GUIDE TO COMPREHENSIVE EVALUATION OF THE NUTRITIONAL ASPECTS OF PROJECTS AND PROGRAMMES

Instituut voor Tropische Geneeskunde "Prins Leopold" - Antwerpen
Institut de Médecine Tropicale "Prince Léopold" - Anvers

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- Institute of Tropical Medicine, Nutrition Unit.
- University of the Philippines at Los Baños, Institute of Human Nutrition and Food, College of Human Ecology.
- Koninklijk Instituut voor de Tropen, Department of Health Care and Disease Control.

Promotors of the research on which the guide is based.

I. Beghin, IMT
J. Eusebio, UPLB
J. Kusin, KIT
P. Van der Stuyft, IMT

Contributors in the research.

E. Balitabat, UPLB
I. Beghin, IMT
R. Carranza Camey, GUA **
E. Dacanay, UPLB
R. Dacanay, UPLB
C. Deliens, IMT
J. Eusebio, UPLB
I. Greindl, IMT
J. Kusin, KIT
L. Lantican, UPLB
P. Lefèvre, IMT
C. Ramos, UPLB
L. Ramos, UFRJ *
S. Redondo, UPLB
V. Tellier, IMT
P. Van der Stuyft, IMT
I. Venema, Wageningen

Drafting of the guide.

P. Lefèvre and I. Beghin

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* UFRJ : Universidade Federal do Rio de Janeiro
** GUA : Ministry of Health, Guatemala

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1.

PRESENTATION OF THE GUIDE

This guide is the product of a broader and larger research programme aimed at studying nutrition in rural development projects. The overall research has a long term objective of developing a methodology for the selection, design, and evaluation of interventions for improving the nutritional status of deprived rural populations.

The research programme is a joint venture between the University of the Philippines at Los Baños (UPLB), the Institute of Tropical Medicine at Antwerp, and the Royal Tropical Institute of Amsterdam. Most of the field work and validation of the present methodological proposal was done in the Philippines under the responsibility of UPLB. The project that served to experiment the method, the Barangay Integrated Approach for Nutritional Improvement of the Rural Poor (BIDANI), was an innovative approach to rural development by UPLB since 1978. It consists of simple methods of developing micro-development projects at the village level under the general umbrella of nutrition (see Annex 1). Significant contributions from Brazil and from Guatemala were incorporated in the text (see Annex 3).

The guide is concerned with the evaluation of the nutritional implications of relatively large-size projects and programmes, which are not necessarily aimed at improving nutrition, but which, explicitly or implicitly, are expected to contribute to improving the nutritional status of target populations. Such programmes or projects are in the areas of integrated rural development, health services, regional development, health and nutrition, etc.

The guide is intended to assist individuals and organisations who have the responsibility of evaluating interventions. These may include :

- sponsors or funding agencies;
- a government authority (ministry, central government, etc.);
- the implementors (programme or project planners and/or managers), the executing agencies;
- the beneficiaries themselves, and/or
- outsiders (free lance evaluators, universities, etc.).

Its presentation assumes the existence of a team. The evaluation team should consist of any combination of the above, but must include people generally knowledgeable in evaluation methods, implementors, and as often as possible, representatives of the beneficiaries. It is also assumed that there exists, among the participants in the evaluation process, acceptance of their role in evaluation and good will to perform it honestly and as objectively as possible. Reality, however, is different, and personal interests, conflicts, political issues, etc. will often interfere with evaluation. The authors have taken the view that participatory evaluation reduces the effects of such interferences, thanks to the process of negociation it implies.

In the opinion of the authors, evaluation is primarily a tool for management. Evaluation, therefore, is understood as a continuous process, which ideally should start at the planning stage of the intervention, and last throughout its life. Allowance is made, however, for the fact that this is far from being always the case : therefore much consideration in this guide is given to situations where evaluation is decided upon, and/or initiated, when the project or programme is already well underway.

In an effort to simplify and demystify evaluation, simple tools have been used in this guide to facilitate its appropriate use. Operational objectives and processes have been given precedence over impact and outcome objectives and much attention has been given to explaining what is observed; what works or worked; what does not, or did not work; and why ? Nutritional interventions *per se* have thus been less the centre of attention than the combination of factors -some controlled and others not- which contribute to the desired result.

The method is expected to improve the overall quality of evaluation, reduce its cost, and help getting at conclusions faster through an improved way of selecting variables and relevant information. In addition it should help to increase the understanding of the mechanisms of malnutrition in the area of concern as well as of the means to combat it. It is concerned with the "internal" validity of the conclusions, i.e. with providing the most valid answers to the questions of the evaluation's users. It is not concerned with generalizations. If the sponsors would wish generalizations to be made possible, i.e. to ensure "external validity" of the evaluation's results, then the design of the evaluation should often be modified, and its cost would increase in virtually all cases.

Throughout the guide -as indeed throughout the research that led to it- three postulates underlie the thinking and the development of the method. These are a concern for rationality; for comprehensiveness, i.e. a global or holistic approach; and for participation. Emphasis is laid in the text on these underlying assumptions and on their methodological implications. A few examples are given, but only as illustrations. The guide is not a recipe book, even less a "how to" manual. It should be used flexibly : common sense and sound judgement need to be exercised. Users should not be tied by the content or the sequence proposed here, but they are encouraged to improvise, adapt and improve, while at the same time respecting the general underlying rules.

Participants in an evaluation exercice will become familiar with the method with relative ease. Since the method possesses inbuilt characteristics of communication and of team work, whatever difficulty is encountered will generally be overcome through the efforts of the group. The guide may also help professional evaluators who hopefully will find in it elements for reflexion and different approaches that they may like to incorporate in their actual practice.

Some parts of the proposed method are already well established. Others, however, although logical and acceptable, do still await further testing under diverse conditions or in different circumstances. This is why important dimensions of evaluation, such as the place and role of non-quantitative information in evaluation and process evaluation, have not been dealt with. The guide is mainly concerned with the choice, collection, and interpretation of quantitative information.

Finally, consideration of cost -project cost and cost of the evaluation- are not dealt with either.

The reader will find at the end of the guide a list of references, a glossary, and various annexes in which specific topics are illustrated or complemented.

2.

MAIN CHARACTERISTICS OF THE METHOD

2.1. Introduction

This guide attempts to provide a few answers to the problems faced by evaluators in circumstances that are typically characterized by the following situations :

(a) The subject of evaluation is either a large and complex programme or project, or the nutritional component of a programme or project wich does not necessarily possess explicit nutrition objectives.

(b) There is no possibility or willingness to use an experimental design either because of the size or heterogeneity of the population; the complexity of the project; ethical reasons; or because of time, cost, or technical constraints.

(c) The cost of evaluation has to remain a reasonable proportion of the overall project or programme cost.

(d) The evaluation has to be performed anyhow, even in cases where the project's objectives are not clear, are ill-formulated, or are not consistent.

(e) The moment in the project cycle at which the evaluation is initiated may vary widely, from the *ex ante* evaluation attempted before action starts; the evaluation of an on-going intervention throughout the intervention's life; or an *ex post* evaluation, i.e. when the project is completed.

What is proposed here is related to the common situation in which an expert or an institution, or still a team of specialists in different fields, are requested to evaluate a programme or a project supposed to affect nutrition. Very frequently such evaluation is undertaken while the project is in progress, but when at the same time evaluation had not been properly built in during project preparation. It is for this situation, essentially, that the guide is written. Variations on this basic situation are discussed in Part III.

A general discussion of the basic characteristics of the proposed evaluation method and its underlying assumptions is presented below.

2.2. Main characteristics of the method

The method is characterized by :

(a) Comprehensiveness.

(b) The importance given to the process and to the operational (output) objectives.

(c) The emphasis laid on explaining both the process and the results.

(d) A concern for maintaining a balance between validity and cost; with as a consequence, strong reliance on routinely collected data.

(e) Consideration for participation in evaluation.

(f) The possibility of entering the project cycle at any point.

These six characteristics are briefly discussed in the following sections.

2.2.1. Comprehensiveness of the method

The design and successful implementation of evaluation acknowledges the fact that no intervention or project component can be evaluated correctly without taking into account the context in which it is implemented. Indeed, many factors concur to the expected end-result of an intervention (in our case nutrition improvement). Some factors are controlable, others not. Anyhow, all major factors must be recognized, and their respective roles have to be taken into consideration. In other words, evaluation must be conducted with a constant eye on the whole. It is important to stress that "global" (or comprehensive) does not mean "total". A comprehensive approach does not mean that everything is going to be observed or measured, but merely that any choice of a part to be observed is based on a consideration of the whole. Comprehensiveness, therefore, is one of the major characteristics of the method, and the operationalization of the requisite for comprehensiveness is one of the most innovative aspects of the guide. It rests on the use of two combined approaches : a simplified systems approach, and the causal approach (see below, sections 2.3.1. and 2.3.2.).

2.2.2. The importance given to evaluating the process and the operational objectives ("output" objectives)

It is admitted that measuring the final impact of an intervention is often not possible, is generally too expensive, and anyhow is not always relevant (final impact is expressed by many authors as improvement of nutritional status, reduction of morbidity and/or mortality, improvement of growth patterns, etc.)

Experience indeed shows that :

- quite often, there is no measurable effect on any of these variables, even in apparently successful projects, because of difficulties in measurement, role of external confounders, time lag to get an effect, etc.

- even when a change is observed, it is generally difficult to ascribe it to the intervention; and

- to measure such a change with acceptable precision and accuracy may require time and costly data collecting procedures.

Furthermore, in quite a number of situations, such impact variables are not even relevant. Generally speaking -and this is one of the fundamental assumptions of the method- we are more interested in modifying the causes than the symptoms, in correcting the determinants of malnutrition, than in acting directly on the dependant variable.

As a consequence more emphasis is laid on the study of the processes (the inputs, processes, and subprocesses themselves) and the outputs (operational objectives). In other words, the stress is put on what the project managers are basically accountable for. Conversely, the measurement of results expressed in terms of outcomes or impact are de-emphasized. The concern, here, is basically on implementation evaluation.

This assumption, however, should not be interpreted as a lack of interest for biological, behavioural or institutional effects of interventions. The overall, ultimate objective is indeed improved nutrition and better health. The point is that, as far as performing evaluation is concerned, i.e. from an operational point of view, the quantification of such effects are receiving relatively less importance here than in many common evaluation procedures.

2.2.3. <u>The emphasis laid on explanation</u>

This evaluation method was designed fundamentally to answer two basic questions :

- Do we get the results we expected ?

- Do we do our job properly ?

But answers to these two questions would not be sufficient. The evaluators and their partners will also want to know more : "What does work or does not work?" and "Why ?".

An explanation is necessary.

2.2.4. <u>A concern for maintaining a balance between validity and cost</u>

One of the key roles of evaluation is to assess whether there was a change in the desired direction and whether, or to what extent, the observed change can be attributed to the project. Scientific proof, however, that the observed changes can be attributed to the intervention is unattainable under normal field conditions. What can be achieved is a certain level of probability that the conclusions about such changes are indeed true. The more valid the conclusions, the higher their <u>plausibility</u>, i.e. the extent to which one can believe in them.

The validity of the conclusions (i.e. their <u>internal validity</u>) is dependent upon the relevance, amount, and quality of information; the quality of data analysis and upon human factors. To some extent it is related to the time spent on evaluation. In other words validity depends to a significant extent on cost. Beyond a certain point, i.e. a certain level of plausibility, the cost of evaluation may rise very steeply. From a certain moment on, the marginal cost of increasing validity may become unacceptable to the evaluation's sponsor. In scientific studies, there is an inborn upper limit to the time and the money that can be spent on the evaluation of any project. Therefore a continuous balance has to be kept between the degree of certainty one would wish to have on the one hand, and the cost one is ready to pay to reach such certainty, on the other.

The problem is -and the reader should keep it in mind at all moments- of reaching conclusions valid enough to be useful for decision-making (such as deciding to extend or expand the project, to broaden its scope, to repeat it elsewhere, to amend it, to close it, etc.) with a reasonable degree of certainty, for an acceptable cost, and within an acceptable period of time.

Validity is increased through the rational use of models, as will be illustrated below, and in exceptional cases through the execution of special studies (see Annex 6). Cost is kept down through strictly selecting data reducing the amount of information to be collected and to be analyzed; maximizing the use of routinely produced data; and accelerating data processing and analysis (by simplifying them thanks to the use of models).

Obviously, the rationalization that is required will be dependant upon good planning of the evaluation. Hence the importance of a thorough "pre-evaluation stage".

2.2.5. Consideration of participation in evaluation

Evaluation is not presented here as a complex technical matter reserved for specialists : to a large extent the method allows for participation in the evaluation by all the different actors involved in the project, including explicitly field staff and population. Participation in evaluation is useful in two ways :

- It allows the intended beneficiaries and field staff to understand what evaluation is all about. It therefore makes evaluation acceptable to them, and it increases its credibility. Improved credibility will, hopefully, allow final recommendations to be more willingly followed. Cooperation in data collection and improved data quality can also be expected as a result.

- In a complex project, it is uncommon to find the people knowledgable about all the different aspects of the project. Each person involved possesses a part of the reality, and his/her perception of a given aspect may vary according to his/her position in the project. Putting together these different pieces of knowledge will improve the understanding of the intervention by the whole group.

Participation is not only useful in that it increases the relevance and validity of the evaluation : participation can also be justified as an objective in itself. This kind of evaluation helps to achieve such an objective.

In practice opportunity for participation is made possible by the use of simple tools throughout the method, by building models through team work, and by de-emphasizing the use of complicated analytical techniques.

2.2.6. The possibility of entering the project cycle at any moment

Ideally all major decisions regarding evaluation should be made at the time of project preparation, i.e. at that moment in the so-called "project cycle" when other decisions are being made and operationalized (definition of objectives, choice of strategies, study and identification of resources, establishment of calendar, budget, etc.), and anyhow before the initiation of operations. In other words the objectives of the evaluation, the plan of work, the schedule, and the roles to be performed by the different actors in the evaluation should be decided at that stage. In such cases, evaluation accompanies the project throughout its life. It is closely linked to monitoring, and indeed is a tool for project management. This is the ideal situation (see Part III).

Yet, such an ideal situation is quite uncommon. Evaluators are often called in when the project is already well advanced. The present method however, is sufficiently flexible and adaptable to a broad variety of situations. On the one hand it can be applied to the ideal, "built-in" evaluation. On the other hand it allows for evaluation of a project at any time of its cycle, from an *ex ante* evaluation (the assessment of probable effects under a set of explicit assumptions); to evaluation of an on-going project (combining monitoring and evaluation using the routine information system); through *ex post* evaluation (when the project is completed or close to completion). In the last two cases particularly (on-going and *ex post* evaluation), a retrospective rational reconstruction is advocated of decisions that were made or should have been made, as well as an *a posteriori* reconstruction of the assumptions that were explicitly or implicitly made at the time of project preparation. This exercise can be an important component of the "pre-evaluation stage", which is described in Part II.

2.3. Implications of the main characteristics for the operations

This section briefly refers to the operational implications of the characteristics just listed, and provides the general basis of the method.

Four basic principles underly the operations :

(a) The adoption of a simplified systems view in the study of the project

(b) The systematic use of causal analysis

(c) The building of a "bundle of converging evidence", and

(d) The use, inasmuch as possible, of routinely collected data.

2.3.1. A simplified systems approach

In the kind of evaluation described here, a broad and simplified systems approach is adopted, rather than the use of "systems analysis" as a technique.

The project is seen as a system, composed of elements and of subsystems, in which the inputs are progressively transformed, through a series of parallel or sequential processes, into outputs. Outputs and other factors, favourable or unfavourable but external to the project and called confounders, will in the last instance determine the impact, expressed in terms of outcomes. In other words, it is assumed that a project can be reduced to a succession of mechanisms. This, of course, is an oversimplification, which possesses definite advantages for evaluation, but the dangers of which should be kept in mind. A development project is not a machine : the mechanistic view temporarily adopted here as a simplification has proven very useful, but it would be misleading to pursue the analogy too far.

In practice all inputs (IP), processes (P), outputs (OP) and outcomes (OC) are identified as completely as possible, and a table of IP-P-OP-OC, the so-called "Hippopoc table" is built. This table is one of the two mandatory steps which precede the building of the dynamic model, i.e. a simplified representation of all the major linkages that lead from the project inputs to the expected outputs and outcomes.

2.3.2. The causal approach

It is the formulation of two broad sets of hypotheses. The first set of hypotheses refers to the causes of, and mechanisms leading to, malnutrition in the context under study; the other set attempts to explain the mechanisms through which the intervention is expected to improve nutritional status in that population.

The method which is used to operate this concept consists in building two successive ad hoc models, a causal model of malnutrition in the area of consideration, and the dynamic model of the project already mentioned.

The building and utilisation of causal models are now widespread. Since such models are useful for the nutritional diagnosis of population groups, they should logically be useful in evaluation also. The dynamic model is not actually new. It resembles models used in pathway analysis, in spite of important differences. The originality here is that the dynamic model is built according to precise rules and that it is derived from two sources : (a) the causal model and, (b) the "Hippopoc table". The dynamic model is nothing more than a set of coherent and hierarchized hypotheses that link stepwise the resources to the final result, and that take into account the possible effects of external confounding factors.

The process of building a causal model, an early step in the whole evaluation procedure, is performed with representatives of the population, including the target group of the intervention. This is one of the mechanisms through which the intended beneficiaries do indeed participate in evaluation.

2.3.3. The building of a bundle of converging evidence

The method attempts to increase the validity of the answers provided by the evaluation, but it abandons the idea of verifying -or "falsifying"- the complete set of hypotheses. Validity is expressed by a certain degree of plausibility that the conclusions are indeed true. Operationally the evaluation team assembles a bundle of converging evidence, that replaces the search for scientific proof, and from which conclusions are drawn.

A bundle of converging evidence <u>is not</u> a collection of scattered facts. The evidence assembled should be relevant, and it should be organised in a coherent and logical manner. This will be made possible by the use of the models both in selecting information needed and in interpreting the data collected.

2.3.4. The preference for routinely collected data

Any evaluation may use, in widely varying proportions, the following categories of sources of information :

- Data produced routinely by the system, i.e. the project, the agencies participating in it, and/or the population itself. Such data can be collected continuously or periodically.

- Data not produced routinely -such as data provided by surveys-, or data generated through special studies. Special studies can follow an experimental or quasi-experimental design, be observational or can be focused on a given operational aspect of the intervention. They may be designed -albeit under special circumstances only- for strengthening the plausibility of the conclusions (see Annex 6).

In the method, strong preference is given to the maximum use of the first category, combined with the simplification, rationalization, and improvement of the quality of the project information system. Preference for routine data is justified by three considerations :

- it is consistent with the other characteristics of the method (as listed in Section 2.2. above);

- it is less expensive, since the majority of necessary routine data are collected anyhow, sometimes for a different purpose (monitoring; progress reports; etc.);

- it helps improving the quality both of the project and of its data collection system, through a faster feedback of processed information as well as through an increased responsibility of managers, implementors, and data collectors.

Of course only routine data that are relevant will be used in evaluation. Relevance of data is provided by the dynamic model.

PART II

THE METHOD

The method comprises basically four stages, as illustrated in Figure 1, page 22. Within each stage, the method is iterative: there will be constant returns to earlier steps. Quite often when a given step is completed, new elements appear that require readjustment in one of the earlier steps. If the result of a previous step has to be amended, all the subsequent steps will have to be reviewed too, and corrected if necesary. This procedure may appear cumbersome in the early stages but, as experience shows, it is an effective time saving device. As the group progresses through the steps, the later steps become easier and much faster to complete.

