

CHAPTER 3

THE DATA FRAMEWORK

When M&E specifications are being established, it is often not taken into consideration how expensive and resource-consuming the process of data collection and dissemination can be. It is at this early planning stage that overambitious expectations can lead to the creation of an M&E programme, which, because of its complexity, has little hope of success. This chapter looks specifically at the issue of data supply and reviews various tools and approaches that have been used with some success in different countries. The chapter concludes with a discussion on the capacity of a National Statistical System to support M&E data needs.

It is clear from the previous chapters that even the lightest of monitoring systems can make extensive demands on the data supply system. In order to meet the needs of monitoring at each of the four levels (inputs, outputs, outcomes and impact), the M&E system needs to draw on information coming from a variety of different sources. It is not just that each level requires different indicators, but also that the requirements in terms of periodicity, coverage and accuracy vary according to the level of indicator. Input indicators are required to inform short-term decision-making. They therefore need to be produced frequently and regularly – possibly once every 1-6 months. The same applies to output indicators, but here the reporting period can likely be longer, say, one year. As one moves further up the results chain and starts to collect more information about clients rather than the servicing institution, the task of data collection becomes more complicated, the tools less reliable, and the results more questionable. To counteract this, it is advisable to use information from different sources and to use different methods to arrive at a reasonable estimate of the outcome under review. On the other hand, the time frame can be relaxed – a little. Time must be allowed for clients to become aware of and start using public services. One may see little evidence of outcomes for the first few years. Therefore,

M&E systems need to draw on a wide range of information sources. Baseline information is important for evaluating with and without project effects.

it may be acceptable to build a programme around the reporting schedule of, for instance, 1-2 years. But it is important that the process is initiated at the very beginning of the project with a view to using the first report for establishing the baseline situation. The evaluation of the eventual impact comes much further down the line – often years after the project has been completed. Although the time frame may be more relaxed, the analytical challenge is not, and from the data collection perspective, experience has shown that it is vital that the outline on how the project is to be evaluated is agreed from the very beginning, since it may involve setting up an experimental design to try to isolate the “with/without” project effect.

So, what is available to support the establishment of simple but effective M&E operations? What tools are available? The following list is not comprehensive, but each supports a different part of the M&E jigsaw puzzle. They include different types of household surveys, rapid appraisal and participatory methods. All are used to provide the necessary data for the calculation of the “upper end” indicators, namely outcomes and impact indicators. They include both quantitative and qualitative assessment tools.

THE TOOLS

Household survey elements

The most popular and obvious instrument for monitoring the outcomes of ARD programmes and the contribution made to poverty reduction through ARD is a

The great strength of the household survey is that it provides information both on the beneficiaries AND on the non-beneficiaries.

household survey. There are other options, of course. If we review the list of results indicators shown in the previous sections, we see there is a possibility of collecting basic data using administrative records, community surveys or even individual focus group interviews. All have their strengths and limitations. But the great strength of the household survey is that it provides information both on the beneficiaries and on the non-beneficiaries. It also has the advantage that the indicators derived from the survey can be

both aggregated and disaggregated to different levels. It can thus serve as a tool for monitoring at the global level as well as at the national and subnational levels.

The distinguishing features of a household survey are that it uses a fixed format questionnaire, which is administered to a probability-based sample of respondents who represent a particular population (usually the intended beneficiaries of the programme – the clients).

Sample

Statistical surveys use random sampling to ensure that the information collected is unbiased and that the size of the error that may result from using a sample rather

than a complete enumeration is known. Clustering facilitates survey fieldwork and logistics but reduces the sample efficiency. This can be partly compensated for by stratifying the clusters into homogeneous groups before the selection is made.¹

The question is often asked, “How big should the sample be?” In the textbook approach to sample size determination, size is determined by the variability of the characteristic of interest, the way in which the sample has been designed and the degree of precision that the user needs.² For practical planning purposes, however, a very rough but frequently used rule of thumb is to think in terms of a sample size of 500 to

600 households for each analytical domain, i.e. the subgroup of the population for which indicators are required. Sampling errors diminish as sample size is increased. It is evident, however, that since the requests are made for increasingly lower levels of disaggregation, sample sizes quickly increase to unmanageable proportions. This is one of the trade-offs that has to be considered when designing a survey.

Planning a survey is all about trade-offs.

Questionnaires

The second key characteristic of a household survey is that it uses a structured questionnaire in which respondents’ answers are recorded. A questionnaire with a fixed format allows data entry into a structured database, with a minimum amount of manipulation, so that it is ready for validation and analysis. Good survey practice dictates that questionnaires should be printed in the same language in which the interview is to be conducted, but in many developing countries, there may be 20 to 60 or more local languages, making it impractical to translate in all languages. This introduces the concept of “non-sampling errors”, which are all the errors that can occur during the course of the survey that are not related to the sample or sample design. Unlike sampling errors, whose size can be mathematically calculated, the magnitude of non-sampling errors is generally not known, but it may be safely assumed that they are significantly greater than those of the sampling errors. In contrast to sampling errors, which decrease in size as the sample is increased, non-sampling errors have a tendency to increase with sample size. This is another trade-off that has to be considered in survey planning. In principle, the wisest course of action may be to consider and plan for minimizing non-sampling errors when preparing the overall survey design, and build checks and balances into the survey and data handling processes.

