PN-ABY-996

DESFIL
Development Strategies for Fragile Lands

A PARTICIPATORY APPROACH TO IDENTIFYING INTERMEDIATE INDICATORS FOR NRM M&E SYSTEMS

A Discussion Paper

Contract No. DHR-5438-C-00-1091-00

Submitted to:
USAID/AFR/SD/PSGE/NRM

Submitted by:
William Roberts, Jonathon Landeck, and William Fiebig
The DESFIL Project

Chemonics International
Abt Associates
DATEX, Inc.
Rodale Institute

January 1995

2000 M Street N.W., Suite 200, Washington, D.C. 20036
Tel: (202) 331-1860 • Fax: (202) 331-1871

Overview

Professionals working in development today acknowledge the importance of local participation in rural development. Participation as a mechanism for building local capacities is often associated with sustainable land use management. Sustainable land use management implies stewardship of the environment to ensure a viable resource base from which future generations are able to produce a livelihood. A mechanism that fosters dialogue and collaborative analysis of adaptive research and development is necessary for sustainable agricultural development. USAID's Natural Resources Management (NRM) Analytical Framework (NRMAF) provides a conceptual structure for a participatory mechanism for sustainable land use. The objective of this paper is to discuss a participatory approach of two agricultural research and development organizations in Senegal and the farmers they serve, by identifying intermediate indicators that facilitate monitoring and evaluating the process associated with farmers' adopting NRM practices.

A Logical Framework Approach to the Design and Evaluation of Sustainable Land Use Interventions

The logical framework is a design tool predicated upon scientific verifiability about the notion of cause-and-effect (Cooley, 1989). The archetypal USAID logical framework can be represented as a 16-cell table with four rows or levels (inputs; outcomes; purpose; goal) and four columns (assumptions; means of verification; impact indicators; objectives). Rows are roughly equivalent to the time and scope (geographic and socioeconomic) of a targeted intervention. Columns contain the elements that define and indicate the direction, progress, and process of planned interventions.

To illustrate, consider a Rodale Senegal adaptive research and development (R&D) intervention that addresses the problem of declining soil fertility—the manufacture and application of compost on village farmers' grain fields. The first (bottom) row begins with a narrative summary of the actions and inputs required to make and test compost. If the compost is made and tested (activity), then it will lead to results or outputs that can be summarized on the second row. This should occur because participants have recognized the critical factors or condition that affect results. In this case, making and testing compost should result in farmers acquiring competence in compost production and application procedures. Assumptions are that farmers have sufficient information to evaluate the effect of compost on soil fertility, crop yields, and the whole process required to produce and transport compost to their fields in a timely manner.

An expected outcome, effective adaptive research on soil improvement using locally available resources, is associated with immediate, short-term impacts, such as a reallocation of farmer labor and local materials to make compost and, perhaps, savings of money otherwise spent on fertilizer. Another important outcome is the relationship that develops between farmers and non-farmer participants.

If this outcome, or result, is achieved, then a longer-term purpose is possible, mediated by another set of critical, not necessarily manageable conditions. In this case the

purpose may be to develop a sustainable soil enhancement technology that will restore soil fertility to the area by the end of the project. The intermediate impacts associated with this purpose include a significant number of farmers using compost, larger areas of farm fields receiving compost, and improvements to soil fertility and soil structure.

If the purpose is achieved, this contributes towards attaining a broader goal (the fourth row). In the case of Rodale Senegal, the goal is generally considered in terms of healthy soil for the production of healthy food to feed healthy people.

When projects are designed within organizations such as USAID, one usually begins with a goal that is related to specific objectives and/or targets found in the mission statement or five-year strategic plan. The logical connections between goal, purpose, outcomes/results and inputs/activities are discovered by asking at each successive level, HOW? The alternative approach that commences with specific activities or interventions identified after completing, e.g., a participatory rural appraisal (PRA) will culminate in successive results, purpose, and goal by asking WHY? The rows or levels represent intended changes that proceed chronologically and are associated with immediate, intermediate, and long-term impacts.

