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Selected Issues Related to Project Design and Implementation in a Reengineered USAID

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Foreword

This report is produced by the Environmental and Natural Resources Policy and Training Project (EPAT), sponsored by USAID's Global Bureau, for the USAID Africa Bureau, Office of Sustainable Development, Division of Productive Sector Growth and the Environment.

The Africa Bureau asked EPAT to assemble the multi-disciplinary team that authored this report in order to provoke dialogue and provide guidance on issues related to hypothesis-testing in the context of USAID programs and projects, as part of an ongoing effort by the Africa Bureau to incorporate re-engineering principles such as risk management into its natural resource management program. This report is the product from that collective effort. It consists of a series of issue papers which present and discuss approaches and provide guidance on how information from monitoring and evaluation of causality and hypothesis-testing activities might signal the need for managers to: a) modify or refine project activities so that they are more appropriately focussed to achieve program outcomes or targets; b) include new elements in project activities to mitigate risks or problems that have been identified, or take advantage of new or unforeseen opportunities that appear feasible; c) introduce new topics in policy dialogue with host country governments and coordination with other development assistance organizations; and d) consider whether USAID resources should continue to be directed toward achievement of a stated program outcome or target. In addition to its utility for natural resources management activities in Africa, we hope that the ideas and recommendations presented in this report will continue to stimulate dialogue among those involved in USAID's re-engineering, with the ultimate goals of improving the management and maximizing the impact of USAID activities worldwide.

This report, which costs approximately $20,000 to produce, will be distributed to USAID Africa Bureau natural resource management officers, who will distribute it to others as appropriate. It will also be sent to others working in the environment sector who have expressed an interest in issues relevant to the report. The effectiveness of the report will be evaluated through the use of an evaluation form which will be included with every copy of the report.

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with documents, e-mail communication, and abundant good sense about issues that we needed to address or clarify.

The document is the collective work of the team. Its content does not necessarily represent the policies or positions of USAID nor of the Environmental & Natural Resources Policy & Training Project.

I. Introduction

A. Scope

This document is part of a longer and larger endeavor between the Africa Bureau of USAID and the Environmental and Natural Resources Policy & Training Project (EPAT) and other cooperating entities. The challenge is how to incorporate risk management and dynamic implementation of USAID activities. Experience shows that due to the extended time frame for Africa Bureau activities in natural resource management (NRM), integrating risk management is necessary for successful implementation. As a result, for the past several years, the Africa Bureau has been working on developing models for integrating risk management in hopes of improving the success rate of its activities through a variety of mechanisms. Among these are clearly stating assumptions, hypothesis-testing, learning by doing, identifying opportunities (not just constraints) on which to focus resources and translating new information into adaptive management practices.

The Africa Bureau asked EPAT to bring together the members of this multidisciplinary team to discuss and provide guidance on causality/hypothesis-testing and how to build it into USAID programming on natural resource management. The objective of the series of issue papers in this document is to set forth some ideas about approaches and issues related to monitoring and evaluation (M&E) of natural resource management programs and projects in USAID missions in the Africa region.

The team recognizes that designers of program strategies and projects (activities) are challenged to identify, in advance, all the factors which may affect expected outcomes. In reality, USAID missions, in concert with their development partners, can seldom anticipate all of the internal and external factors which are likely to seriously affect the achievement of the intended NRM results. As activities evolve, other phenomena arise which directly or indirectly affect achievement of the intended results.

The issue papers provide selected guidance on how information from M&E of causality and hypothesis-testing activities might signal the need for managers to: a) modify or refine project activities so that they are more appropriately focussed to achieve program outcomes or targets; b) include new elements in project activities to mitigate risks or problems that have been identified, or take advantage of new or unforeseen opportunities that appear feasible; c) introduce new topics in policy dialogue with host country governments and coordination with other development assistance organizations; and d) consider whether USAID resources should continue to be directed toward achievement of a stated program outcome or target.

After submitting a first draft to the Africa Bureau and a group of external reviewers, team members revised the materials in the April 7, 1995 draft. The following text reflects the results of the process of review, comment, and revision undertaken between April 7 and May 1, 1995.

It is important to note that the issue papers in this report continue to have some redundancy and/or overlap. Team members debated the merits of this and decided that looking at some of the very complex issues raised in this document merited multiple perspectives, a variety of "lens" through which to view the many-faceted aspects of the individual issues papers, and a wider venue for expression to elicit broader and deeper dialogue on the issues raised.

Team members recognize that, in some cases, we have provided more questions than answers. However, through the process of developing questions, we believe that we have offered many insights. Additionally, in cases where some questions are unanswered (or perhaps even unanswerable by a group of experts working outside the Agency itself), we have attempted to provide some guidance on how the questions might be answered. And finally, we have provided more specific recommendations or options, wherever possible that hopefully will lead to some new ways of thinking about different aspects of the causality/hypothesis testing themes and some of the implications for institutionalizing these themes within the USAID context.

B. Background

In the early 1970s, the Agency for International Development faced a major threat to its existence. The Senate and House coalition that previously had formed the backbone of the Agency's support abandoned it. Congress was no longer sure that USAID was performing well nor achieving anything significant. Additionally, in 1972, a USAID employee, Ted Owens, published a book entitled Development Reconsidered. The author questioned the approach that, until that point, had characterized the Agency's development efforts.

The result of this organizational crisis was twofold. First, USAID developed an evaluation system (incorporated into the 1972 evaluation handbook and later into Handbook 3) to institutionalize the concept and provide a means by which the Agency could demonstrate its performance so that Congress could see what results they were getting from the American taxpayers' investment. Second, the Foreign Assistance Act of 1973 (based partly on the strategy advocated by Owens' book) articulated goals that aimed USAID in what was called "new directions". Thus, Congress gave the Agency for International Development a new lease on life.

Today, USAID faces a crisis of the same magnitude. The Executive branch decided to downsize and change the way government does business. USAID was the first to respond to Vice President Gore's reinvention initiative. Yet, simply tinkering with a few documents, processes or organizational structures will not do. Radical change is required for survival. The world of Breton Woods and the cold war no longer exists. The dismantling and redirection of public sector organizations is occurring around the globe from Eastern Europe and the Newly Independent States, to Western Europe, to Mongolia, to South Africa, to the United States. And economic growth perspectives have crashed head on conceptually and operationally into the challenges posed by sustainable development.

Reengineering is serious business. The whole thrust of reengineering rests on managing for results. Getting to this point and making it work will be more difficult than anticipated. This

does not mean that the process should not occur but that people should recognize the magnitude of what is occurring. What is happening today is in some ways more difficult than what happened a little over two decades ago.

For example, the 1973 redirection led to a drastic reduction in USAID direct hire staff. Until that time, most Agency business was conducted using internal personnel. But the redirection embraced a White House directive that encouraged contracting out many functions. The result was an agency, transformed from retailer to wholesaler. That legacy remains today.

Part of the difficulty today is that while the environment supports a diminution of both government size and presence, the reengineering that is needed to confront the world of the 21st century may require building more and/or different capacity within USAID and a somewhat lower or different kind of reliance on contractors and cooperators.

Streamlining the business and contracting operations of USAID may lead to a thinning of this side of the agency, but risk management, hypothesis-testing and sustainable development may require increasing the substantive staffing to make the organization more visible, efficient and effective. At times of crisis and redesign, leaders often like to describe the new profile as "lean and mean." With USAID, it may mean that the business practices will be leaner while the development focus will have more internal muscle.

The team developed the following issue papers to reflect some ways of thinking through what the above mentioned changes might mean for USAID as it re-engineers itself and moves toward full institutionalization of many new procedures and practices by October 1, 1995.

II. Issue Papers

A. Risk and Uncertainty

Image

In the famous movie scene a pair of robbers, Butch Cassidy and the Sundance Kid, have botched their getaway and find themselves on a cliff two hundred feet above a fast moving river. With the posse at their heels, they consider jumping, but Sundance refuses because he can't swim. Butch laughs as he leaps with Sundance in tow. "Are you kidding?", he says, "the fall will probably kill us!"

Different perceptions and misperceptions about risk for the basis for the humor of the scene. Earlier in the movie the two argued about the fact that if they had picked a different train to rob, or had planned their getaway to the east instead of to the west, they would not be facing such poor choices. Now that they are on the cliff, the risk of jumping, at least to Sundance, is clearly different than Butch's sense of the risk. For Sundance, the prospects of fighting the posse or going to jail are less risk-filled than taking the grand leap. But, together they went and survived to tell the tale, at least until the end of the movie.

Discussion

This movie scene reveals two important facts about managing risk. First, it is possible to understand and manage risk without controlling it. The direction of their flight increased the difficulty of their escape, but this might have been either a result of poor planning or a calculated decision by Butch. Now that they are in a tight spot, their options are limited, but they still can choose among them. They can manage them but not control them.

Second, risk is in the eye of the beholder. Some people are risk-takers, some are risk-avoiders, and others vary greatly in their responses to perceived risk. Additionally, different skills and preferences influence peoples' perceptions. Perhaps Sundance was more adept at breaking out of jail while Butch was a better swimmer. It is also noteworthy that Butch was wrong about the fall probably killing them. The important risk factors associated with the jump were not really related to the fall, but with what lay beneath the water in which they would land.

Knowledge and circumstances both affect perceptions of risk. Experts and the general public, for example, often rank risks differently because of their different assessments of the manageability of the risks. Likewise, perceptions of risk are related to how much one's livelihood or quality of life is associated with what is at risk. Late rains, for example, may greatly affect the income of . Late rains, however, pose less risk to merchants and other villagers and no risk at all to local government officials whose paychecks do not depend on the weather. In some cases probabilities based on past experience can indicate the likelihood of a certain event occurring. In one location, for example, the chance that the rains a farmer needs for planting will

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occur within a four-week period may be 50 percent, whereas in another location it may be over 85 percent. But the level of risk involved still can vary. The attendant changes in yields may mean starvation to some but only slightly lower profits to others. Thus, just the certainty of an event does not constitute risk; the magnitude of the consequences is also a component part of risk.