Survey design

A third feature of household survey is the survey design. This includes all the survey logistics, the numbers of visits to be made to the households, the reference

1 Typical stratification criteria include urban/rural clusters and/or stratification by agro-ecological zone.

2 Note that sample size is not a function of population size; the common belief that the size of the sample should be a certain percentage of the population is therefore misconceived.

periods that will be used in the questionnaire and the choice of which household member or members are to be used as respondents, etc. These are often the factors that distinguish most clearly one type of household survey from another. Even minor changes in design from one round to the next can have significant effects on the results. This introduces the degree of conservatism in the NSOs, which, being unwilling to disrupt time series, may resist change. However, for the purposes of making global comparisons between countries, it presents some limitations. The problem is not considerable with simple indicators such as anthropometric measurements where the methodology is relatively well established and common across all countries; it is a problem, however, with complex computed variables such as household consumption, another primary poverty measure used for tracking the first Millennium Development Goal. A third set of trade-offs to be considered, therefore, are the relative advantages and disadvantages of using a nationally developed methodology compared to a standardized international survey design.

Data processing, storage and dissemination

Nowadays, good survey practice highlights the fact that data processing involves not just the tasks of data entry, processing and table production, but goes much further to include data storage and archiving, and electronic data dissemination. It also includes the storage, archiving and dissemination of *metadata* together with the actual data. The complete survey package

can fit neatly onto one CD, which can be readily disseminated and made available to users.

One issue that continues to concern many countries is the question of a **data access policy**. In many countries, access to survey data remains highly restricted. Confidentiality is often cited as the rationale, but the real reasons are often political or organizational. Users may be granted access to the data in aggregate form, but for many practical

purposes, this is not enough; they need it at the unit (household) level. It is therefore important that, right from the start, clarity be achieved as to what the data access policy will be. Through the International Household Survey Network sponsored by the World Bank, United Nations agencies and regional banks, tools for documenting and disseminating microdata according to international standards and practices have been developed and country capacity is being strengthened with the support of World Bank/PARIS21 Accelerated Data Program (see www.internationalsurveynetwork.org/home). Also, FAO has developed the CountrySTAT system as an integrated platform for better harmonization, access and dissemination of country-level food and agriculture statistics (www.fao.org/statistics/countrystat).

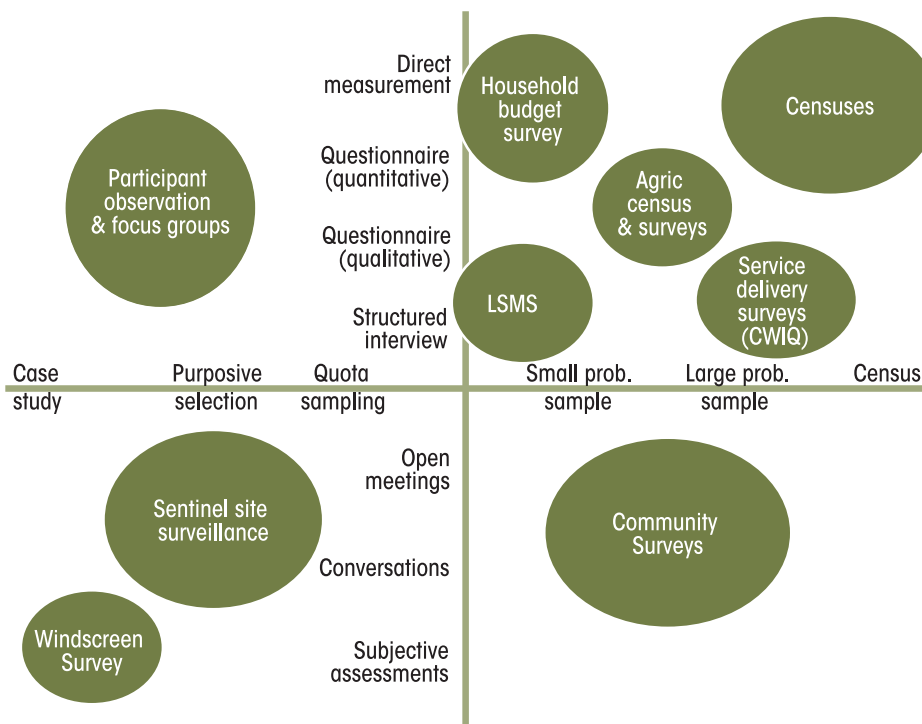
Questions about data access need to be addressed at the very start.

Different household survey models

Household surveys can differ widely: different models serve different purposes. Box 10 highlights some of the different ways of collecting information from households, including both qualitative and quantitative approaches. It plots the most commonly used surveys on two axes. The vertical axis – the qualitative/quantitative axis – represents a range of different methodological approaches from subjective assessments through to direct measurement. The horizontal axis shows different levels of representativeness, from the simple case study (not representative) right through to the population census, which is fully representative. Different types of surveys have been superimposed onto these two axes, where they can be seen to scatter from the lower left-hand corner (non-representative/subjective) up through to the upper right-hand corner (fully representative/objective). This helps to decide on the right instrument for the task in hand.

Most of the statistical surveys are to be found in the top right-hand quadrant, whereas the more qualitative studies tend to be clustered in the lower left-hand quadrant.

Box 10. Tools for measuring results: surveys vs. non-formal appraisal methods



Population census

The population census appears in the top right-hand corner. It uses a short questionnaire, which should be administered once every ten years and should cover the entire population. Its value lies not just in the fact that it provides a complete account of every person in the country, but that it also serves as a basis for nearly all subsequent sample survey activities.

Relevance to monitoring ARD programmes: The census is pivotal to any survey programme. The census results plus the cartography work conducted beforehand provide essential information for preparing sample frames for any subsequent sample surveys. When combined with household survey data, census information can be used for the creation of poverty maps and atlases of social indicators.

