

Creating a Continuous Learning System: Participation and Evaluation in Agriculture Development Projects

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Abstract

Evaluation in the context of agricultural development projects is becoming increasingly important, as development assistance dollars continue to dwindle. This has led to an enhanced interest on the part of donor agencies to ensure the greatest benefit or impacts for their investment dollars. Evaluation or impact assessment can be done before (ex-ante) or after (ex-post) project implementation and can take place through either internal or external means. Participatory monitoring and evaluation methods, developed by non-government organizations, have proven highly valuable for ensuring the integration of stakeholder views, desired outcomes, and capturing lessons learned derived from field experience for application elsewhere. The importance of incorporating evaluation throughout the life of a project is being recognized increasingly as it provides the opportunity to reflect on what is working or not working and to make midcourse improvements or corrections. It has been advantageous in reaching desired outcomes for projects to employ participatory methodologies from the earliest stages of project planning and implementation to completion in reaching the desired outcomes. This paper focuses on the use of participatory methodologies as applied to various stages of project design and implementation including creating a common vision; problem identification and priority setting; capturing lessons learned; and building capacity in development projects.

Introduction:

"Success and sustainability warrant analysis in part because they are so much sought by decision makers and investors in rural development. They deserve attention even more because rural people desire and require them" (Uphoff et al, 1998).

This paper focuses on the human component in agricultural development projects. Originally, the authors were asked to discuss evaluation of human resources in agricultural development. However, after long consideration, we realized that evaluation could not be addressed in isolation from the broader rubric of project planning and sustainable development in which it is found.

It should also be noted that the authors work to implement a participatory international agriculture and natural resources research and development project, the SANREM CRSP, which has been underway for eight years. It is within the context of this experience that this document has been conceived and written.

Often when one hears the word evaluation, it is considered to be something after the fact, or what is termed ex-post evaluation. Ex-post evaluation answers the questions how did we do? or what did we accomplish? However, it is equally important to incorporate evaluation at the beginning of a project, as well as to implement it throughout the life of the project. Secondly, although outsiders often conduct evaluations, increasingly, the stakeholders themselves are performing evaluation through participatory self-evaluations. This paper will stress the importance not just of participatory evaluations, but also of employing participatory methodologies from inception to completion in order to attain the desired outcomes.

The paper is not intended to provide a full treatise on the topic nor a complete literature review. It is intended to provide an overview of how evaluation fits into overall project development and implementation strategies, including examples and methods for measuring outcomes. The paper is divided into the following components: Creating a Common Vision; Participatory Appraisal and Priority Setting; Capturing Lessons Learned; Building Capacity in Development; and Identifying Reasons for Success.

These five topics will be explored in further detail and will address the following. Creating a common vision describes the importance of stakeholder ownership from the outset of a project's end goal. The participatory appraisal and priority setting section discusses the importance of identifying issues and priorities from the stakeholders' perspective and in the context within which a given project is implemented. In the section on lessons learned, we address participatory monitoring and evaluation mechanisms for identifying stakeholder indicators of project success as well as the importance of continuous reflection and action through the life of a project. Next we examine evaluation in the context of capacity building including both the use of participatory needs assessments as well as methods for evaluating capacity building interventions. Finally, we discuss some reasons for development project success drawn from both the literature and from experience.

Creating a Common Vision

One reason that agricultural projects or other projects do not succeed is a lack of consensus around goals (Uphoff, 1998). For this reason, the human resources component and its capacity requirements must be addressed in the visioning or strategic planning phase of project design.

Strategic planning exercises aimed at identifying a shared vision are used in most organizations. However, historically these exercises have not been inclusive of the individuals or stakeholders that will actually be responsible for carrying out the activities on a daily basis. Experience has demonstrated that this non-inclusive approach is both ineffective and inappropriate. A vision cannot be imposed from the outside or in a top-down manner. Peter Senge et al. (1994), who founded the Fifth Discipline series, identifies several precepts for building a shared vision. These include:

- a) Every organization has a destiny or deep purpose that expresses its purpose;
- b) Organizational missions or purpose statements need to connect clearly to the reason for existence or there will be a lack of commitment;
- c) Not all visions are equal; however to be genuinely shared, visions must emerge from many people engaged in reflecting on the organization's purpose;
- d) Often the underlying purpose gets masked by the conventional day-to-day practices;
- e) Building a shared vision requires designing and evolving an ongoing process in which people at every level of the organization can speak from the heart about what matters. It emerges from a coherent process; and
- f) There will always be 'creative tension' ? the pull that emerges between the vision and current reality.

Senge goes on to say that building a shared vision is really 'building a shared meaning' the definition of which is the collective sense of what is important. Critical, of course, to this is the inclusion of those individuals and groups that make up the "collective."

Another example of building a shared vision that is being applied in agriculture development is the use of Holistic Management. (Savory, 1999). Holistic Management is a decision making model that is beginning to be accepted globally not just in agricultural settings but in other businesses as well. Holistic Management is premised on the fact that if one understands the "whole" that is being managed and if the stakeholders or decision-makers identify a "holistic goal" or vision, they will be able to test their decisions to ensure that they are moving toward their vision. The holistic goal is based upon the desired quality of life and desired future state or resource base. This includes answers to the questions how do we want our lives to be, what do we want to look like and what will our reputation be.

Holistic Management has been used by international research and development projects over the past 10 years. Here we provide two examples of this work, based on a project that is led by the University of Georgia. One of the projects is working in a community in Burkina Faso. The community, having been trained in Holistic Management, developed a community-based holistic goal by which they would take decisions regarding development in their community. These community members articulated a holistic goal of what they wanted their lives to be like and what they wanted their community to look like now and into the future. An excerpt from their holistic goal reads,

We the villagers of Donsin, seek a state of well being characterized by security in matters of food and water and of health sufficient to permit us to pursue a diversity of activities in life. Those would include caring for personal hygiene and beauty, acquiring literacy, engaging commerce and carrying out religious obligations. Moreover we desire a spirit of mutual aid and communal friendship of progress such that our village will be respected beyond its borders and young people will not be tempted to leave . . . The territory of Donsin will be such that a stranger who sees it for the first time will be struck by its verdure, by the great trees shading its common paths and private dwellings. The water course will flow throughout most of the year and soils in the fields will be fertile and easy to work . . . (Bingham, 1999)

This is an example of a collective description, or common vision, of what the Donsinois wanted their community or quality of life to reflect. This was used to judge their decisions and where they would focus their efforts.