Objectives also influence what one perceives as risk. If an objective of an USAID mission program is simply to "raise income by increasing crop yields", then whether the major portion of the increase goes to men or women is not important. However, if the objective is to "raise income and crop yields without weakening the relative empowerment of women", then how it is done becomes very important.

Narrow thinking about projects or sectors often gives short shrift to risk associated with "external" factors, even though such factors may be recognizable and manageable. Frequently such inadequate attention gives rise to unexpected failures or "side effects" that threaten the higher goal of sustainable development. Focussing on agricultural issues without considering broader natural resource problems, or emphasizing natural resource issues without considering the impact of solutions on population growth may merely shift risks around and make them more difficult to understand or resolve.

Uncertainty arises because of our imperfect ability to forecast the future, and it increases as forecasting becomes more difficult. The volatility of potential outcomes--how different the outcomes might be from what is expected--is not the same for all kinds of activities. Uncertainty, therefore, depends on two key factors: 1) the length of time between the action and 2) the expected outcome; and the number of uncontrolled or uncontrollable factors that can influence the outcome.

Consider, then, the uncertainty of natural resource initiatives in Africa, such as those designed to protect biodiversity or to promote sustainable agriculture. The length of time before these efforts result in "people level impacts" can be quite long (i.e., 10 to 15 years or more). Over this long time frame, both uncontrolled and uncontrollable factors, directly and indirectly, may achieve results, but many may be negative. Thus the managers of natural resource management initiatives are engaged in the business of managing uncertainty and risk of influences that affect outcomes in negative ways.

Managing risk is different from simply accepting risk, and it is also different from the day-to-day business of coping with unexpected personnel issues, budget delays, logistical setbacks, droughts, floods, political unrest, and so on. Managing risk involves taking sufficient time away from routine responsibilities to:

1. recognize what conditions need to remain the same and what conditions need to change for the initiative to succeed;

2. monitor those risk factors that will indicate whether the necessary conditions will exist or not;

3. act to control those critical risk factors that can be controlled; and

4. react in a timely and effective way to those factors that cannot be controlled.

In ideal circumstances, mathematical indicators can be associated with each source of risk (e.g. export price changes or exchange rate variation) so that the full range of risks can be captured statistically (as a standard deviation around the expected outcome). However, such opportunities are rare. In fact most people with important risk management responsibilities, a group that includes surgeons, fishing captains, battlefield generals, portfolio managers, diplomats and USAID professionals, develop their own systems for weighing and evaluating risk. When there are too many risk factors to consider them individually and too much information to consider all at once, many managers develop aggregate indices to evaluate from time to time.

The risks associated with USAID-supported initiatives cross many dimensions and sectors and shift frequently from one to another. In a few cases, it may be possible to identify and monitor leading indicators of specific kinds of risk and to identify threshold levels at which certain risks must be brought under control if the initiative is to proceed. In the more typical case, however, it will be impractical to sort out and measure individual risk factors. It may be necessary to simply evaluate what is known about each, see how it is changing, and then rank the factors.

Dealing explicitly with risk is important to the reengineering of USAID for the following reasons:

1. The adoption of Strategic Objectives (Sos) will expand narrow definitions of success and require USAID managers to be responsible for understanding more risk factors than they previously have;

2. As perspectives and responsibilities broaden, levels of uncertainty about potential outcomes will rise and the need to make mid-course corrections and redeploy resources will increase. This will introduce new professional and personal risks to USAID managers and new financial risks to USAID contractors; and

3. Success in this new mode will require rewarding USAID and contractor employees who acknowledge the riskiness of their efforts and respond to changes in innovative ways rather than avoiding, denying, or covering them up in order to keep money moving and prevent it from being diverted.

Thus, a re-engineered USAID will be a risk-embracing, rather than a risk-avoiding, organization. And building risk management capacity into agency structures and procedures will be key to future success.

Recommendations/Considerations/Questions

1) Managers should be rewarded for recognizing when risks reach unacceptable levels and for redirecting funds quickly toward more promising initiatives. The incentives to manage in this way should be strong enough to overcome the personal hardships (e.g., relocating staff or family or losing control over programs or budgets) that may be involved in adapting to change and to unfavorable circumstances.

2) While the length of time required for many initiatives to yield results does increase their riskiness, it also provides opportunities for program managers to observe and evaluate patterns of change that can affect the likelihood of success. It also provides them with time to react to what they observe. This requires that they recognize what risk factors can affect their programs and respond to them. This requires that they have some incentive to focus more attention on leading indicators of failure and less on the evidence of success that upper management so often wants to continue to justify its programs rather than change them.

3) To facilitate the shift from risk-avoiding to risk-embracing behavior, it might be useful to adapt some of the risk-related criteria used by investors and portfolio managers for evaluating long-term capital investments. Such an adaptation might include a set of risk-ranking indicator sets, such as:

STRENGTH	Could the initiative become the catalyst for wide-spread cultural, economic or political changes that could make it succeed regardless of the observed obstacles?
EXPOSURE	How many and what kinds of uncontrollable factors could affect the potential outcome and what percentage or components of the effort are vulnerable to which factors?
TIMELINESS	Are the trends related to important factors becoming more or less favorable and at what rate?
VOLATILITY	What is the range of likely outcomes, especially the down side, if all the uncontrollable risk factors lined up for or against the success of the initiative?
SAFETY	Are there ways to minimize or mitigate the influence of uncontrollable risk factors, and, if so, what contingency plans can be brought into play?
PERSISTENCE	How much of a setback would it be if the key uncontrollable factors lined up against the project temporarily?
PREDICTABILITY	What data exist, or could be generated, to suggest the probability of a key event occurring?

These aspects of risk and risk management will be integral to the programming and business practices of a new USAID, and incorporating them into task force discussions may assist the reengineering effort.

B. Systemic Relationships

Image

A development project implemented in one area of Kalimantan focused on increasing rice production had a problem with weeds in the fields of a newly cleared settlement. To reduce the plant competition for the rice, project managers decided to use a herbicide to remove the weeds. The village also was infested with roaches, but they were not bothered by the herbicide even though it began to concentrate in their bodies. Villagers had geckoes, small and fast moving lizards, living in the houses. Geckoes eat cockroaches, and they became more lethargic as the concentration of the herbicide began to move up the food chain. As the geckoes became more slow moving, they also became more vulnerable to the cats of the village. Villagers used cats to keep down the rodent population. As the cats ate more geckoes, they began to die in large numbers. The herbicide concentration was now lethal. Soon, there were no cats in the village, and in their absence rats and mice multiplied rapidly. As the rodent population increased, so did disease (including the plague) among villagers. Project implementors had to stop spraying the herbicide, and they had to fly in cats to reduce the rat and mice population. In this case, the missing cats were the sensitive indicator to what was happening in the broader human and natural system.

Discussion

Systems theory says that we are all part of a large interconnected system, that this system has parts, that flows (e.g., energy, ideas, matter) occur between and among the subsystems, that the system has a synergistic quality, and that change(s) in any one part of the system (or subsystem) produces change(s) in all of the system. Additionally, theory states that systems are constantly adjusting to maintain an equilibrium. Just what the equilibrium is, how the equilibrium is maintained, or what its dynamic aspects are is often not determinable because of the myriad of possible relationships between the parts of the system. Often these changes may not be understood. They cannot be predicted or known even, unless someone has an understanding of the whole, rather than one or a portion of the parts. The larger and more complex the system, the more difficult it is to know the whole. It is important to emphasize that even if project managers do not know the "whole" does not invalidate its presence.

Project implementors may know one subsystem well and have some control over it, particularly its manageable factors such as markets, technologies. However, project implementors may have no control over other elements of the system (e.g., non-manageable factors such as disasters, international trade policies), even if they know about them. The possibility is that project personnel may not know of all the non-manageable factors, but they can plan as if there is always some part that is unknown, and/or non-manageable. Additionally, some part, aspect, linkage, or flow will likely be unanticipated. While the linkages are real, they are not necessarily apparent. However, systems tend to be time and place specific. These qualities of a system indicate that there are systemic relationships that need special attention when interventions are made.

More specifically is consideration of the success (or often the lack thereof) of policy interventions to improve natural resource management in Africa which depends to a large extent on the institutional level at which they take place. After many unsuccessful efforts to improve NRM decisions in Africa through "top-down" programs designed at national or even international levels, growing interest is increasing in initiatives that encourage and support community-based or "bottom-up" resource management. Local initiatives are gaining support primarily because of the widespread belief that people who live close to natural resources and are dependent on them for their livelihoods are better able to understand resource problems and design effective resource management schemes than technical experts and bureaucrats from distant cities.

The benefits of having local involvement in designing and implementing NRM initiatives are undeniable. However, growing evidence exists in Africa and elsewhere that natural resource problems are often the result of NRM strategies based on perspectives of resource problems that are too narrow (i.e., too community-based) and assessments of costs and benefits that ignore too many "externalities". The mounting scientific evidence, in other words, suggests that more fragmented resource management schemes that ignore broad interregional ecological-economic linkages will result in overall patterns of resource use that will be less sustainable. Contrary to the popular trend, this evidence suggests that what is needed is more broadly based natural resource management focused at the ecosystem or watershed level. This includes analysis focused on resource problems at the village or community level.

In designing NRM initiatives, therefore, there is growing need to balance the advantages of local and community-based NRM with the fact that local institutions may never have the research capacity nor the incentive to consider important ecological and economic linkages that involve regional, national and international impacts. As researchers discover more about these linkages and how they affect the success of NRM initiatives, there will be a growing need for meaningful information to help decide how much authority should reside in various national and regional institutions and how these institutions can provide technical support and incentives to guide local and community-based NRM. There will also need be a need to have better criteria for deciding what problems can be dealt with at a community or regional level and which ones must be approached from a broader landscape perspective. A more system level perspective, in fact, needs to be able to account for local alternative activities that might actually destabilize the ecosystem as a whole.