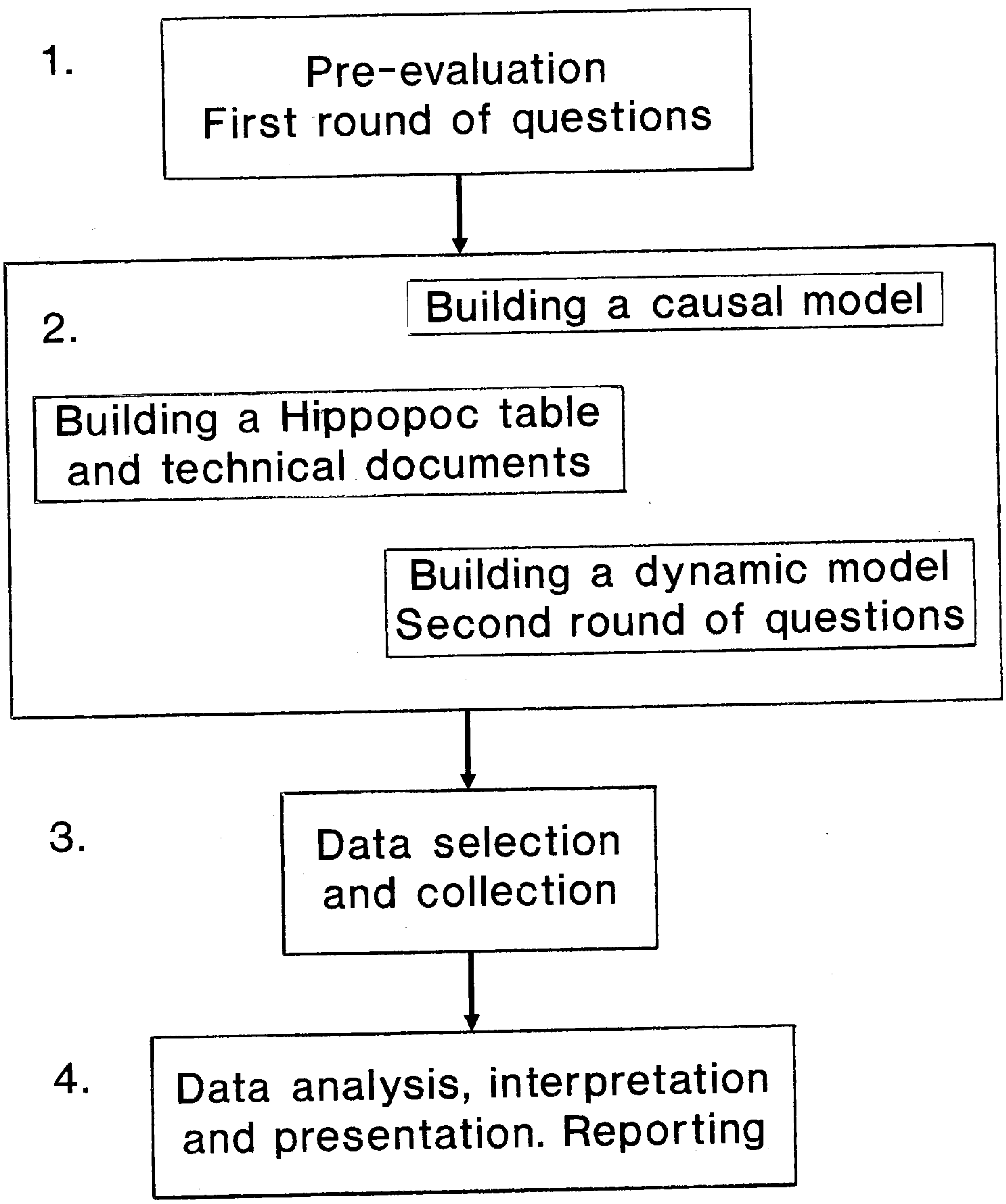
1.

PRE-EVALUATION STAGE - FIRST ROUND OF QUESTIONS

Prior to the starting of evaluation activities, a number of points need to be clarified, among which the objectives of the evaluation and the questions the evaluation will have to answer. Evaluation should also be treated, from the point of view of its planning, as if it were a project in itself, i.e. evaluation should possess all the attributes of a good project, such as clear objectives, identified resources, a plan of work, a calendar, a budget, etc. Ideally it should be carefully planned, with the participation of all concerned parties. All these matters can be considered as a pre-evaluation stage inasmuch as the real evaluation cannot begin unless these preliminary steps have been satisfactorily fulfilled.

Ideally pre-evaluation should also be performed by a team composed of all the parties concerned by the evaluation, i.e. the different "actors" (at least the project managers, the staff responsible for implementation, representatives of the population and of the field staff, and the external evaluators, if any). This group actually is the one that should be in charge of executing -or at least supervising- the whole evaluation process. It often happens, however, that an external evaluator is invited to evaluate a project, while no team has yet been set. In such cases all efforts will be made to assemble a group, and review with them all the aspects of pre-evaluation that might have been examined in the meantime.

Figure 1. Overview of the evaluation method



Pre-evaluation may be divided into three stages :

- *satisfying the prerequisites to an adequate evaluation, i.e. answering a few basic questions and taking necessary decisions prior to the starting of the evaluation proper;*
- *asking the first round of questions the evaluation will have to answer, and*
- *planning the evaluation.*

1.1. Satisfying the prerequisites to an adequate evaluation

It consists mainly in :

1.1.1. The correct identification of all the people interested in the evaluation :

- Who is taking the initiative of conducting the evaluation, e.g. an agency, the project managers themselves, the beneficiaries, etc. ?
- What will be the role (or probable role) of the different actors in the evaluation ?
- What is going to be done with the results, and who is going to use the results and apply the recommendations ?

1.1.2. A preliminary and rather quick overall examination of the main features of the project to be evaluated, such as :

- Project objectives, stated or implicit. Both the operational objectives and outcome objectives should be taken into consideration;
- Major project components;
- Reasons to believe the project will contribute to nutritional improvement;
- Basic organizational and managerial aspects, and known problems;
- Existing data collection and information system;
- Present state of the project as seen both by the sponsors of the evaluation and by the managers.

1.1.3. <u>The identification of the available technical information on each activity</u>

Ideally each activity should have a "technical document" describing it in some detail. If not, such a technical document would have to be established *ex post* for each activity (This step, however, is part of the evaluation itself, see below).

Such questions should be answered satisfactorily before starting the evaluation proper. Looking for answers to these questions, and to others that will arise in the process, will lead to a sufficient knowledge of :

- The explicit and implicit objectives of the intended evaluation;
- The context in which, and the spirit with which, the evaluation will have to be performed;
- The decisions previously taken regarding the evaluation, and actions already undertaken, including previous evaluations;
- Potential changes in present attitudes and expectations of the sponsors, in relation to the initial decisions made at the start of the project;
- Possible differences of interests and motivation between the sponsors of the evaluation and project staff, or between project staff and beneficiaries, that can help understanding why resistances to the evaluation may arise.

In many situations, difficulties in such clarification are encountered. It is therefore an almost inevitable preliminary step to re-establish, *a posteriori*, some of the implicit assumptions and decisions that presided over the identification and the preparation of the project. The evaluation team may have to make distinctions between the points of view of different partners. Sometimes the team will have to guess what the intentions were at the start, or negotiate between divergent expectations, or even take into account that some aspects of the project may have changed since it was originally designed.

In our experience, this *ex post* reconstitution is not as difficult as it may appear, provided every aspect is examined in a very systematic and comprehensive manner. Project documents are not always explicit and early documents may have been lost. Therefore a combination of interviews with project planners, of searches in the files (letters, minutes of meetings), of retrospective reconstitution, and of educated guesswork, will commonly provide some answers. Guesswork should be handled carefully. It is acceptable on the three following conditions : that complete information is not available; that it is reasonable; and that it is explicitly identified as guesswork.

In some cases the team performing the pre-evaluation stage cannot be composed of representatives of every kind of actors participating to the project (for instance the sponsors). In such cases interviews and searches in documents should be performed with even more care, and inasmuch as possible, consultative or informative contacts should be taken with the partners who cannot be present.

1.2. Formulating the first round of questions

In the first place, three major questions will have to be considered by the evaluation team :

- To which question do we want an answer?
- What are we going to do with the answers ?
- Who is going to be the main user of those answers ?

The aim of this exercice is more to reach a general and preliminary consensus between all the partners, than to establish an exhaustive list of all the questions to be answered by the evaluation. Such questions, however, should be put in writing, at this stage and not later, because it is at this stage that the negotiation between the partners is the most crucial. "What is going to be done ?" and "What for ?" needs to be explicitly agreed upon. Experience shows that such a written formulation is useful later on for clearing misunderstandings or for renegotiating a new agreement. Needless to say, the questions can be reformulated at any moment and modified when necessary, again by consensual decision.

Then, more specific questions to be asked and/or hypotheses to be tested will be formulated and as much as possible, hierarchized in a logical order. This list of questions is provisional. The final evaluation questions will be formulated only after the dynamic model has been built, prior to data collection. At this stage it mainly serves to clarify ideas, put collective thinking into motion, and give a chance to each partner to ask questions that others would not have thought of. The latter point particularly applies to the project beneficiaries.

While no attempt should be made at this stage to be exhaustive, comprehensiveness should, however, be sought. In other words, questions should touch on all areas of evaluation, and should be grouped together in broad categories related to expected changes (such as improvement of nutritional status) and to the feasibility of achieving such changes; to operational results (such as increased coverage, attainment of intermediary outputs); to processes (amount and quality of operations); to inputs (amount applied), etc.

There are different ways of identifying relevant questions : by categories as done above; by deriving new questions from the first ones; or by asking a "Why ?" attached to each of the former. Explanations are needed as much as factual answers.

Questions may require a quantitative answer or not. Behavioural aspects; perception of the problem (malnutrition) as well as perception of the project by both community and project staff; reasons why things seem to happen or not happen; quality and characteristics of the process; etc. may have to be included. All questions should directly or indirectly contribute to answering at least one of the three major questions considered above.

The outcome of the rather informal discussions about the first round of questions, is generally a consensus about the evaluation's objectives, the job to be done, and the general nature of the evaluation. Differences of view that might appear would have to be negociated at this pre-evaluation stage.

1.3. Planning the evaluation

The two steps listed above should not take much time. Once the different questions have been satisfactorily set, the bridge to the evaluation proper can be laid, i.e. evaluation can be planned.

Basically, this means, among other things :

- Writing down the formal objectives of the evaluation.
- Defining the terms of reference of the evaluation.
- Clarifying the responsibilities of the different actors.
- Setting up a team, to be completed later if necessary.
- Making a plan of work containing elements such as :

  order of steps to be followed,
  role of each partner,
  resources, cost, timing,
  specification of persons or institutions to whom evaluation reports will be sent (up, down, laterally).

Some or all of these aspects may require negotiations between the actors. If the sponsors are away from the project site, or evaluators are external and project implementors cannot be consulted at this stage, a further negotiation may be necessary on arrival at project site. Anyhow the five previous points must be crystal-clear to all partners before evaluation proper starts. This will greatly facilitate the work.

In real situations, the three components of the pre-evaluation stage are unlikely to be followed sequentially, and there will be variations. If the whole team cannot be assembled before the pre-evaluation phase starts, then at least its core group should.

2.

CONCEPTUALISATION PHASE OF THE EVALUATION

2.1. Introduction

Once the pre-evaluation stage is completed, evaluation proper starts with a phase of conceptualisation (Figure 1). The method, in a nutshell, consists in selecting variables from the "dynamic model". The dynamic model is built from the causal model -which analyses the situation and allows identification of confounding factors- and from the "Hippopoc" table -which summarises the project-. After collection and analysis of data, the information is interpreted in the light of the dynamic model, and conclusions are drawn.

The dynamic model is the central component of the whole evaluation method. It is a simplified and hypothetical representation of what is happening in the project, i.e. a conventional representation of the manner in which we expect our resources and actions to end up in results, taking into account external factors that may influence positively or negatively our project (external confounding factors). It provides us with a comprehensive and dynamic overview of the project. It assembles the elements which allow us to presume that the project is moving in the right direction, and it provides us with the basic structure for the eventual "bundle of converging evidence" which will be used in interpreting results.

The causal model is a tool for understanding the situation. It is a set of hypotheses, organized and linked to each other, about the causal factors of the situation and the mechanisms that lead to it. It is built at the very start of the evaluation. It helps a consensus to be reached between all partners in the evaluation, about the causes of the initial situation in the population group that has been selected as target of the project or programme.

The third tool, the Hippopoc table puts together the inputs, processes, outputs, and outcomes of the intervention. It helps the evaluation team to better understand the project, and to more easily reach a consensus about its nature.

Once the dynamic model is completed, the evaluation team re-examines the evaluation questions already identified at the pre-evaluation stage. In the light of the new knowledge gained about the project and about the problem, it then becomes easy to precisely set these questions, amend them, or add new questions. This is called here the second round of questions.

While the logical order of procedure (causal model, then Hippopoc table, then dynamic model), in pratice the conceptualisation of the evaluation follows an iterative procedure.

2.2. The causal model

2.2.1. Definition and description

The purpose of this essential step is to provide an understanding of the mechanisms that lead to malnutrition in the groups which were identified as targets of the project or programme. Three assumptions are made :

(a) The first assumption is that, in order to evaluate an intervention that is expected to affect nutritional status, one needs to understand the causes of malnutrition, as well as the mechanisms leading to it. This is a necessity if the relevance of an intervention or a project is to be assessed. It should be pointed out that this posture is not different from that of a clinician or of an epidemiologist.

(b) Such causes and mechanisms should be viewed within the overall context in which they interact. In other words, the second assumption is that a comprehensive (or "holistic") view should be adopted.

(c) The analysis of causes and mechanisms needs to be performed in depth, intersectorally, and prior to data collection.

2.2.2. Building a causal model

Experience has shown that multidisciplinary groups which are knowledgeable about the development problems of their country or area of activity, generally have a good, broad understanding of the main causes of malnutrition. In most cases this understanding is sufficient to permit the evaluation team to proceed to building the model. This is done in three stages :

- a clear identification and characterization of each target group. Usually target groups have been identified earlier (pre-evaluation stage). At this stage they are clearly defined, i.e. their major characteristics are provided. Examples are : rural children 6 months-3 years old; pregnant women from low-income groups; primary schoolchildren; families of landless labourers; preschool children from slum areas; etc. An important remark to be made here is that data may be collected and information may be sought from such groups, even if they were not necessarily identified as real target for the intervention.

- the establishment by the evaluation team of a comprehensive list of most factors known or presumed to play a role in malnutrition (in the particular situation).

- the identification of causal chains, that is of sets of hypotheses linking two or more (real or presumed) determinants, and the ordering and combining of such chains into a causal framework.

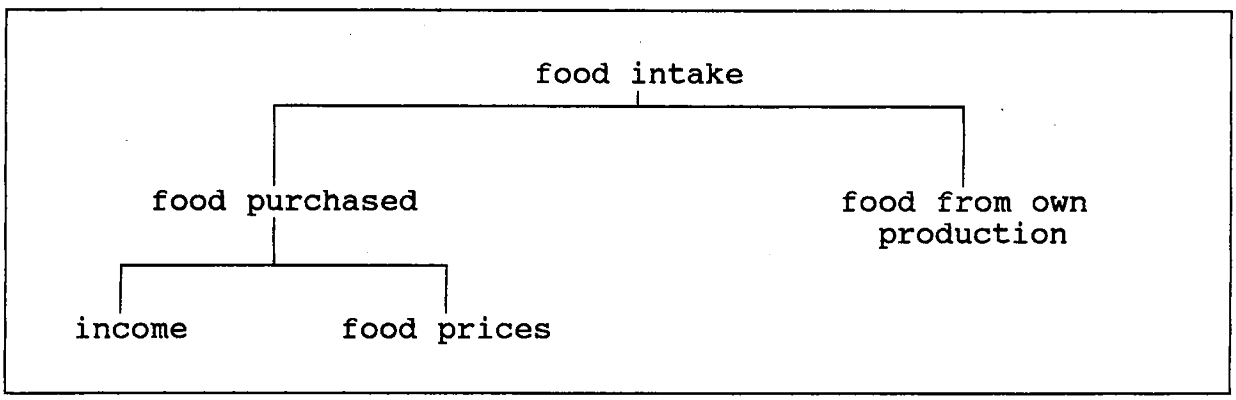
The technique of model building obeys simple and well-tested rules and conventions. Operationally it consists of a series of brainstorming sessions during which the model is progressively built.

2.2.2.1. Procedure

The basic element of a causal model is a causal chain :

family income-->amount of food purchased-->family food intake

This example can be read in two ways : "income influences the amount of food purchased, which in turn influences food intake", or in the passive form "food intake is influenced by the amount of food purchased, which in turn is influenced by income ". Both manners are interchangeable for simple causal chains, but the passive form is the one to be prefered when building the model, because of the retrospective construction that is being adopted here (see 2.2.2.2. Remarks on construction). Each link between two factors represents a causal hypothesis. Yet most factors are influenced by more than one determinant, and it would be more correct to read the example as follows : "food intake is influenced, among other factors, by the amount of food purchased, which in turn is influenced by income, amongst other factors". The identification of the "other factors" is a major task of model building. Our example could then become :



This is a simple causal model of food intake at the family level. It is a set of causal hypotheses, linking the variable of interest -food intake- to some of its determinants. The hypotheses are ranked in a hierarchical order which is easily understood by the reader.

Another, and more accurate reading of the model is to state that "all the determinants of food intake can be grouped into two categories, those that influence the intake of food which was purchased, and those that influence the intake of food produced by the household. Factors affecting food purchases can in turn be divided into two large categories", and so on. The model is therefore a succession of submodels, imbricated like a Russian doll. Figure 2, page 31, is an example of a more elaborated model.

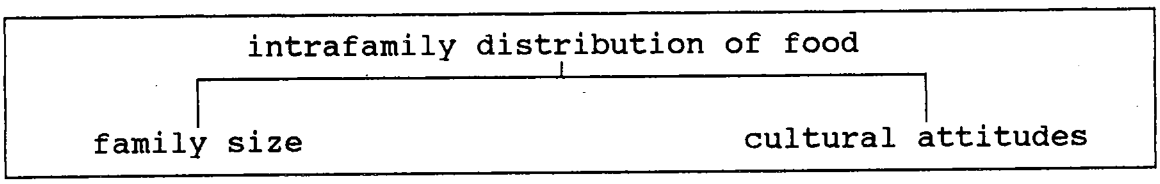
2.2.2.2. Remarks on construction

Building a causal model obeys a few simple rules :

(a) The construction is retrospective : it starts from the dependent variable. The construction goes against the flow of causality (from effect to most immediate cause), and is expressed in the passive form.

