Research Management Guidelines

Evaluating an Information Project:
A Letter to a Project Manager

Byron Mook

CTA

isnar

International Service for National Agricultural Research (ISNAR)

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ISNAR identifies and advances new arrangements that promote more effective generation of new knowledge. Emphasis on institutional innovation allows ISNAR to play a catalytic role in the change processes taking place in many developing countries. At the same time, it is strengthening its ability to play an important role in the new programs being developed by the CGIAR. The focus on institutional innovation puts ISNAR in a strategic position in a research community where national and international concerns are increasingly converging.

IFounded in 1979, ISNAR is headquartered in The Hague, the Netherlands. Regional offices are located in San José, Costa Rica; Pretoria, South Africa; and Washington, DC, USA.

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Technical Centre for Agricultural and Rural Cooperation

The Technical Centre for Agricultural and Rural Cooperation (CTA) was established in 1983 under the Lomé Convention between the ACP (African, Caribbean and Pacific) Group of States and the European Union Member States. Since 2000, it has operated within the framework of the ACP-EC Cotonou Agreement.

CTA's tasks are to develop and provide services that improve access to information for agricultural and rural development, and to strengthen the capacity of ACP countries to produce, acquire, exchange and utilise information in this area. CTA's programmes are designed to: provide a wide range of information products and services and enhance awareness of relevant information sources; promote the integrated use of appropriate communication channels and intensify contacts and information exchange (particularly intra-ACP); and develop ACP capacity to generate and manage agricultural information and to formulate ICM strategies, including those relevant to science and technology. CTA's work incorporates new developments in methodologies and cross-cutting issues such as gender and social capital.

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About the author

Byron Mook was one of the original members of the ISNAR senior staff. He served as Director of Information Management Services, Coordinator of Asia Programs, Director of Training, and he led major projects in Bangladesh, China, India, Indonesia, Iran, the Philippines, Sri Lanka, and Thailand. He is now Director of DigitalOrange, a startup company specializing in information planning and evaluation.

Citation

AGROVOC descriptors

capacity building; evaluation; information; management; methods; project evaluation

CABI descriptors

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Contents

Foreword

Agricultural organizations are under continual pressure to improve their performance; to meet diverse and growing demands from developing societies and endangered natural systems. Research is therefore called upon to become more pertinent and client oriented, extension has to become more effective and timely, and production more efficient and environmentally sustainable. Most recognize that this means agricultural organizations should improve their capacity to learn, and fast. In this effort, evaluation and impact assessment can play a crucial role.[1]

However, many practitioners have already observed that the more dogmatic, content-oriented evaluation tools from the past do not help much to induce wide-spread learning. They have called for the development of new, more open-ended and process-oriented approaches.

CTA and ISNAR have long taken active roles in addressing such issues. In January 1998, CTA organized an international workshop to discuss how the impact of information programs should best be assessed. CTA put to the participants from Africa, the Caribbean, the Pacific (ACP), as well as from the EU, the challenge to develop an agenda to improve evaluation methodologies and indicators, specifically regarding information programs.

Inter-agency collaboration being a hallmark of its work on evaluation, CTA sponsored international consultations in Bonn in 2001, in Amsterdam in 2002, and in Wageningen in 2003, to bring together development practitioners with a broad range of expertise, including evaluation, information management, extension and research. The collaboration is expected to develop a number of products—this *Letter to a Project Manager* constitutes the first one; an evaluation road map, a toolkit for performance evaluation, and a book on impact assessment are to follow. The *Letter* specifically answers the call for "a practical guide, written in plain and simple language" for practitioners in the field—a call formulated by an IDRC/FID study several years ago.

I am pleased to be able to introduce this joint ISNAR/CTA publication. It is indeed a "practical guide" to evaluation and impact assessment, written in the form of an informal letter to a project manager. It does not elaborate on theory but proposes nine concise "how-to" steps instead. Short and to the point, it is illustrated with tables and worksheets, and it includes empty worksheets for use by managers and others when processing data from their own projects. This "letter" will be an important step in moving forward both efficiency and field-level learning in information programs.

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1. P.G.H. Engel, C. Carlsson, and A. van Zee, 2003. Making evaluation results count: Internalising evidence by learning. ECDPM Policy Management Brief no.16, August. Maastricht: ECDPM.

Acknowledgments

Many people have contributed to this letter. Without your comments, criticisms, suggestions, and objections, it would not have been published. THANK YOU.

I presented a first draft at a CTA-sponsored workshop in Bonn (Germany) in late 2001. Participants said that they liked the idea of a short, practical, and informal guide to evaluation, though they suggested significant changes. My thanks to Allison Hewlitt of Bellanet (Canada), who compiled a detailed record of what everyone said and who added her own insights.

In mid-2002, LEAP IMPACT (`http://www.bellanet.org/leap/impact`) organized a three-month electronic discussion of a revised draft. I acted as moderator of this group and asked specific questions. Participants suggested still more changes. Thanks to Karen Batjes-Sinclair, who edited the revised version, and especially to Sarah Cummings of the Royal Tropical Institute (KIT, the Netherlands), who coordinated the discussion.

By this time, the letter was beginning to receive considerable positive feedback and publicity. The World Summit on Sustainable Development approached us to present it in South Africa, and Modupe Akande of Obafemi Awolowo University (Nigeria) did so on our behalf. Throughout the process, she has been an unwavering source of comment, encouragement, and enthusiasm.

Meanwhile, FAO/WAICENT decided to include a modified version in its "Information Management Resource Kit" (`http://www.fao.org/waicent/portal/outreach/resourcekit_en.htm`). The process of converting the letter from text to an e-learning format was challenging, and it showed us all how concepts that we thought were clear were actually fuzzy. My special thanks to Stephen Rudgard, Andrew Nadeau, and Fabiana Biasini.

I started the letter when I was a senior staff member at ISNAR. Several colleagues there made important contributions, particularly Doug Horton and Jan van Dongen (who has coordinated the production of this publication).

And finally, CTA. It originally proposed the letter and has supported it throughout. My thanks to Rodger Obubo and especially to Ibrahim Khadar. Without Ibrahim's continuing advice, help, and patience, it would never have been finished.

Byron Mook

Subject: Evaluating Your Information Project

Dear Project Manager,

The subject of this letter is evaluation. The goal is to provide you—the project manager—with a series of guidelines, checklists, and practical suggestions for carrying out an evaluation of an information project.

Why should you be interested in evaluation? The simple answer is that you probably have to be. The organizations that support you want to know how their money is being spent, your bosses want to know how you are performing, and even the public that you serve wants you to be accountable.

And you can benefit. An evaluation need not be threatening. If you manage it well, you will be applauded. Your organization will learn from the process, and your project will become even stronger. Most donors, bosses, and members of the public want you to succeed. In the best evaluations, the overall atmosphere is cooperative rather then adversarial.

Introduction

Here's the background to this letter. Most of you who are reading it are managers of agricultural information projects. Many of you work in Asia, Africa, Latin America, and the Caribbean. Over the past 20–30 years, your organizations have probably paid a lot of attention to investment in "first-generation" resources, mainly physical and human. These investments have paid off. Many new buildings, facilities, and personnel are in place. And now in the first decade of the 21st century, the investment emphasis is shifting to "second-generation" targets like organization and management, turning your resources into more efficient and effective programs.

One of the most effective tools for reaching this goal can be improved information. In 2003, we are still in the early stages of a telecommunications revolution that will change forever how we do research, technology transfer, and even farming itself. Already scientists and producers can access more information than ever before. PCs are becoming standard equipment in offices and laboratories. But the most critical question about all this technology often remains unanswered: are we using it to improve the efficiency and relevance of what we are doing?

That last question is really about evaluation. How to evaluate an information project? How do we know whether the objectives of the project were well set, whether implementation has proceeded smoothly, and whether there have been any impacts?

There is already a lot of literature on evaluation. You can find many books, journals, and newsletters of professional societies that specialize in the subject. You can read discussions of philosophies, principles, assumptions, approaches, and methodologies. But I suspect that you, as a practical manager, will not have found much of this literature very useful. Why not? I think there have been three problems.

- There has not been enough emphasis on actually "how to do it."
- There has not been enough recognition of the special features of information projects.
- There has not been enough attention to cultural and organizational issues in Asia and the Pacific, Africa, Latin America, and the Caribbean.

As you read this letter, you will see that I'll divide evaluation into nine steps. You can view them either as steps in an ongoing evaluation process or as steps in a one-off evaluation project. I'll come back to them at the end of the letter.

- Getting ready

  1. Mobilizing political support

  2. Building consensus

  3. Analyzing risk

  4. Developing an overview

- Carrying out the evaluation

  5. Defining content

  6. Creating your own "logic model"

  7. From "logic model" to questions

  8. Collecting data

  9. Analyzing and using results

Why evaluate?

The literature is full of discussion of why evaluation is necessary, but most answers fall under one of two simple headings: (1) to improve organizational performance, and/or (2) to measure benefits.

Why evaluate?

1. To improve performance

2. To measure benefits
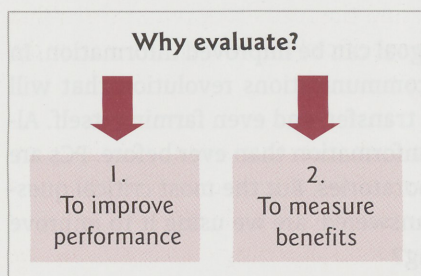
The primary focus of most evaluations is on objective 2. Funding agencies want to know about the "benefits" that a project has brought to farmers, to students, or to scientists. They often want quantitative measures of such benefits. They want to establish some degree of control over how their money is being spent, and they want implementing agencies to feel accountable. How did our training course for librarians affect their performance? How did our newsletter affect the adoption of new cultural practices?

