC) will lead the interinstitutional coordination effort. This effort will also require the strong support of civil society representatives and the donor community to build up capacities for a participatory and effective system of monitoring and evaluation. The monitoring and evaluation system will build upon the existing government structures and upon the available instruments to measure poverty and PRSP programs. The Bank of Nicaragua will track key macroeconomic variables, the Ministry of Finance will plan and monitor the government's budget, and SETEC will monitor the physical and financial performance of public investment, including programs financed through the supplementary social fund. The National Institute of Statistics and Census (INEC) will collect and process socioeconomic statistics.

Rwanda. The Interim PRSP and PRSP itself are likely to raise a substantial range of policy issues that need to be followed up. Responsibility needs to be allocated to specific institutions under the overall guidance of the National Program for Poverty Reduction. The Interministerial Committee will be supported by the Steering Committee and the Technical Committee of the program.

The MTEF process involves defining clear indicators of inputs and outputs for all areas of public expenditure. It is particularly important to define output indicators for the Priority Program Areas. The Budget Department of the Ministry of Economy and Finance (MINECOFIN) is working with all other ministries to develop a set of output measures, and a preliminary list was prepared. The monitoring of poverty outcomes will be coordinated by the Poverty Observatory under the National Program for Poverty Reduction. This unit has been recently established and is developing a set of measures of poverty that will be regularly monitored in addition to commissioning specific studies on poverty in Rwanda. This unit will work in very close cooperation with the Statistics Department of MINECOFIN, which publishes Rwanda Development Indicators annually, and with the Management Information Systems of line ministries.

Rwanda currently has a poor statistical base, because of the destruction of the statistical infrastructure during the war. In order to be able to set meaningful development targets and to monitor progress made over the years in reducing poverty and achieving sustainable growth, it is essential to be informed by accurate national statistics. The government is trying to rebuild the statistical system. Statistics are essential to plan and monitor the poverty reduction strategies and to successfully implement a development framework. The development of a statistical system requires the development of a prioritized program of national statistics, where different surveys are conducted regularly and can be compared over time.

Case Study E.2 Use of GDDS in PRSP

The goal of the GDDS is to assist countries to improve the quality of outputs of statistical systems. It accomplishes this objective by providing tools to facilitate the identification of needed changes in statistical systems, in particular through the design of statistical development plans. Development plans focus on viewing the statistical system as a whole. In this way, the task of establishing priorities such as monitoring and evaluating of progress in poverty reduction is simplified, and resource allocation becomes more effective.

The GDDS includes four categories of social and demographic data: population, education, health, and poverty. Although, not representing the full range of statistics that are relevant for setting or monitoring social policies, these categories represent important areas of statistical activity and the information produced is of great importance to the operation of governments, to the activities of nongovernmental and international organizations, and to the civil society in general.

The preparation of PRSPs in countries such as Bolivia, Cote d'Ivoire, Mauritania, and Uganda was greatly enhanced by using the GDDS framework.

Case Study E.3 The Structure of National Statistical Systems

A national statistical agency is a unit of the government whose principal function is the compilation and analysis of data and the dissemination of information for statistical purposes. A statistical agency may be labeled as a bureau, center, or office as long as it is recognized as a distinct entity.

There is no single way of structuring a national statistical agency to achieve these activities. Depending on the needs, resources, and size of the country, a statistical agency may be structured in a centralized or

decentralized way, or a combination of both. Below are some examples of centralized and decentralized systems.

The Central Statistical Bureau of Latvia (CSB) is an example of a small, centralized statistical system. On September 1, 1919, the cabinet of ministers of the Republic of Latvia established the State Statistical Office and adopted the interim regulations on its activity. A principle of strong centralization was laid at the basis of Latvia's statistics. In the subsequent years seven sections were established: demographic, agricultural, general, industrial, foreign trade, domestic trade, and price and labor statistics sections.

The Central Statistical Office (CSO) of the Latvia Soviet Socialist Republic established after World War II functioned within the structure of the corresponding organization of the U.S.S.R. Under the conditions of planned economy, the methodology of statistical works, the methods of data collection and processing were strongly centralized and regulated. After the retrieval of sovereignty, the Central Statistical Bureau of Latvia started to develop the statistical system on a new basis that was determined by the transition of the country to a market economy.

The CSB is a state administrative institution under the supervision of the Ministry of Economy, and it is responsible for the organization of the state statistical work in the Republic of Latvia. When performing its professional duties, it is still completely independent from any state power or administrative institution, political party, or movement.

The CSB's activity is regulated by the Law on State Statistics, which the Saeima adopted on November 6, 1997; by the CSB's regulations; by an annual state program of statistical information approved by the cabinet of ministers; as well as by other legislative acts. The basic task of the CSB is to establish a unified system of statistical information based on international standards and methodology.

The state statistical system is functionally centralized and territorially decentralized. The central office and local statistical offices comprise the structure of the CSB. There are local statistical offices in every administrative district and major towns. In 2000 the CSB system employed 390 people of which 56 percent were in the central office and 44 percent were in local statistical offices. Seven departments structurally compose the central office of the CSB. In addition to the departments there are four independent divisions not included in the structures of departments.

Another centralized example for a small country is the Mauritius Central Statistical Office. It is a division of the Ministry of Economic Development and Regional Cooperation.

The CSO was set up in 1948 and is the official organization responsible for collection, compilation, analysis, and dissemination of all official statistical data relating to all aspects of the economic and social activities of the country. The only fields that fall outside the purview of the CSO are the following: health and family planning, which is within the Ministry of Health; Fisheries, which is within the Fisheries Division of the Ministry of Agriculture; and Money, Banking, and Balance of Payments, which is handled by the Bank of Mauritius.

The CSO has a technical staff of about 160, of whom 25 are full-fledged professionals. Although the statistical system is centralized, statistical units have been established within different ministries and government departments so as to ensure an efficient service by keeping in close touch with data users in different fields. Currently, there are some 65 CSO staff deployed in statistical units located within 13 ministries or departments. Arrangements are also under way for the creation of statistical units in the Judicial Department and the Ministry of Environment.