Duration: Even though fieldwork may only last a few weeks, there is an enormous amount of preparatory work – two or more years – leading up to census day. Preliminary results, in terms of simple cross tabulations and counts, can usually be made available within a few weeks of the end of fieldwork. Full results are often not forthcoming for a year or more, however, and require clearance at the highest political level.

The population census is pivotal to any survey programme. When combined with household survey data, census information can be used for the creation of poverty maps.

Questionnaire size: The size should be three to four pages. There is usually little opportunity to add substantive questions, but it may be possible to include a few socio-economic classification variables such as “Does the household operate a holding?”.

Cost: Censuses costs vary enormously, but a commonly used rule of thumb is to work on the basis of one dollar per person. Thus, for a population of 10 million people, the cost of census would be approximately US\$ 10 million.

Agricultural census and agricultural surveys

The agricultural census: Closely associated with the population census is the agricultural census. FAO recommends that an agricultural census be conducted at least once every ten years, just as the population census. The new World Programme for the Census of Agriculture (WCA) 2010 advocates a system of integrated agricultural census and surveys, and introduces a modular approach. For the core module covering 16 data items, a complete enumeration is recommended, while for supplementary modules, sampling can be used. The new programme shows how integration of an agricultural census with a population census and other agricultural surveys could prove cost-effective and enhance the scope of data-analysis. The traditional role of the agricultural census as a provider of structural

data at the small geographical level has been amplified in the WCA 2010 to view it as a vehicle for monitoring the MDGs and other ARD policies. Recognizing the increasing demand for community-level data in the development planning and monitoring process, the new programme advocates its collection as part of the agricultural census as well. The 33 suitable data items at the community level presented in the programme include socio-economic aspects of the community as well as access and use of community agriculture-related infrastructure, which may provide useful information for planning and impact measurement. The programme provides an option to the census planners to widen the scope of the agricultural census to cover all the rural households, thus opening up a vehicle for collection of data for monitoring rural development. Data on a number of proxy variables for ARD monitoring could easily be derived from the agricultural census data.

Agricultural surveys are extremely important since they are frequently the only means of monitoring changes in crop production levels and yields. They can also include information on service delivery.

Agricultural surveys: Agricultural surveys may feature as part of the NSO's household survey programme or may be conducted separately by the Ministry of Agriculture. Both arrangements are common. Many countries regularly undertake annual agricultural surveys separate from household surveys for crop forecast and estimation of post-harvest production. In other countries, where they are part of the household survey programme and conducted by the NSO, the trend has been to merge the collection of agricultural statistics with the collection of other household-level statistics using integrated household surveys. Such integration does reduce the cost of data collection and provide some advantages to the analyst wanting to look at the household and holding holistically. There are also disadvantages, however, particularly because the sequence of enumerator visits to the household for integrated surveys makes no allowance for the fact that the collection of data on agriculture should be linked to the agricultural season. For a number of reasons, the quality of agricultural statistics has declined in many countries over the past decade or so, and one of the reasons may be the merging of agricultural surveys with multi-topic household surveys. There is a need for increased priority and more methodological research in this area. This includes the need for more research on such issues as the estimation of agricultural areas and production, not just for different crop types, but for other outputs such as livestock and livestock products, and the establishment of best practices and standards.

Sample size: Sample sizes vary enormously. Agricultural census/surveys are particularly vulnerable to the dilemma that, on the one hand, there is enormous demand for increasingly disaggregated agricultural production data – which

implies large samples – while, on the other hand, current practices for measuring areas and estimating production are slow, cumbersome and prone to significantly larger errors – which implies using smaller samples in order to control non-sampling errors. The increasing use of new tools such as the global positioning system (GPS) for crop area measurement is considerably reducing the work load and cost of this task.

Relevance to monitoring ARD programmes: Agricultural censuses and surveys are extremely relevant since they are frequently the only means of monitoring changes in crop production levels and yields, which are among the key output indicators defined in earlier sections. It should also be noted that both the agricultural census and agricultural surveys may be used as vehicles for collecting data on service delivery as done in some countries (see, for example, the Tanzanian Agricultural Census). The decline in the quality of agricultural statistics must be taken very seriously, being an area in which resources for capacity building are most needed.

Living Standards Measurement Study (LSMS) Integrated Surveys

In the same quadrant of Box 10 but using smaller samples, one finds Integrated Surveys. They are multi-topic surveys that include questions on nearly all aspects of household socio-economic conditions. They may take several forms, one of the best known of which is the Living Standards Measurement Study (LSMS), developed in the 1980s by the World Bank as a data-gathering instrument to conduct research on living standards and poverty. The LSMS uses a large questionnaire filled out in the course of two visits to the household, spaced two weeks apart. During the first visit, the enumerator collects information about all the individual members of the household. This includes information on their health, education, employment and earnings, and on household assets. During the second visit, questions focus on household consumption and expenditure, farm and non-farm enterprises, and earnings. Anthropometric measurements are also taken for all children under five years old.

Integrated surveys are good as baseline surveys: they can measure poverty levels, identify potential problems in need of attention and generally understand the way in which households operate.

Sample size: Because of the size of the questionnaire and the need to control non-sampling errors, sample sizes are generally kept low. Initially, LSMS surveys used samples of 2 000 to 3 000 households, but with the increasing demand for poverty monitoring, sample sizes grew to 8 000 or more households. Even with these larger sample sizes, survey results should still only be presented at relatively high levels of aggregation, such as for urban and for rural areas.

Duration: Fieldwork normally lasts for one year and is carried out by mobile teams of enumerators. Households visits are spread evenly throughout the 12 months. This is good for removing biases in the consumption data, but is, in general, not the most efficient way of collecting agricultural data (see above).