Such questions are important, but often divert attention from objective 1. As a manager, your interests are probably somewhat different from those of funding agencies. You want to know why your project has succeeded (or failed). What has gone well? What has not gone so well? Was the appropriate information technology in place at the right time? Did scientists and extension personnel have the incentives and skills to use it efficiently? If you had an opportunity to start again, what would you do differently? What have you and your organization learned?

We can all think of alternative words to describe these two evaluation objectives. Under objective 1 we can talk about organizational learning or performance improvement, while under no. 2 we use words like benefits, or impacts, or accountability.

A distinction that several analysts use is between "formative" and "summative" evaluation: "When the cook (the manager) tastes the soup, that's formative; when the guests (the beneficiaries) taste the soup, that's summative."[1] I would say simply that the focus of objective 1 is on management while the focus of objective 2 is on impact.

Are information projects difficult to evaluate?

No, they aren't, if the focus is primarily on management (objective 1). But if the main focus is on impact (objective no. 2), then the evaluation of an information project is very similar to the evaluation of an education project. It's challenging. I see three main methodological issues.

Issue 1: What to measure?

Let's assume that you want the primary emphasis in your evaluation to be on the measurement of impact. What kinds of data should you collect on an information project that is supposed to bring about change in values, attitudes, skills, and behavior?

We can take the evaluation of a training course as an example. Usually we give a questionnaire to participants at the end of the course. Were the logistics well organized? Were the presentations clear? Was the subject matter useful to your job? How do you plan to use what you have "learned" once you go back to work?

Or, in the case of an evaluation of a publications project: did you receive the publications? Did you read all or part of them? Did you find the formats appropriate? What particular items did you find most useful? What specifically do you remember or did you learn? How will you use this new knowledge?

You can probably already see a major problem in such techniques. Many of the questions focus on what actually happened (the holding of a course or the publication of a newsletter), rather than on what changes have occurred as a result of what happened (the acquisition of new skills or behavior). In other words, by using such questions, we may have measured:

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1. Stevens, 1998, p. 6

- means rather than ends, or
- activities rather than impacts.

Most evaluations of information projects face this kind of problem. A framework that I have found useful appears in exhibit 1. There are four key concepts. If you are planning an evaluation, you will want to think carefully about the relevance of each one, particularly as it relates to the balance between objectives 1 and 2 (above) and the kind of changes that you want to measure.

Exhibit 1: Four concepts[2]

Concept	Short definition	Information project examples
Inputs	Resources used in the project	Money, people, buildings, equipment
Activities	What the project does with the inputs	Training courses, publications, delivery of documents, infrastructure development
Outputs	The amount of work actually completed	Numbers for the above
Outcomes/ impacts	The changes brought about by the activities and outputs	New commitment to library improvement, greater knowledge of the potentials of the WWW, increased skill in using new information technologies

Issue 2: How to attribute causes?

Let's continue with our example of a training course. What do we want to measure? Are we most interested in finding out if participants knew more after the course had finished, or if they behaved differently once they went back to their jobs, or if they were actually able to bring about any changes in their organizations or in the conditions of farmers?

You will notice three levels of outcome or impact in that question: (1) changes in skill, (2) changes in behavior, and (3) changes in the organizational and/or socioeconomic environment.

Most specialists who evaluate education projects have concluded that the second and third levels are almost impossible to get at. Why? Simply because there are just too many potential "intervening variables." Suppose our course has been for librarians. If the librarian participant really does behave differently after the course, how can we be sure that this change is the result of the course and not of something else? Or if the library sets up a new database to manage its journal holdings, is there any certain connection between this change and what one library employee learned in the course?

How can we solve such a problem? For the evaluation of most information projects, there will never be a substitute for a good questionnaire. Expected impacts such as new values, attitudes, knowledge, skills, and even behavior cannot usually be measured economically in any other way. But one step that you can take is to think carefully about systematic "before-and-after" data collection. If you give course partici-

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2. Adapted from United Way of America, 1996, p.xv.

pants a questionnaire at the beginning of the course, for example, and then another at the end, you may be able to draw at least basic conclusions about the effect that the course has had.

Even in such an ideal case, however, be careful about drawing conclusions that are too ambitious. The simple fact that attitudes have changed, or that knowledge has increased, does not mean that the course has brought about these changes or that people will behave differently.

Issue 3: How to measure change?

The challenge here is relating different types of impact to different time periods (exhibit 2).

In most evaluations of information projects, the data that are collected seldom go beyond the measurement of short-term impacts. The assumption seems to be that the short-term will lead to the medium-term, which in turn will lead to the long-term. But there is no certainty that such links will actually materialize. New attitudes do not necessarily lead to new behavior, and new behavior does not necessarily make any organizational or socioeconomic difference.

Exhibit 2: Different impacts, different times[3]

Time	Impact
Short term	Changes in values, attitudes, knowledge, skills
Medium term	Changes in behavior
Long term	Changes in organizational or socioeconomic conditions

So what can we do? Can we really measure medium-term and long-term impacts at a reasonable intellectual and management cost? I doubt it. Here's why.

■ **Intellectual constraints.** The issue here is one of causality (discussed just above). If you say that your project "causes" a certain impact, you will certainly want to measure that impact. But then you must ask two related questions first:

  • Has my project really had a significant influence on this outcome?

  • Has my project alone been responsible for achieving this outcome?

  If the answer to either question is "no" or even "maybe," you may be running the risk of attributing results to your project that are not really caused by it.[4]

■ **Management constraints.** If you still want to try to measure medium-term and long-term impacts, you will need to allocate additional resources to your data collection. For example, to find out about changes in behavior "caused" by a training

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3. United Way of America, 1996, p.32.

4. United Way of America, 1996, pp.50–51.

course, you will need a follow-up questionnaire after several months or even years. Or to avoid problems of subjectivity in self-reporting, you will need to consider moving beyond a questionnaire to field observations of actual behavior. All such techniques clearly require more management input and more money.

Are such constraints and conclusions pessimistic ones? Should you be disappointed if you decide to focus your evaluation mainly on short-term impacts? The answer is no. The only requirement at the beginning is to be sure that you are completely comfortable with the following three propositions.

- I will collect my evaluation data mainly with questionnaires and/or interviews.
- I will focus my questions on changes in values, attitudes, knowledge, and skills (row 1 in exhibit 2).
- I will assume that such changes will eventually lead to changes in behavior and that changes in behavior will eventually lead to organizational and socioeconomic change (rows 2–3).

You will still face exciting and difficult challenges. But if you decide on good measures for your impacts (issue 1), if you collect your data systematically (issue 2), if you do your analysis well (issue 3), and if your reports are well prepared, you will succeed.

Information projects and evaluation projects

You will have noticed that I have used the word "project" to describe what you are planning to evaluate. Some of your might feel that the idea of a "project" sounds too time bound and perhaps too donor oriented. Some of you might have preferred another word—maybe "program" or "activity." But here's what I mean.

When you manage an information ___, you are responsible for inputs, activities, outputs, and impacts. Taken all together, they are a ___. That's what you are evaluating; that's the subject of your evaluation. You can fill in the blanks with your own words. I've chosen the term "project," and therefore, in this letter, I'll use examples like a newsletter production project, a training project on electronic publishing, and an information technology upgrade project.

I'll also be using the word project in a second sense. You are probably reading this letter because you will soon be starting to manage another type of ___. Not an information ___ but rather an evaluation ___. This, too, will have inputs, activities, outputs, and impacts. What management issues should you be sensitive to and what management tools can you use for this evaluation?

To phrase evaluation in project terms is controversial. In theory, evaluation should be part of every information project. It should be a continuous process. It should start when a project starts and end only when a project ends. The budget for it should be included in the regular project budget.

In practice, however, such an idealistic approach often means that evaluation is not systematically managed. Evaluations have to be planned, organized, and implemented

within the constraints of resources and time. They do not just happen. If an organization has a detailed time reporting and financial management system, resources devoted to evaluation will have to be planned for and accounted for. In other words, an evaluation exercise can have—and probably should have—many of the characteristics of a project. It has to be planned, it requires resources, these resources have to be managed, and (ideally) even the evaluation itself might later be evaluated!

Getting ready

Step 1: Mobilizing political support

If your information project has been well prepared, you will already have many of your evaluation questions and procedures in place. The original proposal will have included a commitment to evaluation, resources will already have been allocated, and at least a rough schedule will have been agreed. The evaluation process will therefore be an integral part of the project cycle.

But the real world is seldom ideal. Even if there has been mention of evaluation in your original project document, it may have been included there more as an "add-on" than as an integral part of project activities. The main push may have come from outside funding agencies. In such a case, if you want the evaluation to help you, you will have to design your own procedures.

This first step will be the most important one in the entire process. Eight basic questions are listed below. You will need to answer each one in detail before you move on to anything else. Your answers will help you understand the "value base" of your evaluation.

1. Who originated the project?
2. Who is funding it?
3. Who is managing it?
4. Who is contributing personnel and/or physical facilities?
5. Who are supposed to be the main beneficiaries?
6. Who (if anyone) opposed the project?
7. Who (if anyone) is being threatened by the way in which it is being implemented?
8. Who (if anyone) may be threatened by some of the project outcomes?