More recently, Holistic Management (Moore et al., 2000) has been used in Mali by the local, inter-village, Natural Resources Management Advisory Council (NRMAC) to address issues of environmental degradation, declining agricultural productivity, land use management, conservation and conflict in the context of decentralization. Holistic Management and consensus-building skills, crucial to addressing these issues and conflicts over natural resources, have been garnered among the Maraka farmers, Peuhl agro-pastoralists and Bozo fisherfolk who gain their livelihood from shared resources. Through Holistic Management, stakeholder representatives from these groups have identified shared research needs and are implementing joint agro-pasture management strategies.

If we want agricultural development projects to succeed they must be designed with the stakeholders' shared values and desires embedded firmly at their core. Future decisions regarding a given project must be based on these common values.

Participatory Appraisals and Priority Setting

Although establishing a vision in any given research and development project is indeed essential, we recognize that communities are not homogeneous entities whose members have the same interests and priorities. Rather, communities are intersected by several crosscutting boundaries marking differential power and privilege (i.e. among men and women, wealthy and poor households, dominant and subordinate groups, etc.). These divergent voices have to be heard and taken into account.

How can we determine these interests and priorities? The efficiency and effectiveness of projects has demonstrably improved through the use of participatory appraisals and planning while also promoting participation, empowerment, and strengthening community capacity. Participatory Rural Appraisal and Planning is a methodology that assists communities in identifying issues and planning solutions through their active participation. Tools used in participatory appraisal and planning (Selener et al, 1999) allow for the rapid and systematic:

- a) Description and analysis of the community and its context;
- b) Identification of problems and potential solutions; and
- c) Project design and programming of activities for project implementation.

Participatory appraisals can yield a considerable amount of valuable information at relatively low costs and in a relatively short time. Information gathered by conducting participatory appraisals include: socio-economic characteristics (lifescape), production and technical data (landscape), the inter-relationships between these and problems, and potential solutions for a given area or group.

Participatory appraisals, when undertaken correctly, provide a paradigm for sustained interaction among project stakeholders while incorporating local values, needs, knowledge, and experience as well as reflecting local resources and skills. They also promote commitment among partners and sustainability of proposed innovations.

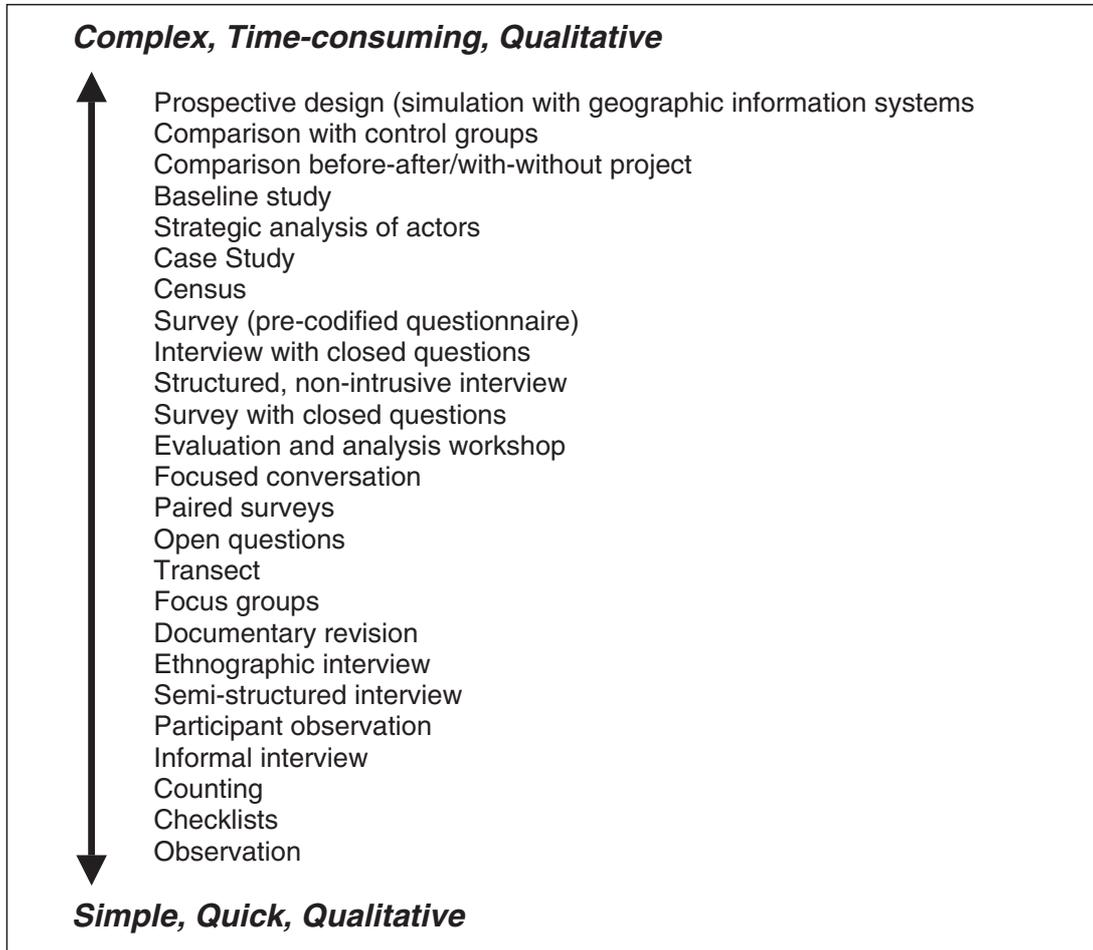
Among the tools that have proven effective to elicit community concerns employing a participatory approach, are participatory rural appraisals (PRA), participatory action research (PAR) and participatory landscape/lifescape appraisals (PLLA). Each of these provides a mechanism for participants to identify problems and solutions, to prioritize objectives and activities, and to assess potential costs and benefits of innovations or interventions. These techniques have several advantages including: building human and social capital (capacity building) for community-led problem solving; raising the consciousness of local people regarding their reality; and identifying what can be done to transform it.

Selener et al. (1999) identified four guiding principles of participatory approaches. These include:

- a) Stakeholders know their reality;
- b) Actions can be taken to decrease dependence on external resources by building consensus on issues and solutions;
- c) Communities may be assisted to determine which issues will require inter- institutional collaboration; and
- d) More sustainable solutions (than those imposed by development workers) are promoted.