Cost: Integrated Surveys are expensive and may cost around US\$2 million.

Relevance to monitoring ARD programmes: LSMS/Integrated Surveys are particularly good as baseline surveys that can be used to measure poverty levels, identify potential problems in need of attention, and generally understand the way in which households establish mechanisms to cope with difficult living conditions. The big disadvantage is that they are difficult to undertake, and if they are to provide baseline data, they truly need to be initiated a year or more in advance of the actual programme. In addition, many countries have neither the analytical nor the survey capacity to successfully carry out such large-scale complex surveys.

Household budget surveys

Household budget surveys are traditionally undertaken to update the basket of goods and services, and recalculate the weights for the Consumer Price Index (CPI). They are more focused than integrated surveys, and the main topics relate to household income expenditure and consumption. But it is rare nowadays not to find a household budget survey that also includes a minimum set of questions on the socio-economic characteristics of household. The line between household budget surveys and integrated surveys can therefore be fuzzy. Because the main area of interest is household consumption, the number and frequency of visits to the household is usually higher than with Integrated Surveys, and the assumption is that the accuracy of the consumption measure will be greater with household budget surveys than with integrated surveys.

Relevance to monitoring ARD Programmes: Household budget surveys are used in many countries as the primary vehicle for establishing and monitoring poverty levels. If they are linked to a light, multi-topic indicators survey such as the Core Welfare Indicators Questionnaire (CWIQ), they can serve a purpose similar to that of an integrated survey.

Service delivery surveys

Service delivery surveys appear in the same quadrant but lower down. They are relatively recent additions to an NSO's repertoire of surveys, but have been used in market research for a long time. A good example of a service delivery survey is the Core Welfare Indicators Questionnaire (CWIQ) (Box 11).

Service delivery surveys are very well-suited to monitoring early results – They are easy to implement and can be repeated annually.

*Box 11. Core Welfare Indicators Questionnaire (CWIQ):
a survey instrument for collecting service delivery indicators*

The CWIQ is a survey tool for monitoring simple indicators and measuring the performance of a range of development programmes. The CWIQ shows who is and who is not benefitting from actions designed to improve social and economic conditions. The CWIQ collects indicators of household well-being and indicators of access, usage and satisfaction with respect to the community and other basic services.

The CWIQ is designed to be administered to large samples of households so that results can be disaggregated to relatively low levels, and to be repeated annually so that time-series can be quickly built up. It is intended to complement rather than replace other surveys. It can serve as an annual “core” questionnaire for a National Statistical Office (NSO) to use in a “core and rotating module” survey programme. As such, the CWIQ can become one of the components of a country’s overall poverty monitoring package. NSOs should be able to implement the core questionnaire easily each year and add special modules if desired, such as a labour force module or a crop forecasting module.

The CWIQ draws extensively from market research practices and past household survey experiences, as well as recent developments in data entry and processing. As a result, it is a relatively high-tech instrument, but one which requires little in terms of high-tech equipment or training.

The CWIQ focuses on simple indicators of usage, access, and satisfaction. For example, in the education sector, access indicators include distance to primary schooling; usage indicators include primary school enrollment rates; and satisfaction indicators are based on opinion questions to indicate household rating of the quality of services of the current year compared to the previous year.

It also collects a few indicators of household well-being: percentage of households reporting diminishing or increasing assets (land and livestock); percentage of literate adults; percent of children malnourished; housing (quality and mean number of persons per room); percent of adults unemployed in the past four weeks, among others. These are used to create a poverty index, which is later used to rank households and group them into “poverty quintiles”. It is thus possible to compare poor with non-poor households.

The CWIQ is an off-the-shelf survey with a number of features designed to improve both the quality and speed of delivery of results.

continue

Simple reporting of results: The CWIQ facilitates the production of a set of standard outputs disaggregated by urban and rural poverty quintiles almost automatically. This allows for quick comparisons between poor and non-poor households in both the rural and urban areas. Data can be easily exported into any of the standard statistical packages for a more rigorous customized analysis.

Large samples: To present and compare social indicators across different population subgroups, the CWIQ should use as large a sample as the local statistical resources are capable of handling. For national surveys, sample sizes of between 5 000 to 15 000 households would be recommended in most African countries. Countries that already have master samples would be in a better position to move ahead more quickly with the survey.

Easy data collection: The CWIQ is based on a single visit to each household only. Because of the simple format and short questionnaire, the CWIQ can be conducted by a non-statistical organization.

Short questionnaire: The questionnaire is four pages long (eight sides).

Quick data entry and validation: The questionnaire uses multiple choice questions and optical mark recognition (OMR) for data entry. Scanners make it possible to enter and clean the data of more than 300 households a day.

Basic validation checks are carried out at the same time as data are entered, after which predefined tables and graphs are automatically generated.

Relevance to monitoring ARD programmes: Service delivery surveys are very well-suited to monitoring early results: they are easy to implement and can be repeated annually without disturbing any other survey work that the NSO may be undertaking. Once the questionnaire has been adapted to meet the special needs of a particular country, it is relatively easy to adapt the data processing system so that the processing, storage and dissemination of results can be handled by the NSO with relatively little external assistance.

Other forms of enquiry

Participant observation and focus group discussions

The lower left-hand quadrant contains a wide range of qualitative surveys and studies. These are characterized by the fact that they use small, often purposive (rather than random) samples and do not use fixed questionnaires, but instead rely on relatively unstructured conversations and interviews for the data.

The basic idea is to provide an environment in which respondents share their own views with the interviewer without being fettered by the limitations of a formal questionnaire. These kinds of qualitative studies are sometimes considered to be in competition with quantitative approaches, but they are actually complementary.