(b) Each box is broken down into at least two boxes. Decompositions are of two kinds :

- either reflecting an influence relationship, attempting to provide an explanation : this is the case when the boxes in the line immediately below are true determinants.
  Example :



- or they are breakdowns into a logical sum or a logical product. This is merely a breakdown that enriches the information, and guides towards the identification of more determinants.
  Example of a sum :

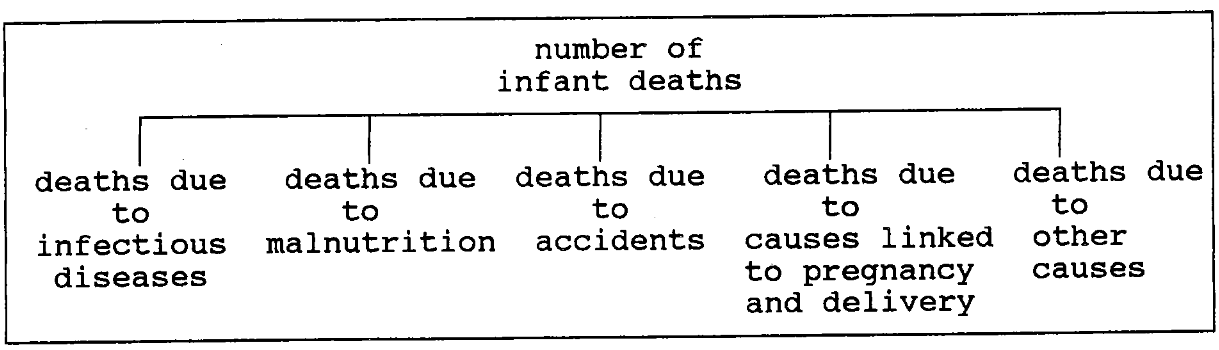
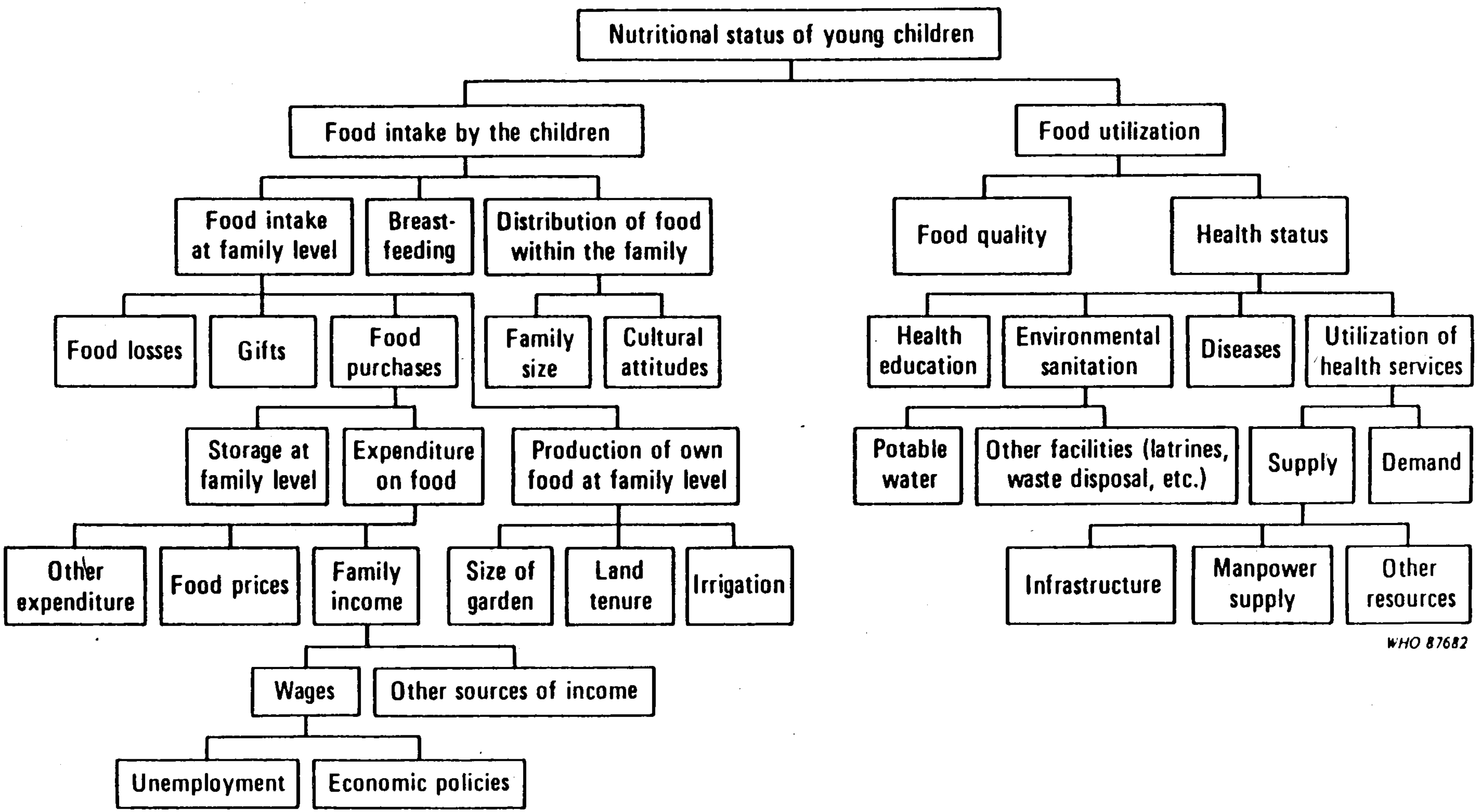
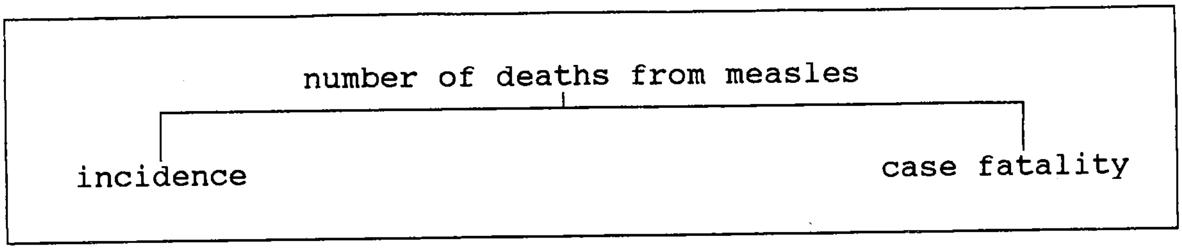


Figure 2. Example of a hypothetical causal model



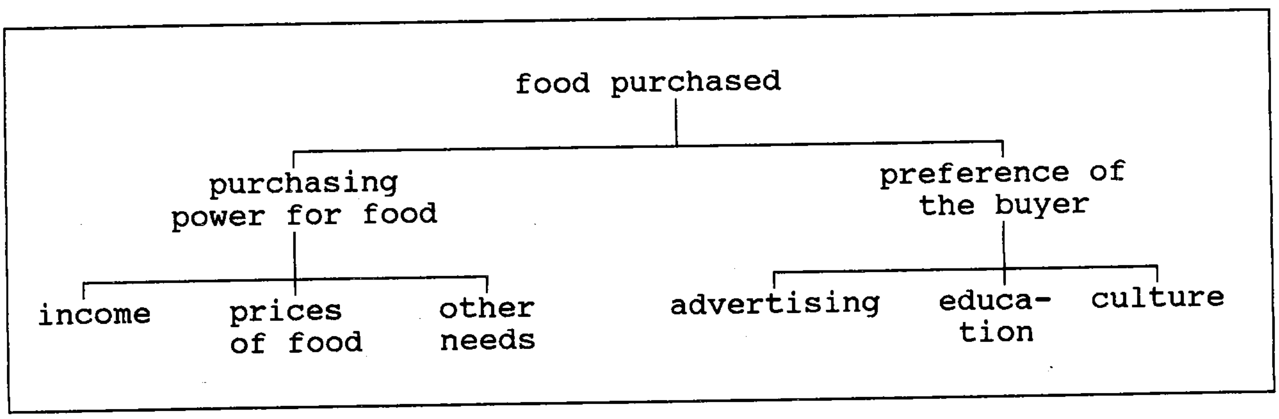
* Source : Beghin I., Cap M. and Dujardin B. A guide to nutritional assessment. WHO. 1988.

Example of a product :



It would be wrong, however, to try to look systematically for sums and products. Product-like relations, or "quasi-products" are very common. Also common are a certain number of stereotyped structures such as : supply vs. demand; factors linked to the individual vs. environmental factors; propensity vs. possibility; etc.

(c) Efforts must be made to identify any factor that might be intermediate between two neighbouring boxes. It is an essential rule in the building of such models that no intermediary link should be omitted. In the example above, an additional link between "family income" and "amount of food purchased" should be introduced, i.e. "purchasing power for food". The model would then become :



A new set of potential determinants is identified in this manner, and new chains are built. The systematic search for intermediary links and their subsequent breakdown is the most effective way of recognizing confounding factors and of preventing omissions. If such search of intermediary links is not conducted properly, side-branches, which may correspond to important causal factors, might be ignored.

(d) Mutual influence of two factors on the same horizontal line, or influence of one of them on the other, are not represented in the model, by convention.

(e) Similarly, by convention, when a given factor acts at different places in the model, no lateral links are used in the graph, but the factor is preferably repeated.

(f) Feedback loops are not represented. This last point often causes surprise : let us remind the reader that a causal model is non-mathematical and non-systemic. The simplification consisting in eliminating horizontal and lateral links, as well as eliminating feedback loops, is probably one of the most significant characteristics of this type of causal models. It is a compromise for the sake of simplification : it should indeed be remembered that the procedure is designed to clarify a complex set of mechanisms.

(g) Construction stops whenever breaking down further a given factor would not be of practical use, for example when determinants become too general, or are not vulnerable to local initiative, or do not lie within the scope of the project. Boxes should be broken down sufficiently, however, to help identifying major confounding factors of the intervention. The decision to stop decomposing a chain is made by the team, and can of course be reverted to at any moment in the future.

2.2.2.3. Difficulties in building a causal model

(a) A recurrent difficulty is that participants in the model building exercise tend to move from boxes at the individual level to aggregates, and vice versa. When analyzing food intake, it should be clear whether we are considering an individual, a household, or the target group as a whole. The decision must be made at the start and the builders will have to stick to it.

(b) A compromise must be reached between rigorous logics and exhaustive incorporation of factors (which increases time consumption, aggravates complexity, and decreases the distinction between important and secondary factors) on the one hand, and restraint on the other. There is a trade-off between a natural inclination towards completeness, and the advantages of a rather simple model, easy to understand and to handle. The level of compromise will depend on the purpose.

2.3. The Hippopoc table

2.3.1. Definition and description

A common observation is that the persons involved in a project (implementing staff, beneficiaries, sometimes even the managers and supervisors) do not always possess a clear understanding of the nature and of the implications of the project. The different project components are not necessarily well defined, the resources involved are not precisely known, the expected results are not clearly or completely formulated, and the desired characteristics of the operations are only incompletely or inconsistently spelled out. There may even exist a lack of con-

Table 1. Example of Hippopoc table

Project title : PAISC = Programme for Integrated Child Health Actions, Brazil*

INPUTS	PROCESSES	OUTPUTS	OUTCOMES
Human	Training of personnel (multipliers and health centre personnel)	Trained personnel	Better provision of hygiene and general care to the child
Beneficiaries: · Children · Mothers	Agenda fitting for children coming with appointment and without appointment	Children receiving integral care: -immunized -treated -monitored with respect to their growth	Reduced incidence of diseases
Health centre personnel	Health centre providing integral care to the children: Growth monitoring Immunization Curative care Advices to mothers on: -prevention and treatment of diarrhoea and acute respiratory diseases -breastfeeding and weaning practices -general care to child	Mothers receiving advices on health and nutrition	Reduced severity and duration of diseases
Institutional Health centre State Health Office Reference system	Special care to malnourished children	Malnourished children receiving special care: -Food supplementation -More frequent visits to health centre -Mothers receiving advices on health and nutrition	Reduced prevalence of malnutrition Improved growth and development
Technical Health centre instructions Ministry of Health instructions Training manuals			

INPUTS	PROCESSES	OUTPUTS	OUTCOMES
Financial			
From Ministry of Health			
Material			
Birth registration forms			
Drugs at health centre			

* <u>Source</u>: Ramos L., Doctoral thesis, in progress, personal communication, 1990.

sistency between the name of the intervention, the process, and the stated objectives.

A satisfactory and coherent grasp of the project (i.e. satisfactory with respect to the operations, in other words an "operational" understanding) requires each partner in the evaluation to know at least:

- What are the resources that are being utilized ?
- How are such resources being used to transform the initial situation ?
- What are the expected products of the transformation ?
- How are the initial problems likely to be modified as a result of the intervention ?

The Hippopoc table is a simple, purely descriptive tool, which provides us with a clear, distinct, and logically assembled picture of the main components of the intervention. It has four successive columns containing respectively :

- the INPUTS (IP),
- the actions of transformation, or PROCESSES (P),
- the products or results of the action, or OUTPUTS (OP),
- the induced results or OUTCOMES (OC).

An example is provided in Table 1, pages 34-35. The reader will find two more examples in Annex 3.

- **Inputs** : any element that are being transformed by the processes into outputs. They can be either the resources utilized in the intervention, or the subject of the transformation, i.e. the people to whom the intervention is addressed.
An unimmunized child is an input of a vaccination programme, which changes him/her into an immunized child (the output) through a combination of processes.

- **Processes** are the transformations of inputs into outputs. Processes are often composed of a variety of subprocesses which can be sequential, parallel, or convergent. In this guide the term "process" is used in a rather narrow, mechanistic manner, which is consistent with the simplified systems approach adopted. Processes, therefore, are here mainly the project's activities or sets of activities.

- **Outputs** are the results of the project's operations and are therefore expressed in terms of operational objectives. They are precisely defined, and often correspond to the specific objectives of a more general outcome objective. Outputs are the immediate products of the processes, and depend exclusively on them : they are the result of the transformation of the inputs. All the factors leading to the production of a given output are -in principle- controlled by the project. Therefore an essential difference between outputs and outcomes, is that the project management is fully accountable for each output, but not necessarily for all outcomes.

- **Outcomes** are the changes which are induced by our action upon the initial situation. They are the results of the project as a whole. Since such changes seldom depend on our actions only, but are affected by other factors beyond our control, or external confounding factors, the project manager cannot be made fully accountable for the outcomes. Furthermore, while achieving output objectives (or failing to do so) can be explained by studying the variables listed in -or derived from- the Hippopoc table, a valid explanation of why outcome objectives were or were not achieved, necessarily includes a consideration of external confounding factors (see below). Hence, the importance of clearly distinguishing outputs from outcomes, and output objectives (or operational objectives) from outcome objectives. Such a distinction should be made carefully since the broadening of the system through controlling certain confounders may change an earlier outcome into an output, whenever the system becomes fully accountable for it.

Outcomes are generally expressed as epidemiological or biological indicators, changes in behaviour, or economic or institutional changes. A particular type of outcome is the so-called "impact" of an intervention. Impact actually is a term we avoid using. Generally, in the literature, it corresponds to the final outcome, or to one of the final outcomes in a chain. By convention, whenever we use the term "impact", it means any outcome which we have selected as a final outcome in our evaluation. Other authors, however, may prefer other terminologies.

Another category of outcomes are unpredicted effects, side-effects, or even "perverse" effects (effects that go against the planners' and/or implementors' intention). A thorough causal analysis coupled with experience in the type of intervention being considered, reduces the risk of overlooking such effects, but there is no rigourous manner to avoid them totally.

2.3.2. The technical document

Prior to building the Hippopoc table, the evaluation team should possess a technical document (or operational document) for each of the interventions of the project, i.e. a document that summarizes the main characteristics of the intervention. If such technical document does not exist, the team will have to reconstitute it *ex post*. This operation is generally possible by using project documents and reports, by interviewing actors and sponsors, etc. A thorough knowledge of the project by at least a few team members is obviously necessary.

The technical document should contain for each component of the project, at least the following descriptive information:

(a) Definition and objectives of the intervention or component
(b) A clear definition of the intended target group

(c) Where the intervention is to be implemented, when, how, etc.
(d) The persons responsible for the implementation
(e) The required resources
(f) Possible constraints and/or side-effects.

In the rather common case when evaluation is designed while the project is already in progress, it is useful to have the technical documents revised after the Hippopoc table is completed, and hopefully also after the dynamic model has been built. Full consistency with the Hippopoc table and the dynamic model is obviously indispensable. Such revisions in themselves actually contribute to improving project implementation.

In an ideal situation, the project components were selected through the use and ranking of criteria, and technical documents of the project do already exist. In such cases, this step can be skipped, and the evaluation can proceed directly to building a Hippopoc table.

2.3.3. <u>Building a Hippopoc table</u>

Building or understanding a Hippopoc table does not require any new knowledge and no particular skill. The only prerequisite to success is to be familiar with the project.

2.3.3.1. Procedure

It is essentially a technical task, which obeys a few rules and follows a series of steps to be taken flexibly. The steps are :

(a) Using the technical documents, the team makes a complete list of all the activities comprising the project, i.e. a list of the processes involved. Whether each intervention corresponds at least to one box in the causal model is then checked. If not, either the activity is not relevant, or the causal model did omit a box, and it needs to be corrected (see below, 2.3.4.).

(b) The table can now be built. Five columns are made, with the following titles : Inputs, Processes, Outputs, Outcomes, and Remarks. In complex situations, it might be useful to have a special column to the left of the Input column, with the name of each intervention, <u>as it is actually used</u> in project documents. Later, however, this column might be erased.

(c) It is generally more convenient to fill the Process column first, because the processes are known, concrete, and easy to identify by the people involved in the project. Processes can be activities within the same project, or sometimes tasks within a given activity.

    In the case of an *ex ante* or *ex post* evaluation, the objectives expressed in terms of outputs are likely to be known or reconstituted more easily. In such situations, it might be more convenient to start by filling the Output column in the first place.

(d) Then the Input column is filled, grouping the inputs under broad headings such as subjects of the intervention and resources (human, technical, financial, institutional, and material). They should not be disaggregated too far, and should appear only once. The Process column should be used to check whether all inputs have been considered. Cross-checking and verifying whether all the possible uses of inputs have been considered (and whether no input was forgotten) will improve the table. People and/or beneficiaries are to be listed as inputs, since they can be included as resources and/or as subjects to be transformed by the process.

The Input and Process columns must be completely consistent at this stage.

(e) The last step is a discussion about objectives, and the filling of the Output and Outcome columns. It is often the most difficult part of the exercise.

2.3.3.2. Difficulties in building a Hippopoc table

(a) Excessive breakdown

A common difficulty is the fact that, since the processes are often composed of subprocesses, the output of one subprocess may be taken over as the input of another subprocess, and it is not always clear which outputs should appear in the table. As a rule only global outputs, i.e. outputs that clearly will contribute to achieve the desired outcomes, and/or are final, in terms of the succession of operations, need to be listed.

There is a natural inclination, that must be resisted, to break down too far. This tendency must be balanced by a concern for remaining clear, without losing comprehensiveness. This consideration applies to each of the four columns, but probably the major difficulty in building a Hippopoc table is to decide how far one should decompose processes into subprocesses (interventions into activities, and the latter into tasks). Where to stop ? Which intermediate outputs need to be listed in the Output column (because of their intrinsic interest and/or usefulness for evaluation) in spite of their also being an input for later subprocesses ? The basic rule to success is to exercise sound judgment. One should avoid the Hippopoc table to become too complicated, to pretend to include everything and to deter the reader. The table must be clear and understandable, and show which major processes are going to transform major inputs into the main outputs and hopefully help reaching the outcomes. If the Hippopoc table does not clearly and unequivocally help clarifying understanding, saving time, and leading to an operationally useful dynamic model, it loses its purpose and becomes a waste of time and energy.

(b) Mixing up outputs and outcomes

These difficulties were discussed earlier. In practice, the confusion may lead to blocking the exercise and to wasting time. Patience generally solves it. In some cases, it may be more convenient to start the building of the table with the Outcome column, take the final outcome as the general objective, then separate among the specific objectives those that are clearly outcomes from those that are clearly outputs. A consideration of the processes and a discussion about the possible confounding factors would then help separating the remaining controversial objectives. It might be useful to make a list of the identified external confounding factors with a view to the eventual building of the dynamic model.

(c) In the case of very complex projects, building the table can be difficult, precisely because there are often a great number of interventions, often ill-defined. As a matter of fact, the exercise can considerably help the project staff who participates in it, clarifying the nature and meaning of each intervention. The evaluation team, however, should avoid to lose itself in the mazes of a project containing several different operational levels i.e. national, provincial, village, etc. and should stick to the objectives that were defined at the pre-evaluation stage. Most often, pre-evaluation will reduce the scope of the evaluation to one or two levels. If necessary, however, the Hippopoc table can easily be adapted to fit the needs of the evaluation. Annex 4 illustrates a possible adaptation: two separate tables were built, one for the processes, the other for the outputs, each of them containing four columns related to different levels of operation (see Tables 8 and 9, pages 90-93).

2.3.4. Assessing the relevance of activities and/or projects using the Hippopoc table and the causal model

Once the Hippopoc table is built, and every participant in the exercise has a clear understanding of the project and of its implications, the time has come to assess the relevance of each intervention. This is done through using the causal model : indeed the relevance of a project or activity cannot be determined without the formulation of a hypothesis linking the intervention to the phenomenon under consideration.

In order to do this, the activities (planned or on-going) are compared with the result of the causal analysis undertaken previously. If the activity does not affect at least one of the boxes of the model, it may have no influence on the phenomenon under consideration, and cannot be considered relevant.

In such cases, that part of the model should be examined carefully for errors (of information, of logic, of semantics) or omissions, and corrected. If, however, the activity (or project component or intervention) is really irrelevant, the information should be passed immediately to whoever has the power of decision, to consider its being interrupted. Further evaluation of a non-relevant intervention would, of course, not be justified.

2.4. The dynamic model

2.4.1. Definition and description

The basic idea behind it -and also its major justification- is the organizing, in an orderly manner, of a set of hypotheses concerning the different processes and their cumulated effect which, in turn, will end up in the desired outcome. To say it differently, the model is the conceptual framework on which a "converging bundle of evidence" will be based. In more practical terms, the dynamic model helps defining the limits of evaluation by helping to decide how far we can go, taking into account the existing financial constraints. The model ensures comprehensiveness without pretending to include everything. It shows us how, progressively, the set of processes is supposed to move towards the achievement of the expected results. As one moves from left to right, one gets closer to the project's final objectives, which are by definition outcomes (Example : Figure 3, page 42-43. See also Annex 4).