Methods used to gather this information range from complex, quantitative, and time consuming to simple, quick and qualitative techniques (Box 1).

Box 1. A Continuum of Techniques



Communities themselves, non-governmental organizations, government agencies, and donor agencies can implement participatory appraisals and planning.

Capturing Lessons Learned

Thus far we have identified the importance of creating a common vision and employing participatory practices to engender project success. These practices are crucial prior to the final step of project evaluation. However, in addition to these approaches, employing on-going participatory monitoring and evaluation even further promotes the likelihood of project effectiveness, sustainability and impact for both the project in question and others that stand to gain from carefully documented lessons learned in the original project.

Given its many proven advantages, participatory monitoring and evaluation (PM&E) is becoming standard practice in evaluating research and development efforts. The PM&E model was originally developed by NGOs as a way to capture lessons learned derived from field experience (Aaker and Shumaker, 1997, Rugh, 1992). However, they have now been adopted broadly by bilateral and multilateral donor agencies.

The method of on-going reflection and evaluation in program monitoring closely reflects praxis, or a cycle of action-reflection-action pioneered by the noted Brazilian educator and theorist Paulo Freire. Although praxis was first applied to participatory and consciousness-raising educational methods, its core reflective cycle remains at the center of contemporary participatory action research, community development theory and practice, and participatory monitoring and evaluation. Praxis, as applied to participatory monitoring and evaluation incorporates ongoing and periodic reviews to reflect on constraints, opportunities and possibilities through shared discussion, negotiation and exploration with all project participants. Following this reflective period, plans may be designed for implementation in order to assist the project in meeting goals. Subsequent to a given implementation phase, participants re-evaluate the project and begin the action-reflection-action cycle again, or in this case, evaluation-reflection-action in Figure 1 (Wals and Stapp, 1989). This model clearly follows a paradigm of regular thoughtful analysis, identification of opportunities to learn, and the opportunity to make mid-course corrections prior to project completion. It also provides an opportunity to generate and share lessons learned before a given project is completed ? a significant means to potentially assist in improving similar activities in other locations.

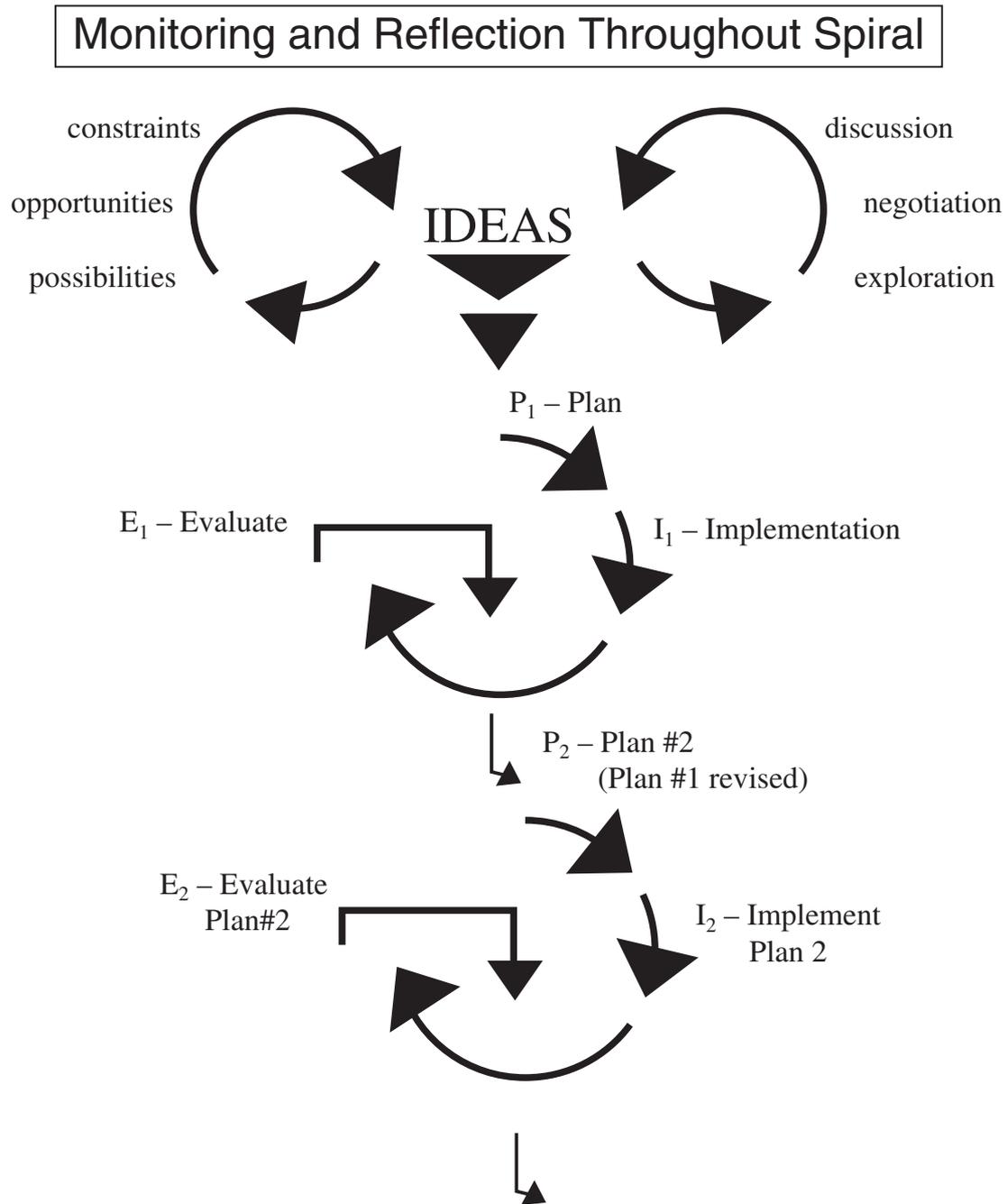
Interest in PM&E has grown. In addition to decreased use of traditional "top-down approaches," Estrella et al. (2000) state that the interest in PM&E has grown as a result of several factors, including:

- a) Trends in management circles toward performance-based accountability and emphasis on achieving results;
- b) Growing scarcity in funds, leading to a demand for greater accountability and success;
- c) The shift toward decentralization of government responsibility necessitating new forms of oversight; and
- d) Stronger capacities and experiences of both NGOs and community based organizations (CBOs) as decision-makers and implementers of development.