The two columns labelled hypotheses (critical conditions) and narrative summary (objectives) portray a causal "if...then" relationship between intended and contextual factors over time. The third column, objectively verifiable indicators, sets targets and clarifies the type of information that should be monitored and discussed to determine the nature and magnitude of change/impact. Once these indicator(s) have been selected, appropriate means of verification are chosen, including data sources, verification procedures, observation, measurement, and reporting.

The increased interest in the design and implementation of effective monitoring and evaluation (M&E) systems to assess intervention impact(s) reflects, in the case of USAID, organizational reporting requirements. Monitoring and evaluation (M&E) systems are expected to provide information to decision makers that permit the identification of potential obstacles to successfully meeting objectives given an allocation of project resources. The systems should provide sufficient information for mid and end of project assessments/evaluations. USAID supports M&E at the project level and through centrally funded matching grants designed to strengthen NGO/PVO collaborators' institutional M&E capacity.

Recent Trends in Senegalese Agricultural Development

Senegalese farmers have weathered many climatic, political, economic, and social changes since independence from France 35 years ago. These changes include erratic rainfall, environmental degradation, a diminished state capacity to liberate private sector initiatives and market forces, rapid urbanization, and unemployed youth disinterested in life on the farm. Despite such obstacles, agricultural development remains a priority for the government and, of course, numerous farmers.

The Republic of Senegal has undertaken a number of policy changes as part of their structural adjustment process. Among those that have affected the agricultural sector are: state disengagement from input provision and output marketing, a reduction in the staff size and extension activity levels of Senegalese Regional Development Association (RDA) parastatals, and devaluation of the currency. In addition, the government's New Agricultural Policy (1984) and Cereal's Policy (1985) set goals of 80 percent cereal self-sufficiency by the year 2000. To approach this goal requires further improvements in land and crop productivity. Therefore, the role of the Senegalese National Agricultural Research Institute, ISRA, remains important.

Several lessons about the process of technology development and transfer apply directly to Senegalese agricultural development. First, it is important to have an established and effective linkage(s) between agricultural research, agricultural extension (of technology and practices) and farmers. Second, it is important to have a demand or market for technologies developed by researchers. In other words, research should be responsive to problems and issues identified by farmers.

Adaptive research for sustainable agricultural development requires collaboration between research and development personnel, NGO staff, and farmers. These individuals and their organizations pursue a common goal: to experiment with promising agricultural technologies or practices and evaluate the results and/or impacts. Yet they also bring to that collaborative goals or agenda items that are specific to their work cultures. For example, ISRA researchers are motivated to examine agronomic, environmental, and socioeconomic parameters primarily of interest to other members of the scientific community. NGO personnel are concerned with demonstrating their effectiveness with farmers who adopt technologies they promote, so they can continue similar activities with other communities. Farmers evaluate technologies and practices according to their own criteria. Farmers may be more attracted to practices that they perceive to be less risky, although not as productive if all environmental conditions are right.

Rodale Senegal - Regenerative Agriculture and Natural Resources Management

Rodale Senegal will soon be a Senegalese nongovernmental organization (NGO). The project has been associated with the Rodale Institute in Pennsylvania, as its Regenerative Agriculture Resource Center (RARC), and was founded in Thies in 1987. Regenerative agriculture includes farming practices that more intensively utilize local, organic resources for economic gain (increased production from improved productivity leads to income and/or nutritional benefits) and improvements to the natural resource base (particularly the soil). Rodale Senegal began work in the Thies region (central-western region of the Peanut Basin) working directly with farmers from as many as a dozen villages at any given time in soil and water conservation, legume intercropping, cattle fattening, compost production, and organic vegetable production. The scope of Rodale's activities have increased geographically, as numerous NGOs, farmers' associations, and development projects have requested technical assistance and training from the staff. Rodale's methodology is based on a participatory approach to identifying the indicators that are important to farmers criteria for monitoring and evaluating the technologies being tested.