The last example of a centralized system is Statistics Norway. It was established as a separate institution in 1876. Statistics Norway is administratively placed under the Ministry of Finance, and the work program and budget are decided upon by the Parliament. Statistics Norway has approximately 900 employees and a budget of 50 million euro, of which 25 percent is user-financed assignments. The Norwegian statistical system is very centralized, and all but a few official statistics are produced by Statistics Norway. The Statistics Act of 1907/1989 gives the legal framework of Statistics Norway's activities as a professional independent institution for the collection, production, and dissemination of official statistics.

The best example of a highly decentralized statistical system is the U.S. statistical system. The United States collected and published statistics long before any distinct statistical agency was formed. Congress has sometimes legislated specific data collection or analysis activities, but frequently the organic act that authorizes a statistical agency is very general. The first U.S. statistical agency was the Bureau of Labor; the second was the Bureau of the Census. In the first case, a widespread public demand for information on the condition of industrial workers led to the formation of the bureau with only very general

guidance. In the second case, the Bureau of the Census inherited specific major statistical duties, formerly undertaken by others. The Bureau of Agricultural Economics was another early statistical agency.

Two world wars and the Great Depression led to considerably more emphasis on the need for statistics for decisionmaking both within and outside the federal government, and the number of statistical agencies grew rapidly. Some of these were analytic agencies; others were agencies concerned with a specific subject. In either case, the agency itself, in consultation with perceived potential users of its information, has the principal responsibility for determining its specific statistical program and for setting priorities. Initially, many of these agencies also had responsibilities for certain policy analysis functions for their department heads. More recently, policy analysis has generally been located in separate units that are not themselves considered to be statistical agencies.

One reason for establishing separate statistical agencies rather than leaving statistical data compilation and dissemination activities as a part of a larger administrative operation is to emphasize the principles and qualities of an effective statistical agency. Another reason is to encourage research and the development of new information in a particular area of public interest. Statistical agencies disseminate data for statistical purposes, not for administrative, regulatory, or enforcement uses.

A Framework for Planning U.S. Federal Statistics for the 1980s (U.S. Department of Commerce, 1978) classified 38 agencies into five groupings:

1. General coordination agency
   - Office of Statistical Policy in the Office of Information and Regulatory Affairs, Office of Management and Budget
2. Core multipurpose collection agencies
   - Bureau of the Census, Department of Commerce
   - Bureau of Labor Statistics, Department of Labor
   - National Agricultural Statistics Service, Department of Agriculture
3. Subject matter multipurpose collection agencies
   - Bureau of Justice Statistics, Department of Justice
   - Bureau of Mines, Department of the Interior
   - Employment and Training Administration, Department of Labor
   - Energy Information Administration, Department of Energy
   - Environmental Protection Agency
   - Federal Bureau of Investigation, Department of Justice
   - Internal Revenue Service, Department of the Treasury
   - National Center for Education Statistics, Department of Education
   - National Center for Health Statistics, Department of Health and Human Services
   - Office of the Assistant Secretary for Policy Development and Research, Department of Housing and Urban Development
4. Core multipurpose analysis agencies
   - Bureau of Economic Analysis, Department of Commerce
   - Economics units in the Department of Agriculture
   - Federal Reserve Board
   - Office of the Assistant Secretary for Planning and Evaluation, Department of Health and Human Services
   - Office of Research and Statistics, Social Security Administration, Department of Health and Human Services
   - Research and Special Programs Administration, Department of Transportation
5. Program collection and analysis agencies

In addition, 19 agencies with statistical activities were listed, but specific units were not identified. These agencies ranged from the Alcohol, Drug Abuse, and Mental Health Administration to the Veterans Administration.

Another example of a decentralized system is Mexico's newly modernized National Institute of Statistics, Geography, and Informatics (INEGI). It is the agency responsible for integrating Mexico's systems of statistical and geographic information as well as promoting and orienting the development of informatics in the country.

INEGI has a central structure of seven general bureaus:

1. The General Bureau of Statistics
2. The General Bureau of National Accounts
3. The General Bureau of Geography
4. The General Bureau of Cadastral Cartography
5. The General Bureau of Informatics Policy
6. The General Bureau of Dissemination
7. The Administrative Area

Two of the seven bureaus are responsible for producing statistical information on social, demographic, and economic issues; two are responsible for geographic, ecological, and territorial information; one is responsible for informatics policy; one is responsible for dissemination; and one for the administrative area. In addition, INEGI has a regional structure, which enables it to monitor and service requests for information in the different areas of the country.

In an effort to modernize the Mexican systems of statistical and geographic information, in recent years INEGI has implemented a comprehensive and synchronized program encompassing several components. In terms of structural change, the most important components of the modernization program are decentralization and the new administrative framework. Within the decentralization component, the initial strategy involved finishing of the relocation of INEGI's headquarters from Mexico City to the city of Aguascalientes. This included completing the construction and adaptation of the building to house the headquarters, completing the transfer of 1,000 of a total of 3,000 families to Aguascalientes.

In parallel, the 10 regional bureaus were strengthened by granting them more responsibilities as well as human, financial, and material resources to assist them in their duties. In addition, an INEGI office was opened in each of the 32 states. Thus, INEGI has increased its local and regional presence, enabling it to better meet the information needs of its users nationwide. Under the New Administrative Framework, the institute was able to obtain technical and administrative autonomy to perform its duties.

Case Study E.4 Reviewing the Organization and Management of a Statistical System in Africa

Concerned about the decline in the quality and quantity of African statistics, the Addis Ababa Plan of Action for Statistical Development in Africa recommended undertaking a detailed assessment of national statistical capabilities and deficiencies in all African countries. Three categories of countries were identified, and one alternative assessment model was assigned to each category. The first group of countries includes those where there are enough national experts to undertake such an assessment without external assistance. The second group of countries includes those where a need might arise for one or two international experts to join the team. The third group of countries is made up of those that require a majority of its members to be international experts. The review process should first determine what are the minimum data needs for defining, monitoring, and evaluating the national poverty reduction strategy, then define the production infrastructure required to meet these needs. The basic model to conduct a statistical needs assessment includes the following steps:

- Review current outputs and assess their relevance to users.
- Determine national priority statistical outputs, their contents, and periodicity.
- Define the information production system, including data collection, processing, storage, and dissemination capabilities.
- Propose an adequate legislative and institutional framework.
- Propose a statistical development plan.