Relevance to monitoring ARD programmes: A good M&E system uses a wide range and variety of learning tools to better understand the needs and behaviour of the population that the programme is designed to serve. Quantitative and qualitative approaches can be applied iteratively.

Qualitative studies can provide insight into the motives and coping strategies of different target groups.

For instance, the results of a service delivery survey for an agricultural extension programme may indicate a problem with respect to low adoption rates of recommended practices by a particular class of farmer. It flashes an early warning signal that adoption rates are below expectations, but it is not particularly good at saying *why* they are low. This is often where a few select focus group interviews can come up with a possible explanation quickly and cost-effectively. Such insights often need to be explored further.

For example, during the course of the focus group interviews, the suggestion may be put forward that the adoption rates are low because extension agents do not visit lower income households. While this may be true for the participants in the focus group interview, how universal is the problem? The group discussions cannot answer this question, but the service delivery survey could do so with the addition of just one or two simple questions.

The Windscreen Survey and other rapid appraisal methods

The Windscreen Survey appears at the bottom left-hand corner of the figure in Box 10. This is really not a methodology at all: it consists of the investigator driving around the project or programme area and observing what is going on through the windscreen. It is more akin to journalism than to serious investigation, but

The Windscreen Survey is cheap and quick, and can provide useful information.

is cheap and quick, and does have a role to play. In Ghana, for instance, forecasts for the forthcoming cocoa crop were made on the basis of expert assessment; the expert in question viewed the crop as he surveyed a wide area by vehicle. Windscreen Surveys can be made more credible by establishing a route that is repeatedly followed over time, supplemented by some simple counts of fields and quality assessments of crop conditions such as “very good”, “good”, “average”, “poor” or “very poor”.

Rapid assessment techniques should not be dismissed as a source of information as long as they are used in tandem with other methods. They are particularly

effective as early-warning devices and can make a significant contribution towards the monitoring of ARD projects and programmes, and can provide important insights if conducted by a knowledgeable expert.

Community surveys

Like household surveys, a community survey can be conducted both with probability and non-probability samples, and can, in principle, be found on any of the four quadrants in the chart in Box 10. For the purposes of M&E, however, it is more probable that they will have the characteristics of surveys located in the lower right-hand corner – relatively representative but subjective. A community meeting is called (usually by the community heads) and certain leading questions are addressed by the enumerator to the community at large. Occasionally, the community survey is directly linked to, and carried out at the same time as, a household survey. The LSMS, for instance, includes a community questionnaire, administered in each sampled cluster at the same time as the households are being interviewed. Its purpose is to collect information about the community and the environment in which the sample households reside. Such information is collected at the community rather than the household level, because the answers will be the same for all households in the community. The focus of analysis tends to be directed towards an examination of the relationship between the household and the community – a *micro-meso analysis*.

Community surveys are particularly good for monitoring community-driven development projects. They can actually become part of the project and owned by the community.

The other way of conducting a community survey is to use it as an alternative rather than a complement to the household survey. In such cases, the unit of analysis is the community itself. In addition, the focus of the analysis tends to be on the relationship between the community and the country as a whole – a *meso-macro analysis*.

The new World Programme for Census of Agriculture (WCA 2010) also includes recommendations for collecting community level data during the agriculture census where appropriate.

Community surveys may be used to collect information on the communities' physical and social capital. They may also be used to collect service delivery information at the community rather than household level. In fact, in countries where the statistical infrastructure is particularly weak – such as in a post-conflict situation – a community survey may be the best way of rapidly assessing what public services are most needed and where.

Relevance to monitoring ARD programmes: Community service delivery surveys can, in the right circumstances, substitute for household service delivery surveys.

Box 12. Nigeria's community service delivery survey

	ACCESS		USE		SATISFACTION		
	a. How far away is this service?	b. How much does your group use this service?	c. Who owns or runs this service?	d. If used, how satisfied are users with the quality of the service provided?	e. Do you have any concerns with the service?	f. How has the quality of service changed in the last 5 years?	
	Don't know (Skip to next row) Within community Less than 30 minutes away 30-60 minutes away Over one hour away	Not used at all (answer C then skip) Not as often as needed (go to code f) As often as needed/ regularly (go to code f)	Ownership of Service	Disatisfied Neither Satisfied or Dissatisfied Satisfied Don't Know	Too far away Too expensive Poor Service Limited staff/ equipment Inadequate building Other	Don't know Worse now Same as before Better now	
1. Day Care Service	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
2. Pre-Primary service	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
3. Primary service	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
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5. Hospital	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
6. Health Centre (Outpatient)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
7. Patent/Dispensary Services	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
8. Pre/post natal care	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
9. Immunization/Vaccination	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
10. Mobile telephone	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
11. Post office	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
12. Public transport	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
13. Agric. extension services	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
14. Farm inputs	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
15. Commercial bank	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
16. Police Station	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
17. Customary Court	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

They are also particularly effective for monitoring community-driven development projects, because the survey can actually become part of the project, and the responsibility for its monitoring can be progressively passed on to the community itself. One of the big advantages of a community survey is that a relatively large number of communities can be covered in a relatively short time. Box 12 shows an example taken from Nigeria of part of a community questionnaire containing service delivery information. It illustrates how a standard set of questions can be applied to a range of different services.

A potential weakness of the community questionnaire approach is that the definition of a community is often difficult to pin down, particularly in urban areas, and it may not be feasible to use probability sampling to select the communities to be interviewed. Therefore, they may not be statistically representative, a problem that most qualitative studies face.