Logical Frameworks as Participatory Frameworks

Rodale Senegal's approach is that people must talk together and understand one another to complete a logical framework as described above. These discussions require a significant investment of time and effort. But, such discussions provide an opportunity for everyone to voice their aspirations, goals, perceptions, assumptions and biases more explicitly. All the relevant actors must feel that their ideas or feelings have been taken sufficiently into consideration as the framework is elaborated; it represents their vested stake in the activity. Individuals reach agreement about two important things: what it is they are attempting to accomplish together, and what is everyone's role in this process? Once completed, the framework can serve as a contract for any partner venture.

Farmers have good reason to examine their relationships with researchers, since farmers invest their land and labor for on-farm trials. Researchers' interests are motivated by the scientific results that will further their careers through papers, presentations, and merit pay considerations. NGO staff often consider how current activities will affect financial resources, and their ability to solicit additional money from future donors. These kinds of considerations reflect "working cultures," and should be recognized in the development of any contract using a logical framework.

Project Implementation and Data Collection

Logical framework indicators provide a focus for data collection that R&D partners use to evaluate project results and impacts. However, partners often have divergent goals that influence the type of information that is collected and monitored over the course of a particular project.

The M&E system utilized by Rodale Senegal (RS) has changed significantly over the past two years. Participatory village diagnostic studies and individual and group assessments of activities continue to be hallmarks of Rodale's approach. There has been a concerted effort over the past two years to formalize the collection of information. In staff discussions about the results of efforts to systematize and formalize M&E, one lesson became evident: **when an organization identifies the questions it considers important for illustrating the impacts that result from its activities, specific data needs are highlighted.**

Not only are specific data needs identified, but the manner in which these data will be collected (sampling frames chosen and data collection tools designed), managed, analyzed (e.g., types of analysis: trend, gender, summary by regenerative activity, comparisons between individuals, villages, regions) is also considered.

For example, RS staff have learned that its M&E interests are best met by monitoring individual farmers. Most village R&D activities with ISRA (and/or other NGOs) and farmers involve a component in which farmers are given information about innovative practices and/or technology. At that time farmers' names, the villages where they live (not always the same as where the R&D activity occurs), date, and type of training are recorded. With a focus on individual farmers, RS cannot only monitor who receives the information in

a training session, but whether that information is adopted/adapted and put into practice over time. Additional information about what practices are used for different crops and the (approximate) area affected can also be collected. Furthermore, RS staff can discuss with farmers and record their perceptions about what factors favor or constrain the adoption/adaption of specific practices. Most NGOs have neither the time nor resources to ensure that the data collected through their M&E system meets statistical requirements that represent specific populations. Rather, their systems lend themselves to the construction of individual and village profiles that are indicative of occurrences in a specific region.

Data Management and Analysis - Linking Logical and NRM Analytical Frameworks

In the past, data collection mechanisms for projects and organizations were developed using a template in which a great deal of demographic, infrastructural, environmental, social and behavioral data was gathered. More frequently than not, the data collected exceeded the capacity of the organization or project to both manage and analyze, much less to interpret and put to use the information generated. There is no shortage of data and/or information available, but it is not readily accessible in a format that permits a broader analysis and interpretation of what they represent. It would be a significant accomplishment if an information management system could be developed that facilitates not only the storage for later analysis of these data and/or information, but the transmission or sharing of information between the different levels of partners who are associated through funding procedures as well.

Just as the logical framework is extremely useful for developing intermediate indicators that highlight essential baseline data and information that will be collected over time to analyze impact, the NRM analytical framework provides a model for organizing such information in a way that lends itself to various types of analyses. Logical frameworks and the NRM analytical framework both presume some degree of cause-and-effect relationship between dependent and independent factors over time.

The NRM analytical framework provides a model that facilitates the organization of a wide variety of information for subsequent analysis. At one time depicted as a series of five levels, there is an idea that a certain degree of causality is associated with a sequence of events. Programmatic interventions at the macro-political-economy level often create specific sets of enabling conditions that must exist before farmers (or other natural resource users) will adopt practices or technology on a widespread scale. Once farmers do adopt or begin to utilize certain practices, this will have an impact on the natural resource base. This sets the table for long-term changes associated with increased productivity for markets and improvements in the well being of individual householders.