Actual cases in African countries for which there is adequate documentation in initiating needs assessment are limited. However, three cases, Kenya, Namibia, and Chad, can illustrate the experience acquired.

The Kenyan experience is an example of a comprehensive approach involving review of a country's current statistical needs for preparing medium- and long-term statistical development plans. These plans cover all aspects of the national statistical system, including measures for strengthening institutional and legal aspects, and were carried out by entirely by Kenyan experts. A task force of 17 experts consisting of users and producers of statistical information drawn from government ministries, parastatal enterprises, the private sector, and research and academic institutions conducted the review. An Integrated Statistical Development Plan grew out of this comprehensive review, recommending (a) the restructuring of the Central Statistical Service into a an independent body, accountable for its decisions; (b) more accessibility to data by the users' community; and (c) better coordination of statistical activities between users and producers.

The Namibian needs assessment was initiated by a multi-agency mission consisting of a group of international advisers to the CSO who designed a framework for social, demographic, and economic statistics, and took into account available resources and possible international assistance. The assessment of statistics requirements was based on the conclusions of a users/producers workshop that provided recommendations for developing statistics in Namibia, including setting statistical programs covering a broad range of policy areas, with a timetable, and adopting a National Household Survey Program.

Chad used an ad hoc team of international experts who carried out a needs assessment with assistance from existing institutions. The review considered how coordination between suppliers and users of statistics could be improved. Reliability and timeliness of outputs were considered under three categories: multisectoral and economic reports, sectoral reports, and occasional reports. A two-part strategy was proposed for strengthening local capacities: short-term measures focusing on immediately improving the production and dissemination of existing data, and medium- and long-term measures to strengthen institutional capabilities in the areas of data collection, storage, and analysis. Specific actions included creating a permanent monitoring capability and strengthening producers' capacities through increased human and material resources.

Case Study E.5 An Example of a Training Needs and Human Resource Management Assessment: The Case of Malawi

The National Statistical Office (NSO) is the main official statistical agency in Malawi. It is a government department headed by the commissioner for census and statistics and reports to the Ministry of Finance and the Office of the President and Cabinet. It operates through a legislative framework governed by the 1967 Statistics Act. The NSO developed its first strategic plan in 1996. The plan was agreed to by the minister of finance and covered a five-year program from 1996 to 2000. The plan includes a number of changes, improvements, and activities, including a revised structure and the creation of a National Committee for Statistics (NCS). In 1999 the staff complement was 346, but only 222 posts were filled.

E.5.1 Development of the training and human resource management plan

Since NSO already had a strategic plan in place, the training plan and the development of policies to guide and strengthen human resources management (HRM) were developed within this framework. It was felt important to send the right signals to staff and management about the coherence of the training plan and how it was developed.

Responsibility for the formulation of HRM policy and its implementation rests with the Human Resources Division of NSO, under the overall control and guidance of the training committee. The division's functions include identifying training opportunities, assessing training needs, and evaluating training activities.

Based on interviews with staff and the strategic plan and functional review, an overall framework in which to locate the types of staff development and training options appropriate for the NSO was developed (see figure E.1). This framework contained six broad training and development areas.

1. Resource management, which includes all aspects of people management and the skills attached to that, such as delegation, time management, supervision skills, and so on.
2. Human resource management, which includes specialist HRM skills such as training needs analysis, HRM policy development, and managing the training plan.

3. Technical skills, the largest segment for NSO in that this includes all areas of statistical training and development options, as well as the specialist cadres such as cartography, accounts, and others.
4. Basic skills, including areas such as induction programs, basic computing and word processing skills, administrative tasks, and the skills needed by support staff.
5. Team building, which comprises the skills needed to build up a high-performing team of staff, understanding the roles and responsibilities of each section and each other.
6. Product development: given that NSO is known through its "products," it is crucial that a special focus be placed on the latest techniques, through printed and electronic media.