Why should you pay attention to such questions? Quite simply, because you—as a manager—need to have a clear idea, a list even, of the key "stakeholders" in your project. And why do you need to be so precise about them? Again, quite simply, because the success (or failure) of your evaluation will depend on their cooperation. These stakeholders will be the organizations or individuals who can provide support to the evaluation (or oppose it). Who has an interest in the project? Who is likely to want the evaluation (or not want it)? A common mistake in the planning of project

evaluations is to keep the process too narrow, too "in house," and to miss out on the involvement of significant "interested parties."

Each of the eight questions is likely to generate multiple answers. When your list of stakeholders is ready, it will probably contain at least 10 names and maybe as many as 20–30.

Once you have this list, you can use it as the basis for creating a table something like exhibit 3. In the left column, you can list the stakeholders that you have identified. And in the right column you can try to write down their most important values regarding evaluation.

Exhibit 3: Stakeholder values

Stakeholders	Interests
Farmers	We want better information, but we don't want to have to say whether we've actually read a newsletter (for example) or exactly what we've done with information we've received.
Private-sector marketing organizations	We use information supplied by public agencies, but we don't want to be questioned too closely about precisely how we use it.
Extension workers	We want control over information that we use, and we don't want to have to criticize information given to us by research scientists or information professionals.
Research scientists	We must think about our scientific careers, and we don't want evaluations that focus too much on whether or how we've been serving the farming community.
Research managers	We want our organizations to work better, but sometimes our priorities get overwhelmed by those of outside funding agencies.
Information professionals	We don't have adequate facilities, but we don't want to sound as though we're blaming all our problems on lack of resources.
Commercial publishers	We're professionals in the business of information distribution, and we don't see why public money should be spent on performing a function that we think we can do better.
Universities	We're educators, and we want agricultural organizations to make more use of our expertise in the implementation of their training programs.
Agricultural policymakers	We're worried that evaluations are too often seen as "control mechanisms," and we don't want evaluation results that are critical of our performance.
International donor agencies	We're most interested in the "impact" of our programs on the "poor," and we're therefore less interested in building sustainable organizational capacities.

The immediate payoff of such a list of questions and table of values will be to use them as bases for creating an Evaluation Management Committee (EMC). Members of this EMC can, and should, include both insiders and outsiders, supporters, and skeptics. The leader should be a "champion," someone who is actively committed to the evaluation and who is politically influential. That last point is critical. No evaluation will succeed unless it is willing to follow the following "ABC" principle:

- Alliances
- Bargains
- Compromises

The "champion" will chair the EMC, will develop and manage the ABCs, and will (hopefully) fight and win political battles. Members of the EMC will almost certainly have different views about the evaluation, but it will be better to bring these differences out into the open at the beginning. An important payoff from a good EMC is to avoid having important stakeholders say later that "those other people just didn't understand."

Step 2: Building consensus

Once you have established your EMC, the next step is to create agreement on what is to be done. What topics should be included in the evaluation? What topics should not be included? A useful way to organize this discussion is to ask the EMC to address four basic questions.

1. What **needs** is the project supposed to address?
2. Who are supposed to be the main **beneficiaries**?
3. What are supposed to be the main **activities**?
4. What are supposed to be the main **outcomes**?

For shorthand, let's call this simple framework "NBAO" (**n**eeds, **b**eneficiaries, **a**ctivities, and **o**utcomes). To illustrate the range of answers that it can generate, try applying it to a hypothetical information project. Here's an example.

You are the manager of a project to publish a newsletter for farmers about the cultivation of onion. You decide to use the NBAO framework to begin your preparation for an evaluation. Members of your EMC include representatives of an international donor agency, the extension department within the Ministry of Agriculture, and the department of communications within the national university. Exhibit 4 shows some possible NBAO answers that you might come up with. Many of these answers will probably come from the original project document.

Exhibit 4

Needs

- to increase agricultural productivity
- to improve cultural practices for specific crops
- to provide extension workers with reference materials
- to give university students training in newsletter production.

Beneficiaries

- the international donor agency
- the Ministry of Agriculture
- the extension department
- the national university
- the communications department
- the national farmers' organization.
- farmers themselves
- consumers

- students
- the large (private-sector) company that publishes the newsletter.

Activities

- research, to produce materials for the newsletter
- production of the newsletter
- pissemination of the newsletter

Outcomes

- a rise in rural per capita incomes
- increased production of onion per hectare
- more farmer knowledge about this crop
- more extension agent commitment to work on this crop
- more student expertise in the production of newsletters.

This NBAO consensus-building exercise may not be easy. But it's the only basis for beginning to develop a detailed design for your evaluation. If the members of your EMC are unable to reach agreement on such general issues, you will obviously have a difficult time deciding what specific questions to ask and of whom. Even more important, if the key stakeholders on the EMC are not supportive at the beginning, you will run the risk of having them oppose or even ignore the results of the evaluation after you have finished.

Two good questions to start the EMC discussion could be the following ones.

- What does each member think that the evaluation should focus on?

- What do the organizations that the members represent want to find out?

Then try to determine the NBAOs. I have used the following technique. Give each of the EMC members a small pile of index cards and a felt-tipped pen. Start with "N." Ask each member to write down his or her opinions about the needs that the project is supposed to address. Let them state one need per card and use big letters. When everyone is finished, gather up the cards, pin or tape them to a large board that all members can see, and have everyone participate in trying to group them. The goal is to reach agreement on the needs. Repeat the process for the "B," the "A," and the "O."

Exhibit 5

✔ Decisions by course participants to do more electronic publishing.

✔ More awareness of the potentials of electronic publishing.

✔ Upgrades to existing hardware.

✔ Poverty alleviation.

✔ Decisions by 50% of course participants to undertake a least two electronic publications within the next year.

✔ More positive attitudes among top policymakers to electronic publishing.

✔ Development of a project proposal on electronic publishing for submission to international donors.

✔ Improved organizational capacities to manage similar projects in future.

✔ Procurement of state-of-the-art publishing software.

✔ More electronic publishing skills among course participants.

✔ A new policy by the Ministry of Agriculture on electronic publishing.

✔ Requests by participants for new hardware and software.

✔ Gender equality.

✔ Three new electronic publications organized by course participants.

✔ Improved career prospects for course participants.

✔ Increased support from international donors for electronic publishing.

✔ Dedication of PCs in participants' organizations to electronic publishing.

✔ More electronic publishing by course participants.

Let's use a training course on electronic publishing as an example. If you were to ask your EMC about the "O" (outcomes) for this project, you might come up with at least some of the cards in exhibit 5.

There is no order to this list. I have presented the responses just as members of an EMC might write them on cards in an early meeting. Some of the ideas are obviously vague, idealistic, and impractical. But if you do decide to try this card technique for getting input from your stakeholders, be prepared for such results! Most members of your EMC will not have participated before in the kind of rigorous evaluation that you are trying to organize. Your challenge will be to bring order to thoughts as scattered as the ones listed here, and in the process to learn (together with your EMC) how to become more precise about needs, beneficiaries, activities, and outcomes.

Remember, the overall goal of the NBAO exercise is to reach agreement with your

stakeholders on the subjects that should be included in your evaluation.

A table something like exhibit 6 is the logical end-product. I will continue to use the training course as an example. Down the left side are some of the stakeholders and across the top are the some of the project impacts (organized as per the categories in exhibit 2).

Exhibit 6: Different stakeholders, different impacts, different times

Stakeholders	Impact		
	Short-term change (attitudes, knowledge)	Medium-term change (behavior)	Long-term change (organizational or socioeconomic)
Course participants	Decisions by course participants to do more electronic publishing. Requests for new hardware and software. More electronic publishing skills. Career advancement.	Three new electronic publications organized by course participants.	Dedication of PCs in participants' organizations to electronic publishing.
Ministry of Agriculture	More awareness of the potentials of electronic publishing.	Upgrades to existing hardware.	A new policy on electronic publishing.
Ministry of Finance	More positive attitudes among top policymakers to electronic publishing.	Development of a project proposal on electronic publishing for submission to international donors.	Improved organizational capacities to manage similar projects in future.
International donors		Increased support for electronic publishing.	Poverty alleviation. Gender equality.

If you can get the members of your EMC to understand the cells in your version of this table, and to become committed to them, you will have jumped a major hurdle. You will then be ready for the next step in the process.

Step 3: Analyzing risk

This is one of the most difficult steps. The EMC must ask itself what is likely to go well with the evaluation, and even more important, what might go wrong. If the committee is broad-based, such a line of questioning may well place some members in difficult positions. Stakeholders can have either positive or negative stakes in what might happen.

An excellent method is to use a SWOT (strengths, weaknesses, opportunities, threats) analysis. A good starting technique is to ask each member of the EMC to write down on cards two items for each of the four SWOT headings—that is, two strengths (organizational or personal considerations that are likely to improve the evaluation), two weaknesses (the opposite), two opportunities (possible benefits from the evaluation if all

goes well), and two threats (things that might go wrong). The "W" and the "T" are particularly important and often neglected. The goal is to identify potential problems and to think, in advance, of how they might be overcome.

If the EMC needs a push to get started, or if you would like to give some hints as to the kinds of items that might be included in the SWOT analysis, the following list of specific questions may help.[5]

> **History.** Has the project been well planned? Has it been evaluated before? What information already exists?
>
> **Organizational politics and management.** Who are the biggest supporters of the evaluation? And the biggest opponents? Are there data that some organizations or people might not like to have collected? Are there data that, if collected, might actually harm the project?
>
> **Process.** What are likely to be the easiest parts of the evaluation? What can we expect to go well? What tasks are likely to be the most challenging?
>
> **Resources.** Are there enough funds, guaranteed, to complete the evaluation? And are there enough trained people to carry out all the necessary evaluation tasks?