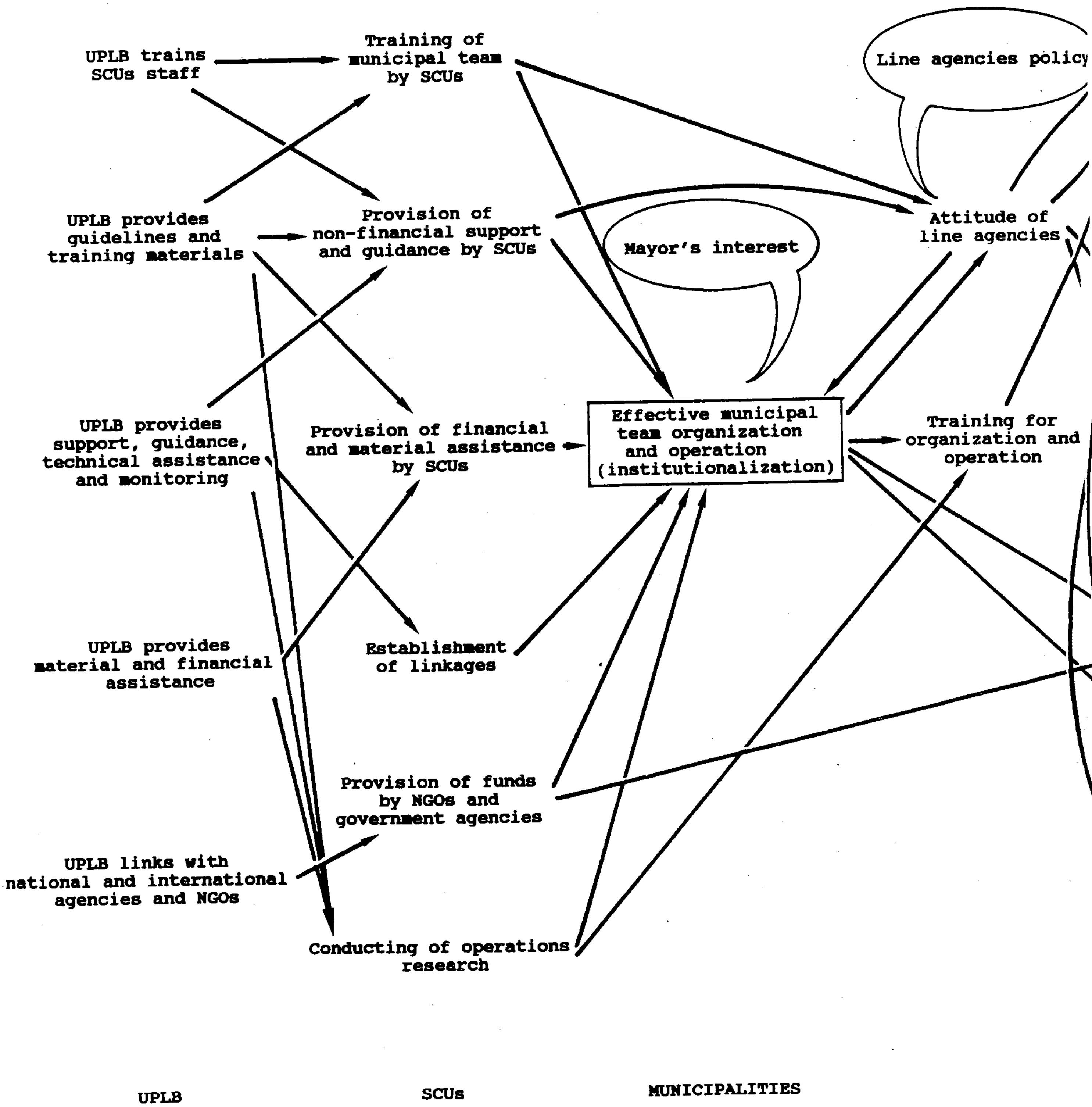
In more technical terms, the dynamic model shows the process of transformation of the inputs into final outcomes. It links project inputs to the expected end-results, through a series of sequential and often interrelated processes. The processes that constitute the overall project are placed in a logical sequence, the output of one process becoming either a final project output, or an input to another process. Processes may also operate simultaneously, and reach a common output. In a similar manner, the model will express the many relations that a given input may have with different processes.

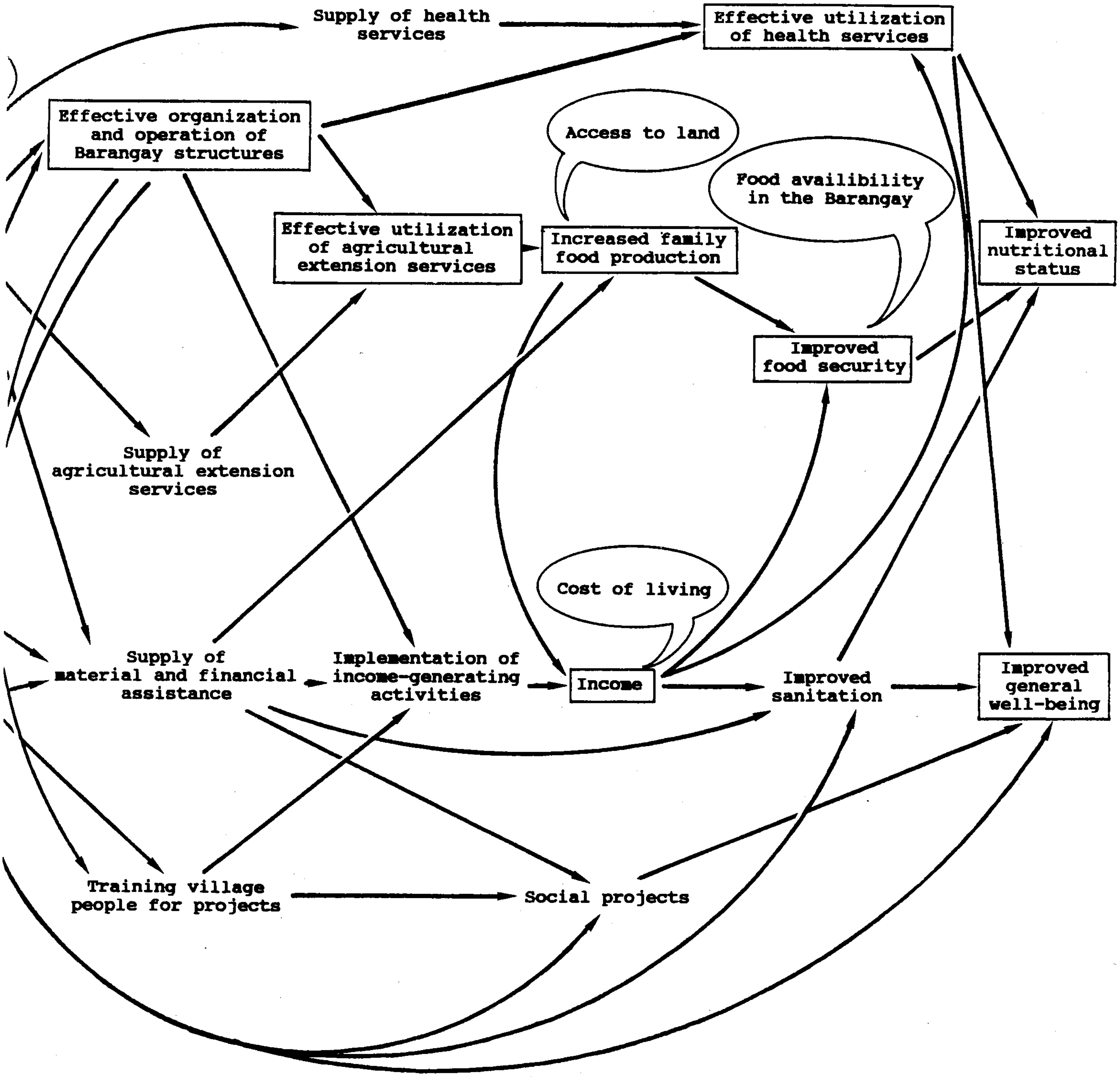
The model also contains the main external confounding factors that may interfere in the process of transformation of inputs into outputs, ultimately producing outcomes. External confounding factors are those factors that influence the outcomes but fail to be controlled by the project, and for which, therefore, the managers are not accountable. The more one moves to the right (from outputs to outcomes), the more difficult it becomes to measure their role, and the lower the probability of attributing observed changes to the project.

2.4.2. Building of a dynamic model

The building of the dynamic model is slightly more difficult than the preceding steps. As in the case of building the Hippopoc table, it requires the group to be familiar with the project. If the Hippopoc table and the causal model have been correctly built, the building of this model will be greatly facilitated.

Figure 3. Example of dynamic model
Project title: Strengthening the BIDANI network





VILLAGES

Strengthened role of universities in nutrition

2.4.2.1. Procedure

In practice, the dynamic model is clearly and explicitly derived from the Hippopoc table and the causal model, through rather strict construction rules :

(a) A dynamic model is built from right to left, starting with the outcomes. The team should take the outcomes previously agreed upon in the Hippopoc table and make efforts to dispose them preferably on a blackboard with the major linkages shown graphically. The causal model should be used to help establishing the linkages between outcomes. After trial and error, the provisional right end of the dynamic model will be produced.

The reason for starting the building by outcomes is that, contrary to processes, outcomes are not modifiable. Neither are they negotiable : they were established, explicitly or implicitly, by the project designers and they are not allowed to be formulated in any different way. One is therefore obliged to start with the outcomes. Lastly, inasmuch as the two big questions raised by evaluations are :

- Are the desired outcomes achieved ?
- Do the broad processes that lead to these outcomes evolve as expected ?

it becomes obvious that the starting point must be an outcome (or the outcomes).

(b) In the following step, the major processes leading to the outcomes, as well as the major key confounders, are incorporated. These processes are taken from the Hippopoc table, and the confounders from the causal model.

(c) Inputs are then incorporated in the graph in the same way. Once this stage is completed, the team will end up with a provisional model scheme.

(d) Cross-checking with the causal model.

(e) Final cross-checking between the dynamic model and the column of processes in the Hippopoc table.

(f) Once the model is completed, the team ought to ensure consistency with all previous steps. For instance, if confounding factors are identified but are not present in the causal model, the latter should be updated to include these factors.

2.4.2.2. Remarks on construction

(a) By convention, the dynamic model does not express flows or intensities : the relative importance of arrows and linkages is not presented, nor is the relative importance of boxes.

A certain assumption of linearity in causality is implicit, which is reflected in the scarcity of lateral relationships and feedback loops. Linearity is only very partly true, but it simplifies construction.

(b) In some cases, it may be useful to group selected inputs in a large box on the left of the model. This is useful when such inputs are linked to different processes : in this case the left side of the model would otherwise tend to become unreadable. Such a simplification should be used with caution, however, especially if it is believed that excess availability of inputs can be a threat to the project.

(c) It may be useful to put graphic symbols in the dynamic model to increase its legibility. A different symbol would then be used to identify inputs, outputs, outcomes on the one hand, and confounding factors on the other. Such symbols can be boxes, circles, etc.

2.4.2.3. Difficulties

Three main difficulties are likely to arise during the building of a dynamic model :

(a) A major difficulty is the tendency to be exhaustive. A balance must be maintained between comprehensiveness and simplicity. If everything relevant is put in the model, one runs the risk of getting lost. Selecting which elements are to be taken out is demanding : some of such elements may actually be interesting and relevant but, in the context of a given evaluation and of scarce resources, the marginal cost of taking them into account may be too high.

If it is felt that a specific part of the project should be emphasized, one should remember that it will always be possible to build a dynamic submodel for this purpose. In all cases, it is preferable to end up with a model on one or two sheets of paper, eventually completed by a submodel on a specific issue. Exhaustive models covering five sheets of paper or more, may provide a provisional intellectual satisfaction to the building team, but have proven neither useful nor usable.

(b) Another danger, closely linked to that of trying to be all-embracing, is that of generalization, i.e. of becoming too theoretical and not enough project or situation specific. In such a case the credibility of the model and of the method is quickly lost.

(c) A problem that is likely to appear quite often is proper identification of certain factors. A factor can at times appear as a process and at other times as an objective. For instance a factor such as "Strengthened role of Universities in nutrition/development" in the example provided in Figure 3 : there is no question that this may be one of the clear final objectives of the project. But at the same time, "strengthening" such a role may appear as one of the major processes involved. Since the conventions adopted for designing dynamic models limit the use of feedback loops, judgement should be used in giving preference to one or another possibility.

2.5. The second round of questions

The last important step must now be taken : the revision of the evaluation objectives and questions in the light of the dynamic model and of all the new knowledge that has been accumulated about the project during the previous steps. The dynamic model is indeed instrumental in identifying questions which the evaluation should answer. Once the model is built, the team should go back to the questions identified in the pre-evaluation stage. The dynamic model can, for instance, be used to stress the importance of the processes or of the inputs. The team can then choose to focus the evaluation on outcomes, on outputs, or on processes. The final choice will depend on the appraisal of different factors, mainly :

- What was decided at the pre-evaluation stage.
- The availability of information.
- The technical capacities of the evaluation team.
- Time and money available.
- Preliminary observations.

None of the questions raised during the pre-evaluation stage will be discarded : the second round may add new questions, or reformulate the old ones, but as a general rule not suppress any of them. The main reason is avoiding that any question, perceived as important by the sponsors, would in the end not be answered to.

2.6. General remarks about the models

The general remarks which are made in this section apply to all three models used in evaluation, including the Hippopoc table.

2.6.1. Nature of the models

The term "model" is used in this text to mean a simplified representation of a system or a process, and not in the sense of an example to be followed. Some people might prefer an alternative term such as "conceptual framework" or "analytical diagram", but regardless of the name or the formulation it is given, the hypothetical causal model is simply an ordered set of causal hypotheses regarding the causes of malnutrition in the area of concern, linked together in a rational, hierarchical and easily understandable manner. There will be a specific model for each situation, and a new model should accordingly be built for each evaluation. Similarly the dynamic model (and to a lesser extent the Hippopoc table) is a simplified representation of the project. It is a set of hypotheses and should never be taken as reality. No model is ever definitive : after data has been collected and analyzed, not all the hypotheses will be confirmed, new ones may be formulated, and the model may have to be amended. The formulation of hypotheses is a continuous process that has to be modified when new information becomes available; when postulated relationships become better understood; when new hypotheses are born from experience, observation or reasoning; when the situation is changed as a result of interventions or outside factors; or when the project changes as a result of various factors, including evaluation itself.

Since models are merely tools to be continuously amended, it is sound to avoid drawing and presenting them in any permanent fashion. A recommended procedure, therefore, is to avoid using quality paper, non erasable markers or rulers to draw lines, but rather be satisfied with common paper, pencils and washable markers, in order to prevent the models to become a purpose in themselves. Every version should be dated.

2.6.2. Who builds the models ?

Ideally the models will be designed by the complete evaluation team, and this team should include different disciplines, selected in such a manner that their aggregate fields of competence cover most aspects of the phenomenon under study. It should include people knowledgeable about the local situation and the project, and members of the community and field staff. The exercice should whenever possible be performed at the project site.

Inasmuch as model building is a collective learning process which can be, in itself, as important for a good evaluation as the conclusions, it is essential to get full participation of all partners during the construction process. In addition, it may be difficult for people to understand the logics of the models, if they were not involved in their construction.

2.6.3. Models as tools for communication

All the models do create opportunities for interdisciplinary work which will be extended throughout the evaluation exercise and might, if properly utilized, be maintained beyond the period of the formal evaluation. More generally, they are good communication tools. The Hippopoc table allows people working together to agree on what is to be done (or was to be done), on resources, on expected results. It helps the group to arrive at a common, thorough, and operational knowledge of the project. The causal model building exercise, in turn, is an opportunity for the multidisciplinary team not only to think over the problem of malnutrition, but also to ponder over the relevance, effectiveness, and interrelationships of on-going or planned activities. It also helps to identify individual responsibilities, to clarify the content and nature of each intervention, and to identify new, potentially effective interventions. It leads to a better and shared understanding of the project by different partners, who often come from different backgrounds.

2.6.4. Difficulties of model building

The commonest difficulty in model building is to decide where to stop. What is an acceptable balance between the desire of simplicity and the requisite for comprehensiveness, on the one hand, and the degree of detail that should appear in the models, on the other ?

Common sense and judgment should be used, and the main objectives of each model should be kept in mind. Broadly speaking, a few general rules might be taken into consideration :

- Larger and more complex projects demand more in-depth analysis and a greater amount of detail.

- Whenever a further breakdown does not add significantly to understanding or decision-making, it will be discarded.

- It is generally preferable to err on the side of over-simplification than on the side of over-complication.

- If the group is stuck at some point, it should move on to another point. Experience teaches us that ideas are often clearer the next day.

Designing models is time consuming. Consequently, a problem that arises sometimes is a certain degree of discouragement among the team. That, in itself, is not a drawback. Once participants clearly understand the purpose and see the model as a working tool, they do not complain about the time it takes to build it: they instead express appreciation about the interest of the exercise. The risk is rather in over-complication leading to oversized models, and consequently discouragement. Experience shows consistently, however, that the time eventually saved later on in data collection and analysis, largely compensates for the time initially invested.

Model building exercises are greatly facilitated by the assistance of a good, experienced and effective moderator. He/she is a discussion leader who remains neutral with regard to the output of the exercise but intervenes when the discussion is blocked. He/she also summarizes the work done between the sessions.

2.6.5. The sequence of steps and the need to ensure consistency

The causal model needs to be built at the very beginning of the conceptualisation phase. Although it is not needed for assembling the Hippopoc table, it is preferable to have it built before, because of the positive effect of the building exercice on communication within the evaluation team. While it can be built independently from the Hippopoc table (either before or after), it is a necessary requisite to the construction of the dynamic model. As we have seen, with a "good" causal model and a "good" Hippopoc table, the dynamic model will be built easily and quickly by the same team.

The Hippopoc table can be built at any moment of the project cycle. This is one of its major advantages. Indeed, an *a posteriori* reconstitution of what the project components were, i.e. even the building of the Hippopoc table of a project that has been closed, is generally possible.

The Hippopoc table is an absolute prerequisite to the construction of a dynamic model of the project. The Hippopoc table is purely descriptive : it lists elements, but it does not provide an explanation about what does work, how, and why (or presumably why). The table is only an intermediary tool, which might need revision after the dynamic model is completed. It does not consider the qualitative aspects of the project : neither the quality of the process, nor the characteristics of the project's performance. That will be the role of the dynamic model.

The dynamic model possesses many similarities with the causal model, both conceptually and graphically. Like the latter it is a conceptual framework, an organized set of sequential hypotheses, and it is not a systemic or mathematical model. The graphic representation also looks like the causal model. If the direction from cause to effect is here horizontal, from left to right instead of being vertical, this is simply to emphasize the close relationship of the dynamic model to the Hippopoc table, but it could perfectly run from bottom to top, as the causal model does. Left to right is also the more conventional and familiar way of representing the flow of time.

The causal model is absolutely indispensable in building the dynamic model. Unless the causal model is used as a guide, major causal factors and external confounders will be omitted. The systematic cross-checking from causal models to dynamic model and vice-versa may initially seem fastidious : in practice it is not, and actually does not take much time.

In the end, consistency should be secured between the causal model, the Hippopoc table and the dynamic model.

Table 2, page 50, summarizes the uses of each of the models and identifies their major contribution to evaluation. The interested reader will find in Annex 5 a more detailed consideration of each of the three models.

Table 2. Use of models in comprehensive evaluation

Specific functions of each model	Causal model	Hippopoc table	Dynamic model
1. Ensures comprehensivenesss of approach			
- comprehensive view of the problem	+	-	-
- comprehensive view of the project	-	+	+
2. Serves as a communication tool			
- strenghtens the team; increases people and staff participation	+	+	+
3. Ensures internal consistency of the evaluation			
- better definition and agreement on the nature of the project	-	+	-
- clarification of objectives	-	+	+
- relevance of interventions	+	+	-
- consistency between objectives and activities	-	+	+
4. Is instrumental in identifying information to be collected			
- identification of hypotheses to be tested	-	-	+
- choice of data to be collected	-	-	+
- choice of processes to be studied	-	-	+
- choice of possible special studies	+	-	+
- identification of external confounders	+	-	+
5. Provides the basis for the conclusions			
- structure of the analysis	-	-	+
- tying the bundle of converging evidence	-	-	+

3.