The first essential step of PM&E is for stakeholders to agree on what will be considered evidence of success and which indicators will be used to measure progress toward the goal prior to undertaking a research or development effort. Indicators need not be perfect. However, they must reflect stakeholder needs (Box 2). This process of identifying indicators of success in a participatory manner enables all partners to make explicit their expectations and agree on an evaluative framework that will encompass the different interests at stake. Diverse partners will naturally have different stakes and therefore identify divergent indicators. It will require some effort to facilitate consolidating dissimilar indicators that can address disparate needs and be measured within the resources of the project.

PM&E provides a context for project partners to come together on a regular basis during the course of the project to reflect on and discuss what they perceive as working well, what they think needs improving, and to jointly develop strategies that will enable the project to attain its objectives as described by the selected indicators. Participatory monitoring and evaluation also furnishes a means by which current activities may be modified to meet project goals. Involvement in the PM&E process also generates greater awareness and understanding of the causal relationships between various factors as well as promoting stakeholder commitment and shared ownership in the activity. The quality of such a process, especially its contribution to building institutional capacity at various levels and to strengthening collaborative ties, is considered as important as its final product.

Figure 1. The Action Research Spiral (Wals and Stepp, 1989)



Box 2. Sample Indicators Used for Soil-Forestry Conservation

I CONSERVATION

Protection

- Native trees established by plot
- A separate area of forest in the plot
- Degree of reduction in the burning of fields and felling of trees in the community where the plot was established
- Volume of water in summer from the source protected by the plot
- Level of sedimentation of the water source protected by the plot Biodiversity
- Species of animals attracted to the plot
- Plant species established by year on the plot
- Species of vegetables that regenerate naturally established on the plot

II RESPECTFUL USE OF THE LAND

Soil Fertility

- Amount of organic matter increased over time
- Amount of micro- and macronutrients in the soil
- Soil texture and structure
- Cultural practices
- Plots that select and conserve seeds
- Plots that plant according to the phases of the moon, by species
- Plots that produce fertilizers using byproducts of the farm
- Plots that practice crop rotation

III SPRITUALITY

Perception of the Surroundings

- Degree of satisfaction that the farm gives the farmer
- Families in the community motivated to set up the plot
- Attitude toward the surroundings
- Consultations made by the farmer to the traditional doctor
- Indigenous rite performed on the plot by a 'medicine man' to bring harmony or heal the land, plants, animals or human beings
- Farmers who establish a harmonious relationship with the environment

IV SUFFICIENCY

Supply

- Amount of food produced by the farmer and consumed by the farmer's family
- Amount of surpluses, by product
- Sustainability
- Percentage of inputs obtained with income generated by the farm.

Guijt (2000) identifies the core steps involved in developing participatory monitoring and evaluation that were revealed at a workshop in the Philippines as:

1. Identify who should and wants to be involved;
2. Clarify participant expectations of the process and in what way individuals or groups want to contribute;
3. Define the priorities for monitoring and evaluation;
4. Identify indicators that will provide that information (Methods to gather information about the indicators will often be indicator specific.);
5. Agree on methods, responsibilities and timing of information collection;
6. Collect the information;
7. Adapt the data collection methodology as needed;
8. Analyze the information;
9. Agree on how the findings will be used and by whom; and
10. Clarify whether or not the PM&E process should to be sustained and if so, how.

Guijt notes that the ninth step needs to be revisited on a regular basis. From our own experience, we have found that this step often must be handled delicately to ensure that an honest assessment of lessons are gained from the experience without creating any negative repercussions among participants.

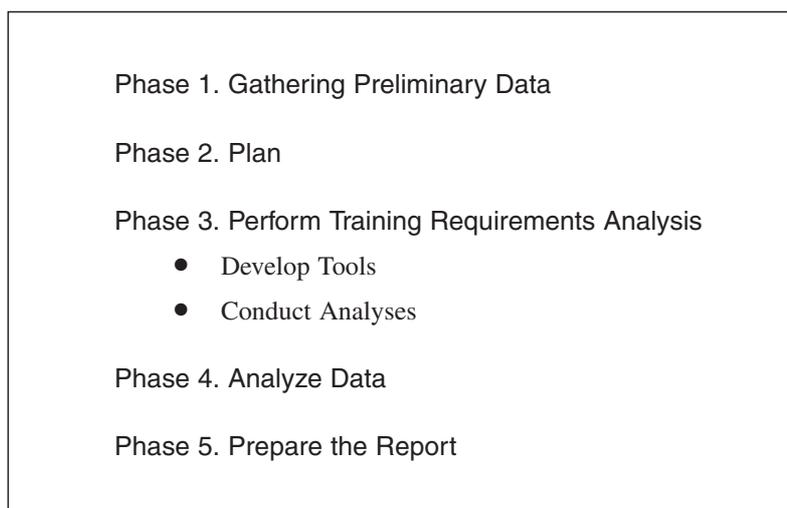
As one becomes more familiar with participatory monitoring and evaluation, one becomes keenly aware that internal reviews or reflections are rarely less stringent than external reviews. Self-evaluations can be very beneficial in promoting project outcomes while providing a means for those most intimate with the project to express their joys, concerns and strategies for improvement.

Building Capacity in Development

Needs Assessment

In the process of seeking more sustainable solutions to development projects, how can we determine what skills or capacity-building needs would be necessary to address in a given project? A training or capacity building needs assessment serves to identify the knowledge, skills, and abilities that are requisite for individuals to do their work in an effective manner and to design a strategy to fill gaps in training or capacity building (Gupta, 1999). Training needs assessments (TNA) should be completed when initiating a project or when a change is being imposed that will affect people's abilities to do their work (e.g. new responsibilities due to decentralization or devolution of authority, when organizations are undergoing change or when new systems or technologies are being implemented, etc.).

Training needs assessments must have the support of those who can cause the subsequent capacity building to be implemented, and TNA must also be conducted in a participatory manner that allows the stakeholders to have input into the process. Gupta (1999) describes the key phases of a needs assessment as shown in Box 3.