Remember, the best evaluations will be political as well as technical. And the best planners hope for the best and prepare for the worst.

Step 4: Developing an overview

As I noted earlier, the literature on evaluation is full of approaches, frameworks, methodologies, and models. Many provide good background but are too general to be of much use in planning the specifics of an actual field evaluation. In this short section, however, I will present two exceptions that I have found useful. I've summarized them here and will return to each of them several times later as we talk about the mechanics of actually conducting your evaluation.

My reason for introducing a somewhat theoretical note here is to encourage you to stand back from the details of your evaluation and to think about the "big picture." My focus in this section is on the forest instead of the trees.

The first is the excellent approach to project evaluation published by the United Way of America. The UWA "conceptual chain" (exhibit 7) is really a variation of what management specialists would call a "black box." You have already seen a presentation of this model in exhibit 1.

The United Way model further divides outcomes into three categories: initial, intermediate, and longer term, depending on the type of change to be achieved and the time required for it to occur. You have already seen a modified version of this categorization in exhibit 2.

---

5. Adapted from Ricker, 1998, pp. 13–14.

Exhibit 7

> **Inputs**
>
> provide the basis for
>
> **activities**
>
> that lead to
>
> **outputs**
>
> that create
>
> initial **outcomes**
>
> that lead to
>
> **intermediate outcomes**
>
> that lead to
>
> **longer-term outcomes**.

Exhibit 8

> What is the information
> **content**
> of the project?
>
> What are the mechanisms for
> **collecting**
> this content?
>
> Once the content has been
> defined and collected,
> what are the procedures for
> **managing**
> it?
>
> And finally, what are the intended
> **uses**
> of the resulting information?

I think that the main strength of this model is that it focuses on outcomes. It says to us: the reason for having the project in the first place is to produce impacts, and we must therefore focus on the measurement of impacts in our evaluation. This point may seem obvious, but contained within it is the following caution: we should not mistake inputs, activities, or outputs for outcomes (impacts). Please go back to the discussion of the objectives for an evaluation on pages 2–3 and the discussion of "what to measure?" on pages 3–4. If our main objective is "to improve performance," then a primary focus on inputs, activities, and/or outputs may be appropriate. But if we want "to measure benefits," then we will have to focus mainly on outcomes (impacts).

The second framework is one that I have developed. The emphasis here is less on the logic of an evaluation and more on the mechanics of doing one. If the United Way approach says that we have to be clear about the connections between different parts of the project that we're going to evaluate, my approach says simply that we have to break our evaluation down into a series of clearly defined operational steps. Whatever our primary evaluation goal, we still have to go through these steps.
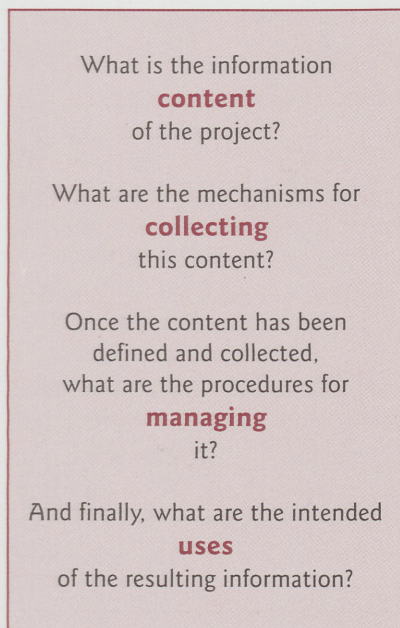
Specifically, we have to begin by defining the *content* (or data) required for our evaluation. Then we have to decide how we are going to *collect* that content. Then how the content that has been collected is going to be *managed* (and analyzed). And, finally, we have to decide how the content that has been collected, managed, and analyzed is going to be *used* (exhibit 8). As you can see, this framework—like the one from United Way—is very linear. So can we put the two together?

Yes, easily. For example, if we think that we need data on "inputs" in order to evaluate how well project resources have been acquired and used, then first we need to decide exactly *what* we need to know about inputs, *how* we will get these data, *who* will take care of them and analyze them once we have them, and *where* we will distribute our final products.

I will now try to integrate these two frameworks as we discuss how actually to carry out the evaluation.

Carrying out the evaluation

Step 5: Defining content

What data do you want to collect? Arriving at a precise answer to this question may be more difficult than you think. There are really two sub-questions here.

1. What do you want to know?
2. What are the best indicators for each item that you choose?

You and your EMC will need to spend considerable time on each of these issues. An all-too-frequent failure in the planning of evaluations is to rush into the creation of questions—"We know what we want, so we'll just ask." But there is an obvious danger here. If you are too quick to define your content, you will run the risk of basing your entire evaluation on data that are not collectible, not manageable, and/or not useful. Many project evaluations have failed because they have made one or more of the following mistakes.

■ Data are impossible to collect in ways that guarantee acceptable standards of vaidity and reliability.

■ Data are difficult to organize and analyze.

■ Data do not support the kinds of evaluation results (reports, actions) that stakeholders want.

A useful way to begin to deal with content issues is to create what the United Way calls a "logic model" of the evaluation. The building blocks of such a model are shown in exhibit 1.

This approach is somewhat different from the "logical framework" approach that many of us have been using for some time. How different? A logframe" is probably most useful at the planning stage of a project (or when setting priorities between projects). It requires the manager to think about goals and indicators of achievement, but it does not give us a framework for analyzing how a project will actually be implemented.

> A program logic model is a description of how the program theoretically works to achieve benefits for participants. It is the "if-then" sequence of changes that the program intends to set in motion through its inputs, activities, and outputs.

In contrast, a "logic model" is more useful at the evaluation stage, for an analysis of performance and outcomes. It focuses on specifying "if-then" causal relationships and "impact pathways." When something happens in a project, then something else should happen. Each event should lead to other events. A logic model therefore has elements of flexibility and dynamism that are often missing in a logframe.

I have constructed two logic models for our newsletter project as examples. The first model is in tabular form (exhibit 9) and the second is in a flow-chart format (exhibit 10). The important feature of both is the series of if-then relationships.

How precise and detailed can you be about similar causal relationships in your own information project?

Step 6: Creating your own logic model

In this section, you will find building blocks for creating your own logic model. Remember, the goal of this exercise is to create useful and usable evaluation questions. The time that you and your EMC spend at the beginning will pay huge dividends later. If you get your questions right, your data collection and data management will be easier, and the products of your evaluation will reach their intended audiences more easily.

So where to begin? As you can see from exhibit 9 and exhibit 10, before you begin to think in detail about questions to measure specific impacts, a prerequisite and a starting point is to be as clear as possible about inputs, activities, and outputs. Exhibits 11–13 provide outlines of three worksheets that you and your EMC can use as the basis for your own "logic model." I have filled them in with fictitious data from three different types of information project. The best approach may be for you and your EMC to work together to fill in these worksheets with data from your project. Only after you have all three worksheets completed should you begin to decide on your specific questions.

The first worksheet, exhibit 11, deals with **inputs**. Three questions need answering here.

1. What resources has your information project used?
2. Where have they come from?
3. What specific project activities have they contributed to?

There are two reasons why such questions are important for determining the eventual content of your evaluation. First, they provide even more detail about your stakeholders. As you and your EMC go through the exercise of listing inputs to your project, you may very well discover stakeholders that you missed in your initial analysis. Second, each input that you list should be part of at least one if-then causal chain. Whatever the primary focus of your evaluation—management or impact, formative or summative (see pages 2–3)—the precise analysis of results is obviously critical. Each input should be part of a process that leads to an outcome (impact).

Once you've finished the worksheet on inputs, you'll need to go on to the one on **activities** (exhibit 12).

1. What are the main activities in your project?
2. Who are the main beneficiaries?
3. What specific follow-up activities have occurred?

Exhibit 9: An example of a logic model in *table* format (a newsletter for farmers)

Inputs	Activities	Outputs	Outcomes (short-term)	Outcomes (medium-term)	Outcomes (long-term)
Funds from an international donor agency	Research, to produce materials for the newsletter	Ten articles submitted each quarter for possible inclusion in the newsletter	More farmer knowledge about new cultivation practices	Farmers spend less on inputs per hectare	Rise in per capita incomes of farmers
Funds from the Ministry of Agriculture	Production of the newsletter	Four published issues of the newsletter per year, with print runs of 5000 copies each	More extension agent commitment	Farmers get higher yields per hectare	Drop in unemployment of university graduates
Staff from the Extension Department	Dissemination of the newsletter	Distribution of at least 4000 of these copies each quarter	More student expertise in the production of newsletters	Extension agents report more field hours per week	
Staff from the Communications Department of the National University			Improved promotion chances for scientists and extension workers whose articles are accepted for publication	More students from the university join the Extension Department after graduation	
Participating students					
Physical facilities at the university					
Legal commitment from the (private sector) company that publishes and distributes the newsletter					

Exhibit 10: An example of a logic model in *flow-chart* format (a newsletter for farmers)