Institution-based surveys

Reference has already been made in Chapter 2 to QSDs as a means of looking at service delivery issues, but from the suppliers' perspective. One can also use the institution that is supplying the service as a contact point for collecting views on the service user. The principle of collecting information from clients while they are actually making use of the service is common private sector practice, particularly in establishments such as restaurants and hotels. Take, for example, the short evaluation questionnaires on which the guest is asked to rate the quality of service. The problem with such questionnaires is that they are voluntary and therefore only likely to be filled in by people with particularly strong views; the results are unlikely to be representative of the target population. Also, this method provides no information about non-users, which means that there will always be problems in calculating percentages because the denominator is not known. Although not very often used in a development context, variants of institution-based service delivery questions may be observed in some sector information systems, such as in health and education. For instance, information gathered in an annual school census conducted by a Ministry of Education can be used to calculate such indicators as primary school enrolment, which is essentially a usage indicator of the education service. Another more promising way of introducing institution-based service delivery monitoring would be to use institutional administrative records to identify service users who could then be asked to complete a questionnaire. One example might be a livestock-dipping centre. Administrative records will automatically record the number of livestock dipped, vaccinations provided, etc., but these could be supplemented at very little extra cost with service delivery information collected from the livestock owners, using a simple exit poll.

Satellite imagery and aerial photography

Satellite imagery is becoming increasingly accessible, and its resolution has improved to the point that individual fields are relatively easy to identify. The use of imagery is unlikely to replace field surveys (ground truthing is still required), but it can be added to the arsenal of tools for monitoring and evaluating agricultural development. Satellite imagery is also useful in developing sampling frames and as a basis for surveys. The methodology of sampling is now well developed and is in the arsenal of tools advocated by FAO. With some simple procedures, one can mount a household survey using point sampling without the expense and time involved in using a register. Some of the more interesting recent breakthroughs in poverty monitoring include the combined use of imagery, census data and household survey data, which together can be used to create dynamic poverty maps showing changes to key variables over relatively short time periods. Satellite imagery can also be used in developing area sampling frames as basis for area-based surveys, including point sampling. With some simple procedures, a household survey using point sampling could be designed that could minimize expense and time as compared to list frames.

Box 13. Comparison of key features of different surveys

	1	2	3	4	5	BEST USED FOR		
	SAMPLE SIZE	DURATION	VISITS TO HOUSEHOLD	QUESTIONNAIRE SIZE	COST (US\$M)	Time Series	Cross-sectional	Counterfactual
POPULATION CENSUS	Full coverage	3-6 months	1	4-8	15-25	X	√√	X
AGRICULTURAL CENSUS/SURVEY	20 000-40 000	1-1.5 years	2-4	8-12	8-12	X	√√	X
LSMS/INTEGRATED SURVEY	5 000-10 000	1-1.5 years	2	40+	1-2	X	√	√√
HOUSEHOLD BUDGET SURVEY	4 000-10 000	1-1.5 years	15-25	15-20	1-2	X	X	√√
COMMUNITY SURVEY	100-500	4-6 months	1	4-6	0.2-0.4	√	√	X
SERVICE DELIVERY SURVEY (CWIQ)	10 000-15 000	2-3 months	1	8	0.2-0.4	√√	√	X
FOCUS GROUP INTERVIEWS	40-50	2-3 months	1-3	-	0.05-0.1	√	X	√
WINDSCREEN SURVEY	10-20	2-3 weeks	0		0.01	√	X	X

APPLYING THE TOOLS FOR M&E ANALYSIS

Which tools are best for monitoring ARD programme results? There is, of course, no right answer to this question; it all depends on what one is trying to do. Box 13 compares each of the key characteristics for all of the above surveys. The numbers are indicative only, particularly the costs of the different types of survey, because it is not always easy to separate out investment costs, which includes the purchase and rehabilitation of vehicles, computers, etc. with recurrent costs. Nevertheless, they do help to highlight the differences between the various types of surveys.

The final three columns need explanation. When tracking programme results, the M&E analyst basically uses the data to make comparisons, which may be of three types:

- comparisons over time (time series analysis);

- comparisons over space (subnational comparisons);
- counterfactual comparisons (with/without project/programme).

Each of these tasks requires different tools. Two ticks signify that the tool is well-adapted to the task; one tick, that the tool is adequate; and one cross, that it is not suitable.

Comparisons over time

Essentially, such comparisons involve tracking one or more indicators over time to see how they change. The first use of this time series analysis is generally to provide short-term feedback to policy-makers and programme implementers to allow them to make adjustments to the programme during its implementation. The prerequisite for this task is a continuous and reliable supply of consistent data. Most probably, the information will be needed on an annual basis, likely at a fixed point in the year, some months before the budget preparation process is due to start. This therefore rules out some of the larger surveys, since they are most unlikely to be conducted more than once every three to five years. What is required is a simple set of core questions that are quick and easy to collect and process, and that will be collected repeatedly every year. A service delivery survey such as the Core Welfare Indicators Questionnaire (CWIQ) fits the bill.

However, while the service delivery survey may be suitable for monitoring the access, use and satisfaction indicators, the problem remains of how to monitor the longer-term physical changes resulting from the various ARD programmes. What is needed in terms of data is, simply, consistent annual reporting on agricultural production, yields and areas.³ The dilemma here is that these are priority indicators that everyone needs, yet few countries currently have the statistical capacity to generate the necessary information with sufficient accuracy and timeliness to satisfy this basic demand.

It is important to ensure the consistency of methodology over time and a consistent and uninterrupted supply of data.