Box 3. Key Phases of a Training Needs Assessment (Gupta 1999)

Gathering the Preliminary Data (Phase 1) and The Performance Training Requirements Analysis (Phase 3) require the use of a wide range of tools. These tools can range from focus groups to more traditional surveys and include those tools used for participatory appraisals (similarly as indicated in Box 1).

The use of needs assessments should be ongoing as the project evolves. One means of addressing this is through the learning organization model.

The Learning Organization

Capacity building, like evaluation is an ongoing process. Capacity building cannot happen in isolation, but has to be a part of an ongoing learning approach in which individuals or groups mature together based on their collective learning. The term that has been given to this phenomenon is the learning organization.

What is a learning organization? Karash (1997) defined it as one in which people at all levels, individuals and collectively, are continually increasing their capacity to produce results they really care about.

Peter Senge (1999) speaks to the importance of fostering learning organizations in business. He builds this argument on the notion that certain teams work together very well through commitment to continuous improvement; suspension of judgment; shared vision of greatness; the collective intelligence quotient; and understanding of the system with in which they are operating and how to influence it. He determines that there are five (5) disciplines to achieve this in any organization. These disciplines include: systems thinking, personal mastery, mental models, shared vision, and team learning.

These five disciplines, as identified by Senge, may be defined the following way. Systems thinking refers to people learning to better understand interdependency and change and thereby to see how to change systems more effectively. Personal mastery is a discipline in which people are able to identify their personal vision as well as realistic assessment of their current reality. Learning to cultivate a tension between vision and reality is said to expand people's ability to make better choices and to achieve more of the results they have chosen. The discipline of mental models calls for continual reflection and inquiry in order to develop awareness of the attitudes and perceptions that influence thought and interaction. People can gain increased capability in governing their actions and decisions through continual reflection, discussion and consideration of these internal perceptions of the world. Shared vision calls for nourishing a collective sense of commitment in a group or organization by identifying shared images of the future they wish to create as well as the principles and guidelines by which they will get there. Lastly, team learning calls for transforming collective thinking through dialogue in order to mobilize energies and actions to achieve common goals calling on the greater group's talents.

Building and nurturing learning organizations has been successfully applied in the sustainable development sector. For example, a CARE project in Zambia underwent a process in order to move toward a more learning-oriented and participatory approach to livelihood development. This project identified the following seven strategies for building a learning organization. These included thriving on change; facilitating learning from the surrounding environment; facilitating learning from the staff; encouraging experimentation; communicating successes and failures; rewarding learning; and promoting a sense of caring (Box 4). Based on the activities of the project, CARE revealed several lessons learned including: participation is a process not an activity; learning from the project does not happen automatically, it needs to be integrated as part of the activities; village participants are critical to collecting information for the project; and ownership of the learning process occurs at the project and the community level.

Assessing Capacity Building

In this section, we will look at three methods that are used for assessing the impact of capacity building efforts. Each method has been used in different contexts. However, they are similar in that they recognize that there are stages or phases in the impacts of a capacity building intervention.

• Phases of Learning (Senge, 1999)

Senge's work focuses on the business world but can be easily applied to agricultural development. Table 1 depicts three different phases of learning initiatives each with an associated output and performance indicator according to Senge. Each phase could take several months or longer. The first phase starts with a new intervention or training course in which there are training investments in participant skills and capabilities. This phase leads to new skills development in terms of the learning output. Acquisition of new skills by participants is the only measurable output in the first phase.

Box 4. Strategies to Build a Learning Organization with CARE Zambia

1. Thriving on Change

- Senior staff and external consultants help to introduce the concept of household livelihood security and participatory learning and action (PLA) techniques into mission programming. Existing projects encouraged to make the shift from conventional service delivery activities to a more holistic livelihood approach to development. Experienced senior staff able to provide guidance, support and vision on an ongoing basis.

2. Facilitating Learning from the Surrounding Environment.

- New participatory methods are developed and applied in the field - resulting in more solid community ownership of project activities. Projects are redesigned so that beneficiaries participate more in design and implementation. Staff establish and train community-based teams responsible for monitoring and planning project activities.

3. Facilitating Learning from Staff

- Long-range strategic planning sessions held during which core values and three-year strategic thrusts are drafted for the mission. All projects encouraged to produce logframes, monitoring frameworks and annual work plans through teamwork and discussions. Through teamwork, staff are able to demonstrate an understanding of the larger participatory programming framework within which their individual roles lie.

4. Encouraging Experimentation

- Appropriate and experienced external consultants employed to design and conduct training and field work to expose staff to new methods; project staff benefit from continuous contact and follow-up by senior staff and consultants. This provides staff with access to necessary skills and resources to practice participatory learning in their work. Staff and project participants begin to develop an effective array of their own participatory tools; e.g., household livelihood monitoring systems.

5. Communicating Successes and Failures

- Projects develop methods to document case studies and share experiences in the field, such as newsletters, inter-project discussions and staff sharing.
- Staff and participants learn to monitor progress, analyze results and to use this information to modify activities.
- Experienced senior staff provide ongoing guidance and support.

6. Rewarding Learning

- The mission's core values are incorporated into a revised annual staff performance appraisal. Recognition is awarded to those who demonstrate these values most effectively.
- Project successes and experience are shared across the organization through newsletters and inter-project meetings.
- Staff are encouraged to publish papers, give presentations at international conferences and attend international training courses.

7. Promoting a Sense of Caring

- Annual staff appraisals recognize performance and outputs regarding core values.
- A staff tuition reimbursement scheme is developed.

Table 1. Phases of the Learning Initiative (Senge, 1999)

<i>Input</i>	<i>Learning Output</i>	<i>Performance</i>
Actions to be assessed	Goals and Management Concerns	Assessment Signals and Results
Diffusion & extension of decision-making	Impact on the business organization as a whole	Noticeable results, including revenue & profits
Deliberate intermediate changes (pilot group activity)	Intermediate effects: Effectiveness of pilot group	Behavioral indicators (“People are acting differently”)
Learning process: new interventions	Skills develop	Tests of skill Surveys, informal assessments saying, “We have more skills.”

In the second phase, the input or intervention is a deliberate intermediate change, i.e. the participants apply these new skills via some pilot activity. In this case, the measured learning output would be an intermediate effect and could be measured by behavioral indicators (e.g. managing time more effectively).

In the third phase, the efforts of the intervention or training begin to change the way usual business is done. An example of a successful change is for standard operations to improve. Training should effect a larger population of the organization (not just those trained). In this phase, the learning output should be an impact on the organization (or project) as a whole and there should be noticeable performance indicators that can be measured.