DATA SELECTION AND COLLECTION

3.1. Introduction

Evaluation uses both quantitative and qualitative information. Qualitative information, which is not necessarily subjective information, is extremely useful, particularly in evaluation of processes (the appraisal of the quality of a training, for instance), or when assessing matters such as social or institutional changes in relation to a project. Such information comes from direct observation, anecdotes collected by social scientists, open-ended interviews, focus groups, etc. Use of qualitative information, however, is beyond the scope of this guide, as said in Part I, 1. The present chapter and the following are, therefore, mainly concerned with the selection of quantitative data.

Quantitative data used in evaluation, belong to the following categories :

- Data produced routinely by the system, i.e. by the implementors of the project, and sometimes by the beneficiaries or by the agencies and organisations participating in it. Such data are collected for the purpose of monitoring, for reporting progress, etc. Routine data can be collected continuously or periodically (for example annually).

- Data that are not routinely collected, such as data gathered through surveys and, exceptionally data generated through special studies. The latter may follow an experimental or quasi-experimental design, be observational, or sometimes be focused on a given operational aspect of the intervention (see Annex 6).

In the method presented here emphasis is laid on (1) the use and optimisation of existing data, particularly of data routinely generated by or within the project, and (2) on improvement of the information system.

Regardless of the source of data, a common observation is that data generated is often more abundant than would be required for evaluation. In addition, particularly in the cases where different data is available, the possibilities for making comparisons, for aggregating, for determining trends, etc. may be very wide. Such operations are time-consuming, often not relevant, and costly. Worse still, they tend to confuse the issues and obscure the conclusions. It is therefore essential to be selective, and <u>only collect the data that is absolutely necessary for meeting the evaluation's objectives</u>.

3.2. Selection of data and choice of strategies for data collection

In all cases the dynamic model (and sometimes the causal model) will be used as the basis for the selection, processing, and interpretation of data. Selecting indicators is an important step of evaluation. A rational selection and interpretation of information are the main justification for building models, even if, as we have seen, models may have other important functions. There is neither recipe nor secret for a proper selection of indicators. An important consideration at this stage, is to remember that the objective of the evaluation is not to validate the dynamic model as a whole but to answer the evaluation questions. In special circumstances, however, parts of the dynamic or causal models may be validated through special studies (Annex 6).

Experience shows that identification of the data to be collected is fast, simple, and relevant when the following conditions are satisfied :

- the dynamic model really reflects a consensus among partners;
- the questions are agreed upon, and are consistent with each other and with the dynamic model, and;
- consistency is granted between all the steps.

The procedure to be followed is simple : each box in the dynamic model can be represented by one or more indicators. The team will list the boxes from the model, and identify indicators with their characteristics and source. A table (such as in the example : see Table 3, page 54) can easily be built. At the time of buiding this table, feasibility of collecting the indicator and data quality are assessed, and only those indicators which can be gathered and which also meet the requirements of quality, disaggregation, etc. are included. Table 4, page 55, is derived from Table 3, and indicates the responsibility of each partner involved in the evaluation in providing data. Although Table 4 is basically another way of presenting the information contained in Table 3, it has proven useful to each of the different people involved in evaluation, from an operational point of view.

The outcome of this first selection will be in general a long list of indicators. Any indicator considered to be unnecessary for the type and scope of evaluation should be taken out.

Once this list is agreed upon, and the revised Tables 3 and 4 provide both the data to be collected and its sources, the team will select the most appropriate data collection strategies. Whenever the relevant data (i.e. data appearing in Tables 3 and 4) can be collected from, or is already available in the routine information system, it will receive preference. This point was emphasized earlier.

Data that would require a survey will then be identified. But a careful consideration will be made of every chance of getting the same data from the routine information system. If special studies are necessary, they will be considered, but very conservatively indeed (see Annex 6).

Considerations of cost, time, potential delays in getting the information, data quality and feasibility will have to be weighed very carefully by the team, untill an almost final agreement is reached on both the list of data and the strategies to collect it.

Lastly, a mandatory final step will be taken : it consists in returning to the dynamic model, and cross-checking the list of data with the model. The purpose of this control is to ensure that no important element, either a determinant or a confounder, is being ignored. It is in fact to answer the question : "If I get all this data, with a reasonable degree of quality, will I be able to answer the evaluation questions ?".

In summary, the following steps are taken :

- *Making a list of relevant indicators, selected from the dynamic model.*
- *Determining the desirable characteristics of each indicator, the data needed, and the potential sources of data.*
- *Selecting the strategy or combination of strategies that will provide the necessary data.*
- *Assessing the quality, cost, time, and feasibility of data collection, and adjusting the list accordingly.*
- *Cross-checking this list with the dynamic model till the final list of data and strategies can be decided upon.*

These steps are followed in an iterative manner, and each of them will be repeated as often as necessary till full consistency is reached. This is why the method considers data selection and choice of collection strategies as a distinct step. Data collection, including the assembling of existing data, should not be initiated before this step is fully completed.

Table 3. Example of listing showing data to be gathered with characteristics and source*

CATEGORY	INDICATORS	DATA TO BE GATHERED	LEVEL OF DISAGGRE-GATION	PERIODICITY	SOURCE	REMARKS
Nutritional status	% of children with W/A or W/H below cut of point	Weight, height, age	Individual	At least once a year	Health centres	
	Annual mortality rate 1-4 years	Deaths in group 1-4 years, population in this age group	District	Annually	Institute of Statistics	
Food intake	% of children with energy intake below RDA % of children with protein intake below RDA	Food intake of young children by age	Individual	Depends on the survey	Surveys by the Nutrition Institute	Sample
	Mean energy intake, per person per day	Food intake of family, composition of family	Household	Twice a year	Household consumption and expenditures surveys by Institute of Statistics	Sample
Food production	Estimated annual production of each basic food	Cultivated area (for each basic food)	District	Annually	Ministry of Agriculture	
		Yield/ha (for each basic food)	District	Annually	Ministry of Agriculture	
Utilization of health services	Average number of contacts per person per year	Total number of visits to health centre, population	Health district	Annually	Regional health office	

* <u>Adapted from</u> : Beghin I., Cap M. and Dujardin B. A guide to nutritional assessment. WHO. 1988.

Table 4. Example of listing of responsibilities of institutions for providing data for a nutritional assessment*

INSTITUTION PROVIDING THE INFORMATION	DATA TO BE PROVIDED	LEVEL OF DISAGGREGATION AND PERIODICITY	PRECISE SOURCE OF INFORMATION	PERSON RESPONSIBLE FOR SUPPLYING THE INFORMATION	REMARKS
Ministry of Health	Weight, height, age of young children	Individual, annually	Maternal and Child Health Division	Mr. X.	
	Total number of visits to health centres, population of health district	Health district, annually	Directorate of Health Services	Dr. Y.	
Institute of Statistics	Deaths in age group 1-4 years	District, annually	Vital Statistics Division	Ms. Z.	
	Population in age group 1-4 years	Household, twice yearly			
	Family food intake, family composition		National Survey Office	Mr. W.	Household sample in selected areas

* Source : Beghin I., Cap M. and Dujardin B. A guide to nutritional assessment. WHO. 1988.

3.3. Data collection

Traditional data collection is the most expensive and time consuming stage in any in-depth evaluation. With the method proposed here, the time and effort spent in the preparatory phases and in modeling is very largely compensated by the reduction of cost and time spent on collecting new data and assembling existing information, because :

- the data to be studied is less numerous and more relevant since it was more purposefully chosen;

- data analysis is quicker and easier because the data is less abundant, and the plan for analysis is readily provided by the models.

Once the strategy for data collection has been agreed upon by the team, Tables 3 and 4 can be redesigned in a final form.

When using existing data, quality can be assessed -and often improved- through checking original questionnaires; conducting audits involving the interviewers (when data come from surveys); and statistical screening.

In the particular case of a prospective evaluation, much effort should be put into improving data collection and data quality, i.e. in strengthening the information system of the project. The rationale behind such efforts is :

- since such data is generally useful for monitoring as well, any improvement will induce better monitoring, hence contributing to improvement of the project;

- through the improvement of the information system, people responsible for data collection in the projects are likely to be more involved. New knowledge gained through this process may have a positive side-effect in the long-run.

In some situations, the need to assess the quality of existing data (past and presently produced) may require a "special study". Similarly, a special study of the operation research type may have to be conducted during the initial period of a prospective evaluation, to ensure the relevance, quality, and practical usefulness of the project's information system.

In those cases where new data need to be collected, the rules of sampling and design will be the same as for any scientific study.

4.

DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.1. Introduction

In this step all the relevant information is processed and put in a usable form such as tables, graphs, maps, etc. It is then interpreted and presented in a manner which satisfies the objectives of the evaluation.

It should be remembered that data was collected with the intention of answering evaluation questions and of verifying hypotheses, for example that :

- inputs were indeed introduced;
- a given subprocess functions as expected;
- an output objective is being reached;
- an outcome is related to an output, and that causality can be reasonably attributed to it;
- etc.

4.2. Data analysis

Whether the analysis uses the routine information system or existing data produced for other purposes, data generated is often more abundant than would be required for evaluation. Even when the recommended procedures were adhered to up to here, which means that during earlier steps a strict choice of relevant variables was made, it can still be found that excess data is being produced. The rule, in such cases, is to stick to the objectives of the evaluation, and resist the inclination - or temptation- to analyze everything, simply because it is available. It is therefore essential to be selective, and only analyze and interpret that minimal amount of data which is necessary for meeting the evaluation's objectives.

A descriptive analysis will of the selected variables will be performed initially. Then one will explore the associations between variables for which the dynamic model hypothezises that there is a relationship. Most of such relationships will be summarized in contingency tables. Simple statistical techniques (chi-square, t test, r^2, etc.) will be used. Rules and techniques for such analysis are not specific to evaluation, and a detailed discussion would be beyond the scope of this guide.

In a second stage the analysis will be conducted on subsets of variables, and the external confounders identified when building the dynamic model will be considered. Adequate control of confounding can generally be achieved by simple stratification. More sophisticated statistical techniques will seldom be needed.

At any rate, the links visualized in the dynamic model provide the key to an efficient analysis.

A point already made should be stressed here : the dynamic model, as such, cannot be verified. Verification of its hypotheses would require moving from the dynamic model to a statistical model (a linked set of tables, equations, etc. that are verifiable - in principle - with factual data). The building of a verifiable statistical model using a conceptual model as point of departure is briefly dealt with in Annex 6 (section 4.3.).

The time needed for data analysis and interpretation will obviously be variable, but efforts must be made to reduce it to the essential minimum. Our insistence, throughout the guide, on the importance of thinking and preparing oneself *prior* to data collection and analysis -a major characteristic of the method- is to a large extent justified by the need to reduce the time of data processing and analysis. The building of models and Hippopoc table further contributes to shortening the analysis period by providing the necessary framework. Other factors contributing to a shortened analysis period are :

(1) fewer data,
(2) a predesigned format for analysis and presentation i.e. dummy tables and graphs,
(3) a well-integrated team.

4.3. Interpretation of the data

There are actually three consecutive steps, which overlap :

- the correct interpretation of factual information, i.e. of tables, graphs, trends, etc.;
- a synthetic interpretation, putting all the facts together, around the dynamic model that serves as central framework;
- an overall final conclusion, in which the basic questions of evaluation are answered with a certain degree of plausibility, and which is supported by a bundle of converging evidence.

Needless to say, whatever validity the conclusion possesses, such validity is internal, specific to the project, and cannot be generalized to other similar projects.

4.3.1. Interpretation of factual information

Interpretation accompanies the analysis and is organized in accordance with the dynamic model : chapters, sections and subsections will have headings corresponding to the names of boxes -or key boxes- in the model.

Not only the dynamic model, but also the causal model and the Hippopoc table can be of great use in data analysis and interpretation.
For each partial result, validity should be assessed. The limitations and drawbacks of the data and its interpretation must also be discussed, and alternative explanations of the findings must be proposed, whenever justified.

It is important that the models be revised and amended in the light of the new knowledge gained through analysis, if that is necessary, and anyhow before conclusions are drawn. This will ensure a more correct interpretation.

4.3.2. Synthetic interpretation

At this stage, the team's problem is to provide a synthetic interpretation which will consist of integrating the results of different partial analyses in a comprehensive manner. While all quantitative information will be interpreted according to the dynamic model, this rule should not be adhered to too strictly: the model is a broad framework that helps organizing the report, but it should not become a constraint. If qualitative information is used in the evaluation (an issue not dealt with in this guide), conclusions drawn from the analysis of such information should be incorporated here.

Each answer should be explained. Again the model, or its submodels, will be the frame around which explanations will be provided. For each answer an explicit assessment of its validity should also be provided.

Side-effects, unanticipated observations, biases, or unexpected confounders with either positive or negative effects, will be reported and commented upon.

4.4. Conclusions

Conclusions must necessarily meet the objectives of the evaluation. They will be clearly and exclusively derived from the analysis and interpretation of data and other information. Too often, unfortunately, evaluation reports contain conclusions which are either not fully supported by facts, or do not answer the questions of the evaluation.

The questions to be answered are those that the team agreed upon initially at the pre-evaluation stage, plus those included after building the dynamic model (i.e. questions put at the first and the second rounds of questions).

After presenting the facts, with explanations and with an assessment of their reliability, the team will propose an overall conclusion about whether results were achieved or not, about what did work and did not, and why. Such general conclusion is indeed a key issue, since it will serve as the basis for recommendations. Here comes the "bundle of converging evidence" refered to earlier. The evaluation team will have to assess the degree of validity of the conclusions, i.e. the extent to which the facts can convincingly be put together. Since the conclusions rest ultimately on best judgement, i.e. on a bundle of converging evidence, the reader must be made aware of, and fully informed about, the potential role of external confounding factors and the manner in which they have been dealt with when interpreting the data.

Acknowledgement will be made of the fact that the degree of plausibility provided depends on time and money. The authors of the report will clearly distinguish what can be concluded with an acceptable probability, and what is conjectural. Thus, judgement must be exercised and the opinions of the team should be expressed. The evaluation team will accept that the sponsors of the evaluation are mainly interested in making decisions, even in the absence of absolutely tight evidence, and therefore they should avoid committing an error by omission (i.e. conclude that a project or one of its components is not effective, because with the data that have been collected it cannot be proven that it is effective). The more strict levels of confidence used in experimental biology often cannot be applied here, and a global interpretation is generally preferable.

4.5. Recommendations

It is essential that recommendations be consistent with the conclusions (this is not always the case in evaluation reports). They will cover :

- The project : should it go on, be closed down, be expanded, be extended, be modified (and in this case what ought to be changed) ? Why ? In which way and with which intensity ?

- Other relevant aspects linked to the project, its processes, and its results.

- Ways to improve evaluation itself, and particularly the information system.

- When relevant, future research needs.

4.6. Preparation and presentation of the report

4.6.1. Who prepares the evaluation report ?

The evaluation report should preferably be prepared by the whole team, or at least discussed in detail with all the actors in evaluation : project managers, implementors, representatives of the beneficiaries, etc. This will lead to both more accurate conclusions and more acceptable recommendations, and it will increase the chances that such recommendations eventually be implemented. Yet, while teamwork is to be prefered, one person should be in charge, overlooking the drawing of conclusions and the writing of the report.

4.6.2. A few rules for presenting conclusions

Reporting may be done in two stages, if necessary. The first stage would be a simple and quick report, easily understandable by lay people. It would contain a summary explanation and a prognosis. It should be short, to the point, and not be overloaded with facts.

In a second stage a more elaborate report could be submitted, with a discussion of relevant points, and recommendations for action. It must be stressed here that explanations are indeed necessary. The report should be factual and avoid lengthy discussions. If a few aspects require more explanations, they can be put in an annex. While there is no *a priori* limitations to the size and number of supporting annexes, the report itself, as a rule should be short.

The table of content would include, for example :

(a) An executive summary (a page, or a page and a half, maximum).

(b) A brief description of evaluation procedure as actually followed. This would include :

- terms of reference of the team, at the beginning;
- composition of the team, actors in the evaluation process;
- a narrative of steps followed, including a presentation of the dynamic model (the Hippopoc table and the causal model may be put in an annex);
- methods used for data collection, data sources, appraisal of data quality, and methods used for data analysis;
- difficulties encountered, weaknesses, holes in the data (missing information), probable biases and possible sources of biases, etc.

(c) Presentation of the conclusions (as described in section 4.4.).

(d) Recommendations (as described in section 4.5.).

(e) Annexes, among which :

- list of members of the evaluation team;
- causal model;
- technical document(s);
- Hippopoc table;
- reports of special studies;
- basic statistical information (for example data used in identifying trends);
- detailed explanations of main conclusions, if necessary.

4.7. Distribution of the report and dissemination of the conclusions

Feedback and dissemination of conclusions and recommendations will be active. Those in charge of the evaluation will make sure that they do reach the users and potential users of the evaluation. The various people composing the team will take the initiative not only of disseminating, but also of generating and stimulating discussions in three directions :

- upwards, with the decision makers and with the sponsors and managers of the project, with a view to project reorientation, expansion, closing down, etc.

- horizontally, with the implementors (i.e. the project personnel who execute and have little decision power, but often are among the major data providers and/or collectors) for both ethical and practical reasons (it is the right of the data supplier to have the processed information "devolved" to him; feedback will improve data quality and maintain interest in the continuous supply of information).

- downwards, with the people concerned, the "beneficiaries". This amounts to "devolution" of the processed information and of the conclusions to the people most likely to be affected by the subsequent decisions.

Ways of ensuring such dissemination and devolution include :

- the production of a clear and concise report. If a broad diffusion is wished and funds are scarce, annexes could be assembled in a separate volume, which would have a more restricted distribution.

- seminars : to discuss the conclusions; to advocate evaluation; to discuss methodology, assumptions, and interpretation biases; to suggest new research; etc.

- meetings with the beneficiaries (in broad terms and not only with their representatives) in order to collect reactions, to discuss amendments to the project, and to generate interest in future collaboration.

PART III

CONSIDERATION OF SPECIAL SITUATIONS AND VARIATIONS FROM PROTOTYPE METHOD

As was stated in in the introductory chapter, this guide is concerned with the evaluation of the nutritional implications of relatively large-size projects and programmes which, explicitly or implicitly, are expected to contribute to improving the nutritional status of the target population. It is also assumed that it is a team that is in charge of evaluation. In the present chapter variations from the prototype method will be discussed, such as :

- *differences in the moment of the project cycle at which evaluation is considered or implemented,*
- *alternatives to a full evaluation team, and*
- *the case of small projects.*

1.

DIFFERENT MOMENTS OF ENTRY INTO THE PROJECT CYCLE

1.1. The ideal situation : evaluation is built in

In this case evaluation is taken as an integral part of the project design and management, and all major decisions regarding evaluation were taken during project preparation. The planning of the project was properly done by a team in which the beneficiaries and the future implementors participated. The objectives of the project were clearly defined, and the following steps, relevant to nutrition, were taken during the project preparation phase :

- A causal model of malnutrition was built, and it served to identify the variables to be collected for the nutritional assessment, which was part of the overall diagnosis. The model was also used to select nutritionally relevant interventions;
- A technical document exists for each nutrition-related intervention, and provides all the basic technical information the planner, the project manager, and eventually the evaluators, would need.

In such cases, the evaluation team can quickly complete the missing aspects of the pre-evaluation stage, and move swiftly to making the Hippopoc table and building the project's dynamic model. The team will then follow through the other steps.

Data collection will be prospective, and emphasis will be laid on improving the information system, i.e. improving data quality and making the data fit the needs of evaluation.

The advantages of such a "built-in" evaluation are considerable:

- In the first place, it can help improving the design of the project, and this in a variety of ways. For example, when building the Hippopoc table, the systematic cross-checking of the Process column and the Input column will help identifying inputs that might have been omitted, or help identifying alternative activities. Identification of confounding factors may suggest other means to reach the same impact. Cross-checking the dynamic model with the causal model can lead to changes in the design of the planned project, if the exercise indicates that a causal chain leading to a desired outcome or output was omitted.

- Secondly, advance knowledge on which variables will be needed for evaluation permits to design or adapt the routine information system, reduce its size, and save time and money.

Some agencies use the term **"appraisal"** or **"ex ante"** evaluation when there is an attempt to anticipate what the results of the project could be -and why- in order to influence the design of the project, but without necessarily making decisions about future data collecting and analyzing.
When it takes place, **"ex ante"** evaluation is closely linked to the whole process of project design, and it can be considered as a kind of prognosis : "What would happen without the intervention", "What do we expect to happen with it?", or "What consequences will have such and such decision, from a nutritional point of view ?", and "Why?".