Yet, when faced with such complexity, as that described above, humans typically react within "bounded rationality". This concept suggests that, instead of considering all the alternatives available, humans typically select from a restricted set of those that they may already know (even if they know these alternatives may not be the "best"). Rather than choosing the best alternative (which may not even be in the set people choose from), people normally make a "satisfactory choice", in other words, one that is good enough, if not the best. A clear example comes from a rangeland project in Africa where there were a range of possible solutions to stocking levels in an environment with high risk. By using "opportunistic rangeland management", the project was able to incorporate local knowledge, create a situation for environmental tracking, and establish an economic buffer, choosing from options known to all. However, these options

clearly were not the "best" in terms of optimal stocking. Of particular interest is the fact that the options selected reflected local peoples' view that drought was not an emergency situation but a problem of erratic rainfall and a continuing hazard with which they had to deal (Behnke and Kerven 1994).

At an organizational level, as compared to the level of the individual, it is possible to evaluate the consequences of a wider range of kinds and levels of risks that might be taken. Whatever the case, learning within bounded rationality occurs through a high-cost, step-wise process of searching for and selecting ever better alternatives.

It is important to note that bounded rationality does not necessarily limit the overall scope of the interventions that might be considered to improve NRM management. These interventions may operate at one of two levels. At one level project planners and implementors can assume that the limits of existing government/organizational capacities constrain the possible solution set and look for feasible choices within these constraints. At another level, planners and implementors can attempt to change these underlying constraints and improve the set of feasible choices. Interventions of the first type need not be based on assumptions that existing constraints will always be binding. However, they should be based on a clear understanding of what interventions of the second type are underway and how well they are doing.

One implication is that large organizations can do things that no one person can accomplish. Groups of individuals typically can accomplish more complex activities. One person's search for better alternatives, or test of an hypothesis, may or may not benefit the whole. Operating within a system, improvements in one part may be detrimental to the whole (e.g., improvement in rice production may affect the overall production capacity of the village). What is needed is a system-wide perspective. In planning, someone must be looking at the larger picture while others may be seeking smaller changes. Monitoring linkages and relationships within the system will be important to managing for results.

Recommendations/Considerations/Questions

1) How does one plan and manage when it is understood that you are dealing with a complex system that may have multiple linkages which would make problems appear unrelated to a specific focused activity? One of the important ways of answering this question is to conduct effective strategic systems planning that takes advantage of opportunities afforded by the interdependencies and interactions of the component parts. Among other critical elements are management information subsystems which are focussed not only inward but also toward the array of manageable and nonmanageable factors that will mostly likely affect the future of the system. Another critical factor is the organizational culture and management subsystem in which professionals do planning. Thus, the organizational climate is an important, albeit dynamic, context for more creative planning. In this kind of dynamic environment, participants should be convinced of the inevitability of change and proactively be seekers of positive change.

2) How do you do this when is clear that the choices you make may not be the "best"

one(s)? One possibility is that inconsistency is normal. Choices that are good enough are made from a limited set of options. To reduce inconsistency, choices may need to be disciplined by either a search for all options or an identification of best alternatives. Once a choice is made there needs to be ongoing monitoring with indicators that will reveal possible linkages not originally apparent or anticipated and that will identify alternatives not initially chosen.

3) How sensitively does the system depend on its initial conditions and what are the implications as these initial conditions change over time or with changes in values ascribed to those conditions? The issue of system dependence on its initial conditions is founded on assumptions about the context in which that system exists. However, since change is inevitable, it is necessary to constantly to track new sets of conditions that exist at given points in time. If these assumptions are correct, the issue becomes more one of how to track the implications of change and then how to manage for that change.

One aspect of this that has not been dealt with indepth is the issue of how values affect perceptions and how they define what is important to us in terms of the alternative solutions we might select as we address change in complex systems. In fact, "...our values influence the problems we recognize, the way we define them, the decisions we make, how we implement our plans, and even our understanding of cause and effect" (Miller and others 1994: 65). One value, especially related to natural resource management activities relates to what is known in the management literature as the "commitment principle". This principle suggests that support for an activity to achieve results in NRM should be long enough to fulfill, through a series of actions that may change to some greater or lesser degree over time, the commitment which is involved in making the decision to achieve the anticipated results at the people-level. This kind of commitment by USAID would have to be based on values such as productivity, sustainability, and equity. In order to meet that commitment, the Agency would have to represent its values in a set of "realistic expectations" which have been outlined in the management literature (Kirby as cited in Cleland and King 1965: 126):

1. Clearer understanding of likely future impact of present decisions
2. Anticipating areas requiring future decisions
3. Increasing the speed of the flow of relevant information
4. Providing for faster and less disruptive implementation of future decisions

4) How does the scope of the NRM problem (e.g., lake, river basin, watershed) determine the scale of the appropriate policy initiative (e.g., local, subregional, regional, national)? Planners and implementors must recognize that they must address each problem in a unique context. This context includes both spatial and temporal considerations. The context also includes those who have a stake in the problem. Some of the questions that must be answered a problem or set of problems in a systems are found in the recommendations section of "Backing Up From the Problem" (Part 2, Step 1, questions about the context of the problem) that follows.

C. Backing up from the Problem

Image

This is the story of "the prisoner in ancient Persia. He and his cellmate had been condemned to death by the Sultan. Knowing how much the Sultan loved his stallion, the prisoner offered to teach the horse to fly in a year in exchange for his life. The Sultan, fancying himself as the rider of the only flying horse in the world agreed. The other prisoner looked on in disbelief. 'You know horses don't fly. You're only postponing the inevitable.' 'Not so,' said the clever tactician." Why did the prisoner say that he was not postponing the inevitable? His response was "I have actually given myself *four* chances for freedom. First, the Sultan might die during the year. Second, I might die. Third, the horse might die. And fourth, you know, I might just teach that horse to fly."

Discussion

This story reflects the need for tacticians-cum-planners/implementors to back up from the problem(s) confronting them and look at them with a different and more creative set of lens. There is a tendency for planners and project implementors within the culture of development assistance to look at a problem and define it in narrow ways which limit the range of options available for solutions. In fact, many of these solutions continue to be used, whether they are appropriate everywhere or not.

There is also a tendency to define problems in ways that cannot be dealt with by the actions and resources available to implementors. This may require planners to back up from the problem(s) and begin anew with the definition which, in turn, may lead to a different solution or set of solutions, hopefully with different probabilities of success.

One of the critical issues that needs to be addressed when backing up from the problem is to differentiate between what the symptoms are and what the causes are. USAID tends to focus traditional solutions on symptoms of development problems rather than on underlying causes. While this makes solutions relatively simple to apply under a wide range of circumstances, dealing with symptoms rather than causes rarely succeeds. Backing up from the problem, in this kind of situation, means identifying and diagnosing the underlying causes of the problem and fashioning policies and programs that address them.

In the case of deforestation, the response to what many professionals define as the problem--the loss of trees--is a set of tree planting activities. The loss of trees, however, is typically symptomatic rather than causal. And, activities focused on symptoms can be designed, implemented and more easily measured relative to achievement of results at the field level. While loss of trees is symptomatic of deforestation, underlying causes include maldistribution of income, scarce resources, and population pressures. Obviously, developing "results packages" around these causes as compared to the symptoms may seem almost impossible because of the magnitude and complexity of the deeply rooted causes themselves. However, it is critical to

back up in these situations and focus policies and programs on the persistent and chronic causes of problems, as illusive and complex as they be. Doing so may be as important as achieving more easily measurable near-term results.

Many planners view natural resource management problems in Africa as separate from overall development problems. Responses dealing with symptoms (e.g., designating protected habitat areas) often appear to be dealing with the problem more directly than dealing with causes (e.g., addressing the incentives and constraints of whomever the habitat areas need protection from). However, if the cause of the problem is not addressed the intervention will only shift the problem to some other region or some other resource where the environmental consequences may be worse.

Recommendations/Considerations/Questions

Part 1: Good Questions Lead to Good Answers

One basis for backing up from the problem and evaluating the potential of an NRM initiative to achieve results is to answer to four basic questions:

1) What is the natural resource problem?
   Who defines it as a problem and why?

2) What is causing the problem?
   What set of incentives or constraints result in the behavior that causes the problem?

3) How does the initiative alter these causes?
   How will it change the behavior of those responsible for the problem?

4) How will the results of the initiative be evaluated over time?
   What are the leading indicators of project success and of project failure?

(For a more thorough development of these basic questions and how they should be addressed when evaluating specific NRM problems in Africa, see the summary results of the 1993 EPAT NRMS project.)

Part 2: Better Questions lead to Better Answers

Answering more detailed sets of questions can provide in-depth insights. One set deals with problem definition; the other with problem causes.

Step 1: Define the Problem

What Is The Problem?

- What event, change, or symptom signals or gives a sense that a problem exists?
- How do you want the situation to change or improve?
- What is the problem that calls for action?
  - Can the problem be stated as a "how to?" question?
  - Can the problem be stated as "which alternative?" or "what choice?" question?
  - Can the problem be stated as a "why?" or "what is causing this symptom?" question?
- What kind of action is called for by the question? Analysis of the cause? Decide? Plan? Monitor? Do research? Translate into policy?
- Can the call for action be rephrased as another kind of question that makes more sense in terms of action (e.g., a "how to?" planning question may make more sense rephrased as a "what to do?" decision question)?
- Is there a way to address this problem through practical action?

Is This My Problem?

- Do I have any responsibility for addressing this problem? Why? How much?
- Am I responsible for solving this problem?
  - To whom am I responsible?
  - For what?
  - Who is responsible to me?
  - For what?

  Do I have authority to address this problem?
  - Do I share authority?
  - With whom?
  - For what?
- What is my role in relation to the problem?
- Do I have a stake in solving this problem? How might my stake effect the way I define the problem?
- What is my stake in the outcome?
- What are my strengths to address this problem? To solve it?
- What are my weaknesses to address this problem? To solve it?
- What are my opportunities to address this problem? To solve it?
- What are my threats to address this problem? To solve it?
- Does it make sense to proceed?

How Should I Address This Problem?

- At what level(s) do(es) this problem(s) exist? Local? Regional? Provincial? National? International?
- At what level(s) are people affected by this problem(s)? Local? Regional? Provincial? National? International?
- Who has a stake(s) in the problem(s)? Who has a stake(s) in its solution?

- Do I have a stake(s) in the problem(s)? Do I have a stake(s) in its solution(s)?
- Does my organization have a stake(s) in the problem(es)? Does it have a stake(s) in the solution(s)?
- Who else has a stake(s) in the problem(s)? Who else has a stake(s) in its solution(s)?