Figure E.1. Areas for Training Development

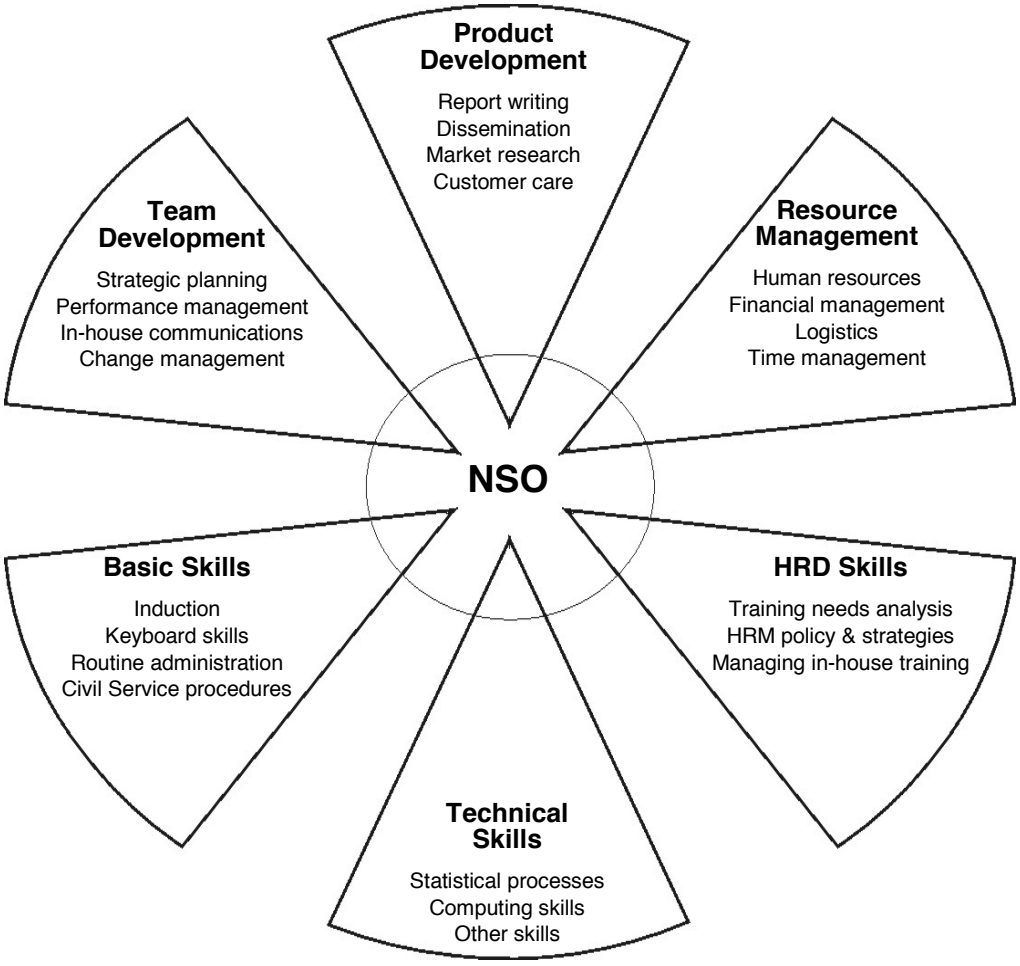

Table E.3. Identified Training Needs

Training areas	*Skill needs*	*Target group*	*Training methods*
Product development	• Statistical report writing • Presentation of statistical reports • Computer- and Internet-based dissemination • Marketing products • Market research • Communicating with customers	• Professional statisticians • Other people responsible for report and bulletin preparation	• In-house • Formal courses • Secondment/mentoring, etc.

(Table continues on the following page.)

Table E.3. Identified Training Needs *(continued)*

Training areas	*Skill needs*	*Target group*	*Training methods*
Resource management	• Time management • Delegation • Meetings • Supervision, etc. • Financial management • Logistics	• All senior and middle-level managers • Others with relevant responsibilities	• Formal
Human resource management skills	• Training needs analysis • Managing in-house training • HRD policy and strategy • Monitoring and evaluation of training	• HR managers	• In-house • External (certificate/diploma)
Technical skills	• Statistical procedures and processes • Data handling and manipulation • Design and implementation of surveys and censuses • Sampling theory and estimation procedures • Statistical analysis • Computing skills • Standard packages (word processing, spreadsheets, etc.) • Database management and GIS • Specialist statistical packages • Other skills • Cartography • Printing • Accounting • Administration and stores	• All of the statistical cadre • Other specialists	• In-house • Informal, on-the-job • Self-tutorials • Short courses • Academic training (certificate, diploma, degree, master's)
Basic skills	• Induction • Civil service procedures • Basic computer and keyboard skills • Routine administration • Target groups • All new entrants • Registry • Administrative staff • Statistical clerks • Other support staff	• All staff	• Commissioned courses • In-house
Team development	• Change management • Managing the strategic plan • Performance management • In-house communications	• All staff	• Formal courses • In-house

Note: This case study is based on a report prepared in 1999 by consultants for the National Statistical Office (NSO) in Malawi. The purpose of the report was to review the organizational development needs of NSO, to assist the agency to strengthen its human resources management, and to prepare a training plan. The report was part of a long-term strategic support program for the NSO financed by the Department for International Development (DFID) in the United Kingdom. Thanks are due to the commissioner for statistics and DFID for their permission to use this material.

Case Study E.6 Examples of Recent Statistical Legislation

Appropriate legislation is the lifeline of a well-functioning statistical system. Most countries have a formal statistical law where the responsibilities and functions of the statistical agency are spelled out, and the organizational structure of the national statistical system is described. This also governs the relationships between data suppliers and users, including the provision of individual information, the rules for the obligatory supply of information, and guarantees of confidentiality and nondisclosure. Below are some examples of statistical laws ranging from relatively detailed to very short ones.

In 1975 New Zealand enacted a more detailed statistical law. The act consolidated and amended the Statistics Act of 1955 and provided for official statistics; created a department entitled Statistics New Zealand and the Office of Government Statistician; and ensured the independence of the Government Statistician position in the execution of the duties of the office. It consists of an analysis, along with the following six parts, and includes 50 articles, ranging from "Short Title" to "Repeal and Revocations."

- Analysis
- Part I: Official Statistics
- Part II: Department and Government Statistician
- Part III: Census of Population and Dwellings
- Part IV: Collection of Statistics by the Department (e.g., "Security of Information")
- Part V: Offences and Penalties
- Part VI: Miscellaneous Provisions

The Law of the Republic of Belarus on State Statistics was approved by the Council of the Republic on January 30, 1997. This law specifies the procedure for organizing state statistics, and governs legal relations associated with the statistical activity of state statistical authorities, ministries, and other central administrative authorities that keep state statistics. The law has six major sections with 17 articles.

- Section I. General Provisions
- Section II. Organization of State Statistics (e.g., "Financing and Material and Technical Supply of the State Statistical Authorities")
- Section III. Submission and Utilization of Statistical Information
- Section IV. Rights and Obligations of State Statistical Authorities
- Section V. Liability for Violating This Law
- Section VI. Final Provisions

The statistics act of the Republic of South Africa was enacted in 1999 by the Parliament to provide for a Statistician-General as head of Statistics South Africa, to establish a Statistics Council, and provide for its functions; to repeal certain legislation; and to provide for connected matters. The Statistician-General is responsible for the collection, production, and dissemination of official and other statistics, including conducting of a census of the population, and for coordination among producers of statistics.