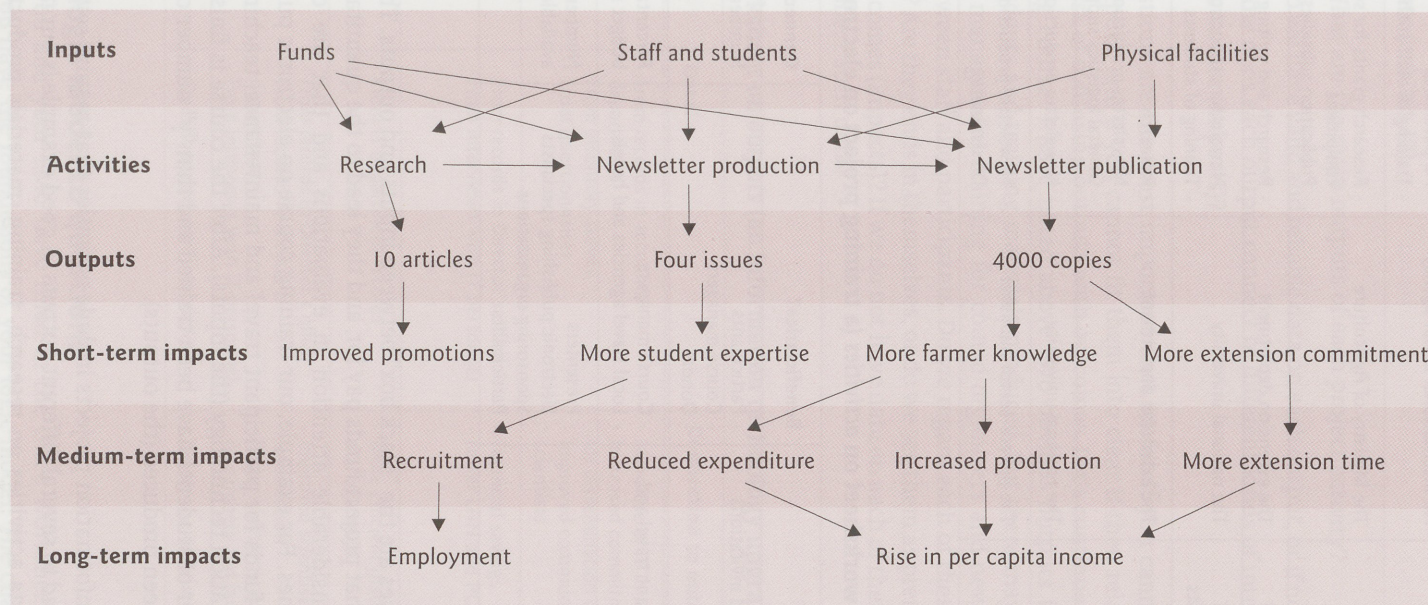|			
Inputs	Funds	Staff and students	Physical facilities
Activities	Research →	Newsletter production →	Newsletter publication
Outputs	10 articles	Four issues	4000 copies
Short-term impacts	Improved promotions	More student expertise	More farmer knowledge More extension commitment
Medium-term impacts	Recruitment	Reduced expenditure	Increased production More extension time
Long-term impacts	Employment		Rise in per capita income

Exhibit 11: Sample worksheet on *inputs* (a newsletter production project)

Input	Source	Input to what specific project activities?
Funds	An international donor agency	- PC purchases - Training of staff at the national university
Funds	The Ministry of Agriculture	- Research grants for scientists - Equipment - Publication subsidies
Human resources – staff	The extension department	- Research and writing
Human resources – staff and participating students	The national university	- Newsletter production - Training of students
Physical facilities	The extension department	- Research - Newsletter production - General logistics support
Physical facilities	The national university	- Newsletter production
Physical facilities	The private-sector publisher	- Newsletter production - Dissemination

Exhibit 12: Sample worksheet on *activities* (a training project on electronic publishing)

Activity	Beneficiaries?	Connection to Outputs?
Participant selection and invitations	- Participants - Course managers - Donors	Number of participants
Organization of participant travel and logistics	- Course managers - Local travel agencies and hotels	Percentage of annual training budget spent
Materials development	- Presenters - Electronic publishing specialists - Sponsoring organizations - Participants	Number of lectures and cases available for future courses

Activities are the "black box" between inputs and outputs. They are the events or services that project funds pay for, and they lead to the quantitative outputs that usually get considerable attention in evaluations and that are often mistaken for true outcomes. For example, our training course on electronic publishing (the activity) requires funds for participant travel and maintenance, teaching staff, and appropriate information technology (the inputs). After the course is finished, we can say that "x" number of students have been trained and that "y" number of new training materials have been produced (the outputs).

Most information projects include activities that require several different inputs and that lead to several different outputs. A good example is our newsletter project, which supports activities on research, training, materials production, and dissemination. Each of these activities has its own inputs marked for it, its own beneficiaries, encourages its own set of follow-up activities, and is therefore part of its own "if-then" causal chains.

Remember (again) that you are going through all this analysis because you want to create useful and usable questions for your evaluation. Two worksheets down and one to go.

Now **outputs** (exhibit 13).

1. What are the main outputs of each project activity?

2. Do we have valid and reliable data on each output, or if not, can we get them?

3. How does each output connect to different kinds of intended project outcomes (impacts)?

These questions are the most important ones so far. If you cannot be specific about project outputs, and if you cannot fit them into clear if-then relationships, then you run a big risk of confusing outputs with outcomes. Let's continue with the example of the training course. I have noted above two obvious outputs from such a project: trained students and training materials produced. But there may also be others, like on-the-job management training for course organizers and new interpersonal "networks" between staff and participants. Do we regard each of these outputs as equally important? Are they ends in themselves, or do we see them as prerequisites for the real project outcomes (impacts)? If we do not have data on each of them, do we really want to try to collect such data?

Exhibit 13: Sample worksheet on *outputs* (an information technology upgrade project)

Outputs	Data?	Connection to outcomes?
A campus-wide LAN	- From records in accounts department - From inventory survey - From questionnaires	- More use of IT in research - Increased commitment to use of new IT for dissemination of scientific information - Improved communication between scientists
New software licensing agreements to ensure continuing support and discounted upgrades	- From records in Director's office - From interviews with IT personnel	- Financial savings - Fewer LAN and PC operating problems
More powerful data management software	- From IT department records	- More efficient institute and program management
A multi-year contract with a national Internet Service Provider (ISP)	- From records in Director's office - From records in accounts department - From interviews with IT personnel	- Improved scientist access to international information - Better electronic communication between researchers and farmers
More skilled IT personnel	- Questionnaires and interviews	- Better use of existing IT

Step 7: From logic model to questions

OK. Now you and your EMC have filled in the three worksheets. By putting them together, you have the foundations of your logic model. The challenge is to use this model to formulate your evaluation questions. Good questions will make your findings useful and acceptable and will provide data that policymakers and managers can use

later as benchmarks in future evaluations. Good questions alone will not guarantee the success of your evaluation, but bad questions will almost certainly doom it.

As you try to decide what to ask, the following quote might serve as your motto: "*We measure what we care about (and) we care about what we measure*."[6] Are you sure that you really know what you care about? And what you want to measure? Or, another way of asking those same two questions: which outcomes are most important to your stakeholders, and what do they really want to know?

We have already seen that most information projects are quite complex. The typical one is likely to have numerous inputs, activities, and outputs—and therefore numerous potential outcomes (impacts). Do you want to measure all such outcomes? Or are you going to be selective? How do you set your priorities?

The biggest temptation in deciding on questions, and the biggest pitfall, is to take the easy way out. It is obviously simpler to base an evaluation on questions that you know can be answered, rather than on questions that might prove difficult or even awkward. Available data are easier than data that you have to dig for. And it is almost always more comfortable to go for data "that measure the non-controversial issues in overwhelming detail, while leaving out information on controversial issues".[7]

Here is one method for beginning this priority-setting exercise. Have each member of your EMC write down on cards the 10 most important questions that he or she would like to have included in the evaluation. One question per card. Take this group of 50–100 potential items (depending on the size of your committee), eliminate duplicates, and categorize the remaining questions by theme. Then for each of the possible questions still on the list, ask four supplementary questions.[8]

1. Who is this information for?
2. How will this intended user use it?
3. How will data be collected?
4. What resources will you need to collect them?

A good way to organize the answers that you get from this exercise is in yet another table. The objective is to make sure that each of the questions that you propose to ask is really needed, that the responses will be useful, and that the data are collectible. Exhibit 14 is an example of such a table with sample questions from our hypothetical newsletter project filled in. The best place for getting your own table filled in is probably in a meeting (or meetings) of the full EMC. You want to be sure that each important stakeholder has his or her special questions included, and if they are not included, that everyone understands why not.

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6. Meadows, 1998, p.viii.
7. Bossel, 1997, p.18.
8. Adapted from Stevens, 1998, p.18.

Exhibit 14: Sample questions—a newsletter production project

Question	Intended audience	Intended use	Collection method	Resources required
How much money was budgeted for this project? How much has been spent?	- Donors - Ministry of Finance	Financial control	- Accounts department	Low
How many articles have been submitted for possible publication?	- Research organizations - Universities	Evaluation of personnel	- Files	Low
How many students have been trained in newsletter production?	- Universities		- University records	Low
Have newsletter production and publication targets been met?	- Funding agencies		- Files	Low
Have the media production skills of students increased?	- Universities	Curriculum design	- Questionnaires	Medium
Do farmers have more knowledge of cultivation practices on onion?	- Funding agencies - Extension department	Newsletter design	- Questionnaires - Interviews	High
Are extension department staff more committed to working on these two crops?	- Extension department	Management of the extension department	- Questionnaires - Interviews	Medium
Are farmers getting higher onion yields?	- Ministry of Finance - Ministry of Agriculture	??		High
Have rural per capita incomes risen?	- Funding agencies - Ministry of Finance	??		High

Once you and your EMC have filled the table in, if you have empty cells in columns 1 or 2, or question marks in column 3, or unmanageable figures in column 4, then you may have to think seriously about eliminating the offending questions. Remember, these decisions about questions are actually decisions about the outcomes that you want to measure. You should ask yourself for each question whether the concepts and wordings that you are proposing really measure what you want to measure. What does any given outcome look like? What is the best indicator of it that you can imagine, regardless of whether data are available?