- What do stakeholders stand to gain or lose?
- What is/are the context(s) of this problem?
  - What is the political (e.g., power, hierarchy) context of this problem?
  - What is the institutional context (e.g., administrative rules, other programs) of this problem?
  - What is the economic context?
  - What is the financial context?
  - What is the biophysical/ecological context?
  - What is the legal context?
  - What is the socio-cultural context?
- What resources are available to solve the problem(s)? What additional resources are needed?
- What are the constraints to solving the problem(s)?
- What opportunity(ies) does the context(s) present?
- What threat(s) do(es) the context(s) present?
- Who should be involved in solving the problem(s)? At what level(s) (e.g., individual, organization, political) can the problem(s) most effectively and efficiently be solved?
- Does it make sense to proceed?

Step 2: Finding the Cause

- What is/are the symptom(s) by which we recognize a given problem? What are the signs/symptoms that do not point to a problem?
  - How many symptoms do we observe or perceive?
  - How many symptoms do we not observe or perceive?
- Where do we observe or perceive the symptom(s)? Where don't we observe or perceive the symptom(s)?
- When do we observe or perceive the symptom(s)?
  - With what frequency do we observe or perceive symptom(s)?
  - How infrequently do we observe or perceive the symptom(s)?
  - How severely are the symptom(s) observed or perceived? How severely aren't the symptom(s) observed or perceived?
- What hypothesis(es) might explain the above differences?
- Does this/these hypothesis(es) explain all of the original symptom(s)?
- Why are we observing or perceiving the/these symptom(s)? Why is this happening? What is causing this/these symptom(s)?
- What effects (consequences, impacts) are we observing or perceiving that lead us to ask why this is happening?
- What are the assumptions of cause(s), symptom(s), and related effect(s) that shape the

definition and/or solution of the problem(s)?

- What hypothesis(es) might help us describe, understand and/or predict the consequences/effects of the fundamental cause(s) of the problem (i.e., why is it happening?)?
- How will understanding a problem's cause(s) equip us to predict the consequences of alternative solution(s) and to prescribe a solution(s) to remedy or improve the situation? What action(s) will result in a change in the symptom(s) and their related effects/consequences? (Adapted from Miller and others 1994)

D. Sleuthing for Relationships

Image

"A duke was hunting in the forest with his retinue of men-at-arms and servants; he came across a tree. Upon it, archery targets were painted, and smack in the middle of each was an arrow. 'Who is this incredibly fine archer?' cried the duke. 'I must find him!'

After continuing through the forest for a few miles he came upon a small boy carrying a bow and arrow. Eventually the boy admitted that it was he who shot the arrows plumb in the center of all the targets.

'You didn't just walk up to the targets and hammer the arrows into the middle, did you?' asked the duke worriedly.

'No my lord. I shot them from a hundred paces. I swear it by all that I hold holy.'

'That is truly astonishing,' said the duke. 'I hereby admit you into my service.' The boy thanked him profusely. 'But I must ask one favor in return,' the duke continued. 'You must tell me how you came to be such an outstanding shot.'

'Well,' said the boy, 'first I fire the arrow at the tree, and then I paint the target around it.'" (cited in Cohen and Stewart 1994)

Discussion

The relationship between the arrow and the target, although appearing straightforward and simple, is much more complex than first imagined. It was only with systematic questioning that the duke was able to determine the apparently incredible relationship between the arrow and the center of the target. This epitomizes the need for more indepth and insightful sleuthing for relationships especially relative to USAID's results orientation.

For example, a Mission in Africa had a Strategic Objective (SO) to increase agricultural production by removing trade barriers. One action involved removing tariffs on imported agricultural chemicals, making them less expensive and more accessible to farmers. Although analysts expected a positive effect on agricultural yields, they had concern about the potential environmental effects of such an action. Therefore, they identified indicators of water quality changes to monitor in areas where farmers applied the chemicals.

Another governmental action removed tariffs on automotive replacement parts used in agriculture. Planners developed a system to monitor imports of automotive parts as well as the amount of products moving from regional markets to the capitol and across borders.

The logic in both cases was linear. In other words, policy change affected agricultural production and marketing--and was based on specific chains of relationships. These relationships included new parts which experts believed meant better transportation which meant better access to markets for agricultural products and therefore more farmer income.

However, in natural resource and in economic systems, there are usually parallel and non-linear

effects, not just linear ones as those assumed above. In other words, new parts might mean better transportation which might mean better access to markets for agricultural products as well as better access to fuelwood in the natural forests. Under this scenario, the results may include more farmer income, but it may also increase in size of the peri-urban "woodshed" (woodshed is to wood as watershed is to water) and result in more rapid deforestation. The net effect may be good or bad, but it will be impossible to know unless project personnel recognize and monitor the direct, secondary, indirect, and induced effects of the removal of trade barriers on automotive replacement parts in different, less linear ways.

A look at the entire web of direct, indirect and induced effects might be similar to observing the ripples emanating from the point where a tossed stone hits the water in a pond. The outermost ring is comprised of Sos and each ripple represents an action, reaction or result. NRM is only a slice of this watery pie. The adjacent slice may involve population shifts. All the slices may run together with indistinct borders and no clear beginning nor end. As we think of our chain of logic joining results identified with each SO, it actually may be bifurcating and curving over into other sectors or slices of the watery pie. If the effects of many branching logic lines are further compounded with the aspects of time and space, the challenge of sleuthing for relationships becomes just that much more difficult.

In many ways, USAID's reengineering effort parallels a similar movement over the past few years in computer software engineering. The similarities are worth examining because they provide insight into where the USAID reengineering effort may be going and because object-oriented (rather than task oriented) software engineering provides a paradigm that might be enlightening to those reengineering USAID.

In general object-oriented software, such as the Windows operating system, are designed to manage large systems that are so inherently complex that no one person can really grasp the total system. Component parts or objects can be managed and understood, but the totality of the objects that make up the system cannot. The characteristics of object-oriented software that are relevant to the USAID reengineering effort are: 1) resources are allocated to the object package to do the task; 2) control is given to the package to do the task; and 3) resources can be shared between packages.

Software engineers were forced to come up with a way to design for large, complex systems that were both flexible and not prone to bugs. Since the more complex the systems are, the more prone they are to error, software engineers work in an inherently risky enterprise. However, engineers reduce the risk of errors in this context significantly by dividing the system into a series of small, manageable units called "objects".

A key characteristic of object-oriented systems in the design of software is that the objects may be highly self-contained but may be created from other objects. In contrast to the older structured programming in which a system is built and data are viewed in terms of input and output to the system, objects contain their own code and data. Object-oriented systems are a

response to the dual challenge of managing complexity and relating to the basic needs of end users.

With reengineering at USAID, projects which had been judged in terms of inputs (e.g., budgetary resources) and outputs (e.g., number of trees planted), are now evaluated using a results-oriented approach. Results packages (perhaps thought of in analogous terms as "objects") contain the staff, responsibility, knowledge, and funds to achieve a task and/or given set of results. And, just as objects may be created which inherit from parent objects (yet contain characteristics for a specific task), results packages may spawn sub-packages containing such things as: data, knowledge, personnel, and funds to achieve specific tasks or goals.

The distinguishing characteristic of a complex system that is reality-based rather than computer constructed is that it is intensely difficult for most individuals to comprehend all of the subtleties of the design, functionality and relational aspects of the system. In fact, the complexity of the system may exceed human intellectual capacity.

Natural systems are analog systems in contrast to computer systems which, by nature, have a finite, albeit often large, number of states. The natural system is a continuum. One can sample along this continuum, but these are only a series of snapshots of the state of part of the continuum at a particular point in time. Our frameworks are just a series of what our best guess of snapshots of interactions might be between human behavior and natural resources. This, hopefully, thought-provoking set of reflections leads to more specific consideration of some of the complex relationships that must be ascertained/sleuthed in USAID's NRM projects.

Initiatives to improve natural resource management in Africa are designed, presumably, to change the behavior of the natural resource users who are causing a problem. However, because the underlying systems are so complex, these initiatives often tend to differ from more conventional initiatives in two ways: timing (i.e., the length of time before improvements in NRM are expected) and focus (i.e., the reasons why improvements in NRM are expected). These basic differences require managers of initiatives in Africa to give special attention to one key issue that may be of only passing interest when evaluating other kinds of projects. The expected payoffs from these initiatives tend to rely on long chains of cause-effect relationships that are usually expected to take place over many years. Even when these relationships are well reasoned, the relatively long lag time between initial causes and final effects greatly increases the chance that economic, institutional, and environmental disruptions will result in unexpected outcomes. These initiatives, in other words, are enormously risky.

In Africa, the combined effect of rapid population growth, widespread poverty, declining agricultural productivity, increasing environmental degradation, political and economic instability, and frequent changes in foreign aid strategies creates an especially volatile environment for evaluating the potential payoff from any long-term initiatives. Moreover, because so many donor and lender strategies are likely to begin and end before enough time has passed for any given initiative to yield results, it is extremely difficult to attribute any observed NRM improvement or causality with any specific initiative. As a practical matter, this makes it difficult to mange

for results, and plausible associations may the best that monitors can expect to determine.

The behavior of natural resource users, those whose decisions have a direct effect on resource conservation or environmental degradation, is the obvious source of many NRM challenges. These resource users include subsistence farmers and hunters, corporate managers, and agency bureaucrats. Individuals within each group have common sets of objectives and constraints and can, in general, be expected to respond in similar ways to policy interventions. Therefore, it is important to tailor policy interventions to whichever group or groups are causing the problem (see section entitled "Backing Up from the Problem" for more detailed discussion of issues related to causes and symptoms of problems).

It is also important to understand which user groups are causing the problem and what motivates them. Managers of commercial timber or agricultural enterprises, for instance, maximize profits or sales, so they are responsive to interventions that affect corporate costs or revenues. Bureaucrats in natural resource agencies, on the other hand, may be motivated by power, job security, or career advancement, so they may respond quickly to political pressure associated with institutional initiatives but not at all to market-oriented initiatives. Subsistence farmers may be motivated by incentives and constraints that are difficult to affect through either institutional or market-oriented policy initiatives. Once a problem has been identified and the responsible natural resource users have been identified as the cause, it is important to characterize how their decisions are made before deciding where, when and how to intervene. Managing for results requires changes that will occur, if and only if, there is a sufficient change in incentives or constraints facing the full range of natural resource users to change their behavior.