Contents of Act

1. Definitions
2. Purpose of act
3. Purpose of official statistics and statistical principles
4. Status of Statistics South Africa
5. Minister's duties and powers
6. Appointment and tenure of Statistician-General
7. Statistician-General's duties and powers
8. Establishment of Statistics Council
9. Tenure of members of council
10. Meetings of council
11. Committees of council
12. Remuneration of members of council and its committees
13. Duties and powers of council

14. Statistical coordination among organs of state
15. Entry on and inspection of premises
16. Duty to answer questions
17. Confidentiality and disclosure
18. Offences and penalties

Indonesia passed a new Statistics Act in 1997. The old Statistics Act, enacted in 1960, was recently revised and improved to cope with the latest development in the demand and supply of outputs of statistical services. The new Statistics Act, Law No. 1611997 on Statistics, was enacted in May 1997. It gives a bigger and heavier role to the BPS (Statistics Indonesia) and describes a clearer distribution of responsibility between the BPS, the statistical units in other government agencies, and the private sector. The BPS is responsible for the compilation of basic statistics, that is, statistics used by policymakers and general users for a broad range of purposes. The respective government departments compile the sectoral statistics, which are used internally to support the functions and duties of the respective agencies. The private sector may collect statistical data to fulfill the specific needs of the business sector, which is usually in the form of micro data. The BPS also is the reference center or clearinghouse of statistics, since the results of all sectoral statistics should be submitted to the BPS. Any private company conducting statistical activity should provide a synopsis of the statistical activity to the BPS. The BPS also functions as the coordinating agency of statistical activities, at both the central and the regional (provincial and district) levels.

Case Study E.7 Performance Agreements for Statistical Agencies

Since they are providers of essential information for public debate and for decisionmaking at various levels of society, national statistical agencies (NSAs) must take the quality of their products and services very seriously. The performance of NSAs and, indeed, of government services, have come under closer scrutiny in many countries; hence quality management has lately become a focal point for many NSAs. In national statistical agencies there appear to be various approaches to quality management, since there are many sides to the quality of official statistics. As universally agreed, official statistics must be relevant, timely, and accurate, but they should also be produced in a cost-effective manner and without causing too much of a burden for data providers.

In 1996, Statistics Netherlands (SN) adopted a comprehensive quality program in the form of a business plan, which covers quality guidelines and statistical auditing. The focus of statistical auditing in this sense is on the quality of the statistical production process. The SN Business Plan sets out six major objectives, with the ultimate aim of creating a vital organization with a manageable budget:

1. A relevant work program
2. A substantially reduced response burden
3. Effective statistical information
4. Comprehensive quality management system
5. Adequately trained and motivated staff
6. An efficient, well-managed, flexible organization

Statistical auditing was introduced as a form of help and advice to achieve improvements, not a form of surveillance to discover where things are not going as they should. If the auditors, however, discover weaknesses and unprofessional approaches, they will certainly report these and discuss them with management. Also, in the final discussion about the audit reports, agreements are made about how to achieve specific improvements. Statistical auditing has three major purposes:

- actually find out what is being done about quality management in statistical departments;
- generate suggestions on how to improve quality management; and
- determine what are the best practices and incorporate these into the guidelines for quality systems.

To obtain experience with statistical auditing, SN carried out two pilots in 1996. As one of the results of the pilot audits, the following code of conduct for audits was agreed on:

- The main purpose of statistical audits within the SN is to identify within statistical sectors the weak and strong points of statistical processes and how these may be improved. In a way, audits are like presenting a mirror to the auditees.
- There will be an audit plan as part of the management contracts between division managers and the director-general. Each statistical process in a statistical department will be audited once every five years.
- Audits are organized and moderated by an audit secretariat, who is part of the director-general's staff.
- Audits are carried out by teams of three auditors, selected on the basis of specific expertise. A pool of about 25 auditors will be trained and regularly employed. Their performance will be routinely monitored by the audit secretariat.
- Before an audit starts, the procedures and planning will be agreed on with the department manager.
- The department manager is responsible for the supply of proper documentation, including a list of employees and their tasks, work instructions, checklists, handbooks, and existing guidelines for quality control. The manager also appoints a contact person from his or her sector.
- In a workshop, the audit secretariat briefs the audit team on implementation of the audit. Also, the scope of the audit (including any points that deserve special attention) is formulated.
- The audit secretariat organizes an introductory meeting in which the scope and procedures are discussed. After that an interview scheme is drafted (implying, among other things, the final selection of the people to be interviewed). The maximum number of interviews per day is three, by two auditors, because interviews are to be relaxed. Interview reports are only for auditors. However, all reports are given to auditees for correction.
- The audit team drafts its first report, which is initially discussed with the audit secretariat.
- One audit secretary and the lead auditor discuss the first draft with the department head and contact person.
- The audit report is subsequently discussed in a meeting with the department head and auditees.
- The final audit report is then written and sent to the department manager. A copy is sent to the director general of SN.
- The department manager has three months to react and to draft a plan for improvements on the basis of the recommendations.
- One year after the audit has taken place, a questionnaire is sent to the department manager in order to check what has been done with the recommendations.
- After every five audits, the audit secretariat writes a summary report detailing important results, which may be beneficial for other departments as well. This report is discussed by the Management Committee for Auditing and Quality Care and is widely circulated.

In New Zealand a quality and risk assessment framework has been developed as a basis for assessing the risk of an output area or a collection not achieving expected quality or performance standards. It has been produced primarily as a guide for assessing the risk of quality problems, but can also point to where there is a need for additional investment in statistical and information technology (IT) infrastructure to reduce risk or improve performance in areas of corporate concern. Regular assessments should show improvements in those areas of underachievement, particularly areas needing attention to alleviate risk of inadequate performance. Risk is judged across four broad dimensions, and no one of these aspects can be considered in isolation from the others. In particular, a balance is required across aspects of quality, timeliness, and cost.

The Australian Bureau of Statistics (ABS) Action Plan discusses performance-monitoring issues in detail. ABS activities in respect to evaluation and continuous improvement processes can be broadly grouped under five activities:

- Corporate governance processes
- The planning process including the review and improvement framework
- Statistical Clearing House
- The collection and analysis of statistics on the use of services
- System enhancements or upgrades

Case Study E.8 Review of Customer Relations

National statistics agencies provide information for a wide spectrum of users both within and outside their respective governments, including policymakers, administrators, planners, researchers, activists, citizens, students, and media representatives. Identifying the needs of users, therefore, is important for national statistics agencies to carry out their responsibilities. The needs of users can be explored informally, by forming advisory committees, or by undertaking formal surveys. The task is difficult and requires continual alertness to the changing needs of users and the existence of potential users. The agency should engage in scientific cooperation with professional associations, institutes, universities, and scholars in the relevant fields to determine the needs of the research community and insight on potential uses. Below are some examples from different countries about user-agency relations.