• **Progressing Towards Impact (Adapted Bennett and Rockwell, 1995)**

Similarly, Targeting Outcomes of Programs (TOP) (Bennett and Rockwell, 1995) examines stages toward impact attainment. The Sustainable Agriculture and Natural Resources Management Program (SANREM CRSP) has adapted this methodology (Neely et al., 1999) to identify the impact resulting from any type of capacity building activity. In this case, the project being identified has had an impact with long-term significance such as a change in a practice, technology or policy that will lead to improved natural resources management.

As depicted in Figure 2, there are three levels to the classification, each of which builds upon the other. The first stage or degree of impact is categorized as a change in people's involvement in or awareness of sustainable resource management or issues. As these changes crystallize, they form the foundation for the next level of impact: a change in people's knowledge, attitudes, skills or aspirations. As these two levels of change solidify, they in turn provide the base for the most significant impact level, a change in practice, technology, or policy that results in enhanced quality of life or improved natural resource conditions.

Figure 2a. SANREM's Impact Assessment Framework
– Levels of Change (Neely et al., 1999)

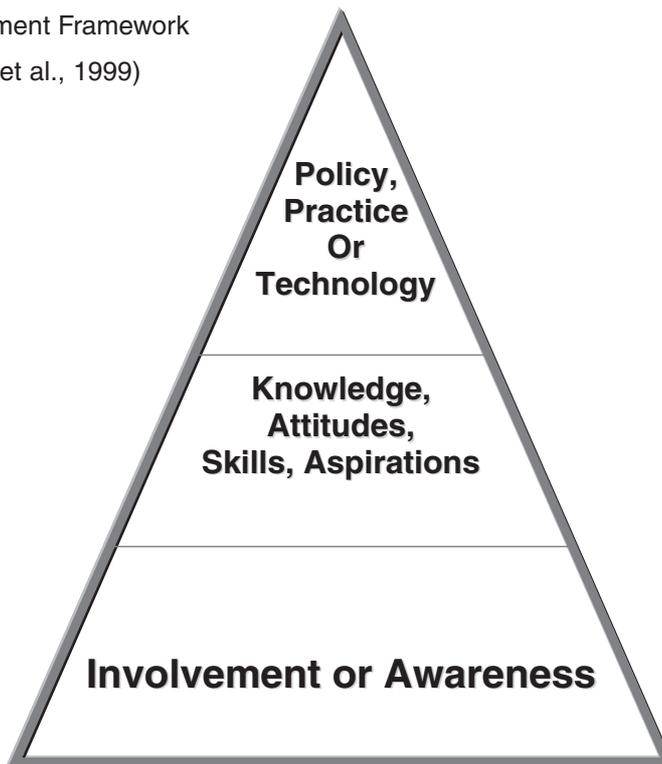
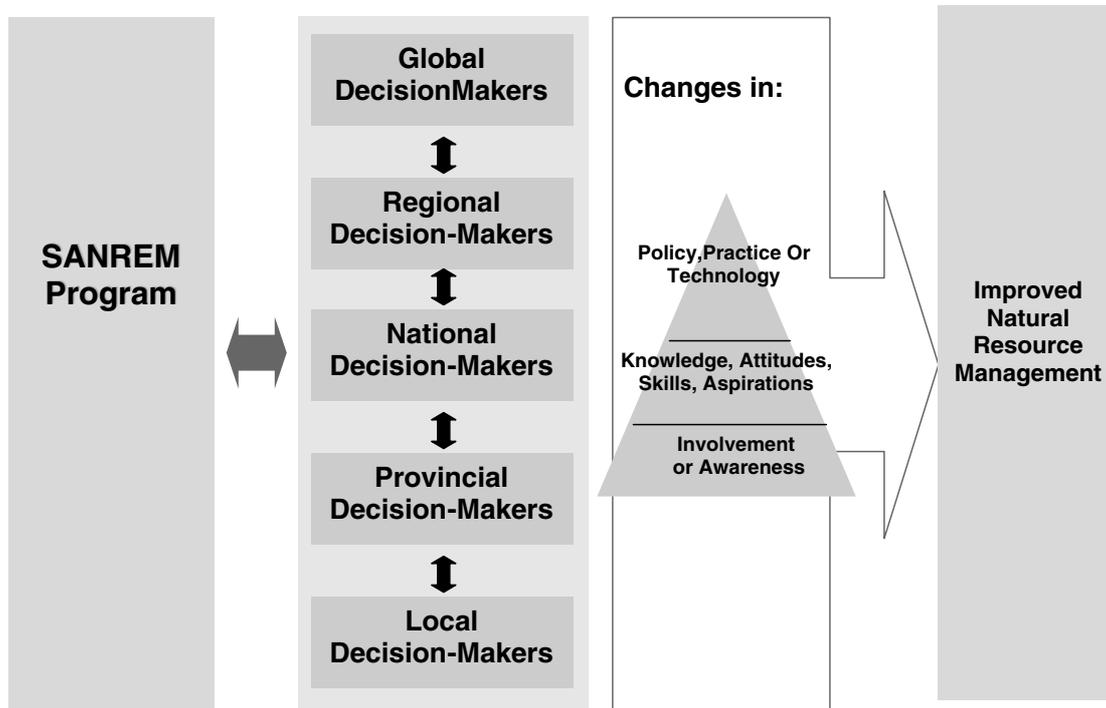


Figure 2b. SANREM Program Impacts on Natural Resource Management Decision-Makers



An example may help illustrate what these categories and their indicators would look like, if we were working on a sustainable agriculture or natural resources activity. SANREM conducted an agroforestry training. In this training, several community members participated in a workshop where agroforestry principles were elucidated along with the importance of integrating indigenous species and those that had historically been introduced. Participants also learned about the establishment and management of a nursery to germinate and grow indigenous species. Following the SANREM-adapted TOP model, at the first stage, the participants had a new level of awareness about agroforestry, what it would mean in their community and lives, and how to implement a nursery.

To continue with this example, suppose a subset of the original participants expressed a strong interest in learning very specific nursery management techniques and attended a workshop that focused on this type of training. This is an example of the second level of attainment as this group has gained specific knowledge or skills. As we have indicated earlier, it is not enough to have the skills alone, they must lead to a change in practice.