Consider the typical objectives and constraints of a rural subsistence farmer who contributes to deforestation and loss of biodiversity loss. His/her objectives may be to satisfy simple family needs which may be classified simply as food, shelter, old-age security, and recreation. He/she pursues these objectives subject to certain constraints or factors including, but not limited to, family time, money income, knowledge, land tenure, access to capital. and access to water.

For purposes of illustration, assume that the farmer is poor and uneducated and does not have secure land tenure. Also, as a result of this constraint, the farmer does not have access to income, capital or other marketed materials. This means that all of the constraints listed above are severely binding with the exception of family time. Under these circumstances, the farmer's only strategy for meeting family needs is to select those activities that require family time and little else. This feasible strategy includes: extensive (slash and burn) farming for food, wood gathering for fuel and for building material for shelter, and having more children to increase family wealth and old-age security. These are all activities that contribute to the deforestation problem.

With more access to capital (farm equipment) or materials (fertilizer) the farmer might shift to intensive agriculture to provide food, or with more secure land tenure he/she might choose to cultivate wood for fuel and for building shelter. If the behavior of this farmer contributes to the NRM problem, the critical question is whether a proposed initiative has a reasonable chance of

affecting the decisions of such farmers fast enough and strongly enough to make a difference.

Recommendations/Considerations/Questions

1) Going back to the example of the relationships between policies to remove trade barriers that were discussed at the outset of the Discussion section, a number of useful questions arise: Is worsening deforestation as a result of the improved transportation, the responsibility of those who proposed the action? Should they have known? Should they have inquired about the potential indirect negative impacts of their decisions? Unintended effects are not necessarily unexpected; but how many linkages or layers of parallel, non-linear effects should be studied?

2) Because NRM initiatives take place over such long periods of time and often within the context of a perplexing poverty-development-environment nexus, they cannot be evaluated in conventional ways. Some basic analytical principals, however, can be applied usefully to evaluate the potential payoff from investments in these initiatives.The following recommendations are based on work developed in earlier EPAT work summarized in a 1994 report, entitled: Analytic Tools for Natural Resource Management in Africa.

a) Carefully examine cause-effect relationships

The links between a given initiative and measurable results are sometimes tenuous. Where success requires that the behavior of resource managers change in some significant way, the evaluation of any policy initiative must concentrate on how it is expected to change the objectives, constraints or incentives facing resource managers. In most circumstances, it will be useful to take the objectives of a resource manager as given and operate on the premise that unless the proposed initiative will change incentives or constraints, it will not succeed.

b) Consider a full range of alternatives

For any given problem or set of problems, a range of potential interventions usually exists. Tightening constraints on resource managers (e.g., stronger enforcement of protected areas), relaxing constraints on resource managers (e.g., improving land productivity in unprotected areas), changing economic incentives directly (e.g., through taxes or subsidies), and/or conditional cash payments may all contribute to a solution. There is a tendency for funding agencies to look for new solutions to new problems and to screen out policy alternatives that do not appear to deal specifically with the problem of concern. It is important to consider a full range of policy alternatives which deal with problems directly as well as indirectly. Of equal importance is the need to identify mechanisms to take advantage of opportunities as well as to remove constraints.

c) Distinguish between changes in behavior (improvements) and shifts in behavior (transfers).

Program evaluation criteria need to be broad enough in scope to recognize when there will be trade-offs in overall improvements in NRM and higher level impacts and when there will only be localized improvements. Improvements in environmental quality in one area are frequently paid for at the expense of worsening environmental conditions elsewhere. Changes in behavior that result in less exploitation of one resource often result in more exploitation of another.

d) Focus on sufficient, not just necessary conditions.

Forecasting results on the basis of individual initiatives usually requires many implicit and explicit assumptions about the state of the world and how it will change. Most initiatives cannot be designed to control all of the conditions necessary for success or to assure that all initial assumptions will be validated. However in most cases, managers must clearly understand and articulate the underlying assumptions upon which the success of the initiative depends. Procedures for identifying, characterizing, and monitoring key assumptions and testing their validity as a program proceeds should be an essential part of every proposed initiative. Managers should be encouraged to recommend mid-course corrections or even abandon an initiative when evidence that the conditions necessary for its success either do not materialize or no longer exist.

e) Deal explicitly with risk and uncertainty.

Because of the high level of uncertainty involved in these initiatives, they can be viewed as long-term exercises in hypothesis-testing. A similar interpretation that may be more useful is that they are exercises in the art of integrated risk management where risk, as defined by economists, in practical terms, can be taken to mean the volatility of potential outcomes. Designers and managers of such initiatives cannot be held responsible for failures. However, they can be held responsible for understanding and monitoring the critical factors that can cause the initiative to fail and for taking timely action to control or respond to them whenever possible. There will be occasions when long shots undertaken without consideration of risk and justified only on the basis of potential benefits will pay off. However, initiatives that are designed and managed to be risk-sensitive (i.e., to deal explicitly with the volatility of potential outcomes) will, on average, outperform and be less costly than those that are not.

E. Adaptive Management

Image

"Men with steel pickaxes are digging iron ore from a mine. You need iron ore to make steel pickaxes, you need steel pickaxes to dig iron ore. How can such a process start? Put this way, the answer is obvious enough. There are other sources of iron than deep mines; alternatively, you dig mines without iron tools if you have to. The moral is that you can get into a cyclic process from outside. The hard thing is to get out of it again; you can do that only by changing the process...." (cited in Cohen and Stewart 1994: 100)

Discussion

The tautological description above raises a clear challenge for USAID. That challenge is of moving from existing procedures and processes that have existed in fairly consistent form for many decades to new processes and procedures. That is the task of reengineering that is going on within USAID right now. The issue of process is critical to the concept of adaptive management (which will be discussed in this issue paper) much like it is in the story about pickaxes and mining ore as well as to the way USAID has done business in the past. It means creating conditions for being able to move from the outside inside but also to change the process.

Adaptive management is a concept that USAID may want to adapt and institutionalize in response to its hypothesis-testing approach to development assistance. Adaptive management describes a learning-while-doing, dynamical process or set of processes used by organizations and individuals to allocate resources in sometimes highly uncertain and/or high risk endeavors of hypothesis-testing. Adaptive management differs from traditional trial and error. It seeks to make measurements (in other words, do conscious monitoring and evaluation), so that action produces reliable knowledge from the experience. Adaptive management recognizes that there may be unanticipated outcomes, and it actively plans for them by collecting information. Adaptive management takes uncertainty seriously and consciously seeks to factor it into any environmental interaction. This is done by a process of explicitly stating what is expected, collecting and analyzing information so that expectations can be compared with reality, and by making the act of comparison the foundation for providing insights into the process of changing or stopping actions that are not appropriate.

The text below emphasizes a range of issues related to USAID's proposed hypothesis-testing approach and adaptive management. The discussion highlights the basis for better understanding of how adaptive management can be applied in USAID's more hypothesis-testing mode.

Managers must determine how much expenditure of time, financial and human resources is appropriate to invest in obtaining reliable findings (e.g., learned about what leads to successfully achieving intended results, failing to achieve intended results, or achieving other results that eventually may be evaluated as positive or negative) that guide more adaptive responses by managers. Timely and accurate information from the hypothesis-testing process must flow into

the management system. Adaptive management requires both timely and accurate information so that the system can diminish the continuation, multiplication and possible spread of problems. To some great degree, the accuracy of the response is independent of its timing. Accuracy requires both the right questions being asked and an information "translation" process (i.e., one that is complete, relevant and where analysis is correctly conducted) that does not contribute to major distortions of the information.

Adaptive managers have to make judgment calls, many of which end up in high cost and controversial endeavors. They need to be aware of the values guiding those judgment calls, the kind of information that form the basis for them and the kinds of risks they are willing to take relative to them. Adaptive managers must be constantly aware of the possible threats to the internal validity of the hypothesis-testing. Reducing the risks of these and similar kinds of threats is a major concern. Adaptive management, as a management approach and philosophy, gives legitimacy to the uncertainty that the hypothesis-testing approach is supposedly addressing.

Managers who are to be held accountable must have incentives to take risks associated with potential failure as well as authority to take action (e.g., terminate actions, allocate resources to other hypothesis-testing activities, manage to minimize short-term costs that failure might cause but which might produce valuable knowledge for future decision making).

Adaptive management must have a system of broader monitoring of the comparability of both its design and implementation of a given hypothesis-testing activity with the design and implementation of other tests. Otherwise predictability across cases is diminished, and blueprints may be imposed when some of the components are irrelevant to other situations.

Policy and management questions must be "translated" into testable hypotheses that are to be proved or disproved and to discover a "fact" that, in turn, can be "translated" into feasible management interventions. Therefore, managers must be aware that hypothesis-testing may be able to provide information that may eventually provide some statistical probabilities. Rarely does the information provide definitive answers.

A system for the creation, translation, diffusion and application of knowledge must be easily tapped and understandable by the adaptive manager. Therefore, the adaptive manager should play an active role in this knowledge system. In fact, adaptive management requires new roles for resource managers. These roles, however, create uncertainty and potential risk because are new and with little previous foundation. Managers themselves must adapt not just their practices but also their roles, attitudes, and interactions with those who have more traditionally been considered to be researchers and hypothesis testers. For example, managers must learn to hear and respond to relevant findings that may contradict what they have formulated in their plans. At risk often are the plans that have been the basis for the performance evaluation of project managers. At great risk, perhaps, are lost opportunities if managers do not take into account relevant results derived from new information

The social system of an organization which uses an hypothesis-testing approach typically shapes

and, to some degree, becomes shaped by the experimentation and hypothesis-testing that adaptive management requires. Adaptive managers need to have new social knowledge about the social system of the organization in which they function in order to be more effective. Unfortunately, technical professionals from non-social science fields rarely receive this kind of education and rarely have access to training in organizational analysis and related fields once they are in their professional contexts as technical experts

Knowledge about reality depends in great part on the kinds of questions asked about that reality. Therefore, adaptive managers must be aware of the kinds of questions that they are asking. They need to be even more aware of any changes in the questions that they ask as they receive new sets of facts as well as when they push aside older questions for political, organizational or scientific reasons. Thus, the temporality of questions is a phenomenon that adaptive managers must constantly track and understand. Changing questions may change the direction of actions that managers may be able to take over time.