Ex ante evaluation can be based on educated guesswork, at its simplest level; or use sophisticated prediction techniques; or even use simulation. As far as the method presented here is concerned, there is little doubt that the use of a Hippopoc table and a dynamic model would substantially increase the rationality of decision making.

1.2. A more common situation : evaluation is considered and/or starts when the project is well underway

The ideal situation described above is seldom encountered. A more common situation, -which underlies the whole method- is that the project is already well underway when either nutritional considerations are taken into account, or when the need to evaluate such considerations is recognized. Objectives, or at least the nutrition-related objectives, are not clearly defined, and the interventions are not consistently in agreement with either the problem as defined (or understood implicitly) or with the objectives as stated.

In such a situation, and contrary to a common belief, a good evaluation is perfectly feasible -provided the ground rules laid down in this guide are respected-. The fact that the evaluation can be applied at any moment in the project cycle is indeed one of the advantages of this method.

The following comments apply to such a situation :

- The pre-evaluation stage acquires particular importance : a retrospective, *ex post* reconstitution of initial decisions will have to be made, with their probable motivations, as well as a definition of objectives.

- The relevance of each nutritional or nutrition-related project component will be assessed after completing the causal model. Irrelevant interventions will be sorted out, and information about their lack of relevance -from a nutrition point of view-will be immediately passed on to the decision makers for stopping, phasing out, or adapting. Of course such interventions may be relevant for other reasons, and will in that case be kept in the project, but they will not be evaluated as part of the nutritional evaluation.

- Designing the technical documents and the Hippopoc table is easy in such a situation, since a good number of team members are actively involved in both the operations and their management. The dynamic model, for the same reasons, will be easy to construct.

- The big bottleneck, however, will lie in the probable resistance to changes in the routine monitoring and evaluation system. Any improvement in the information system is likely to be perceived as additional work.

- Another drawback is very common : people engaged in the implementation of a project or programme resist the apparently time-consuming modelling exercises, not realizing till later how much time will be saved, and to what extent the quality and speed of the evaluation will gain. Patience, persuasion, involvement, and respect for the partners, are irreplaceable virtues to overcome such resistance.

1.3. Ex post evaluation

This is the situation in which an evaluation is requested after a project has been closed down. The situation is often similar to that of the previous case, without always the advantage of having implementors and managers at hand.

Another drawback is that only secondary analysis is possible. If important data, and particularly if data about important confounders are not available, validity is seriously threatened. Lastly, data quality may impose a further limit to validity.

Quantitative evaluation is therefore meeting very severe constraints. An overall evaluation can however often be conducted, the Hippopoc table proving to be a useful tool. The pre-evaluation stage, in any case, must be fully completed but, of course, retrospectively.

The decision must be made as to whether the whole procedure is worthwhile in terms of cost, validity, and usefulness of the conclusions. Generally, preference will be given to the "expert type" of evaluation, as outlined below.

2.

ALTERNATIVES TO A FULL EVALUATION TEAM

A broad range of possibilities exist, from the evaluation conducted by a full team at one extreme, through the work realized by a single evaluator at the other end. This last case, that of the "expert" type of evaluation, has considerable merits and is extensively used by bilateral, international, and non governmental organizations. But it mainly -or exclusively- serves the interests of the sponsor of the evaluation, and it does not meet all the basic assumptions of the present method, particularly that of participation which we consider fundamental for a comprehensive evaluation. Yet it is reasonable to expect that some of the other assumptions and tools, and many of the concepts used here can apply even to the "expert evaluator".

For the authors of this guide any evaluator operating with the guide, whether he is an expert or not, is seen basically as a resource person, a moderator in group discussions, and the keeper of a checklist of things to be done to facilitate the work of the evaluation team.

3.

THE CASE OF SMALL PROJECTS

The methodology was developed for rather "large-size" and complex projects. A precise definition of what is "large" would depend on population size and density, on the general level of development, on the magnitude of new inputs in relation to existing resources, etc. The method, however, clearly applies to considerably smaller projects as well. The point is that, if the project is very small, the cost and efforts of applying the whole method are not justified. There should be a reasonable balance between the project size and the evaluation effort. In evaluating small scale projects or activities, adaptations will be necessary. When used in such situations the dynamic model can be omitted, since it does not bring much more information than the causal model or the Hippopoc table. Yet, even small projects can be very complex : a dynamic model would then be useful. In the case of very small projects, with a simple design, the team would follow the general lines of the method, and select indicators, either from the Hippopoc table, or from both the Hippopoc table and the causal model. If different micro-projects are being evaluated in more or less the same ecological setting, it is not necessary to build a causal model for each project : a general model can be built for one project, and then be adapted to the peculiarities of each area.

PART IV

ANNEXES

Annex 1. Barangay (Village) Integrated Development Approach to Nutrition Improvement (BIDANI) of the Rural Poor

The BIDANI programme is an integrated rural development programme that has been progressively developed by the College of Human Ecology of the University of the Philippines at Los Baños (UPLB). It was implemented in 1978 in 6 pilot barangays (villages). It presently covers 256 villages in seven regions of the country and involves seven State Colleges and Universities (SCUs).

The long term objective of the programme is to improve nutrition status and general well-being of the rural poor by increasing food security at family level. This is achieved through effective organization of barangays and municipal structures; and increased provision and utilization of socio-economic opportunities.

The main features of the approach are :

1) Malnutrition is recognized as a multicausal problem whose complexity is specific to local situations. Solving the problem in the long run calls therefore for an integrated development strategy attacking the root causes of the problem. Indeed, projects focused on isolated individual components and/or aimed at treatment of the symptoms can hardly sustain development efforts in the long term. In the BIDANI strategy, nutrition considerations are integrated into rural development programmes as an orientation, an objective, an indicator, a component of the programme, and a key entry point.

2) The programme gives a large place and role to SCUs as catalytic agents of development. The SCUs establish the BIDANI in their respective areas as research, training, and demonstration grounds for accelerating nutrition improvement and rural development for their specific region.

3) The approach recognizes that development projects emanating from the top often fail to reach the intended beneficiaries. The BIDANI thus relies on an alternative strategy calling for an active participation of the people and their organisations at the local level (local political structures, extension workers of government agencies, private sector, civic organisations, and NGOs) in taking development initiatives. Selection, planning, implementation, monitoring and evaluation of local development activities based on identified problems, needs and resources, are to be carried out primarily by the community.

4) Resources are often available to villages and municipalities, but are often underutilized. The need to mobilize resources (organizational, financial, human, material), to make them more accessible to the people, and to maximize their use, also characterizes the approach.

5) A last important feature is that the programme was conceived as an action-research programme, i.e. since it first started in 1978 (see historical background below) the project has progressively been improved - gaining from experience in the field - and adapted to the changing needs of the communities and of the environment. The large autonomy given to the SCUs in implementing the programme adheres to the same philosophy.

The BIDANI approach is operationalized in two main phases and at three operational levels : SCUs, municipalities, and barangays.

In a first phase, the SCU-based BIDANI teams who are in charge of implementation of the programme, will :

- select and train an indigenous worker in each village where the project is to be implemented : the Barangay Nutrition Scholar-Development Worker (BNS-DW). Training includes essentials in health, agriculture and nutrition as well as communication, planning, and management. Among his numerous activities this "generalist in development" conducts an analysis of the situation in the barangay, motivates and mobilizes the community around development projects, and coordinates the different activities carried out as well as the persons and organisations concerned with the development of the village.

- assist in organizing, training, and guiding a development structure in the barangay : the Programme Planning and Implementing Committee. The committee is responsible for formulating, implementing, monitoring and evaluating an annual development plan (Barangay Integrated Development Framework Plan) with the help of the BNS-DW. The plan covers all aspects of the barangay's life, from infrastructure projects to peace and order problems. Development activities liable to be undertaken are various by definition. Examples are : food production and utilization, health and nutrition education, food assistance and supplementation, family planning, etc. Needed services are secured and facilitated through linking with existing institutions and organizations in the area. Since 1990, a particular emphasis is given to income-generating projects under a credit scheme handled by each SCU.

In preparation of the institutionalization of the programme, a similar structure is organized at the municipal level (Management and Supervisory Committee) composed of elected officials and representatives of government and non-government agencies operating in the area. The committee organizes, plans, implements supervises, coordinates and evaluates all activities embodied in the Municipal Integrated Development Plan that integrates the various barangay plans.

The university provides packages of training, technical expertise, and backstopping to activities undertaken at both levels. Training is given a major thrust at the municipal level, since this level will take over the project in the second phase.

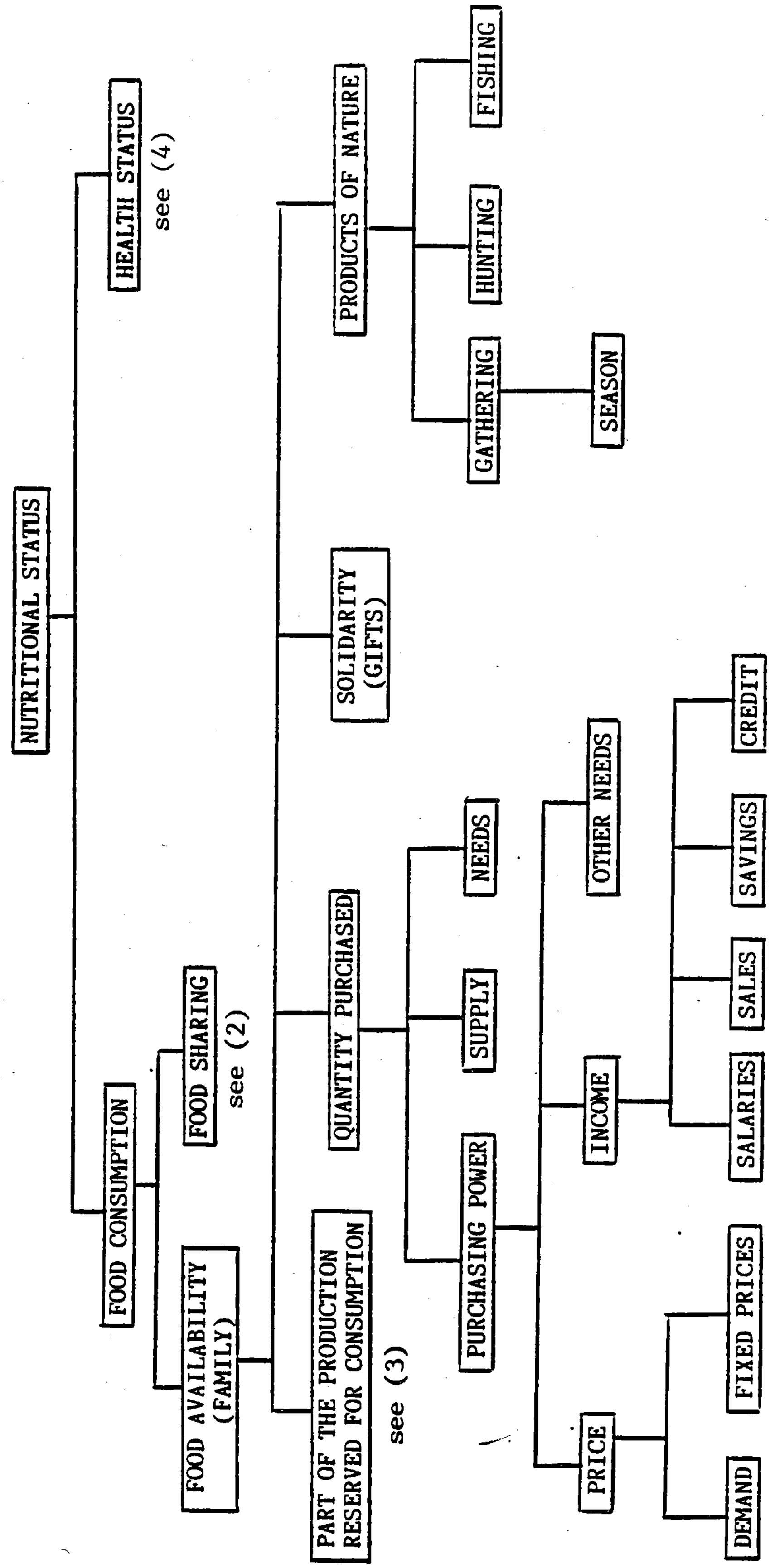
In this second phase, indeed, the project is "institutionalised", i.e. it is completely taken over by the municipalities who are given full responsibility for managing the project, and for expanding its implementation to other barangays in their area of responsibility. After institutionalisation, the SCUs may still maintain, when needed, their role of technical adviser and trainer in terms of project implementation, research, documentation and evaluation in order to reinforce developing capacities of the municipalities.

Historical background of the programme

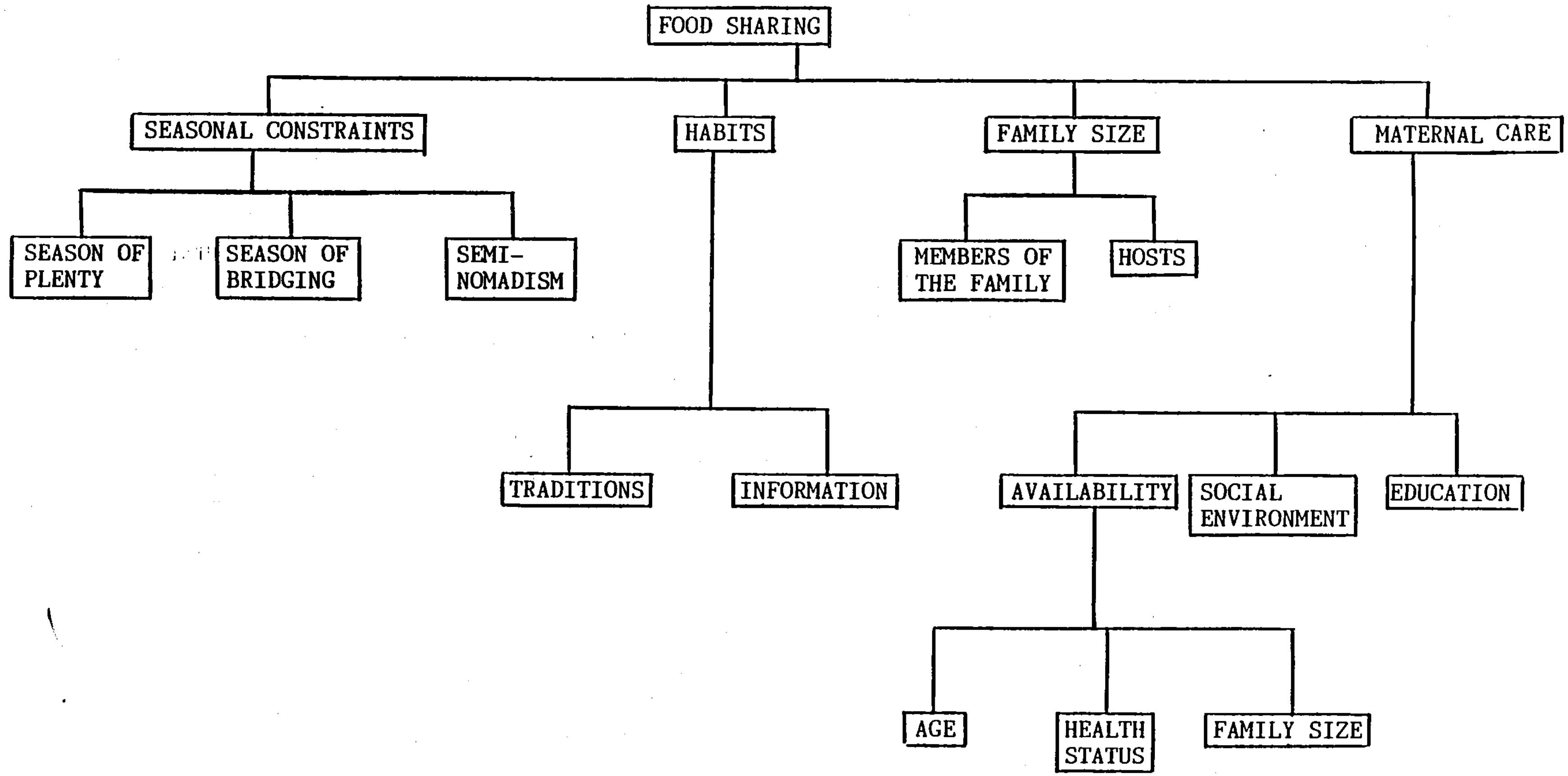
The BIDANI was first conceived and modelled in six pilot barangays in six municipalities under the name Nutrition Improvement Model Project in early 1978 by the College of Human Ecology, University of the Philippines at Los Baños. In 1980, it was further tested in twelve additional villages. Institutionalization took place in 1982. In 1983, replication of the approach took place in six additional municipalities. In 1985, a network of five agricultural colleges and universities was created with UPLB as overall coordinator. Covering different regions, its purpose was to further test the applicability of the approach in different environmental settings. In 1989 the project covered 256 villages in 46 municipalities. The same year a new development phase took place. Under the project named " Strengthening the BIDANI Network", the Dutch government allotted a sizeable budget to support the programme. The project aims to strengthen and further extend the network of SCUs and to sustain implementation of the BIDANI within the next five years in 683 villages in 75 municipalities in seven regions of the country. The BIDANI programme is supportive of the Philippine Food and Nutrition Programme coordinated by the National Nutritional Council of the Philippines.