Moving to an example of the third level of change, those that had been trained have developed a strong desire to have on-farm nurseries in order to that they can supply their neighbors with these indigenous trees. They have implemented a technology based on previous stages of increased awareness and knowledge acquisition. They used this technology and farmer networks started to distribute these seedlings and plant them in riparian zones. At the highest level of impact following successful capacity building, a change in practice has occurred that will cause a positive impact on the environment and quality of life. In this case, trees buffer the water sources while providing a potential income or food source for the community.

Using this framework, one can monitor progress toward a significant environmental or agricultural impact.

• Indicators of Learning (Kirkpatrick, 1994)

Kirkpatrick (1994) identifies four levels (see Table 2) to represent a sequence for project evaluation. He indicates that as a project moves from one level to the other, the process for evaluating them becomes more difficult while the information that is derived at each level becomes more valuable.

Table 2. Levels that Represent a Sequence for Evaluating Projects (Kirkpatrick 1994)

Evaluation Level	Kirkpatrick Definition	Possible Indicator
Level 1	Reaction	Participant satisfaction/assessment of relevance
Level 2	Learning	Mastery of Skill
Level 3	Behavior	Application of Skill
Level 4	Results	Organizational Impact

At the first level, an evaluation is really done to understand how participants reacted to a given training. Participants complete a self-assessment of the training. Based on the assessment, training facilitators may understand whether the training was relevant and useful for participants.

In the second level, the evaluation looks for measures of learning. In this case, Kirkpatrick states that there should be a change in attitude, skill or knowledge as a result of the capacity building intervention. Different capacity building efforts can target any one or all of these. For example, in technical programs, we are typically targeting skill enhancement.

Kirkpatrick points out that for learning to take place, a behavioral change has to occur. So the next level looks at change in behavior. For this type of change to take place, it must meet four conditions. The person must: 1) have a desire for change; 2) know what to do and how to do it; 3) be working in a conducive climate; and 4) see some reward for this change. Interestingly, Kirkpatrick goes on to describe the types of climates that will influence whether a behavioral change will take place or not. These include climates which: prevent; discourage; are neutral; encourage; or require the change.

The fourth level in this model deals with the final outcome of the capacity building effort ? results. There are numerous measures of final results, but these are directly related to the objective of instituting a capacity building component. These results can include enhanced productivity or quality. In the realm of agriculture development, an example might be that due to training in participatory methodologies, community members felt ownership of the project, were seen to be more effective and had a greater degree of success.

● Evolution of Learning (Hamel and Prahalad ,1994)

Hamel and Prahalad (1994) have also provided a method to evaluate human resources in capacity building. They have identified four levels of learning to demonstrate how learning evolves (Box 5). The first levels can be acquired rather quickly. However, the later levels require more time and creativity on the part of the participants. Therefore in order to attain higher levels of capacity development of project participants and managers, extension agents, etc. it is incumbent up on project managers to provide an environment that fosters this growth.

Box 5. Four Levels of Learning (Hamel and Prahalad, 1994)

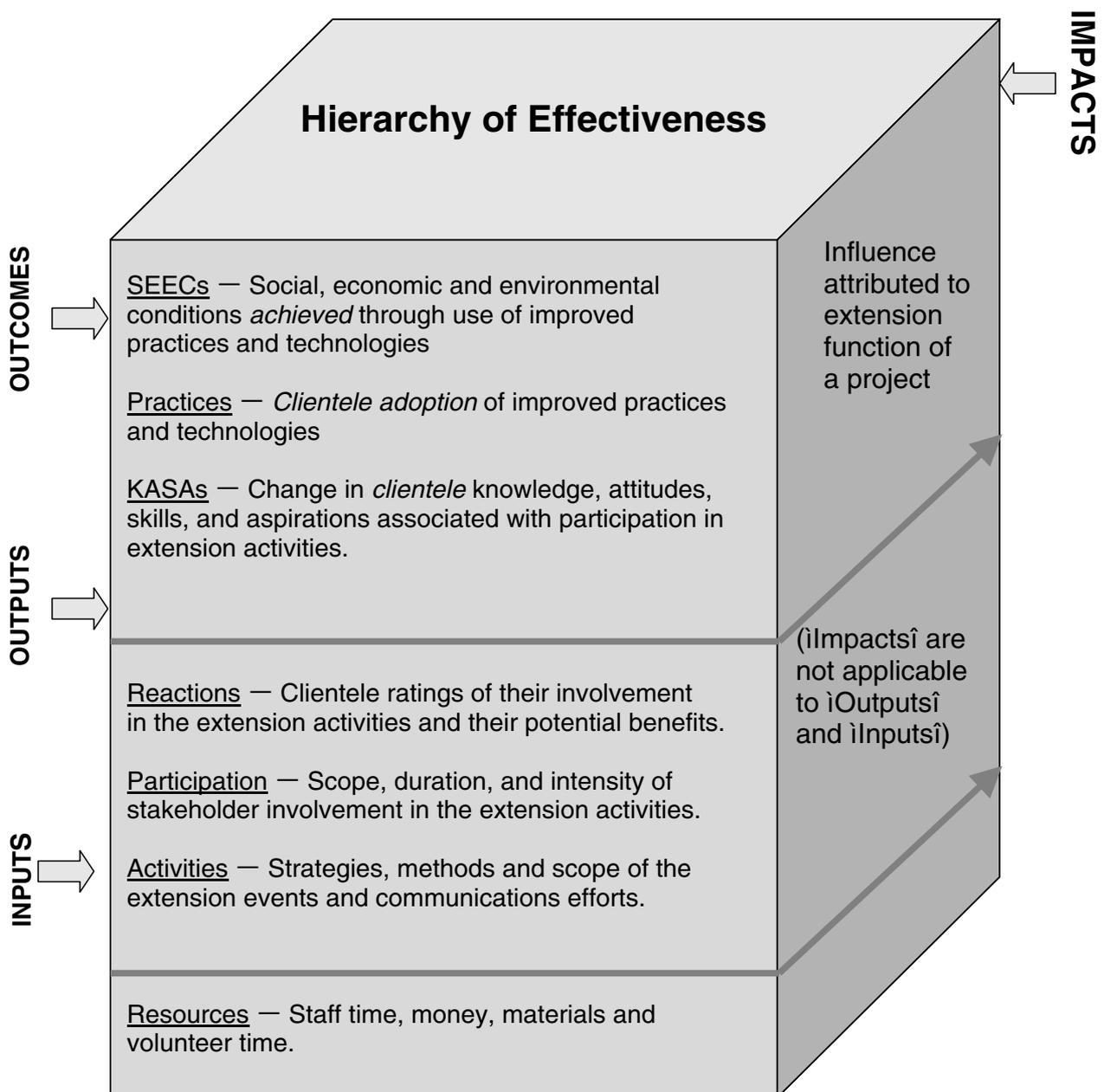
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| <p>Level 1. ● Learning facts, knowledge, processes and procedures</p> <ul style="list-style-type: none">● Applied knowledge to similar situations where changes are minor <p>Level 2. ● Learning new job skills that are transferable to other situations</p> <ul style="list-style-type: none">● Applies knowledge to new situation where existing response needs to be changed.● Bringing in outside expertise as a useful learning strategy. <p>Level 3. ● Learning to adapt</p> <ul style="list-style-type: none">● Applied knowledge to more dynamic situation where the solution needs to be developed.● Experimentation and deriving lessons from success and failure <p>Level 4. ● Being innovative and creative — designing the future rather than adapting to it.</p> <ul style="list-style-type: none">● Assumptions are challenged and knowledge is reframed. |
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• **Extension or Information Transfer Effectiveness (Bennett et al., 2000).**