It is not knowledge about the future that development professionals must deal as much as it is their beliefs about probabilities of occurrence or non-occurrence of events in the future. Adaptive managers must be clear about the assumptions they are making and differentiate between "knowledge" as compared to "beliefs" about the future. Adaptive managers also must be clear about having others share their beliefs about the future. It is important to emphasize that because individuals share certain beliefs does not necessarily mean that those beliefs about the future are true or even probable.

The role of client/customer interests, values, and needs are important to factor into adaptive management. Adaptive managers can be more responsive and effective because they have the option to initiate actions closer to the points where results and people level impacts are apt to be more rapid and direct. Adaptive managers also have channels of communications established which are less filtered and where issues are not likely to be thrown out or not considered. Adaptive managers should provide mechanisms for conflict resolution. These mechanisms should be less arbitrary or able to be swayed by more powerful voices (that are often more able to be heard at higher levels) than other more marginal but equally important voices. Adaptive managers should have incentives to provide a process whereby the learning community" is broadened and where relevant information can be introduced and analyzed by a broader range of participants.

The role of clients/customers in the analysis phase of hypothesis-testing is equally critical. Consumers/clients can contribute knowledge about the context that outsiders might never be able to obtain. They can provide alternatives that are more realistic to the conditions, constraints and opportunities that are available to the them at the local level. They also can provide insights about priorities, feasibility, normative structures, and ways that things operate at the local level. Even though cited last in this text, it is important to consider the implications of how this customer-oriented focus should be the cornerstone upon which adaptive management is built rather than the last piece that USAID teams put into place or the last partner they consult. The above information provides a context for better understanding the problems and potentials of

adaptive management as a response to seeking plausible associations and the new hypothesis-testing mode of USAID. However, USAID is not without its own experience in what might be called adaptive management and "rolling design. Some examples are:

Through a rural sector grant in Botswana, the USAID mission created a fund to support small initiatives. The activities for the first year were identified in the Project Paper. Subsequent year sub-projects were determined during an annual review, when the previous year's efforts were evaluated and the next year's were chosen from among the proposals submitted. The evaluation/review was a month long process using a short term advisory team.

A local resource management project in the Philippines was a 3-year long project to design a project. NGO and government staff were involved in a participatory process to develop appropriate initiatives. A second phase of 5 years was set for implementing the project components designed during phase I.

An agricultural management project in Kenya in its phase I had 75 percent of the funds for basically blueprinted physical input . However, the USAID mission set aside 25 percent in a fund to support small activities as they were identified. The Mission also reserved a separate pool for a wide range of short-term technical assistance skills. The final (third) year of phase I included a redesign exercise to determine the profile of phase II.

Recommendations/Considerations/Questions

In addition to the guidance provided above and existing experience with adaptive management/rolling design models, some additional recommendations include:

1) Adaptive management requires that development practitioners be explicit about their assumptions. This will help in separating "manageable factors from those that are "unmanageable".

2) Each "results package" must articulate specific methods and mechanisms for data collection and analysis. This will help adaptive managers determine at the earliest stages possible, whether the methods and mechanisms proposed will be adequate to judging the impact of any given results package.

3) Each results package should have clear and obvious methods for comparing expectations with actual experience. These methods should be applied in ongoing monitoring efforts as well as in more periodic evaluation activities. The production of information should be an explicit objective of each NRM initiative. And, USAID should evaluate proposals from contractors on their ability to illustrate that they understand what has succeeded and failed previously and why.

4) USAID should develop mechanisms by which results of learning from each results package feed back into future actions. This is especially critical if adaptive management

is to serve as a guide for better and more sustainable results packages. Learning should be treated as a highly valued output. As a valuable output, new information can save time and money and reduce risks in subsequent efforts.

5) USAID should develop procedures for validating assumptions and developing and monitoring "leading indicators of results package failure or success". Adding such activities and requiring busy USAID staff to use them will not come without costs. However, in high-risk ventures, learning from mistakes can yield significant long-term payoffs.

6) USAID should develop mechanisms by which "good news" stories or successful activities are continually highlighted and made available to employees across the Agency. The intent is not to pressure others in the Agency to follow these. Rather, these stories provide examples of existing experience or how things have been done in one place that may be drawn from as appropriate--for inspiration, for adaption, or for analogous learning.

7) Funding should be set aside in every results package for redesign efforts much as the examples from Africa above suggest.

F. Deployable Ports

Image

USAID managers are not the only decision makers making investment and resource deployment decisions in the face of political and economic uncertainty. One response by commercial and military leaders who are forced to make large-scale, long-term investments in physical infrastructure at risky sites has been to use deployable ports. These modular, barge-like platforms either can be assembled relatively permanently or they can be disassembled and recombined in different locations for different purposes. Indeed, they may constitute small-scale additions to pre-existing infrastructure, or they can extend to the size of a small city upon which roads, air strips, buildings, and other facilities can be installed and used.

More conventional investments in such sites involve constructing permanent land-based infrastructure which have a useful life and productivity determined, to a large extent, by site specific economic and political circumstances. These deployable ports, on the other hand, are mobile. They can be moved from site to site and from nation to nation in response to changing circumstances to avoid risks and take advantage of opportunities. Moreover, they can be redeployed at any stage in the construction of a facility because of their modular nature. Thus, they are reversible. The initiation of construction does not begin a process that must be completed for the facility to serve a purpose.

Although deployable ports have a higher initial cost (on a square foot basis) than developing a permanent on-shore site, their mobility and reversibility vastly expand their productivity, and in many cases their useful lives. Thus, they have salvage value that is based on their potential

highest and best use anywhere. In the face of growing environmental, economic, and political uncertainty and limited development assistance funds, it makes sense to invest in deployable ports and in other types of adaptable physical capital.

Discussion

Similarly, it makes sense to invest in human capital (e.g., in training, contracting, and institutional development) in ways that allow human resources to be adaptable and encourage them to adapt. This may involve costly and disruptive management actions, such as changing job descriptions, criteria for career advancement, contracting procedures, and so on. However, as with deployable ports, the payoff will be in terms of increased productivity, flexibility and impact. Indeed, the idea behind deployable ports captures the essence of many arguments for more flexible and customized approaches to international development.

The deployable ports image focusses on hardware and its repositioning. However, the idea can also be applied to the software of development strategies, including technical assistance, training, choice of implementing organization, problem definition, intended beneficiary groups, and data collection/analyses that constitute USAID-supported initiatives.

Mobility, reversibility, and salvage value concepts all can be used to improve the substantive and strategic aspects of USAID-supported development initiatives. Indeed, the review of proposals and investment designs could explicitly include these dimensions for scrutiny. Contingency plans and the "modularizing" of efforts would then become standard elements of proposed activities. The shift from project-specific targets to strategic objectives (Sos) would also benefit from the deployable ports analog. Programming at the SO level is very consistent with this perspective.

Likewise, these three attributes (mobility, reversibility and salvage value) could become key discussion points in evaluation and monitoring exercises. Evaluation report documents and implementation review sessions in missions might include their discussion as standard components of review processes. This language and thought mode could change the dialogue among staff and between USAID and host country actors, including governments, NGOs, and communities. And it could be used in efforts to build capacities among these actors, as well.

This would also apply to contractors. Since USAID is mainly a wholesaler of goods and services, the development software is shaped very substantially by the contracting template. USAID - contractor relations, then, need to be structured to share risk, reward repositioning, and support questioning of initial strategies and flagging of indicators that point to the need for course corrections. The deployable ports image could be used to guide the restructuring of USAID-contractor relations.

The following recommendations illustrate some of the potential applications of a deployable ports approach to international development assistance. Although individual items may be deemed more or less appropriate, the deployable ports image (and its constituent concepts of mobility, reversibility, and salvage value) may contribute to the debate about how to revitalize USAID and

equip the Agency for the demands of the 21st century.

Recommendations/Considerations/Questions

1) If a contractor identified the need to put funding into a different activity and take it away from the original design, they might be given a non-competitive contract addition for the redesign and a guarantee that their total revenues would not be reduced even if the budget for the redesign effort plus expenditures to date were less than the original total contract.

2) Contracts for long-term personnel could stipulate full benefits (eg, housing, schooling), compensation in case of loss of tax exemption, and an incentive payment in the event that redirection eliminated a position;

3) Equipment would be assigned to Sos and could be redeployed among contracts with USAID and contractor agreement; contingency funds could exist in each mission.

4) In the event redeployment that necessitated shifting from one national host organization to another, training or similar funds could be released for use by the losing organization as a standard practice. Also, some equipment could remain with losing organizations.

5) Contract money could be used for a public information campaign to let beneficiaries know what had been discovered and why the shift was to happen. Contract funds could go to efforts to soften the impact on local populations of a shift of effort and the contractor could be required to develop a plan for it. Participatory activities with villagers to compensate for lost revenues/benefits should be part of a redeployment plan when applicable.

6) There need to be flags and switching rules to alert managers to impending decision points. When the continuation of an activity constitutes a clear and present danger of adverse impact, a redesign plan must be initiated. Indicators (and trigger levels) of adverse impact should be in the Results Package. A minimum time frame showing deterioration of an indicator should be specified in the Results Package.

7) Unforeseen indicators should be allowed and agency-wide and bureau-wide annual awards for creative monitoring should be instituted (e.g., recognition, plaques). It should not have a direct money component; rather, it should focus on professional pride for a job well done.

8) Thus we are talking about changes in the basic rules of USAID-contractor relations. A key element in the switch from one set of rules to another is clarity. All participants should be clear about what is expected.