In Indonesia a Statistical User Forum has been established. It is a nonstructural and independent organization with the task of giving advice, requested or not, on numerous aspects of statistics to Statistics Indonesia. The advice can be provided periodically as scheduled or on a more casual basis. The forum consists of government, NGOs, experts, professionals, and distinguished citizens.

Pakistan has established panels and working groups on different statistical subjects under the Technical Advisory Committee of the National Statistical Council, which represents the data users. These panels and working groups are composed of members drawn from concerned federal and provincial government departments, while nonofficial members are drawn from universities, research institutions, and relevant organizations of the private sector. Meetings of these panels and working groups are held regularly, at least once a year, to discuss relevant issues relating to the specific field of statistics and to seek solutions.

For example, planning of a census is started in consultation with data users to accommodate their data demands. An advisory committee and subcommittees are formed with the terms of reference to consider various technical aspects of census taking and to recommend topics for formulation of census questionnaires, which are prepared, pretested, and field tested, with eventual approval required from the government of Pakistan before the census is conducted.

In Pakistan the media are mobilized to project the importance of statistical activities of the Federal Bureau of Statistics. The bureau also releases census and survey results and price statistics, foreign trade statistics, and industrial production statistics through press releases and conferences. A census/survey publicity program is also launched through the media to create public awareness about the importance and objectives of censuses and surveys.

Thailand's National Statistics Office (NSO) does not have users' councils, but the NSO has close communication with its users, especially the National Economic and Social Development Board, which is responsible for formulating and implementing national economic and social development plans. To serve users' needs and make its products more useful, the NSO occasionally organizes meetings and seminars on statistical data required for decisionmaking. These meetings and seminars are attended by users and other statistical producers. In planning for surveys and censuses, other government agencies concerned are invited to send representatives to be members in the steering committee and the working group.

Statistics Netherlands has stated in its business plan, Statistics Netherlands 2000, that it will ensure its work program meets the needs of users. Decisions about the work program are made by the Central Commission for Statistics. To assess user satisfaction, regular evaluation rounds are held among all major user groups: ministries, government research and planning institutions, organizations representing employers and employees, academia, and so forth. In addition, to flexibly approach new user needs, proposals to exchange 10 percent (in budgetary terms) of "old" statistics for "new" statistics will be made in each four-year work program. These proposals will be submitted to the Central Commission for Statistics, enabling it to make real choices and to set priorities.

In the United Kingdom, formal advisory committees are set up by government departments and agencies to provide independent advice on statistical matters. They go under a range of different names, such as consultative committees and advisory panels. Their members can be users, suppliers, other interested parties, or a mixture of all three. Their great strength is that, with appropriate membership and chairs, they can provide independent and authoritative advice to the Government Statistical Service (GSS), which balances the interests of both users and suppliers.

The main advisory body is the Statistics Advisory Committee, which has been established to advise the director of the Office for National Statistics (ONS) on the statistical work of ONS and on his or her responsibilities as head of the GSS. It comprises members who are customers or data suppliers and others

with appropriate knowledge acting in a personal capacity. The director, with the agreement of the chancellor of the exchequer, appoints members. The director may appoint subject advisory committees and promote and encourage the establishment of other user groups as appropriate.

There are 52 other official advisory bodies, covering a wide range of the GSS's activities. Some of the committees by broad subject area are as follows:

- Statistics (general)
- Population and Migration
- Social and Welfare
- Health and Care
- Crime and Justice
- Education and Training
- Labor Market
- Transport, Travel, and Tourism
- The Economy
- Agriculture
- Commerce, Energy, and Industry
- Environment

There are numerous other official advisory bodies that, while not specifically statistical, may be seen as related or may be used on occasion as mechanisms for liaison on statistical matters. They are an important part of the overall framework for consultation. For example, there are a number of Department of Health/National Health Statistics committees concerned with health information systems. The Advisory Panel on Deregulation has an interest in the burden of statistical form filling on business. Customs and Excise has formal consultative committees on both customs and value added tax (VAT) matters, which have been used to consult on aspects of Intrastat, the statistical system for measuring intra-European Community trade.

In addition to using formal advisory bodies, members of the GSS take every opportunity to consult interested parties, wherever appropriate, using mechanisms best tailored to the task. Consultation—with users, suppliers, and other stakeholders—is important for the following activities:

- Planning services to best meet the needs and expectations of users while keeping the load on suppliers to a necessary minimum
- Monitoring the effectiveness of services and the load placed on suppliers
- Prioritizing services and resources
- Setting relevant performance standards
- Fostering good relations
- Providing early warning of problems

Case Study E.9 The Development of a Poverty-Related Information Management System

In many developing countries, the quality of national statistics and the timeliness with which they are produced have been issues of considerable concern for a number of years. Many countries have embarked in the wake of the Poverty Reduction Strategy Paper (PRSP) on a major program to upgrade their statistical systems. As in Uganda, the main agency for the collection and dissemination of statistics has been the statistics department. Many of these national statistical offices have suffered from common problems such as high staff turnover, inadequate funding, lack of timeliness in delivering outputs, unevenness in quality of data produced, and inability to respond quickly to new data needs.