Here is another quote that you should post on your office wall: "*The grade is not the knowledge in the head of the student. The stock market price is not the value of the company. No indicator is the real system. Indicators are abstractions from systems.*"[9]

9. Meadows, 1998, p.6

Let's take our newsletter as an example of this idea. Suppose the impact that we seek is more farmer knowledge of cultivation practices for onions. What kind of an indicator would we ideally like to have? Can we look at numbers of copies of the newsletter produced, or can we use a questionnaire response from farmers who say that they have read it? Ideally, no. The simple facts that the newsletter exists and/or that farmers say that they have read it do not in themselves mean that they know more. If we are looking for a measure of increased farmer knowledge, then that is what we have to find, directly. Substitute measures will not be good enough.

But then we may have a problem. Please look again at the section "Are information projects difficult to evaluate?" (pp.3–6). The word "impact" implies a comparison, a change. If this change is in values, attitudes, knowledge, skills, behavior, or whatever, then we have to be precise about the level of that same something before the project occurred. In other words, we need "baseline" or "benchmark" data. We need to be able to say that the farmers whom we are targeting with our newsletter knew so much before they read it and then so much afterwards. Or we need to be able to say that the students in our training course on electronic publishing had such-and-such a level of skill before the course and such-and-such a level afterwards. We cannot rely solely on their own subjective estimates of that change after-the-fact.

Unfortunately, this "before-and-after" issue is a major one for many information projects. Training courses and publications, almost by definition, are designed to produce "increased" (or "more") awareness, knowledge, or skills.

So why do most information projects have to answer "no" to the question in exhibit 15? There are three very common reasons.

<table>
<tr>
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Exhibit 15

Has the project taken time **early** to collect the data necessary for a valid and reliable evaluation **later**?

</td>
<td>

- Planners have not included an evaluation component in the project at all, so no baseline data have been collected.
- Some kind of evaluation component has been included, but planners have decided that the cost of collecting both "before" and "after" data is too high.
- Baseline data do exist, but they cannot easily be compared to data that the evaluation team wants to collect now.

</td>
</tr>
</table>

Was evaluation part of your original project plan? Did some kind of logframe or logic model figure in your early project thinking? If the answers to these two questions are "yes," then indicators for the impacts that you want to measure may already have been considered in detail and baseline data may have been collected. But if not, you and your EMC may find yourselves with a less than desirable option: that is, to use indicator(s) that do not really measure your desired impact(s) and that may in fact be somewhat misleading.

So, what to do in such a situation? Here we come back to the statement earlier that all indicators are abstractions—no indicator is perfect. The challenge is to find measures that you can defend as logical and persuasive substitutes for the data that you wish you had or that you wish you could collect. What do you think of the following examples? I have listed these possible indicators in order of complexity. The easiest and

least satisfactory choices are obviously at the top of each list. The further down the list an option appears, the more difficult data will be to collect, but the more valid and reliable the indicator will be.

For the newsletter project. Suppose you are looking for an indicator of "more" farmer knowledge about cultural practices on onion. You might consider these options:

- number of newsletters distributed to farmers;
- percentage of farmers (in a sample survey) who say that they have read the newsletter;
- percentage of farmers who say that they actually learned something from the newsletter;
- percentage of farmers who can remember something specific from the newsletter about cultural practices for onion;
- percentage of farmers who can remember something specific about onion cultivation, and who can also say how that something is different from what they knew before.

For the training course on electronic publishing. Suppose you are looking here for an indicator of "more" skill in website design. What about these options:

- number of students trained;
- percentage of trainees who say that they were satisfied with the course;
- percentage of trainees who can describe exactly what they learned;
- percentage of trainees who say that they have more skills in website design after the course than before, and who can be specific in describing these skills.

If you and your EMC find yourselves operating under financial, personnel, or time constraints, you may feel that you have to select easier indicators. In that case, you will just have to do the best you can, all the time remembering that you may be measuring outputs rather than outcomes, means rather than ends. In the examples above, numbers of newsletters distributed or numbers of students trained are simply measures of process. They can tell us something about what the project did, but they tell us nothing about any benefits that the project brought to clients or participants.

> "The indicator looked fine, but (...) the actual target was hardly affected".[10]

What if such imperfect measures are the best you can do? Let's continue with the same two examples. In the case of the newsletter, suppose that you can collect data only on numbers of copies distributed and percentage of farmers who say they have read them? What can you conclude? Or, in the case of the training course, suppose that you can only obtain data on number of students who attended and the percentage who say that they are satisfied? (By the way, use of such limited measures is very common in the evaluation of information projects.) If you are confronted by such an inadequate data situation, my advice has two parts.

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10. Meadows, 1998, p.3.

1. **Be honest.** In defining the questions and indicators for your evaluation, be clear to everyone that you know exactly what data you want to collect, what their limitations are, and how your eventual conclusions should be interpreted.

2. **Be positive.** Make a strong case that the outputs for which you will collect data are prerequisites for the achievement of more hard-to-measure outcomes (impacts). In the newsletter example, the fact that a high percentage of farmers say they have read this publication is a necessary, though not a sufficient condition for the achievement of "more farmer knowledge." And in the training course case, if a high percentage of students say they have been satisfied with the course, you have met an important precondition for the development of "more skill."

Step 8: Collecting data

OK, now that you have made your basic decisions on the data that you need, you will have to decide how to collect them. How rigorous you are in this process will obviously determine the validity and reliability of what you get. The method may not be the message, but it will certainly affect the message.

But how to collect good data? You could easily fill several large bookcases with publications on the pro's and con's of various data collection techniques. I'm sure you and your EMC are already familiar with many of the issues. They are standard in social science, and, as the manager of an information project, you will know about many of them. Most are not unique to information projects anyway.

A few words about that last point. Try asking yourself the following questions: what are the data collection challenges that make the evaluation of information projects different from, say, the evaluation of public works projects? Think about methods. Is the organization of a field survey to find out what farmers think of a new irrigation scheme really much different from the organization of a survey to find out about the impact of our newsletter? What are these differences? I myself don't think that there are very many big ones.

Whatever your answers, you and your EMC should think of your data as parts of a chain that will only be as strong as its weakest link. Here's a sample of the kinds of questions that you will have to ask and answer.

- Where are the data:
  - in the heads of people (attitudes)?
  - in the actions of people (behaviors)?
  - in project records?

- What alternative methods exist for collecting these data:
  - mailed questionnaires?
  - interviews?
  - observations?
  - desk research?

- ■ What will be the likely costs of each of these collection methods?

- ■ In the case of questionnaires or interviews, how will respondents be chosen:

  - • people who have not benefited from the project as well as people who have?

  - • critics of the project as well as supporters?

A good starting point can be a worksheet similar to the one in exhibit 16. In the first column are five key data collection issues, in the second column brief descriptions of these issues, and in the third column examples from the newsletter project. How you deal with such issues will obviously be determined by the specific evaluation questions that you have identified (exhibit 14). The Kellogg Foundation has included the first four issues in its list of "things to remember," and I have added the fifth.[11]

The most important principle is actually quite obvious: *how* you collect your data depends on *what* data you are trying to collect.

Exhibit 16: Sample worksheet—data collection issues, principles, and solutions

Issue	Principle	Solution (newsletter project)
Method	"Determine data collection methods based on how appropriate they are for answering your key evaluation questions..."	- From national economic statistics - From agricultural production statistics - From project budgets - From training records - From questionnaires
Resources	"Tie method selection to available resources. This may mean revising your evaluation design and methods..."	- Research assistants - Interviewers - Data analysts - Database managers and IT specialists - Administrative assistants - Physical supplies (office, transport, data processing) - Funds (for all the above)
Respondents	"Choose methods based on what is appropriate for the target population and project participants..."	- Extension department staff - Trainees - Farmers
Variety	"Strengthen the credibility and usefulness of evaluation results by mixing evaluation methods when appropriate..."	- Hard data from national economic and agricultural production statistics - Hard data from project budgets and other records - Attitudinal data - Reports of skill and behavioral changes
Timing	Decide what data you need to collect at the beginning of the project, what data during the project, and what data (if any) at periodic intervals after the project is finished.	- End of project Ideally some benchmark data should have been collected at the beginning of the project.

Content determines method. Let's take questionnaires as an example. If you are looking mainly for "facts," you may be able to use a questionnaire that is quite tightly structured. But if you predominantly want "opinions," you will almost certainly need

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11. Kellogg Foundation, 1998, p.84.

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Exhibit 17

I once did research on the performance of public-sector agricultural organizations in India. The objective was to evaluate how field-level officials acted in particular administrative situations and why they took the actions that they did. To do this I needed to assess their behaviors and attitudes. But how should such data be collected? Should I use interviews or observations? And, if the former, should the interviews be conducted with or without a questionnaire of some kind? I made several false starts before arriving at a method that finally worked.

The first attempt was via a standard, fixed-response questionnaire, administered face-to-face. Two problems appeared repeatedly.

1. The questionnaire. A large majority of respondents admitted that they had little experience with questionnaires. Some said they found it difficult to understand the questions, while others said that they understood the words but just could not make a choice (or did not want to).