9) One of the concerns surfacing in the reengineering exercise is the need for prepositioned contracting instruments. Indefinite Quantity Contracts (IQCs), umbrella contracts and other mechanisms have been noted as useful means for enlisting the assistance of firms and organizations. This could also be extended to individuals. A retainer-type approach could be

used to obtain the services of identified professionals who are judged exceptional in their creativity and problem-solving abilities.

These individuals would be put on a contract that guaranteed them remuneration equal to 50 percent employment for a period of three years at a rate equal to the USAID maximum daily rate plus fringe benefits at 25 percent. They would be guaranteed a minimum of 75 percent of their actual time used at their base location, a maximum of 25% on TDY. They would be on call to respond to specific scopes of work. These "USAID Fellows" would be chosen from a pool of professionals nominated by USAID staff, consulting firms, and other organizations, including NGOs. Each year, a new class of fellows would be awarded 3-year appointments.

G. Avoiding Type Three Errors, or What If We Are Solving the Wrong Problem

Image

In statistics there are two kinds of errors that occur. One type of error is to conclude that something is true when it is not. Another is to conclude that something is not true when it is. But, there is also another type of error which involves looking at the wrong thing in the first place. This can be called a type three error.

Discussion

An underlying theme in USAID's reengineering effort is that too often the agency has been operating in a way that reinforces the chance of committing type three errors. For example, the whole-cloth imposition of a Project Paper as an accurate definition of a situation leads to suppressing new knowledge and making adaptation difficult. Contract management emphasizes adherence and compliance with delineated inputs and schedules rather than learning about local dynamics. Adjustment, refocus and problem redefinition are discouraged by the specifics of the management system and contract rules. This kind of problem reflects some of the factors that drive USAID to commit many type three errors.

For any given problem or set of problems, there is usually a range of potential interventions associated with both project and non-project assistance. Tightening constraints on resource managers (e.g., stronger enforcement of protected areas) or relaxing constraints on resource managers (e.g., improving land productivity in unprotected areas) or changing economic incentives directly through taxes or subsidies or conditional cash payments may all contribute to a solution.

There is a tendency for funding agencies to look for new solutions to new problems and to screen out policy alternatives that do not appear to deal specifically with the problem of concern. However, because environment - development - population problems in Africa are so intertwined, dealing with a problem directly (e.g., promoting ecotourism to protect biodiversity) may be more costly and more risky than dealing with the problems indirectly (e.g., by promoting regional

agricultural development). It is important to consider a full range of policy alternatives.

Program evaluation criteria needs to be broad enough in scope to recognize when there will be overall improvements in NRM and higher level impacts and when there will only be localized improvements. Improvements in environmental quality in one area are frequently purchased at the expense of worsening environmental conditions elsewhere. Changes in behavior that result in less exploitation of one resource often result in more exploitation of another. Establishing and enforcing protected areas, for example, may protect biodiversity in the protected area by concentrating more environmentally damaging behavior in unprotected areas. Reducing deforestation by providing incentives for "slash and burn" farmers to shift to more intensive farming practices, for example, may result in downstream damage to fish resources from increased agricultural runoff. The scope of the evaluation needs to be able to distinguish improvements from transfers or shifts in activities or sites where activities are occurring so that reasonable tradeoffs can be made.

Because of the high level of uncertainty involved in nexus initiatives, they have been referred to only half-jokingly as long-term exercises in hypothesis-testing. A similar interpretation that may be more useful is that they are exercises in the art of integrated risk management.

In designing and managing initiatives which entail an enormous amount of unavoidable risk it is important to analyze and monitor each factor that can affect the volatility of potential outcomes. Designers and managers of NRM initiatives may not be held responsible for failures. However, they can be held responsible for understanding and monitoring the critical factors that can cause the initiative to fail and for taking timely action to control or respond to them whenever possible. There will be occasions when long shots undertaken without consideration of risk and justified only on the basis of potential benefits will pay off. However, initiatives that are designed and managed to be risk-sensitive will, on average, outperform and be less costly than those that are not.

Moreover, initiatives can be designed to succeed, at least, at producing useful knowledge about cause and effect relationships and the reasons for failure. This should be treated as valuable project output which can save time and money and reduce risks in subsequent initiatives. Procedures for validating assumptions and developing and monitoring "leading indicators of program failure" should be an important part of all new initiatives. And, to make the most use of the wisdom accumulated in this way, protocols should be established for accessing and using information about previous programs. Adding such features and requiring busy USAID staff to use them will not come without costs. In high risk ventures learning from mistakes yields significant long-term payoffs. The production of information should be an explicit objective of each NRM initiative and proposers of new initiatives should be required to illustrate that they understand what has succeeded and failed previously and why. And there should be procedures to reward them for displaying that knowledge.

Indeed, the devil is often in the details. If hypothesis-testing, risk-sharing, accountability and a customer focus are to become central themes, then the details must support change. Otherwise

the new directions being proposed will be little more than rhetoric.

The relationship between the agency's business practices and development operations parallels the concept of a substructure and superstructure. The business practices act to guide what is possible in the development domain. Solving a contracting problem often overwhelms the limited time of managers, and their attention on substantive issues typically declines. Clearly, a reengineered agency needs a new substructure. In this case, one of the important "right" things will be looked and which, in turn, will reduce many of the factors that lead to type three errors in USAID as it reengineers itself.

Recommendations/Considerations/Questions

This discussion briefly explores some possible ways of building practices that support change in the way USAID does business. Given USAID's role as a wholesaler of goods and services to developing countries, the focus is on the interaction between USAID and contractors.

If contractors were involved in the design of an activity, they have a vested interest in proving they identified the key problem. If they are paid to impose solutions, that is what they will do. But if they are paid for developing new monitoring processes and substance, then that is what they will do. Sometimes professionalism will cause contractors to go against their own monetary interests, but this cannot be the guiding assumption about how the system works. Professional and financial rewards should coincide as much as possible.

1) To achieve this, contracts could contain bonus provisions (e.g., 2 percent of a contract total) to be paid, upon external review by USAID, only at selected points in the schedule and only as a result of high-quality data generation and analysis. Each contract would contain a short-term consultant budget to be used for this hypothesis-testing purpose.

2) Moreover, local capability must be built to monitor cross-sectoral impact, side-effects and changing situations.

3) Program designers should consider a full range of options and alternatives for solving perceived problems.

4) Designers, managers and evaluators should distinguish between changes in behavior (i.e., improvements that move toward goal achievement) and shifts in behavior (i.e., transfers that may simply export costs and problems from one place or sector to another).

5) USAID should deal explicitly with risk and uncertainty and treat learning itself as a highly valued objective.

H. A Cautionary Tale About Virtual Reality

Image

The Monday morning after Walt Disney presented its version of the battle of the Alamo, starring Fess Parker as Davey Crockett, a young boy came into the Alamo with his mother. He looked around for a few minutes and walked up to the Assistant Curator of the Alamo and asked: "Where did the tourists hide when the battle took place?"

Discussion

For this young boy, the "reality" of the battle he had seen on the television the night before began to collide with the reality of the context in which he found himself the next morning. The building he walked into looked the same as the one he saw on the TV screen. Some of the relics of the battle were on exhibit, including Davey Crockett's rifle. He overheard people around him talking about the battle. These were all pieces of evidence at the site which confirmed what the boy believed was reality from the night before.

Yet, he also began to bring information from his other perceptions on site. And, as he re-evaluated what he thought he had "known" to be true, he mixed it with the new evidence that he was observing that Monday morning. He dealt with the apparent contradictions by somehow superimposing the one way he thought he had understood the world from the evening before onto the way that he was now seeing the world. And the convergence of these two messages came together in a seemingly inexplicable and perhaps even bizarre juxtaposition of virtual reality and reality.

This illustrates well the way that many professionals bring views of how they think the world was/is supposed to have worked or does work and superimpose them on a context where the reality appears and is often very different, one where new information contradicts beliefs. This is one of the real challenges that all of us as professionals must constantly come to grips with in our work. We have been trained to think about how the world "should" work, but that does not necessarily converge with the reality that we confront when we go to the field. We often have different assumptions, ways of defining problems, selecting the problems on which we will work, thinking about alternative solutions to problems. All of these may or may not be the same as the colleagues with whom we work and more importantly, they may not be the same as those held by the local resource managers who farm, herd, hunt, fish and do other things that meet their needs and desires.

In fact, we often superimpose our view of the world on a world that exists, and we may come up with a similarly strange question as the one that the young boy asked at the Alamo.

aOne useful example is the way that many protected areas in Africa and other parts of the world are designated but exist only on paper. The designation of these areas create a sense that protection exists. However, it is illusory in most cases. The "bubble" of reality is burst when

it becomes evident that domestic animals are invading "protected" areas, when poachers enter and exit with little or no hindrance, and when local people have no regard for conservation of biodiversity if it means lack of access to previously free goods that provided them with goods and services that their households need for subsistence living.

Interestingly enough, many development specialists often find themselves in similar situations, trying to make sense of reality when they have no direct access to it. One poignant example is found in Volume IV of the series entitled Opportunities for Sustained Development: Successful Natural Resources Management in the Sahel. This specific volume focuses on the issue of conservation of biological diversity. In Chapter 1, the primary author focussed on the issue of biodiversity in three West African nations. However, at the bottom of the chapter's first page, he wrote that the team had no time to visit any of the parks or habitats about which they were writing, they rarely had time to discuss their findings with ministry representatives. Additionally, they had no time to "investigate any one area of biodiversity concern...".

There is nothing of reality represented by this kind of situation. However, in highlighting the above named report, we do intend to denigrate the work of the team that worked on it. We merely use this as an example of what has happened to most, if not all, development specialists at one time or another. We are asked to do tasks that are impossible to perform and yet we produce what may be reasonable results because of our previous experience, our insights, or our ways of thinking about the world that we have been educated to apply to our work. But, reality may not be observed directly which obviously affects the representations made in our writing.

These ways of thinking about the world are also called "cognitive maps", and they shape:

1) how professionals think about problems;
2) how professionals set boundaries on the very problems that they decide to address;
3) the delineation of the plausible associations that are supposed to guide the design of "packages" of results that they hope to achieve;
4) definitions of what professionals will see and accept as evidence which supports or rejects whatever plausible associations they perceive;
5) the parameters from which professionals select indicators to monitor those relationships;
6) artificial but useful categories by which professionals organize and analyze the information that comes to them through research and/or monitoring; and
7) the limits set on the kinds of recommendations professionals might make about how to manage to achieve the intended results or about achievement of the results themselves.