The starting point for reform is to persuade government and donors to commit more resources to essential statistical activities. To this end, a statistical needs assessment would be undertaken, followed by the development of a statistical action plan. In Uganda, the main goal of such a program is to support the building of national capacity to collect, process, store, and disseminate statistical information for the

purpose of monitoring and evaluating outcomes and outputs of development policies and programs at both national and district levels. Several interesting and novel features have been proposed:

- The national statistical infrastructure is being extensively overhauled through the creation of a new statistics act, the establishment of a statistics board, a commitment by the government to a substantially increase budgetary allocation to statistics, and the creation of a new statutory statistical body called Uganda Bureau of Statistics (UBOS).
- UBOS will focus on delivering a core statistical program capable of monitoring national and international development goals. The core program includes the production of timely macroeconomic and sectoral indicators for monitoring growth and the ability to generate and disseminate primary data for monitoring poverty and tracking the outcomes of various development initiatives.
- The most important element of the new system is the establishment of a new information technology infrastructure for an Integrated Information Management System. It is designed to ensure that all primary or secondary collected data are stored in a central depository of data. Main output of surveys and censuses is also stored in a cleaned format ready for all further analysis and use. Given the need to disseminate statistical information, the system incorporates the concept of a centralized store of macro data or output tables.
- The setting up of this system involves the establishment of standards for receiving and storing data in databases and databanks in a common format. The main benefit of the system is to facilitate users' open access to the data, whether in hard copy or electronic form (on-line, Internet, CD-ROM, and so on). A further feature of this component could be the construction of a geographical information system (GIS) database.
- Given the continuous and growing demand for high-quality household survey data, a permanent national household survey capability is created along with a three-year Integrated Household Survey Strategy designed by UBOS with the close participation of users. UBOS established a core field force of mobile teams that will be used both to undertake surveys directly and to serve as a pool of technical support for districts that plan their own surveys.
- The enhanced statistical program will also support government in its goal to improve the quality and performance of public services and, in particular, the targeting of such services to the poorest and most vulnerable communities. This is to be done through the repeated administration of an annual National Service Delivery Survey. When the results are coupled with public expenditure reviews, they provide a powerful instrument for evaluating the effectiveness of public expenditure programs.
- The monitoring and evaluation system also involves tracking administrative records of other central ministries of the social sector (Education, Health) down to district and subdistrict levels, and the matching of their expenditures to their outcomes on the various population groups.

The outputs of this system would also be particularly useful for monitoring the outcomes of the new Comprehensive Development Framework approach to development aid as well as of the Poverty Reduction Strategy. A similar approach to statistical capacity building is being used in Mozambique, where the recently created National Statistical Institute is installing a national database system modeled on the World Bank's Africa Live Database system.

Case Study E.10 Principles and an Example of a Sequenced Information Strategy

E.10.1 Principles

A sequenced information strategy is meant as a management tool for governments and central statistical agencies to provide an enabling framework for meeting the information needs of poverty reduction strategies and economic development plans. A well-defined and cost-effective strategy should be implemented with secured financial and human resources, subject to a timeframe. Such a strategy should have a holistic scope—poverty reduction, population well-being, and all the needs of policymakers; it aims to reach a realistic goal by tackling impediments, evaluating costs, and involving all partners, and identifies relevant objectives capable of being monitored through measurable results.

An information strategy is geared toward generating quantitative and qualitative information relevant to monitoring input, output, and outcome and impact of predetermined objectives, and information complying with high-quality standards and generated in a timely fashion. A *sequenced* information

strategy establishes an information needs hierarchy in terms of scope and content that would meet all partners' expectations, identify indigenous and exogenous funding capacities, and plan a series of actions sequenced in time—short-, medium-, and long-term interventions—and stemmed on existing systems.

E.10.2 Examples

Uganda. The monitoring strategy of the Poverty Eradication Action Plan (PEAP) is designed for two main purposes. First, it is essential to monitor progress in order to continually inform key agents involved in the process. Encouraging a two-way flow of information between beneficiaries, service providers, and policymakers is an essential component of the PEAP. In this way, the design and implementation strategies can be continually modified to build on what works and to avoid repeating mistakes. Second, the monitoring strategy will help to build accountability. Where targets are set, the government will expect to account for its successes or failures in achieving them, though it is understood that these successes and failures sometime depend on factors outside government's control.

Poverty monitoring involves a large number of institutions, including the Poverty Monitoring Unit, the Uganda Bureau of Statistics, and the Uganda Participatory Poverty Assessment Project. Five aspects of the system are worth noting:

- Household surveys are being used to prepare high-quality estimates of trends in poverty, and the published reports provide much useful information.
- Participatory work has shed light on numerous aspects of poverty in Uganda and has immediately influenced budgetary allocations on water supply and the priority given to improving security.
- There is a need to develop indicators for performance in all sectors. This is being done by sectoral ministries, and the Poverty Monitoring Unit has also developed a list of indicators in cooperation with the districts.
- The institutional provision for monitoring the PEAP is found in the preparation of the *Poverty Status Repor*t. It synthesizes information on recent poverty trends and makes recommendations on the poverty eradication strategy, to be incorporated in future PEAP revisions. The PEAP will be revised every two years.
- Finally, there is a proposal for a GIS that would link existing sources of data and allow the spatial distribution of poverty to be studied in more detail.

Monitoring is structured at three main levels:

- First, the monitoring of PEAP *outcome*s. This will focus on progress in reducing income poverty, improving health, raising educational achievement, and enhancing the voice and participation of the poor. Most of the information for such outcome monitoring will be drawn from household surveys and repeated exercises under the UPPAP.
- Second, the strategy will entail monitoring actions or *outputs* intended to achieve these outcomes. Data sources will include both sample surveys and data from management information systems.
- Third, there will be regular monitoring of the *inputs* required for action against poverty. This consists mainly in tracking public expenditures on poverty reducing activities.

Tanzania. The Vice President's Office (VPO) will have the overall responsibility for monitoring the implementation and impact of the poverty reduction strategy. Monitoring and evaluation (M&E) of the poverty reduction strategy will require indicators or qualitative assessments pitched at different levels.

- M&E will require impact and outcome indicators. Impact indicators will describe progress toward overall poverty eradication objectives, while outcome indicators will refer to results of interventions (inputs) directed at poverty reduction. The government has already coordinated a consultative process to draw up a list of poverty and welfare monitoring indicators that contain many of the required impact and outcome indicators. These indicators have been incorporated into the Tanzania Socioeconomic Database, which contains a wider set of indicators.
- Proxy indicators will be developed to substitute for impact and outcome indicators that are more difficult to measure or are available only at infrequent intervals.
- Intermediate indicators will be used to provide supplementary information for assessment of progress under the poverty reduction strategy.