The classic logical framework and the NRM Analytical Framework have other attributes in common. For example, adoption of practices (level III) approximates results/outputs in the logical framework; conditions that encourage adoption of practices (level II) approximate activities/inputs in the logical framework. There is overlap between conditions and actions that establish conditions (level I) and the hypotheses/critical conditions formulated to link various levels of the logical framework. Changes in biophysical

conditions and sustainable improvements in productivity and income (levels IV and V) are approximately linked with the purpose and goal levels in the logical framework.

Similarities in Data Sets Facilitate Communication Links Between Partners

This section will discuss how information can be more easily transmitted and utilized if databases or information management systems share common structures, understanding that projects and their partners' databases would have some of the same and other different variables (since the number of variables for the data collected by a particular organization is a function of its information needs, and what the organization intends to do with the data it collects).

Imagine a large box that represents the CPSP for Senegal (or the country logframe), within this box is a smaller box that represents NRBAR logframe, within this yet a smaller box that represents the collaborative research grant (Rodale Senegal/ISRA/farmer) logframe. The data sets associated with these projects would illustrate the same characteristics of scale (USAID Senegal the largest, NRBAR a subset/string of former, Collaborative grant subset/string of NRBAR) and inclusiveness.

Diffusion of Results - New Areas for Collaborative Research & Development

Each actor will be positioned to examine different sets of questions, which will certainly be of interest to those collaborators who have provided funds for the activities we are referring to. For example, NGO - ISRA - Farmers have a good opportunity to examine the parameters and effects that constrain and then result from practice utilization. Projects are in a unique position to examine broader sets of data about NRM practices that are specific within and/or across agroecological zones within the project zone of intervention.

Examination of these data could lead to the identification of patterns that suggest new hypotheses that could be communicated to NGO partners and ISRA, as well as USAID Senegal. This could lead to new topics, or promising topics, for R&D in similar as well as different agroecological zones. Also, this might identify additional studies that would be undertaken to gather corroborative data.

Indirectly, there is the advantage that the project will be able to identify those NGOs and scientists whose performance merit consideration for additional resources to expand their levels of effort and scope of work; as well as identify areas of institutional weakness for other partners.

USAID Senegal would have the broadest perspective and largest set of data. They should be able to, from established reporting procedures, provide specifics on farmers and households affected (disaggregated by agroecological zone and gender).

They would be in a position to collect comparable sets of data and identify patterns that suggest hypotheses to explore either through special empirical studies or programmatic initiatives.

Future Directions

Training in how to use a participatory approach to identify and evaluate sustainable land use interventions must be followed up closely to see whether and how people are using the technology. There is some "art" to promoting participation within the village environment. The need for a mechanism that, independently of personality, can promote participation is what we are working towards in Senegal. The logical framework has shown potential, not so much to elicit indigenous knowledge but as facts that can be used to build development and elicit the perceptions and factors that should be examined in the context of adaptive research and development activities. A logical framework represents a cultural contract or a plan of action that each party involved can refer to over the course of their collaboration. It represents what each partner thinks is possible from their interaction over time—yet, the results must be confirmed through hard data as well as collected, managed and analyzed; once interpreted, the information must be discussed between partners.

It is in this perspective that the NRM analytical framework provides a systematic way to organize and analyze the field data collected on intermediate indicators by USAID projects and their partners within their M&E systems. When field data is collected by numerous USAID projects and their partners on NRM practices adopted/adapted by farming households, the characteristics of these men and women provide profiles that can offer insight into what characteristics are commonly associated with those that adopt/adapt NRM practices. The results from the use of those practices provide valuable data that allow analysts to evaluate actual versus expected outcomes. As field data is collected and aggregated at the project and Mission level, various analyses can be conducted on the qualitative and quantitative data to identify the association between an array of enabling conditions and the use of those NRM practices being investigated. These analyses can provide reliable information to decision-makers at all levels to develop programmatic options that might establish conditions conducive to the sustainable and broad-based adoption of NRM practices. This process allows programs and their projects to continually test the assumptions made about enabling conditions during the design phase and make needed adjustments over the life of project. This systematic management of NRM field data and the information that it provides to USAID field Missions will contribute to the effectiveness in tracking progress towards achieving the program's strategic objectives and reporting on program and project performance and impacts.