2. The procedure. Most respondents were curious as to why they had been included in the sample. Some were worried that they had been singled out and that whatever they said would not be treated in confidence. Others admitted to fears that we were government "consultants," while still others said that they thought their superiors or colleagues would pull them up for having met us at all.

So then we tried a more open-ended approach, but most respondents were not at all comfortable with such informality. They said that they actually wanted at least some kind of questionnaire, for two reasons.

1. Tradition. All surveys are expected to have questionnaires. What kind of an evaluation is this if you do not have a questionnaire?

2. Boundaries. A questionnaire helps set the limits of an interview, both in terms of content and in terms of time. A respondent who has a questionnaire knows exactly what will be asked, what is expected, and how long the entire process will take.

The final solution was a questionnaire that was approximately 75% open and 25% closed. We had a formal data-collection instrument, but both respondents and interviewers understood that the objective was to move beyond it to gather more informal data.

</div>

to use a flexible questionnaire and/or an interview. The evaluation of most information projects requires at least some attitudinal or qualitative data. For a training activity, for example, you will probably be less interested in numbers of participants than in whether they think they actually learned something (and then used what they learned). Or for a publications activity, you will be less concerned about numbers printed than about whether readers read the publication (and then used what they read). And if you want to measure changes in attitudes or behavior, as we've discussed, you will need to use "before-and-after" measures.

The solution for the evaluation of many information projects probably lies somewhere in between the two extremes above: neither completely fixed-response questionnaires nor completely open-ended interviews. The data for your evaluation will be richer if you can persuade respondents to communicate with you openly on those aspects of your project that they want to speak about. In exhibit 17, I have described an example from my own personal experience.[12]

How much will data collection cost? I noted above that content determines method. Now let's extend that logic by saying that content determines method which in turn determines cost. What data you want to collect (content) and how you want to collect them (method) will determine how much you have to put in (money, people).

Method determines cost. Some types of data and data collection methods are obviously more expensive than others. Behavioral data usually cost more than attitudinal data, and attitudinal data usually cost more than factual data. Open-ended interviews cost more than mailed questionnaires. But are they worth it? Even if you and your EMC have the best ideas about data content, your evalua-

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12. Mook, 1982, pp.8–12.

tion may be in danger if you do not allocate sufficient resources to the actual process of data collection. In many evaluations of information projects, the quality of data is the weakest link. And one of the biggest determinants of data quality is likely to be the skill of your interviewing staff. Two questions therefore need answering: how do you propose to train the interviewers, and how will you monitor their performance?

Because many of your potential respondents will probably not be completely comfortable with interviews, there are likely to be frequent "unusual situations." How will your interviewers react in such cases? Will they sometimes be tempted to introduce their own biases? You will never be able to protect yourself against all interviewer distortions of data, but money spent on a good training program at the beginning can provide at least a partial guarantee.

The general goal of such an interviewer training program is obvious: to get your staff to see the evaluation exercise as you do. Specifically, you will want to "teach" them to give more-or-less the same introductions to interviews, to use the same prompts, and to deal with crises in the same ways. If they are young and perhaps a bit inexperienced, and maybe overly enthusiastic, you will want to place even more emphasis on such training. And it can be ongoing. What about a program of 2–3 days training at the beginning, and then a 1–2 day refresher session halfway through? Here the training becomes a monitoring device. The objectives are to discuss problems, and particularly how unusual situations have been handled so far, and to agree (again) on how they should be handled in future.

So now you are ready to go. You have decided on the data that you want to collect. You know what data collection method(s) you want to use. You have the necessary resources in place. But where will you actually get your data? Whom will you interview and/or to whom will you send questionnaires? I assume at this point that you have at least a rough idea of where the data are (that is, who has them).

Cost determines coverage. So, now another caution. Try to be as clear and convincing as possible about the respondents whom you select. Make a good case. Who are they? How did you choose them? Who is not included and why not? The reason for paying exaggerated attention to such questions is the credibility of your entire evaluation exercise. If the audience for whom your evaluation is intended has any doubts about your "sample," it will definitely question your findings, and may then be tempted to disregard the results of your entire effort.

As you choose your respondents, you will need to make decisions about at least three issues that go beyond questions of sampling. These issues are generic, in the sense that they apply to the evaluation of all types of projects, not just to the evaluation of information projects. I will mention them only briefly.

1. **Supporters and critics.** Are your respondents likely to give opinions about program weaknesses as well as strengths? Do they include individuals who have not benefited from your program as well as ones who have? Again, the issue here is one of perceived objectivity. Most evaluations have a bias in favor of promoting good news and avoiding bad news. The best way to counter such allegations is to

make sure that your sample includes at least some potential skeptics. The goal is to hear all sides.

2. **Dropouts and exclusions.** Do your respondents include people who could have been beneficiaries of the program but who for some reason chose not to participate? Let's take the newsletter as an example. Some farmers will have read it and some not. What influenced their decisions? Why did the non-readers not read it? Were some of these non-readers somehow actually excluded? If you focus your questions and your data collection only on those who say that they have read the newsletter, then you obviously run the risk of distorting your results.

3. **Different people at different times.** Should you have different questionnaires for different groups of respondents? This time let's take the training course as an example. Suppose that one of the course objectives has been to improve instructor performance. Whom should you ask to find out if there have been any changes in attitudes or skills? When should you ask these questions?

   - One obvious respondent group is the participants. And at least the first time to interview them is probably just when the course has finished.

   - Another group may be the instructors themselves, but when should you interview them? Right after this course and/or just before the next one? It is very possible that they will only be able to say if and how they benefited from their first effort after they have had time to digest the experience.

   - And yet another group of respondents may be the supervisors of the instructors. They will probably have a longer-term view. Ideally you might want to interview them 1–2 years after the course has finished, although most evaluations cannot wait that long.

Is data collection a one-time job? In the evaluation of many information projects, it often seems to be. Here's a common scenario. The sponsoring organizations put together an evaluation team near the end of the project. They want (hopefully favorable) results quickly. The team decides to go for relatively easy and straightforward data, usually collectible via a questionnaire. It tabulates the results and submits its report. The entire process sometimes takes fewer than three months for a project that may have lasted five years.

But is this approach a good one? Does it even make intellectual sense, particularly for an information project? I have made the point many times that the measurement of impact is the measurement of change. If you really want to evaluate impact, you will need data on skills, behavior, and/or organizational situations before your project started and after it has finished. Therefore, at least two data collection points are needed. And if you want to measure medium-term or long-term outcomes, you will probably need even more data collection points.

Let's take the training course as an example again. Have the course participants really put the electronic publishing skills that they acquired to good use? Have the instructors really improved their materials and become better presenters? In other words, in both cases, has their behavior changed? In order to answer such questions, you may need to collect data three or more times.

Difficult? Yes. Impossible? Maybe. But the best defense remains a good offense. Remember: an evaluation of management as well as benefits (pages 2–3), of "performance" as well as of "impact," requires that data collection occurs at multiple points throughout the life of the project.

Step 9: Analyzing and using results

Now that you have your data, what exactly are you going to do with it? How can you put to the best possible use each answer or statistic that you have collected? How often have you seen "good" data turned into "bad" analysis? And how many times have you seen "good" analysis turned into a "bad" report? Data do not stand on their own.

But where to begin? There is no substitute for planning ahead. Here is a short checklist of things to consider.

1. **From data to analysis.** Data do not organize themselves. So, after the data have been collected, how will they be organized and managed, and who will be responsible?

   - Is the appropriate technology in place?

   - What procedures have been agreed upon to check and clean up raw data as they come in from the field?

   - Who will be responsible for data entry?

   - What plans have been made to draw up preliminary formats for reporting results?

Exhibit 18 is a worksheet that I have found useful in thinking about such questions. The entries in the third column are my examples. You and your EMC might try to fill in this column with entries appropriate to your own evaluation exercise.

Remember:

- There will be many cooks trying to stir the soup.

- There are several different and distinct jobs to be done.

- Just because computers will be used does not mean that IT specialists should run the entire process.

- The same people should probably not take the lead in doing all the jobs.

2. **From analysis to conclusions.** Now you have the collected the data, organized the responses to each question, and each statistic is in its proper place, but how will you analyze all these different pieces of data? A good caution is one attributed to the former British Prime Minister, Benjamin Disraeli, by the American writer, Mark Twain, that there are "lies, damn lies, and statistics."

3. **From conclusions to a report.** Is there a draft outline of that report, and who has prepared it?

4. **From a report to a publication.** Is there a plan for publishing the report and for disseminating it to appropriate audiences?

Exhibit 18: Sample worksheet—analyzing and using results

Function	Question and potential problems	Alternative problem solver(s)
Hardware	*Question:* Is access to PCs in any way limited? *Potential problems:* PCs in a restricted "computer services" room. Available for use by trained "computer services" people only.	- Computer services manager - You
Software	*Questions:* Who has selected the software that will be used? Are members of the evaluation team familiar with it? *Potential problems:* Software able to run on only some machines. More complicated than necessary.	- Computer services manager - You and your EMC - The organizations that are funding and sponsoring the project
Data checking	*Question:* Who will make sure that data are complete and in appropriate formats? *Potential problems:* Missing data, double entries, unclear answers.	- Data collectors - Data enterers - IT specialists - You
Data entry	*Question:* Who will ensure quality control during the conversion of data from analog to digital formats (from hardcopy to PC)? *Potential problems:* Double entry, missed records.	- Data collectors - Regular office personnel - IT specialists from the computer services unit - You
Preliminary report formats	*Question:* Who will create the frameworks, outlines, and tables that will provide the basis for data analysis? *Potential problems:* Unclear data priorities, indiscriminate reporting.	- IT specialists from the computer services unit - The organizations that are funding and sponsoring the project - You

Evaluation management

I hope that you have read the letter up to this point (rather than just having jumped to this last section). If you have, I expect that you will have made at least a mental list of the steps in your evaluation. Here are the major ones again.