- Resource allocation for, and expenditure on, priority poverty reduction initiatives will be monitored under the public expenditure review and Medium-Term Expenditure Framework.
- M&E will also seek to assess the extent of participatory involvement by the poor, as well as other shareholders, in subsequent revisions of the PRSP and in the implementation, monitoring, and evaluation of related programs and projects.
- M&E, supported by well-targeted research, will assess the impact on the poor of policies that transcend the immediate agenda of the poverty reduction strategy.
- A set of gender-oriented indicators will be developed as an integral part of the M&E.
- Given financial and technical constraints, the M&E system will be limited to "core" strategic indicators that can be used readily by policymakers and other stakeholders.
- Moreover, a special effort will be made to include indicators with at least two observations during the three-year horizon of the poverty reduction strategy.

International Guidelines for Major Data Categories

Balance of payments and international investment position

Balance of Payments Manual, 5th edition, 1993 (BPMS), IMF, Washington, D.C., 1993; *Balance of Payments Compilation Guide,* IMF, Washington, D.C., 1995; *Balance of Payments Textbook,* IMF, 1996; and *Financial Derivatives: A Supplement to the Balance of Payments Manual, 5th edition, 1993,* IMF, Washington, D.C., 2000.

Central government debt

GFSM, IMF, Washington, D.C., 1986. Other guidelines for compilers are included in *External Debt: Definitions, Statistical Coverage and Methodology*, and *Debt Stocks, Debt Flows, and the Balance of Payments,* publications of the Bank for International Settlements (BIS), the IMF, OECD, and the World Bank, Paris, France, 1988 and 1994, respectively.

Monetary and financial statistics *Monetary and Financial Statistics Manual,* IMF, Washington, D.C., 2000.

Central government operations

A *Manual on Government Finance Statistics (GFSM),* IMF, Washington, D.C., 1986. A revised edition of the *GFSM,* currently being prepared, is projected for publication in 2001.

Education

United Nations Economic and Social Council (UNESCO) *International Standard Classification of Education.* Paris, 1997; UNESCO. World Education Indicators Web site, Technical specifications at http:// Hunesco5tat.unesco.orelen/stats/stats.htm; UNESCO *Methodology Used in the Estimation and Projection of Adult Literacy.* Paris, 1995. U.N. *Indicators of Sustainable Development: Framework and Methodologies*. New York, 1996.

External debt

External Debt: Definitions, Statistical Coverage and Methodology, and *Debt Stocks, Debt Flows, and the Balance of Payments,* publications of the BIS, the IMF, OECD, and the World Bank, Paris, France, 1988 and 1994, respectively. Several international organizations are currently cooperating in the preparation of a new guide, *External Debt Statistics: Guide for Compilers.* A draft version of that guide was released in March 2000 under the auspices of the Inter-Agency Task Force on Finance Statistics, which is chaired by the IMF and includes representatives from the BIS, the Commonwealth Secretariat, the European Central Bank, the European Statistical Office, the IMF, the OECD, the Paris Club Secretariat, the U.N. Conference on Trade and Development, and the World Bank.

Health

OECD. *A System of Health Accounts for International Data Collection,* Version 1.0. Available at http://www1.oecd.org/els/health/; U.N. *Indicators of Sustainable Development: Framework and Methodologies.* New York,

1996. World Health Organization (WHO) *Monitoring Reproductive Health: Selecting a Short List of National and Global Indicators.* Geneva, 1997.

International reserves

BPMS, IMF, Washington, D.C., 1993, and *Data Template on International Reserves and Foreign Currency Liquidity: Operational Guidelines (provisional),* IMF, Washington, D.C., October 1999.

International services

Draft Manual on Trade in Services, revised June 13, 2000, OECD, Paris, France, is available on the OECD Web site at http://www.oecd.org/sta/serv(2000)1.12df, and summaries of the draft are provided on the IMF Web site at http://www.imf.ore/external/np/sta/itserv/methdev.htm.

Labor market

R1 70 *Labour Statistics Recommendation, 1985,* as updated, Bureau of Statistics, International Labour Organization, Geneva, Switzerland. ILO recommendations can be accessed at the ILO Web site at http:// ilotex. ilo.ch: 1567/public/enslish/does/recdisp.htm.

Merchandise trade

International Trade Statistics: Concepts and Definitions, Series M, No. 52, Rev. 2, United Nations, N.Y., 1998.

National accounts

System of National Accounts 1993, a publication of the Commission of the European Communities, IMF, OECD, United Nations, and the World Bank, United Nations, N.Y. 1993 and earlier editions, or regional versions such as the *European System of Accounts 1995,* EUROSTAT, Luxembourg, 1996.

Price indices

Classification of Expenditure According to Purpose, Statistical Papers, Series M, No. 84, United Nations, N.Y., 1999; *Consumer Price Indices: An ILO Manual,* 1985, Bureau of Statistics, International Labour Organization, Geneva, Switzerland; and *Manual on Producers' Price Indices for Industrial Goods,* United Nations, N.Y. 1979. U.N. classifications can be accessed through the U.N. Web site at http://esa.un.or-g/unsd/cr/ registry/regrt. The most recent information on the consumer price index can be accessed through the ILO Web site at http://www.ilo.org/publiclenslish/bureau/stadauideslcpi/index.htm and on the producers price index, the IMF Web site at httR://www.imf.ora/extemal/n2/sta/te222i/index.htm.

Population

U.N. *Principles and Recommendations for Population and Housing Census.* New York, 1996. U.N. *Handbook on Civil Registration and Vital Statistics Systems.* New York, 1998. U.N. *Indicators of Sustainable Development: Framework and Methodologies.* New York, 1996.

Poverty

Martin Ravallion, *Poverty Lines in Theory and Practice,* vol. 1. Living Standards Measurement Survey Working Paper, World Bank, 1999; Angus Deaton and Salman Zaidi. (forthcoming). *Guidelines for Constructing Consumption Aggregates for Welfare Analysis* (World Bank); M. Lipton. *Defining and Measuring Poverty: Conceptual Issues.* UNDP, New York, 1996. U.N. *Assessing the Nutritional Status of Children.* New York, 1990.

Notes

1. For further information, please visit http://www4.worldbank.org/afr/stats/cwiq.cfm.
2. For further information, please visit http://www.worldbank.org/html/prdph/lsms/index.htm.