One of the important ways of getting around these problems is collective problem-solving. (Also refer to the Systemic Relationships issues paper that appears in this document.) It provides a forum where context-specific assumptions can be articulated and tested. It provides a mechanism for discussing and challenging misconceptions that the myopia of disciplinary tribalism often exhibits. It also provides an arena where hypotheses can be laid out about both the problems and the problem-solving strategies being proposed or applied. All of this permits an environment where team member practitioners begin to move through stages of finding new meanings,

becoming more effective individually and collectively, and achieving greater efficiency. It is not clear how much of this process will involve or improve the capability of "virtual team members", however.

One of the challenging concepts being proposed by USAID is the use of virtual team members. In theory, they are given the role of providing, from a distance, input into the problem definition, rolling design of activities, and achievement of results. The value of these virtual team members is supported on one hand by the accessibility and acceptability of expanding electronic communications. They also provide an additional set of individuals and perhaps even a different level of players in the hierarchy amongst which team risk-taking can be shared. Yet, that same value may be clouded by the downside of relying on the primarily electronic medium by which virtual team members are expected to interact.

With limited funding for USAID direct hires to travel, this may be the only way they are able to interact. This leaves them with few alternatives. They may constantly find themselves in a situation of bringing old or inappropriate images and beliefs to the "table" with the group of people sitting at the table having a different sense of reality. In some ways, it parallels (and may even exacerbate) the often criticized practice of not getting local peoples' input.

Recommendations/Considerations/Questions

Among other things, USAID needs to look more closely at the role of virtual team members.

1) How will they be "integrated" on teams? The BAA Operations Report suggested that the composition of the teams may include "Core" members and "Expanded" members. Among other things, team building in this kind of context may be extremely difficult without developing new mechanisms for interaction. At this early stage, USAID should begin to systematically investigate the burgeoning experiment of Core and Expanded teams as they begin to operate. Lessons learned about how these teams work would assist in identifying problems of operating in a virtual reality mode and perhaps identify means by which to improve the functioning of these new teams.

2) How will members be evaluated--will it be for their ability to be "online" in an instant, for their ability to write well no matter how good their thoughts are, etc.? New performance evaluation criteria need to be developed. Perhaps, new ways of having group input into the evaluation of team members might be an important step in moving toward more collaborative action and management.

3) For what can team members (both on the ground and "virtual") be held accountable? If direct hires from Washington are to be the among the virtual team members, how will they be able to provide appropriate input if no funds exist for them to travel (except by surfing cyberspace) to the countries and sites where they have a role to play in planning and management?

4) The problem of developing and maintaining a "team" that can provide consistent input

over time will be an ancillary problem. Will this be continue to be affected by moves of direct hires every 2-4 years? How can these problems be mitigated?

5) The section on Adaptive Management that precedes this suggests some of the issues that field managers need to be aware of such as their greater ability to work with local people to ensure that appropriate hypotheses are tested and to obtain local input in data collection and analysis as well. The more distant any members of the team are from the site and/or culture, the more likely it is that they will be in the realm of virtual reality.

III. Reflections

A. Key Images and Issues

The Introduction and Issues Papers in this report present some ideas and suggestions pertinent to USAID's reengineering effort. This final section restates some key images and issues and then briefly discusses some of their implications for the monitoring of activities within the agency's new operating mode.

Sherlock Holmes would have loved them--sleuthing for relationships, the case of the missing cats, and the problem of the Persian Prisoner. Indeed, just as Holmes would have, they all focus on what is not initially obvious. However, the purpose of these images is to imprint on our minds the importance of that which is not readily apparent yet still holds the clues to success--to make it "elementary, my dear Watson".

A key image present in the Issues Papers is the one of the missing cats. Developing a good impact monitoring strategy requires knowledge of the system within which USAID interventions occur. This means that the importance of unintended effects may outweigh the intended ones. Albert Hirschman called this "the centrality of side effects". The missing cats image warns us to remember it.

Another key image is that of deployable ports. Rather than issuing a warning, this image offers an option for action. It presents a set of solutions to a given kind of problem instead of a signal to avoid the problem totally. The component parts of the deployable ports analog--mobility, reversibility and salvage value--add detail to the image. Project managers can design, manage, and monitor for these dimensions. This is an image to keep before us as we set about proposing new business practices, new documentation, or new relationships and structures for a new USAID.

A third key image comes from the Alamo. Satellite and computer technology have linked us together in cyberspace, but they have yet to change our thought processes. The image of virtual reality is there. But, as the young boy's question about where the tourists hid while the battle of the Alamo was taking place reflects the conceptual baggage that limits many of the real and necessary connections humans have with reality. The Alamo also carries another meaning. Regardless of debatable historical "facts", it has come to symbolize a heroic effort resulting in defeat and massacre--a kind of "noble" Waterloo. This, too, is a warning. For USAID's reengineering effort to succeed, we need to think in new ways. Just adopting new technologies will not do it for us.

Other images in the text provide a range of reflections. They all point to a new for new monitoring approaches in a reengineered USAID. If it becomes a new agency doing new things in new ways, then it will need new strategies for monitoring not just its outcomes but also the processes it uses to achieve those outcomes.

B. Some Reflections on Key Issues to Use in Monitoring for Management to Achieve Results

A guiding set of principles for monitoring arises from what Peter Senge in his book, The Fifth Discipline, describes as the need for organizations to transform themselves into learning institutions, which encourage: 1) open and continuous dialogue, 2) collective learning, and 3) mutual reflection (St. John 1990). Senge (1990) states that:

> It is no longer sufficient to have one person learning for the organization.... It is just not possible anymore to 'figure it out' from the top and have everyone else following the orders of the 'grand strategist.' The organizations that truly excel in the future will be the organizations that discover how to tap people's commitment and capacity to learn at all levels in an organization...
>
> And team learning is vital because teams, not individuals, are the fundamental learning unit in modern organizations.... The discipline of team learning starts with dialogue, the capacity of members of a team to suspend assumptions and enter into a genuine 'thinking together.'

This philosophy suggests that it is possible to work with people (as a "learning community") within any given system or organization. Members of the learning community can develop their own opportunities and mechanisms for collective learning. They can work together to improve the system or organization in certain of its parts or as a whole (St. John 1992).

With these assumptions and philosophical underpinnings, monitoring and evaluation take on an important role in institutional process and productivity. However, they also point to the need for differences in the way of doing monitoring activities. Among the differences are: 1) changes in attitudes about engaging customers/field implementors in the monitoring process; 2) providing new environments and opportunities for social interaction, learning and decision-making; 3) redefining roles and responsibilities to challenge customers/field implementors to participate directly and actively; 4) identifying of appropriate points and levels of accountability; and 5) opening up opportunities for new kinds and magnitudes of potential positive project outcomes because of a greater focus on opportunities to change than on constraints to change.

Today, implementors of monitoring programs must employ approaches that are:

> ...proactive in explaining their work to external audiences. They must be clear about who they are, the assumptions upon which their work is based, and the priorities they are addressing. They must demonstrate to external audiences that they have a well-reasoned strategy, and that through this strategy they are likely to make significant contributions...They must also demonstrate that they are not fixed in one model, but rather they have the ability to learn from their experience,

> to draw upon other's research, and to alter their strategies and priorities appropriately. If [they] are not successful in explaining their mission, and the ways in which they are fulfilling this mission, they will fail to fill a vacuum--and they will be measured against external criteria which may not be congruent with their actual purposes. (St. John 1992: 10)

One of the major challenges of a monitoring system of the sort proposed above is that it serves as a mirror. The new monitoring mirror reflects both reality as well as the model(s) of reality that those doing the monitoring have constructed about that reality. For example, by challenging our assumptions, expectations, and hidden traditions during the monitoring process, we have an opportunity to make our understandings and models become more congruent with reality that we are actually encountering (St. John 1992).

The kind of monitoring system proposed, therefore, promotes local learning, develops local capacity, and focuses less on judging "effectiveness". Because of this approach, monitoring activities, must be open to questions, criticisms, challenges to assumptions, and diverse and independent checks on reality. The objective is not for the monitor to become more capable of proving the certain outcomes have occurred; rather it is for the monitor to have a better set of tools for understanding a given activity or set of activities and to be able to be creative, responsive to, and responsible with new information that arises in the monitoring process (St. John 1992).

As team members discussed and wrote about the topics in the previous sections, certain concepts began to appear relevant to concerns about monitoring for management to achieve results and especially to monitor for risk and uncertainty in this learning environment. The following list begins to articulate some of the key issues that might be addressed in this kind of monitoring effort.

1) <u>General Characteristics</u>

- Flexibility--within the bounds of quality, to be able to respond to changing conditions or situations; staying light on your "mental" feet

- Adaptability--capability to adjust or accommodate to situations, especially readiness and ability to make modifications based on new information; being aware of relevant changes and responding in timely and relevant ways to those changes

- Reversibility--capable of going through a series of changes or actions to reduce risk or avoid loss

- Redundancy to reduce risk and overcome uncertainty, thus providing margins of safety for consumers and project implementors

- Abstraction--ignoring those aspects of a subject that are not relevant to the current purpose in order to concentrate more fully on those that are

- Encapsulation--used to localize volatility; keeps content together; minimizes "traffic" between different parts of the effort; contains risk

- Ability to "translate" information into effective and efficient management action

2) Monitoring Risk

- Understanding and managing factors that are known to affect risk

- Monitoring factors that contribute to uncertainty

- Accessing and using information about previous programs as appropriate

- Monitoring "leading indicators of program failure"

- Monitoring linkages and relationships in total system

- Risk sensitivity--how personnel explicitly deal with the volatility of potential outcomes

- Using appropriate time away from routine responsibilities to:
  - recognize what conditions need to remain the same and what conditions need to change in order for the initiative to succeed
  - monitor those risk factors that will indicate whether the necessary conditions will exist or not
  - act to control those critical risk factors that can be controlled
  - react in a timely and responsible way to changes in those risk factors that cannot be controlled.

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