Annex 2. Example of a causal model

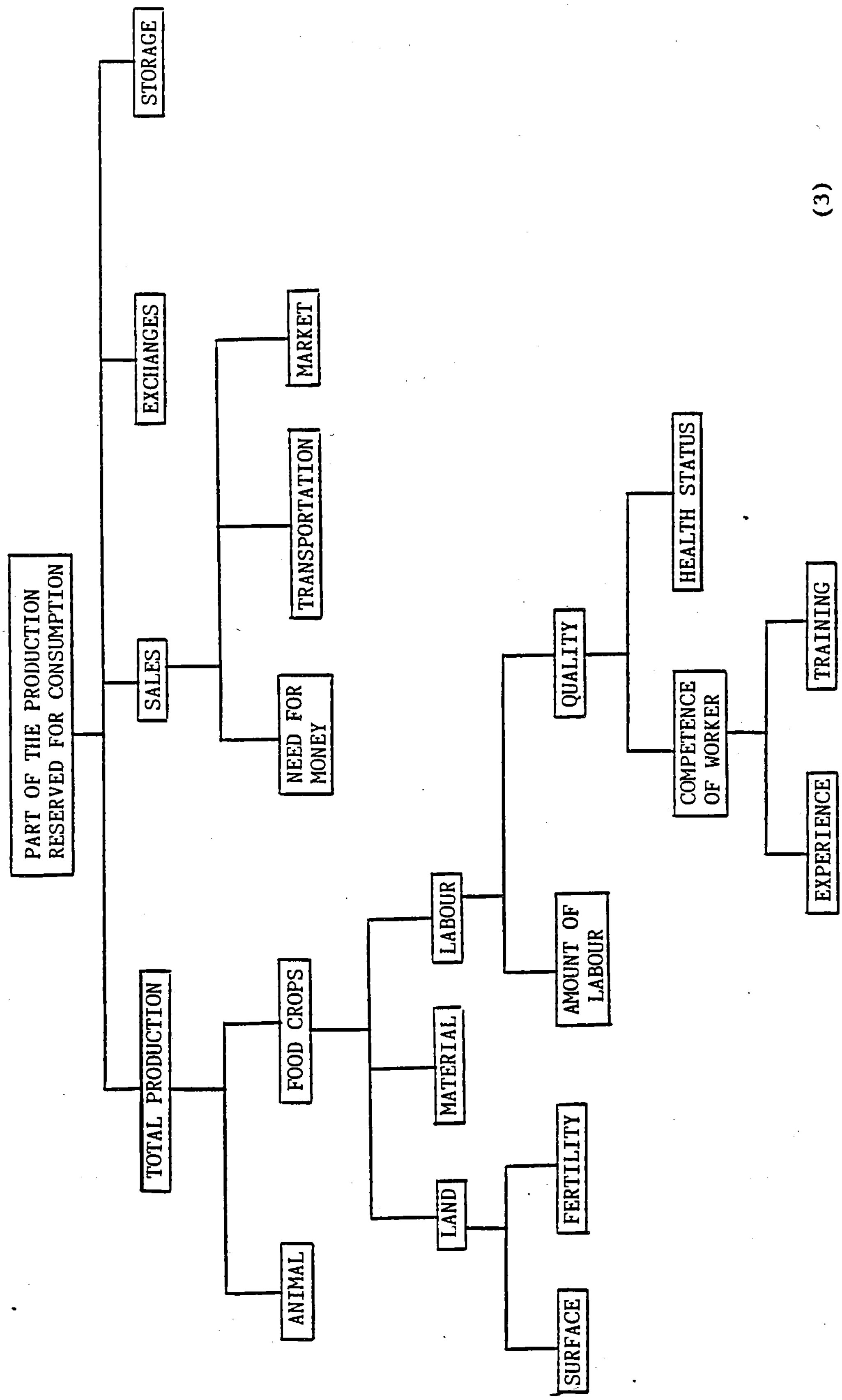
Figure 4. Causal model of nutritional status, Katanga Village, Shaba (Zaire) *



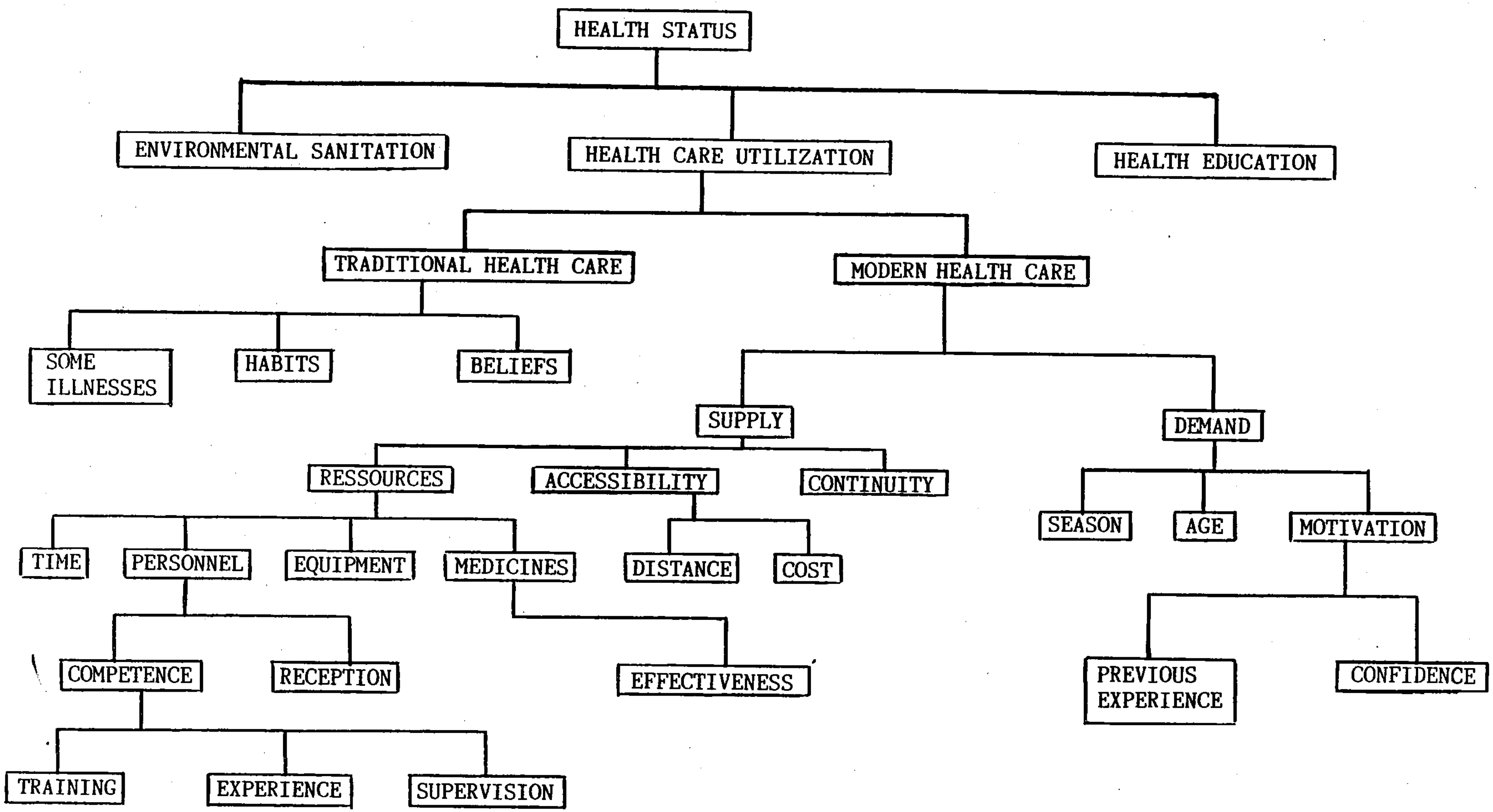
(1)


FOOD SHARING
SEASONAL CONSTRAINTS
HABITS
FAMILY SIZE
MATERNAL CARE
SEASON OF PLENTY
SEASON OF BRIDGING
SEMI-NOMADISM
TRADITIONS
INFORMATION
MEMBERS OF THE FAMILY
HOSTS
AVAILABILITY
SOCIAL ENVIRONMENT
EDUCATION
AGE
HEALTH STATUS
FAMILY SIZE

(2)


PART OF THE PRODUCTION RESERVED FOR CONSUMPTION
STORAGE
EXCHANGES
SALES
TOTAL PRODUCTION
MARKET
TRANSPORTATION
NEED FOR MONEY
FOOD CROPS
ANIMAL
LABOUR
MATERIAL
LAND
QUALITY
AMOUNT OF LABOUR
FERTILITY
SURFACE
HEALTH STATUS
COMPETENCE OF WORKER
TRAINING
EXPERIENCE

(3)



(4)

*<u>Source</u> : University of Lubumbashi and Institute of Tropical Medicine, unpublished data, 1986.

Annex 3. Examples of Hippopoc tables from Brazil and Guatemala

Table 5. Example of HIPPOPOC table

Project title : PSA = Supplementary Feeding Program, Brazil*

INPUTS	PROCESSES	OUTPUTS	OUTCOMES
Human	**Central level**	Target group receiving the food according to the programme standards	Increased food availability at household level
Potential beneficiaries Health centre personnel	CIS makes the annual plan based on target population and capacity of the health centre to provide basic health care	Children refered for immunization and for PAISC**	Increased food offered to the child Increased food intake by child
Institutional Health centre INAN** SEPLAN** COBAL** CIS** State Health Office Supplying units (state level)	INAN: -requests funds to SEPLAN -prepares the scheme for food purchase and distribution to supplying units -sends to COBAL the funds and the scheme for food purchase COBAL: purchases and transports the food State Health Office: -food control (quality) at supplying units -prepares the scheme for food distribution to the health centre	Mothers receiving advices on health and nutrition	Improved practices of hygiene and general care to the children Improved growth and development
Technical Standard instructions of the programme (INAN)			

INPUTS	PROCESSES	OUTPUTS	OUTCOMES
Instructions for food distribution (Health centre level) **Financial** From SEPLAN	**Health centre level** Analysis of criteria and possibility for beneficiary registration Beneficiary registration Actual food distribution to children, associated with: -verification of immunization and growth chart -referal for immunization and for PAISC -health and nutrition advices to the mothers		

* **Source: Ramos L., Doctoral thesis, in progress, personal communication, 1990.**

** CIS = Interinstitutional Health Committee (State level)
INAN = National Institute of Food and Nutrition
SEPLAN = Federal Ministry of Planning
COBAL = State Purchase and Distribution Agency
PAISC = Programme for Integrated Child Health Actions

Table 6. Example of Hippopoc table

Project title : Mother and Child Care and Nutritional Program of San Marcos, Guatemala*

INPUTS	PROCESSES	OUTPUTS	OUTCOMES
Human - Children up to 5 years old - Schoolchildren from 5 to 15 years old - Pregnant mothers - Lactating mothers - Institutional personnel - Community volunteers **Material** - Infrastructure - Clinics and equipment - Information files - Reference cards - Medicines - Food for distribution - Cold chain - Vaccines - syringes - Oral rehydratation salt - Contraceptives-condoms - Seeds - Other supply and materials of the health units	**Training Promotion** - Training of institutional personnel - Training of volunteers - Information to the mothers (consultation) - Promotion of activities - Sensibilization - motivation **Consultation** - Prenatal - Postnatal - Family planning - Morbidity of the mothers - Growth monitoring - Curative care to children **Home visits** **Immunization** - Children up to 5 years old	- Institutional personnel trained - Volunteers trained - Mothers informed - Community informed - Community motivated - Prenatal consultations performed - Postnatal consultations performed - Family planning consultations performed - Contraceptive devices distributed - Morbidity consultations to mothers performed - Morbidity consultations to children up to 5 y.o. performed - Growth monitoring consultations performed	- Improved knowledge of • Institutional personnel • Community volunteers personnel • Mothers - Improved motivation of health personnel - Increased supply of services to mothers and children - Higher demand for health services - Better quality of care in the programme - Lesser severity of illnesses - Improved health status of the mothers

INPUTS	PROCESSES	OUTPUTS	OUTCOMES
Technical	- Pregnant mothers	- Home visits realised	- Improved food distribution inside the family
- Programme norms - Information system	**Treatment of diarrhoea**	- Vaccines given to pregnant mothers	- Increased practice of breastfeeding
Financial	- Administration of oral rehydratation preparations to diarrheic children	- Doses of vaccines given to children up to 5 y.o.	- Less complications during delivery
- Budget from the Ministry of Health - Budget support programs - Payments (consultations) - Payments (food)	**Obstetrical care (deliveries)**	- Children rehydratated with oral salt	- Lower incidence of the immunization-preventable illnesses
	Supplementary feeding	- Oral rehydratation bags distributed	
	Supervision of activities	- Deliveries followed in institution	- Lower incidence of neonatal tetanos
	Evaluation of interventions	- Deliveries performed by trained personnel	- Reduced mortality by deshydratation
		- Food distributed	- Reduced perinatal morbidity and mortality
		- Activities performed	- Smaller family size
		- Activities supervised	- Reduced child mortality

* Adapted from : Carranza R.C., Exercise of retrospective evaluation of the Mother and Child Health and Nutritional Care Program in the Health Zone of San Marcos, Guatemala. Period 1980-1988. Report to the EEC (DG XII). December 1989.

Annex 4. Building of a dynamic model : the case of the "Dutch Project"

1. Introduction

This annex is an example of the conceptualisation phase of the method : the construction of the dynamic model presented in Part II, section 2.4. It illustrates the flexibility of the method and shows how the method can be adapted to particular situations.

2. Background

The government of the Netherlands had approved financial support to a five-year project involving seven regional state colleges and universities (in short SCUs) in promoting and backstopping BIDANI projects (see Annex 1) in different regions in the Philippines.

The SCUs were to train planners and implementors -mainly at municipal level-, to monitor programme accomplishments, to provide technical and material support, and to conduct impact and process evaluation. They were also to assist in establishing pilot BIDANI projects. The thrust of the SCUs' action, however, would be at the level of the municipal development teams, which in turn would promote, supervise, and evaluate BIDANI projects at village level.

UPLB, in addition to being one of the SCUs that participates in the "Dutch Project", would be in charge of coordination; providing financial, material, and technical support; training SCUs staff; and being in charge of overall evaluation. The Project, therefore, would possess four operational levels : (1) the village or "barangay", (2) the municipal level, (3) the SCU, and (4) UPLB.

The research team met briefly after the formal approval of the Project by the Dutch government had been anounced, and decided to conduct a desk-exercise in application of the evaluation methodology they had been jointly elaborating. The exercise was to be a first step in the designing of a built-in evaluation of the "Dutch Project" that would meet the basic requirements of all the partners involved. Moreover, it was felt that a substantial contribution could be brought to the implementation of the Project, by identifying at an early stage what was urgent to be done and how, and therefore influencing future decisions in a favourable manner.

3. The exercise : steps followed and decisions made

The desk-exercise took place from 3 through 8 November 1989. It was spread over four days, and in total required slightly less than 16 hours of team work. In this short period of time the following was achieved :

- identification of outcomes,
- identification of outputs,
- building of a Hippopoc table, and listing of the processes corresponding to the Project's four levels,
- building of a dynamic model.

3.1. Building of the Hippopoc table
(see Tables 7 to 9 on pages 89 to 93)

(1) Each participant prepared individually for the first meeting by reading in depth the Project proposal document and identifying objectives -either specifically expressed objectives, or objectives implicit in the text- (Strengthening the BIDANI Network, Project Proposal and Workplan for the First Year of the Project; Institute of Human Nutrition and Food - College of Human Ecology, University of the Philippines at Los Baños, 1989).

(2) The group then took the outcome objectives from various places in the text, put them in order, and built a list of the outcomes. At the same time it became clear that there was one single, very explicit output objective, which was written down at once : "Institutionalized BIDANI models in 683 villages in 75 municipalities" (Table 7).

(3) A question that arose at this stage was whether the Hippopoc was to be a single overall table for the whole Project, or a Hippopoc for each of the major operational levels, i.e. four different Hippopoc tables. The case for the four distinct Hippopoc tables was that each level was likely to need one.

It was decided, after discussion, that inasmuch as the group was engaged in comprehensive evaluation, only one, global, Hippopoc would be built around the processes deemed central to the whole Project. The main argument in favour of a single Hippopoc was that the method thrives at simplicity, rationality, and comprehensiveness, and that, for the time being, one would only consider very aggregate processes to start with.

(4) The group then endeavoured to build the Process column of the Hippopoc. Four subcolumns were drawn, corresponding each to one of the four operational levels. Putting the processes in their respective columns was done switfly, with easy agreement among the group members (Table 8).

(5) At this stage -since this particular session was taking place at Bicol University (one of the SCUs involved in the Project)- members of the BIDANI support group of that University participated in the exercise. Each aspect of the processes table corresponding to the "regional" columns (universities and colleges) was presented to the Bicol staff. On every point they were able to illustrate the process by giving an example from

their own field experience. The table was therefore scrutinized and amendments to it were made.

(6) Lastly outputs were identified, corresponding to the processes in the table. The group confined its efforts, at this stage, in identifying exclusively quantifiable outputs (Table 9).

The Hippopoc table was thus close to being completed, except for the inputs, which were not incorporated because of shortage of time.

3.2. Building of the dynamic model

The dynamic model was built in four stages, from right to left, starting with the outcomes.

(1) The team took the list of outcomes previously agreed upon and disposed them on a blackboard and drew the major linkages. After several attempts, a provisional right end of the dynamic model was produced.

(2) In the subsequent step, using the process table, the major processes leading to the outcomes were incorporated, as well as a few known key confounders (represented as a balloon on the graph).

(3) In order to proceed further, the causal model was used. Starting from the top of the causal model, every box in it was examined as to its meaning, and its corresponding box in the dynamic model was cross-checked. If such a box did not exist, it was added either as an output or an outcome, or as a confounder. Only causal chains related to an intervention were considered. The systematic cross-checking from causal model to dynamic model and vice-versa initially seemed fastidious, but it did, in the end, not take much time. The result was two new tables (left and right sides of the model).

(4) The following day, a final dynamic model was assembled during the last session, again through careful cross-checking with the causal model and with the processes table of the Hippopoc (Figure 3, page 42-43).

4. Remarks

4.1. Remarks about the Hippopoc table

(1) Construction

A discussion took place about whether to start with either the processes, or the outputs, or the outcomes. The case for starting with the processes was mainly that they were more clearly and completely described in the document than the objectives -a common feature of project proposals-. Yet the decision was made to start with the outcomes, for the following reasons :

- when the outcomes were not well-defined in the text, they could easily be derived from the table. The group found that it was not difficult to express them, and that there actually was only one manner to define them which would be consistent with the project document.

- processes, although well described in the text, can be disaggregated into subprocesses and, as far as evaluation is concerned, can be expressed in many different manners.

(2) Outcomes

As can readily be seen from the list of outcomes, the four categories of outcomes did not correspond exactly to the four levels of processes. This proved to be no problem, as was shown during the building of the dynamic model. It illustrates that rigidity should be avoided when establishing lists of objectives, and it shows the advantage of working in an iterative manner.

(3) Outputs

A similar remark can be made with the outputs. The identification of outputs met with the usual difficulty which derives from the fact that many intermediate outputs (i.e. outputs of subprocesses) may be interesting and relevant variables in themselves, particularly in a project with clearly distinct levels. Yet, when the group started from the four levels of processes, it soon appeared that the significant outputs (relevant and interesting in overall evaluation) of the processes, sometimes did appear in another column. In broad terms, when comparing tables 8 and 9, it can be observed that :

- Outputs of Process column 1 appear in Output column 2;
- Outputs of Process column 2 appear in a limited way in Output column 2, but mainly in Output columns 3 and 4;
- Outputs of Process column 3 are about equally divided between Output columns 3 and 4;
- Outputs of Process column 4 appear in Output column 4.

4.2. Remarks about the dynamic model

(1) Putting outcomes in the dynamic model

The present exercise also illustrates a problem linked with the location of certain outcomes in the dynamic model.

A good example was the case of the outcome "strengthened role of universities in nutrition/development". There is no question that this was one of the clear final objectives of the whole

Project. But at the same time, "strengthen<u>ing</u>" such a role was one of the major processes involved.

Anyhow the model builders should always remember that the basic use of the dynamic model is to select variables. It is more important to make sure that the variable is relevant than to waste time in ascertaining whether it actually is an outcome, or an output, or an output that would also be an outcome, etc.

(2) <u>The necessary interaction between the dynamic model and the causal model</u>

This is an essential point. The causal model proved absolutely indispensable in building the dynamic model. After the major outcomes and their linkages were put on the blackboard, it was very clear that unless the causal model was used as a leading thread, major causal factors and confounders would be omitted.

4.3. Positive factors that contributed to facilitate the exercise

a) Since the desk exercice was part of the methodological research, the team was mainly composed of researchers from UPLB and IMT deeply involved either in the evaluation research programme and/or in the implementation of the BIDANI, plus other staff members of UPLB and of Bicol University at a few sessions. Everyone had extensive knowledge of either the BIDANI, or of the evaluation method, or of both.

b) Because time was short it was decided to use an earlier causal model built at a UPLB seminar in 1985. Although this causal model required some improvement and adaptation (the model was built around a single problem : malnutrition in the young child, while the Dutch Project has two outcome objectives: improved nutritional status and improved general welfare), its use was compensated by the fact that most of the participants in the exercise were familiar with the model and with the regional situation.

c) The "Dutch Project" proposal itself was very consistent; it was based on ten years of experience with the BIDANI; and was sufficiently well written, so that all aspects and information needed for applying the evaluation method were either explicit or easy to deduct.

d) The time constraint did actually play a <u>positive</u> role by obliging the team to be synthetic and concise.

The tables that follow illustrate how a Hippopoc can be adapted to a project with several operational levels.