Baseline surveys

At this point, the issue should be raised of the **baseline** survey and the case made that, where statistical capacity is weak, acquiring the baseline data does not necessarily require a heavy-duty baseline survey. Baseline data are required for two purposes. First, they are needed to provide the programme designers (planners) and implementers (managers) with as accurate and detailed a picture of the current status of the population in the target area as possible. This information is used to identify the needs of the intended beneficiary groups and to orient the project

³ This should cover not only crop production, but also livestock, forestry and fisheries.

design toward satisfying them. These data are therefore needed *before* the start of the project or programme, during the project preparation phase. A multi-sectoral

Baseline data are important, but may not require a large-scale baseline survey.

integrated household survey, such as the LSMS, is well-suited for this purpose, but it may not always be cost-effective to undertake one. Alternatively, it may be possible to assess and understand the needs of the region using more qualitative approaches, such as participant observations or focus group interviews. Even though they are not statistically representative, such instruments can provide rich insight into the concerns and priorities of the project/programme beneficiaries.

The second purpose of baseline data is to provide the initial values of indicators to be monitored throughout the life of the project or programme. It is very important that the initial readings for these indicators be taken as soon as possible, preferably before the project or programme becomes effective. This may not require a full-scale multi-topic baseline survey, and could just be the establishment of the monitoring mechanisms and the starting values for these indicators. Consequently, one should embark on a baseline survey with caution, as it can pull scarce resources away just when they are needed most for other critical tasks.

It is important to ensure that the baseline survey sample includes a control group of non-beneficiaries against which the project beneficiaries can be compared. This is particularly important in subsequent impact evaluation of the intervention and provides the basis for assessing “with” and “without” project impact in the targeted area.

Panel surveys

Another question that arises at this stage is “What about using **panel surveys**?”

Up to now, mention has been made of repeating cross-sectional surveys – that is, drawing a new sample of households every year while keeping the

Panel surveys are powerful but difficult analytical tools.

questionnaire itself constant. This is the correct way of monitoring overall changes in poverty levels and living conditions, etc. But the panel survey is different: it keeps the same sample of households (the panel) over several years, and the panel members are re-interviewed each year. This is another way of tracking poverty, by observing who moves in and who moves out of poverty. It highlights and identifies issues and trends that cannot be captured using traditional sampling

procedures, and which may merit further research or consideration. Powerful though this instrument is, however, it should be noted that the panel that was

randomly selected in Year 1 to represent the population at that time will no longer be representative of the population in subsequent years. Therefore, it is not suitable for tracking changes in living standards at the aggregate level. It should also be noted that panel studies can be extremely complex to carry out, because households may be highly mobile and because the composition of the household itself changes from year to year. It may therefore be necessary to commission out such surveys to a university or research centre, which may be better placed to provide the level of dedicated supervision needed for complex studies of this type.

Comparisons over space

This involves making comparisons at the subnational level between different geographic areas, which are particularly relevant to ARD programmes. With the growing emphasis being placed on decentralized decision-making, there is need for disaggregated data that allow estimates and indicators to be produced at the district level or below. The constraint in this case is sample size. If one were to take a country with, for example, 100 districts, and apply the rule of thumb of 500 to 600 households per analytical domain, sample sizes of 50 000 to 60 000 households would be required. This is beyond the capabilities of most NSOs, and alternative avenues must be sought.

One option would be to use a rotating sample and cover, say, one-third of the districts each year. Thus, any one particular district would be covered once every three years. Another option would be to drop the idea of a centrally administered survey and to concentrate on building up capacity at the district level to undertake simple district level surveys. Over time, this may well be the best solution, but currently, it is highly questionable whether any of the less developed countries would have the capacity to undertake such survey work at the lower administrative levels. A third option would be to employ a combination of tools and to use them to impute values at highly disaggregated levels. These techniques have been successfully developed and used in the context of poverty mapping. They involve taking advantage of the *breadth* of coverage of population census data and the *depth* of coverage of a recent, integrated household survey, and using the two instruments to estimate poverty incidence variables at the level of the lowest administrative units. The fourth and possibly most promising option would be to de-emphasize the idea of collecting district-level information through probability-based household surveys and to focus instead on the analysis of administrative records, or to use community surveys to collect the data.

It is vital to think through the survey logistics before embarking on large sample surveys.

Counterfactual comparisons

These comparisons address such questions as “What would have happened had there been no project?” or “What if the project had been differently designed?” They open up opportunities for multi-sectoral and multidimensional modelling. Here, the analysis goes beyond the question of “Are agricultural incomes rising?” It probes the data to discover why they are or are not, and what they would have been like had there been no intervention. An integrated multi-topic survey is probably one of the best instruments to address such questions, but there are other approaches that can be used as well. Qualitative methods work well and provide insights that structured formal surveys only seldom do. Another option is to combine service delivery surveys with household budget surveys, which provide very nearly the same information base as the integrated surveys.

In conclusion, there are a number of tools now available for monitoring and evaluating ARD sector programmes, each with its own strengths and weaknesses. These need to be very carefully assessed because the collection and production of statistics data is not an inexpensive undertaking.

STRENGTHENING NATIONAL STATISTICAL SYSTEM CAPACITY

One must be careful not to generalize too much, but in many countries, NSSs have been severely under-resourced and have been unable to deliver both in terms of timeliness and data reliability. Their primary responsibilities are to collect and be the custodian of the entire nation’s official statistics. Yet, the national statistics databases suffer from gaps or are filled with imputed values that are themselves prone to gross errors. This has led users to become increasingly dismissive of the efforts of the NSO, and in the process to stop providing feedback on where and how the databases could be improved. The inevitable knock-on effect of this is that resources for statistics are further reduced. In Africa today, there is almost no NSO that is functioning without significant flows of donor funds. Yet, donor support has not been well coordinated and has actually had a distorting effect on survey programmes and priorities, leading to an unproductive and wasteful use of statistics services.