Extension outputs include activities and participation intended to encourage the use of practices or technologies. The more detailed hierarchical model shown in Figure 3 depicts the components of inputs, outputs, outcomes and impacts.

In this case the outcomes include changes in knowledge, attitudes, skills and aspiration (KASAs), changes in practices (e.g. adoption) and finally changes in the social, economic, or environmental conditions achieved through use of improved practices or technologies. These guide us to view the impacts as the influence that is actually attributable to the function of the project.

Figure 3. Hierarchical Model of Extension Effectiveness (Bennett et al., 2000)



● Measures of Human and Social Capital

The literature on building capital in communities identifies four types of capital. These include human, social, natural and financial capitals. Human capital refers to the skills, capabilities and values of human beings. Social capital refers to those skills, capabilities and values that are shared by members of a society community, etc. Natural capital refers to natural resources. Financial capital refers to fiscal resources. These types of capital examined together can assist in measuring progress of a system as a whole. (See Box 6.) Research being conducted in Ecuador by Cornelia and Jan Flora (1999) identified indicators of various capitals as indicated by local communities. These indicators could be used to assist in measuring progress at various levels within a project.

Box 6. Measures of Capital (adapted from Flora and Flora. 1999)

Indicators of Various Types of Capital	
<p>HUMAN CAPITAL</p> <ul style="list-style-type: none"> ❖ Strengthened capacity to work in harmony with the environment ❖ Good health of citizens ❖ Values that integrate natural capital with financial capital ❖ Leadership that takes the environment into account. 	<p>SOCIAL CAPITAL</p> <ul style="list-style-type: none"> ❖ Trust based on a common recognition of the environment ❖ Networks of reciprocity with social, ecological and economic objectives ❖ Organized local groups ❖ Shared symbols regarding sustainable development ❖ Collective local identity ❖ Sense of a shared sustainable future
<p>NATURAL CAPITAL</p> <ul style="list-style-type: none"> ❖ Uncontaminated air ❖ Healthy soils ❖ Pure drinking water ❖ Biodiversity of flora and fauna ❖ Green and diverse landscape ❖ Preservation of the Cotacachi-Callapas Bio-reserve 	<p>FINANCIAL CAPITAL</p> <ul style="list-style-type: none"> ❖ Funds to invest in green business ❖ Funds to pay organizers ❖ Breeding Livestock, seeds, machinery, equipment and other inputs for sustainable agriculture

Reasons for Success, Spread and Transfer of Success

What constitutes success? Krishna et al. (1997) provide a set of success stories from Africa, Asia and Latin America related to Multisectoral Development, Agriculture-Based Development, Social Services, and Natural Resources Management (e.g. the Grameen Bank). Krishna et al. note that most successful projects start in a very modest way, and result from an idea and conviction of a small group of individuals. "They are nurtured by people at many levels of the resulting organization, people who shared an understanding of how outside resources could be used to bring forth indigenous resources, how to make these combined resources productive, and how to make the provision and use of such resources sustainable by meeting people's demands in realistic, flexible and respectful ways . . . These cases clearly demonstrate the importance of personality and personal qualities ? idealism, interpersonal skills, perseverance, energy and enthusiasm."

Uphoff et al. (1998) analyzed the Krishna group's success stories and identified common themes. The criteria for success by which these stories were analyzed included productivity, well-being and empowerment. Productivity in this case means that rural people are able to utilize those factors of production under their control and those they have access to produce goods and services that can be marketed. Well-being illustrates the outcome of enhanced self worth and fulfillment. Empowerment refers to the enhancement of peoples' (individuals, families, communities) control over their destinies.

Further insights from Uphoff et al. (1998) identified four criteria as goals for a project as well as to be used for evaluation. They include: Resource Mobilization (self reliance); Scaling up and Expansion (expanding benefits); Diversification (ability to solve more than one problem); and Continual Innovation (using the learning process for problem solving). Based on their analysis, the issue of self-reliance has guided many successful development projects.

Another measure of success has to do with the spread or expansion (both in terms of people served and geographic areas) of the project. In other words, do people think it is worthy expanding? Diversification refers to the capacity that results from the project and the ability of its participants to address additional problems beyond the ones identified for the project.

Conclusions

What conclusions can we draw? We are moving into a new era of overseas development assistance. Impacts and success stories resulting from agricultural development projects are being more heavily scrutinized and increasingly evaluated in terms of cost-benefit ratios. One overarching measurement of project success is its potential for sustainability ? for perpetuating its mission and meeting project goals while outliving its funded lifespan. For this to happen, stakeholder participation must be an integral part every step of the way leading to a very real degree of stakeholder ownership. Participatory methodologies can be used to identify current and potential future issues, identify necessary capacity building, implement project monitoring and evaluation, and undertake project implementation. Capacity building and the ability to measure its impact are key elements for ensuring that participants will use this intervention in the future. External evaluation often leads to greater self-reflection. However, the use of participatory monitoring and evaluation ensures that self-reflection by project participants is inherent in the project and that those who are most intimate with it are those who are evaluating it.

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