1. Mobilizing political support
2. Building consensus
3. Analyzing risk
4. Developing an overview
5. Defining content
6. Creating your own logic model
7. From logic model to question
8. Collecting data
9. Analyzing and using results

You can think of each one of these nine steps as a phase in the evaluation process.

Exhibit 19 is a worksheet that I hope will make it simple, filled in with generic examples. Good project management practice actually *requires* that you complete such a

Exhibit 19: Worksheet—project management planning

Phase	Inputs	Activities	Time	Outputs
Secure funds for the evaluation	- Original and revised project proposals	- Formal request for funding authorities	Two weeks	- Allocation of funds
Agree on list of stakeholders	- Project staff	- Project meetings - External consultations	Two weeks	- Draft list of stakeholders
Create an EMC	- Permissions - Operating funds	- Invitations - First meeting	Six weeks	- Agreed TOR - Agreed plan for the evaluation
Fill in the NBAO framework and analyze risks	- EMC	- EMC meetings - External consultations	Three weeks	- Completed NBAO - Completed risk and SWOT analyses
Define content and agree on logic model	- EMC - Project staff	- EMC & staff meetings - External consultations - Field visits	Four weeks	- Agreement on what is to be evaluated - Consensus on a logic model for the evaluation
Formulate specific questions	- EMC - Project staff - Interviewers	- Appoint interviewers - Meetings - Field visits - Pre-tests	Four weeks	- Questionnaires - Agreement on data collection procedures
Collect data	- Project staff - Interviewers - Transport - Supplies	- Questionnaire mailings - Interviews - Office visits (for statistical data)	Eight weeks	- Questionnaire data - Interview data - Statistical data
Aggregate data & analyze results	- Project staff - Data analysts - PCs - EMC	- Validate raw data - Enter data in PCs - Prepare data summaries	Four weeks	- Clean data - Draft summaries and reports - Analyses
Prepare reports	- Project staff - EMC - Other stakeholders	- Report drafting	Three weeks	- Final reports

worksheet *before* you start your evaluation. In fact, it is a prerequisite if you want to use any of the main project management techniques like Gantt charts, work break-down structures, flow-charts, or critical path analysis. It's also a precondition for use of any of the standard PC-based project management software packages.[13] So first fill in the worksheet. Your list of phases will undoubtedly be different from mine, but when you're finished, with a list that is either shorter or longer, you should be able to recognize three immediate payoffs:

■ a clear statement of the management jobs you need to do;

■ a first indication of the order in which you need to do them;

■ a preliminary note on the main components of each job (inputs, activities, outputs).

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13. If you want to use project-management software, you have more than 50 different packages to choose from. There is a good list at www.infogoal.com/pmc/pmcswr.htm.

With this worksheet to hand, you'll be able to construct a Gantt chart, like the example in exhibit 20. I expect that you have used such a chart before—it is one of the most common project scheduling techniques, very easy to construct and very easy to understand. You and your EMC can use it to visualize the phases in your evaluation "project," the order in which they will occur, and the time required to do each one (and therefore to complete the entire project).

That's all. I hope that you have found my letter useful. Please send your comments and suggestions! And GOOD LUCK with your evaluation!

Byron Mook (byron@mook.org)

Exhibit 20: A Gantt chart using data from exhibit 19

Phase	Time							
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Secure funds for the evaluation	▶							
Agree on list of stakeholders	▶							
Create an EMC		▶						
Fill in the NBAO framework and analyze risks			▶					
Define content and agree on logic model				▶				
Formulate specific questions				▶				
Collect data					▶			
Aggregate data and analyze results							▶	
Prepare reports								▶

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Annex (Worksheets)

Your Worksheet 1: Indicators

Question: How easily can you turn project concepts into indicators of project performance?

Task: Decide on a tentative list of indicators for each concept.

Concept	Short defnition	Indicators from the information project that you are evaluating
Inputs	Resources used in the project.	1. 2. 3.
Actitivities	What the project does with the inputs.	1. 2. 3.
Outputs	The amount of work completed.	1. 2. 3.
Impacts	The changes brought about by the activities.	1. 2. 3.
Impact indicators	The amount of change	1. 2. 3.
Impact targets	The amount of change that the project wants to achieve.	1. 2. 3.

Your Worksheet 2: Stakeholders

Question: Which key stakeholders can you identify for your project?

Task: Specify the outcomes (impacts) that each stakeholder wants to achieve.

Stakeholder/ impact	Short-term change (attitudes, knowledge)	Medium-term change (behavior)	Long-term change (organizational or socioeconomic
Project beneficiary 1	1. 2. 3.	1. 2.	1. 2.
Project beneficiary 2	1. 2. 3.	1. 2..	1. 2.
Project beneficiary 3	1. 2.	1. 2.	1. 2.
Ministry of ??	1. 2.	1. 2.	1. 2.
Ministry of Finance	1. 2.	1. 2.	1. 2.
NGOs	1. 2.	1. 2.	1. 2.
International donors	1. 2..	1. 2.	1. 2.

Your Worksheet 3: Inputs

Question: What inputs have you used to implement your project?

Task: Describe the contribution of each input to one or more project activities.

Input	Source	Input to what specific project activities?
Funds—local	1. 2. 3.	1. 2. 3. 4.
Funds—international	1. 2.	1. 2. 3.
Staff—project management	1. 2.	1. 2. 3.
Staff—project implementation	1. 2.	1. 2. 3.
Physical facilities	1. 2.	1. 2.
Participants in the project	1. 2. 3.	1. 2. 3.

Your Worksheet 4: Activities

Question: What activities have you undertaken in the course of your project?

Task: Identify the beneficiaries for each of these activities, as well as the follow-up activities that will be required.

Activities	Beneficiaries?	Connection to outputs?
1.	1. 2. 3.	1. 2. 3. 4.
2.	1. 2. 3.	1. 2. 3.
3.	1. 2. 3.	1. 2. 3.
4.n	1. 2. 3.	1. 2. 3.
5.	1. 2. 3.	1. 2. 3.
6.	1. 2. 3.	1. 2. 3.

Your Worksheet 5: Outputs

Question: What have been the major outputs of your project?

Task: Specify the data to be collected to measure these outputs, and how these outputs are logically connected to outcomes (impacts).

Outputs	Data?	Connection to outcomes?
1.	1. 2. 3.	1. 2. 3. 4.
2.	1. 2. 3.	1. 2. 3. 4.
3.	1. 2. 3.	1. 2. 3. 4.
4.	1. 2. 3.	1. 2. 3. 4.
5.	1. 2. 3.	1. 2. 3. 4.
6.	1. 2. 3.	1. 2. 3. 4.

Your Worksheet 6: Evaluation questions

Question: What questions will you ask about inputs, activities, outputs, and impacts?

Task: Draft a list. Pay specific attention to issues of how you will collect data and how you will use them.

	Intended audiences	Intended use	Collection method	Resources required
1.	1. 2.	1. 2.		1. 2.
2.	1. 2.	1. 2.		1. 2.
3.	1. 2.	1. 2.		1. 2.
4.	1. 2.	1. 2.		1. 2.
5.	1. 2.	1. 2.		1. 2.
6.	1. 2.	1. 2.		1. 2.

Your Worksheet 7: Data collection

Question: How will you collect your data?

Task: Base your data collection on accepted research principles.

	Principle	Solution (your project)
Method	"Determine data collection methods based on how appropriate they are for answering your key evaluation questions..."	1. 2. 3. 4. 5.
Resources	"Tie method selection to available resources. This may mean revising your evaluation design and methods..."	1. 2. 3. 4. 5.
Respondents	"Choose methods based on what is appropriate for the target population and project participants..."	1. 2. 3. 4. 5. 6. 7.
Variety	"Strengthen the credibility and usefulness of evaluation results by mixing evaluation methods when appropriate..."	1. 2. 3.
Timing	Decide what data you need to collect at the beginning of the project, what data during the project, and what data (if any) at periodic intervals after the project is finished.	1. 2. 3.

Your Worksheet 8: Project management planning

Question: How will you manage your evaluation?

Task: Specify inputs required for and outputs expected from each management task.

Phase	Inputs	Activities	Time	Outputs
Secure funds for the evaluation				
Agree on list of stakeholders				
Create an EMC				
Fill in the NBAO framework and analyze risks				
Define content and agree on logic model				
Formulate specific questions				
Collect data				
Aggregate data & analyze results				
Prepare reports				

The subject of this publication is evaluation. The writer was commissioned to produce "a practical guide, written in plain and simple language." The goal was to provide policymakers and managers with a set of guidelines, checklists, and field-oriented suggestions for carrying out an evaluation of an information project.

Agricultural development organizations in Asia, Africa, and the Americas are under increasing pressure to improve their performance. The public demands that research become more client oriented, that extension become more timely, and that producers make better use of new information products and services. Evaluation can and should contribute to such changes.

The tone of this "letter" is informal. The focus is on nine "how to do it" steps, each well illustrated with tables and worksheets. Included in the annex are empty worksheets that managers and other interested readers can fill in with data from their own projects.

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