Agricultural and rural sector statistics cover a broad range of topics for many different primary products, including production, inputs, trade, resources, consumption and prices. The list becomes much broader, if one adds closely related topics such as the environment and climate statistics. They come from many different sources, both governmental and non-governmental. They may come from institutions operating within the agriculture and rural sector as well as from outside. Some come from international sources. The primary responsibility for collating all these data rests mainly either with the Ministry of Agriculture or with the NSO. Until the 1990s, most national statistical survey programmes consisted of traditional sectoral-focused surveys, including Labour Force Surveys (LFSs), health and education surveys and

Household Budget Surveys (HBSs), as well as agricultural surveys. For better-off countries, this continues to be the case, except that multi-topic household surveys have been added to the list. For the poorest countries, however, as resources became increasingly constrained, cuts and adjustments had to be made. Given the high cost of household surveys, the move towards integrated surveys was considered good value for the money, because multiple objectives could be met using just the one survey instrument. In these countries, multi-subject surveys started to replace other household surveys. While this has a number of advantages, the production of agricultural statistics has suffered in the process, because agricultural surveys – traditionally used to collect information on production, area, yield and prices – have been conducted with increasingly less frequency.

When agricultural surveys are carried out by Ministries of Agriculture, they often use an area-based sample frame and take the holding as the basic unit of enumeration. When carried out by the NSO, it is more likely that they will be integrated into the household survey programme and use a population-based frame with the household serving as the unit of enumeration. While this is perfectly satisfactory for the analysis of the many dimensions of household living standards, it is a less efficient design for agricultural statistics. The trend towards integration has meant that, in a number of poor countries, independent agricultural surveys have almost ceased to be conducted. Instead, an agricultural module has been added to an integrated programme of household surveys. Again, from the point of view of agricultural data, this has required compromises that have reduced the quality of the core agricultural data.⁴

Budget cuts have also meant that NSOs have had to lay off staff. One of the primary assets that many of them had built up was a permanent cadre of field staff spread across the country and living frequently in or near the actual primary sampling units of an NSO master sample frame. They were trained and ready to conduct any survey to which they might be assigned. This gave the NSO an enormous comparative advantage over other agencies. But with the layoffs, this advantage has been lost. In many cases, the permanent staff have been replaced with mobile teams of enumerators – again, cost-effective but statistically less satisfactory, because of language problems in the different regions and because any outsider arriving in the village was always treated with more suspicion than a permanent enumerator.

In reviewing the performance of NSOs over the past decade, one might conclude that when it comes to the basic task of survey implementation, NSOs still have a significant comparative advantage over other agencies. Their capacity for analysis is weak, however, and they are mostly not appropriately structured

4 For instance, when collecting standard household information, particularly information on incomes and expenditures, the reference periods are linked to the standard calendar month or week. For agricultural statistics, however, the more logical reference period is the agricultural season – but the schedule of visits to the household in an integrated survey tend to ignore this for operational reasons.

to take on the deeper analysis and exploitation of the surveys. In particular, NSOs with weak capacity should be wary of undertaking quasi-experimental surveys, or panel surveys requiring a high level of supervisory competence, if there is any danger that these may negatively affect their ability to deliver their core statistics programme. New alliances need to be formed with universities and research centres so that there would be a greater sharing and pooling of data gathering and surveying expertise.

The issue of *data access* remains a major issue for many countries. NSOs are extremely guarded about granting access to the primary data sets claiming in many cases that this would be a breach of confidentiality. The real reasons may be more related to a lack of technical capacity, particularly in the areas of data archiving and storage; unwillingness of management to allocate sufficient resources to build up competencies in this area; and fear of political interference.

Impact of devolution and decentralization

Any discussion on the evolving role of M&E and how it can be supported by the NSS needs to make reference to the challenge presented by the growing trend towards devolution and decentralization, and the parallel growth in demand for subnational (district-level) statistics. Subnational issues have become increasingly important in many countries. This interest parallels the increase in fiscal responsibilities of subnational governments and the evolving trend toward decentralization. Many countries now pursue broader decentralization reforms for a number of political and economic reasons, as well as for poverty reduction. Decentralized decision-making can bring governments closer to the people, overcome information asymmetries, and enhance transparency and accountability. While the arguments for pursuing a programme of decentralization are persuasive, its implementation is not easy. In many countries, the technical capacity of government departments at the subnational level is extremely weak, thus requiring a major capacity-building programme in all areas. This includes local-level capacity building in programme planning, implementation and M&E. With reference to M&E in particular, the relationship between central and subnational systems is complex, since subnational M&E systems have to respond to subnational needs as well as contribute to national needs, and the requirements of each are not necessarily the same. Essentially, the data are needed at much lower levels of disaggregation. Ideally, the goal would be to have results available at the level of the lowest administrative unit – the village or parish – and to make the results available to the communities themselves so that they can compare their village against other villages in their district, and their district against other districts in the country.

But the primary responsibility of the NSO is to provide reliable and timely statistics information at the national level, and its ability to do this may be jeopardized if it tries to spread its slender resources too thinly. If the NSO or other agencies within the NSS were simply to expand the coverage of

their ongoing surveys, the sample sizes would be prohibitively large – almost certainly beyond the resources of the NSO. Alternative solutions have to be sought. To begin with, the role of the NSO almost certainly has to change from survey implementation to training and quality assurance. Additional suggestions include: using local field resources (enumerators); using a rotating sample so that not all districts are covered at once; or conducting community-level surveys rather than household-level surveys. These and other options were discussed earlier in the chapter.