Table 7. Major output and list of outcomes

OUTPUT

- Institutionalized BIDANI models in 683 villages in 75 municipalities

OUTCOMES

A. People/Beneficiaries

- Improved nutritional status
  - Increased provision of socio-economic opportunities for the rural poor
  - Timely access to nutrition-related services and resources (health, family planning, agricultural extension, etc.)
- Improved food security
- Improved general well-being
  - Alleviation of poverty
  - Increased self-reliance and self-determination

B. Local institutions

- Effective organisation and operation of municipal structures
- Effective organisation and operation of barangay structures
- Improved data collection by government agencies
- Improved attitude of municipal teams toward development

C. Macro level (national, regional)

- Strengthened role of university in development
- Strengthened role of university in nutrition

D. Other outcomes

- Strenghtened ANIAD*
- Increased cooperation between the Netherlands and the Philippines

*ANIAD = Antique Integrated Area Development Project

Table 8. List of processes, according to the level at which the initiative is to be taken

UPLB	REGIONAL UNIVERSITIES/ COLLEGES	MUNICIPALITIES	VILLAGES
- Overall coordination - Overall monitoring and supervision - Overall evaluation - Backstopping to SCUs - Program direction and administration - Financial support to universities - Training of university staff - Production of training materials - Operations research including planning and evaluation research + Development of evaluation methodology + Comparison between LAKASS* and BIDANI	- Training of trainors, government agencies, municipal staffs, village people, etc. + Conduct of training + Consultative meetings + Production of materials - Provision of technical assistance - Provision of financial assistance through the University foundation (including credit to women and the poorest) - Provision of material assistance - Establishment of linkages between the people, government agencies and NGOs including consultative meetings and <u>ad hoc</u> participation in municipal development commitees	<u>Activities of the municipal team in the villages</u>: - Selection of BIDW - Training of village people : for organization and planning - Social mobilization - Technical backstopping - Supervision and reporting - Provision of financial and material assistance <u>Activities of the municipal team itself</u> - Program organization, planning, coordination, and management - Reporting	- Planning BIDFP, organizing barangays, implementation of projects - Data collection - Evaluation - Social mobilization - Linkages with government agencies and NGOs - Material and financial resource generation - Training of village people for projects

UPLB	REGIONAL UNIVERSITIES/ COLLEGES	MUNICIPALITIES	VILLAGES
- Linkages with national programs (governmental including LAKASS) and NGOs - Linkages to Dutch government including mid-term program review	- Monitoring including: + Monitoring of BIDANI + Monitoring of national program + Comparison between LAKASS and BIDANI - Institutionalization at municipal and provincial levels - Conducting operational research (including special studies) - Setting-up model (BIDANI) villages - Conduct of evaluation (impact and process) + Evaluation of BIDANIs + Evaluation of National Program (LAKASS) - Advocacy - Establishment of standardized data collection and utilization	- Evaluation of work by municipal team - Documentation and communication - Linkages with government agencies and NGOs - Data collection	

* LAKASS : "Lalakas Ang Katawang Sapat sa Sustansiya", an area-based nutrition action programme formulated and managed by the community

Table 9. List of outputs, according to the level at which the initiative is to be taken

UPLB	REGIONAL UNIV./COLLEGES	MUNICIPALITIES	VILLAGES
- Well coordinated network of 7 universities colleges - Monitoring scheme - Guidelines for evaluation - Evaluation of quality, number of support activities (visits, answers to requests for assistance, etc.) - Guidelines for supervision - Operations manual for the whole project - Linkages with national program, and NGOs - University staff trained by UPLB	- People trained (municipal, government agencies, NGOs, villages, etc.) - Training materials produced - Technical assistance provided - Financial support given ven as donation and as loan, per category of people including women and the rural poor (expressed in projects and amount) - Material assistance provided - Municipalities institutionalized - Standardized monitoring performed - Consultation meetings held - Special studies satisfactorily completed - Model villages set up	1. Activities of the municipal team performed in the villages + villagers trained + trainings conducted + villagers mobilized + standardized supervision, technical backstopping, evaluation, etc. performed + material assistance given + financial support provided + material support provided + villages sustained and institutionalized 2. Activities performed within the municipal team itself + standard procedures set + established organisational set-up + standardized data collection and utilization + standard management being operational	- BIDFPs formulated and implemented - Projects designed, planned, implemented. - Data collection system established according to standardized procedures - Evaluations performed according to plans - Organizations established with special attention to women groups - Training held in the villages - Material support given - Financial assistance rendered by government agencies and NGOs. - Linkages established - Resources generated

UPLB	REGIONAL UNIV./COLLEGES	MUNICIPALITIES	VILLAGES
	- Standardized data collection and utilization procedures established - Standardized evaluations performed of municipality and village level - Adequate advocacy		

Annex 5. Uses of the models and their respective contribution to the evaluation method **

1. Uses of the causal model. Its contribution to the evaluation method

The causal approach is the basic foundation on which the method is built. The causal model has, in evaluation, the following functions :

1.1. It is one of the mechanisms that ensure "comprehensiveness" in evaluation, in the sense that it fosters a common and comprehensive understanding of the nutritional problem among people with widely different backgrounds and interests.

1.2. It is a powerful communication tool, with an important role in strengthening the team and permitting participation of people and implementin staff, particularly at the early stages of evaluation.

1.3. The causal model is instrumental in selecting the information to be assembled or collected : it assists in identifying topics which may be worth a special study, as well as in selecting variables for such studies (see Annex 6).

1.4. It allows to assess the relevance of each intervention and/or project. Final assessment of relevance, however, can only be made after interventions have been clearly defined during the building of the Hippopoc table.

1.5. As one of the two requisites for building the dynamic model, the causal model contributes to identifying the confounding factors that will appear in the dynamic model.

2. Uses of the Hippopoc table. Its contribution to evaluation

2.1. The Hippopoc table contributes to the comprehensiveness of the evaluation method, through providing a global understanding of the elements in the system that represents the project, as well as through clarifying the role of each participant. The Hippopoc table gives a view of the project at a glance.

2.2. It is a communication tool, as much as the causal model.

2.3. It helps ensuring the internal consistency of the evaluation :

- it helps getting a better definition and agreement about the nature of the project, after which the relevance of selected interventions can more easily be assessed or reassessed;

**Please also see Table 2 page 50.

- it prevents exclusive consideration of impact objectives, and helps separate clearly the latter from the output objectives. It emphasizes the view that it is not only the impact that is important (or even that on the short term the impact might be not important at all) and it therefore provides operationally useful substitutes to impact measurements;

- it obliges the team to clearly identify output objectives and separate them from the outcomes. It enables the team to make such distinction *a posteriori* in the case the distinction had not been stated clearly at the start. Actually the opportunity given for reflecting on objectives (real or fictitious, stated or implicit) and make them both explicit and consistent, is another contribution of the table. If the exercise is performed seriously, the benefits can be very substantial;

- it places inputs in order of importance and organizes them in relation to the processes (by helping identifying non relevant inputs, or inputs that would be relevant but were not taken in).

3. Uses of the dynamic model. Its contribution to evaluation

The dynamic model's applications are many, both conceptually and practically :

3.1. One of its important functions is to operationalize the concept of comprehensiveness in evaluation. It indeed provides an overall, more "holistic" view of the project. It shows the linkages between inputs and processes, processes and outputs, outputs and outcomes, and also the linkages between simultaneous or sequential processes.

3.2. It is as much a communication tool as the causal model and the Hippopoc table.

3.3. It helps ensuring the internal consistency of the evaluation:

- it is instrumental in clarifying objectives, in distinguishing between outputs and outcomes, and particularly in solving the often irritating problem of final vs. intermediary objectives (or of general vs. specific objectives);

- it provides a tentative, provisional, but coherent explanation on how the project is expected to achieve outputs and outcomes;

3.4. It helps identifying which information needs to be assembled and/or collected :

- it shows all the hypotheses that, ideally, should be tested;

- it is instrumental in identifying the relevant variables to be used in evaluation, i.e. in choosing the smallest number of relevant variables to be collected. It allows discrimination between necessary and redundant information, thus helping to eliminate useless data and saving the time spent on collecting and processing;

- in conjunction with the causal model, it is essential in identifying external confounders;

- it clearly identifies each process, and helps to identify which process evaluation would be relevant;

- it helps identifying areas in which information is missing, and where information can be collected efficiently thanks to special studies or cross-sectional surveys;

- it assists in the designing of questionnaires, if any.

3.5. After data have been assembled or collected, the dynamic model guides and facilitates the analysis and interpretation of the data. One of its major contributions is to provide the framework on which interpretation will be based, i.e. the explanation of results or of the absence of results. But even more importantly, it allows a meaningful evaluation to be conducted even in the absence of measurable outcomes. It guides the accumulation of data that will provide a presumption of effect, without necessarily having to break down every mechanism, when evidence points towards a change in the right direction. The model indeed provides the framework for putting this evidence together. It is around the dynamic model that the "bundle of converging evidence" is put together.

Annex 6. Special studies

1. Definition and justification

Special studies are small, self-contained monographic studies conducted as part of a comprehensive evaluation. Their major role is to increase the validity of the evaluation. In contrast to other steps in the evaluation they are optional : only a few evaluations will include special studies.

1.1. Uses of special studies

There can be many justifications for including special studies. Among their major uses are :

(a) Improvement of data quality

One may like to conduct special studies which focus particularly on the quality control of the data provided by the routine information system, or on the quality of data used in a secondary analysis. Special studies can also aim at validating one or more indicators, or validating the choice of such indicators.

In the case of a built-in prospective evaluation, operations research may have to be conducted in order to improve the relevance, quality, and usability of the intervention's information system.

(b) Strengthening the validity of the conclusions

By supplying part of the explanation, a special study can help increasing the validity of the conclusions, and therefore contribute to the "bundle of evidence", through :

- validation of one or more hypotheses in the dynamic model (or sometimes the causal model) which is considered of particular importance;

- studying a particular process, the quality of which is deemed important for reaching the project's operational objectives;

- answering new questions raised when interpreting data.

(c) Other reasons, not directly linked to the overall evaluation

For a variety of reasons one often finds that studies not directly related to the evaluation are carried out parallel to the project or programme (causal research; thesis work; field practice within training programmes; etc.). Such studies are generally conducted by outsiders, but in a few cases their promoters are actors in the overall evaluation.

There may indeed exist opportunistic reasons for conducting a special study which, otherwise, would not be considered a priority :

- for seizing the opportunity to train people in research, or for strengthening a team, or for doing a thesis;

- for using a comparative advantage, for example when one of the team members possesses a particular skill, or interest in a related subject.

Needless to say, studies justified in this manner should have their own funding, and in no way interfere with the evaluation, either through increased expenditures or by causing delays.

When such work is relevant, it should as much as possible put under the umbrella of the evaluation and thus benefit, in terms of time saved and increased accuracy, from the previous work done by the evaluation team.

1.2. Types of special studies

Quantitative studies are conducted with the rigour of scientific research. Generally they will be of the observational type (cross-sectional, longitudinal or case-control) and be designed according to standard epidemiological criteria. Sometimes a quasi experimental or even experimental design may be needed for answering particular questions.

Qualitative studies use methods of the social sciences and/or techniques derived from the science of management.

Examples of special studies conducted recently, and derived from a conceptual model :

- interrelationships between income of the household, mother's care and nutritional status of child;

- relation between income and food consumption;

- determinants of intrafamily distribution of food.

2. Drawbacks of special studies

While the potential contribution of special studies to evaluation is substantial and can be easily grasped, their drawbacks are far from negligible. Special studies, indeed :

- are time consuming;

- are generally costly in relation to the cost of using the routine information system or conducting a secondary analysis. Even if funds are available for special studies, one should never omit alternative uses of these funds (e.g. it can be more interesting to improve the information system of the project in order to improve the quality of data that will be used later on for evaluation through the routine information system);

- may carry the risk of delaying the decision process or disturbing the project, or being used as a pretext to postpone action;

- can lead to a shift from evaluation to research. This will most probably be the case if professional researchers (universities) are involved in the evaluation;

- needlessly increase the quantity of data produced;

- if the evaluation is conducted with a participatory philosophy (there is a team involving people from different horizons), special studies are likely to be rejected or accepted with difficulty by non-specialists who might feel excluded and lose control over the information. Participation in the decision process and the consent of all parties involved is a prerequisite to conducting special studies.

In addition, difficulties may be faced at the time of implementing special studies. For example, during the conduct of a special study, the objectives of evaluation may be lost to the benefit of the more limited scientific objectives or academic interests of the researcher. Another difficulty is the temptation of the evaluators to try to validate the whole model through special studies. This would be a mistake in the sense that the model is not in itself the subject of interest. What needs to be validated are the answers to the evaluation questions.

3. When to conduct special studies

As stated above special studies are not an end in itself, are not always necessary in an evaluation, and are to be conducted as seldom as possible. It is legitimate to consider conducting special studies only :

- when they are really useful i.e. when they bring relevant information regarding an important evaluation question for a comparatively minor effort, and

- when their major drawbacks have been properly considered and weighed.

In all cases, the decision to include special studies in an evaluation should be very thoroughly discussed : their relevance and usefulness must be clearly assessed before making the decision to conduct them. The basic question is whether a special study would contribute to increase explanation at a reasonable marginal cost. Special studies, if correctly selected and conducted, will in almost all cases increase the validity of conclusions : the real question is to decide whether this is necessary or not.

Other points might be taken into consideration :

- make sure that special studies are not repetitive, or that they do not produce facts that could have been known otherwise, and at a lower cost;

- make sure that the team has the scientific capability and necessary skills of conducting such studies.

4. Design of special studies.

4.1. General

The design of special studies will follow the general rules of sound scientific research. The research proposal should specifically link the study to the overall evaluation and state its expected contribution. The hypotheses to be tested should be clearly contained in one of the models (causal or dynamic). If the hypotheses of the special study themselves are grouped into a submodel, such model should be such that it can be included in the overall model. When necessary, the latter will be adjusted.

4.2. The choice of variables

The choice of variables for special studies will follow the same procedure as that used in Part II, section 3. Of course, if a specific model was built for the purpose of a special study, variables will be derived from it. The major difference is that in a special study the availability and quality of data are not a limit to the selection. Any variable necessary for validating or invalidating the hypotheses of the study will have to be collected: this will increase the cost and complicate the analysis.

4.3. Use of statistical models in special studies

A hypothesis in a conceptual model is, as such, neither verifiable nor quantifiable. The linkages between two boxes do not give us any idea on the strength of the relationships, the velocity of flows, the relative importance in comparison with other factors, etc. The model just expresses the hypothesis that there is a relationship.

To verify a hypothesis present in a conceptual model one needs to formulate it in such terms that statistical analysis can be applied to it, i.e. to formulate a statistical hypothesis. For example, one could formulate the hypothesis that there is a linear relationship between two boxes and fit a regression model. Such relations would have to be controlled for other factors. In other words, the conceptual model would need to be "translated" into a statistical model. Actually, in a special study aiming at verifying a relationship (or a group of relationships), it is the whole submodel that expresses these relations that would have to be translated into a statistical model.

5. Place of special studies in relation to other steps

If a special study is to be conducted at all, the steps followed must be consistent with the other methods of data collecting and assembling. In other words special studies are designed and implemented only after the choice of strategies for collecting information has been completed.

Once a special study is completed, besides adding arguments to the "bundle of evidence", it quite often will suggest amendments to the original model. Such amendments should be introduced before the final interpretation takes place, on the condition that the results of the special study are available in due time.

Annex 7. Glossary of terms used in this guide

The purpose of this glossary is merely to assist the reader, and not in any manner to suggest general, standard definitions of words.

Activity : an action or a set of actions, with well-defined actors, target, place, method, purpose, resources, etc.

Built-in evaluation : evaluation which is designed prior to the start of the operations, and proceeds during implementation of the intervention. It is prospective since data collection proceeds in pace with the intervention.

Bundle of converging evidence : an organized set of relevant facts, observations, inferences, and arguments which, because they each point in the same general direction, provide together an acceptable plausibility of the validity of the conclusions. Assembling the bundle, drawing general inferences, and assessing the validity of the conclusions, is a matter of articulateness, judgement, and prudence. The method admits that to increase the validity of the conclusions supported by the bundle, an additional cost is to be paid (in money and/or in time). This marginal cost may increase much faster than the validity of the conclusions. Therefore in any evaluation, a balance must be kept between the desired validity and the permitted or accepted cost.

Causal model : an orderly set of hypotheses linking to each other in a logical and easily understandable manner, the major determinants of the phenomenon or situation of interest. Its purpose is to provide a coherent explanation of the phenomenon or situation. It is also called causal framework or analytical framework.

Confounding factor (or "external confounding factor" or "external confounder") : as used here, any determinant of the situation of interest which is not influenced by the intervention.

Determinant : causal factor. Factor that is known or presumed to affect directly or indirectly the phenomenon or situation of interest.

Dynamic model : an orderly set of hypotheses linking to each other, in a logical and easily understandable manner, the inputs, processes, outputs and outcomes of a given intervention. Its purpose is to explain how and why the intervention is expected to achieve the desired results. It takes into account the possible effects of confounding factors.

Ex-ante evaluation (or "appraisal") : an evaluation performed before the start of the operations. It is an attempt to anticipate what the results of the project could be, and why.

Ex-post evaluation : an evaluation performed when the operations are completed.

Goal : very general objective; ultimate objective; sometimes long term objective.

Hippopoc table : simple, purely descriptive tool providing a clear, distinct and logically assembled picture of the main components of the intervention. It has four columns containing respectively the inputs, processes, outputs and outcomes.

Impact : in this method, any outcome which has been selected as final outcome of the intervention. Where nutrition is concerned it is generally - but not necessarily - expressed in biological terms such as improved nutritional status.

Input : any element that is being transformed by the processes into outputs. It can be either the resources utilized in the intervention, or the subject of the transformation, i.e. the people to whom the intervention is addressed.

Intervention : a programme, a project or an activity intended to produce a desirable change in a given situation (the situation of interest) i.e. an action with a purpose.

Logical product (in the causal model) : a proposition in which the two terms need to be satisfied for the proposition to be true : if A and B, then C. Example : child mortality depends on both disease incidence and case fatality.

Logical sum (in the causal model) : a proposition in which the terms are additive : if A and/or B and/or C, then D. Example : family food consumption can be broken down into food purchased and/or food from the garden and/or food received as a donation.

Marginal cost : see Bundle of converging evidence.

Model : a simplified representation of a complex reality or of a system. Examples : a city map, a set of equations, the causal model.

Objective : situation, projected in the future, and deemed desirable, i.e. an expected result. Strictly speaking, it should (1) be formulated with the same terms as the situation of interest, (2) use the same indicators, and (3) be expressed with a noun - not a verb -. An objective is more specific than a goal.

Operation : used here as equivalent to process or set of processes.

Operational objective : objective of a given operation, or a set of operations, i.e. the expected output.

Outcome : a change that is introduced by our action upon the initial situation. Outcomes are the results of the project as a whole and of the effects of the confounders. Outcomes are generally expressed as changes of biological aspects (improved nutritional status, reduced mortality), behaviour (increased use of family planning), economic status (raised income), or institutions (strengthened role of health committee).

<u>Output</u> : result of the project's operations, the immediate product of the processes, the result of the transformation of the inputs.

<u>Pre-evaluation</u> : phase which should precede the start of any evaluation, regardless of the evaluation method eventually used, and during which the objectives, actions, and methods of evaluation are identified and the evaluation is planned.

<u>Process</u> : the transformation of inputs into outputs. Processes are often composed of a variety of subprocesses which can be sequential, parallel, or convergent. In this guide the term "process" is used in a rather narrow, mechanistic manner, which is consistent with the simplified systems approach adopted. Processes, therefore, are here mainly the project's activities or sets of activities.

<u>Programme</u> : a set of projects, services and activities which are intended to achieve a particular goal or set of goals.

<u>Project</u> : a set of activities intended to achieve a given objective, or set of objectives over a stated period of time and with stated resources.

<u>Project cycle</u> : term used by planners when refering to the series of steps that are characteristic of a project's life. Example : (1) idea of project, (2) identification, (3) feasibility study, (4) project preparation, (5) appraisal, (6) implementation, etc.

<u>Quasi-product</u> (in the causal model) : relationship in which two determinants need to be present, but that cannot be expressed in a mathematical form. Example : the nutritional status depends on both nutrient intake and biological utilization of these nutrients.

<u>Quasi-experimental design</u> : manner of designing a research which does not strictly respect the rules of experimental research, and particularly the requisite of rigourous randomization in sampling. Results of studies using this design generally have less validity, but may cost less and/or be feasible where an experimental design would not. Taking into account consideration of cost and feasibility one may be led to use such design to collect evidence to be added to the "bundle of converging evidence".

<u>Side-effect</u> : unintended effect. A side effect can be an output or an outcome, it can be desirable or indesirable, it can be predictable or unpredictable.

<u>**Situation of interest**</u> : the initial situation; the situation which is the subject of analysis in the causal model, that is the situation which the intervention is aimed at improving. It sometimes can be expressed quantitatively through one or more dependent variables. Example : the nutritional status of a given group; the immunization coverage.

<u>**Special study**</u> : in this method, a study conducted according to the rules of scientific research and used mainly for either validating one or more hypotheses embedded in the causal and/or dynamic model, or for assessing the quality or validity of the information used in evaluation.

<u>**System**</u> : a set of elements which are linked to each other by an organizational structure; a system is characterized by this structure, by the relationships between its elements, and by a function. Examples : the human body, a town, a living cell.

<u>**Systems approach**</u> : a general approach to complex structures and organizations, considered as systems. By definition the systems approach is comprehensive : it looks more at the whole and at the relationships between the parts, than at any particular element. The systems approach makes wide use of models.

<u>**Target population**</u> : it is often used as synonymous to beneficiaries or "potential beneficiaries". Yet, strictly speaking the term should be reserved for the population, or part of the population, to whom the intervention is directed. For example children may be the beneficiaries of an educational intervention targeted on their mothers.

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