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Collaborative Approaches for Building Capacities in the Management of Natural Resources

Gigi Manicad and Zenete França



Natural resource management is extremely complex due to the diversity and interdependence of ecosystems and the actors involved at local, national, and international levels. Effective management of natural resources requires constructive interaction among actors so that knowledge and expertise can be shared to facilitate understanding of the complex issues involved, negotiate solutions, and continuously learn from these experiences. The purpose of this paper is to stimulate reflection and discussion on capacity building that integrates approaches and methodologies that foster multiactor learning through action research. This is a break away from the traditional linear view of research, development, and dissemination, in which knowledge and technology are generated by elite institutions and then transferred to the target groups through extension and training. This paper presents a number of strategies and a methodology for collaborative approaches to capacity building for natural resource management. These new approaches focus on a learning process that is expected not only to foster the development of new capacities, but also produce fundamental shifts of mind set, both individually and collectively, by linking professional with personal and social development.

Introduction: Capacity building beyond training

In the dawn of the new millennium we are witnessing increasing gaps between knowledge-based societies and knowledge-impooverished societies. In short, we can associate impoverishment with knowledge erosion and development with knowledge accumulation. The knowledge base of knowledge-impooverished societies is steadily being eroded due to dismantled social networks, as a result of dramatic changes and displacements due to migration, war, environmental degradation, unfavorable markets and technologies, diseases, and so on.

Many poverty alleviation efforts to date have been focused on transferring technology and information through training. However, these efforts are often unsustainable. The vast diversity of contexts greatly limits the traditional transfer of technology model as it tends to impose ideas without accommodating local knowledge (Chambers et al., 1988; Rolling, 1990). Reversing knowledge impoverishment requires developing capacity to generate knowledge sustainably so that innovation can take place through continuous adaptation and/or invention (Manicad 2004). Contrary to the conventional transfer of information and skills

through training, a cumulative learning process needs to be cultivated so that individuals are able to link new information to their own context, and hence, potentially generate their own knowledge (Bruner 1996). Furthermore, because expertise is socially distributed, social networks need to be strengthened so that this knowledge is shared.

As an approach to counteracting impoverishment, capacity development is not just about the transfer of know-how but more importantly, of the ability to generate, interpret, and apply knowledge. In this regard, a holistic view of capacity building implies more than training intended to bring about predefined outcomes. Instead capacity development is an ongoing process of continuous learning to adapt to changing environments and bring about change (Horton et al. 2003). "Capacity development is the process by which individuals, groups, organizations, institutions, and societies increase their abilities to: (1) perform core functions, solve problems, define and achieve objectives; and (2) understand and deal with their developments in a broad context and in a sustainable manner." (UNDP 2000). Capacity building does not stand in isolation. It needs to respond to specific socioeconomic and political contexts, in which institutions and their programs provide support and allocate resources for development.

Linking human capital to social capital

Training is often useful but not always sufficient to achieve broad development goals. The introduction described a shift from the narrow focus of training to the broader approach of capacity building, whereby instead of transferring information and skills, people are enabled to enhance their own knowledge, skills, and attitudes in order to respond to, or even to direct, new innovations and/or rapid changes. This section will now discuss the link between the individual and social learning and knowledge generation and how this influences investments in capacity building in response to poverty eradication.

The growing realization that poverty and sustainable development cannot be addressed by technical and economic solutions alone, has led to interest in investments in human capital; bringing about changes in the skills and capabilities of individuals to enable them to act in new ways (Coleman 1988). This has led to international technical cooperation, such as individual training and education, often being geared towards accumulating human capital, with the assumption that this leads to economic growth. Unfortunately, as cited by UNDP, technical cooperation had seldom been managed as a development tool. When divorced from its social context, training and education can only have a very limited impact on sustainable development.

Learning is "a change in a person's behavior resulting from experience" (Dainow and Bailey 1988). Human behavior is not governed solely by economic rationalities, but more importantly, by norms and values that are socially constructed. Learning and knowledge generation are highly individualized, but do not take place in isolation as societal context and social interactions influence how and what individuals learn and the knowledge generated (Anderson et al. 1997). Therefore, investments in human capital will only have a limited impact unless they are effectively linked to social capital. While human capital focuses on individual agents, social capital focuses on relationships and networks (Schuller and Field 1998). Social capital is defined as "the features of social life – networks, norms and trust – that enable participants to act together more effectively to pursue shared objectives" (Putman 1996 in Schuller and Field 1988).

Social capital is governed by three forms of relationships that are essential for effective learning for development (Schuller and Field 1998): (1) personal communication and relationships which cultivate the value of learning as shared with others, (2) institutional relationships through which different institutions communicate, collaborate, and compete with each other, and (3) relational knowledge in which diverse types of knowledge, for instance local and scientific knowledge, are combined and then applied to a specific context.

Social capital is not an alien concept. It is universally recognizable but varies in form and degrees according to its context. Increasing social capital is a public good in natural resource management, and in other complex situations. Generating social capital can facilitate collaborative knowledge generation for managing change, resolving conflicts, negotiating solutions, sharing resources, and enhancing cooperation amongst multiple actors in diverse agroecological and livelihood systems. For example, the Convention on Biodiversity (CBD) advocates an "Ecosystem Approach", which encourages collaboration and shared decision-making in biodiversity management (CBD 2000).

Social capital is important for capacity building, as personal and business relations can create a learning environment. The trust and commitment developed through these relationships can be used by the various actors to collectively build on their shared knowledge in order to negotiate a plan of action for managing natural resources which takes into account both the diverse interests and common goals of the various actors (Manicad 2004). As an example, in many poor villages in Asia and Africa, risk management of crop biodiversity could include technical solutions such as seed storage techniques. However, the social relations that facilitate seed exchange, particularly in times of crisis, are equally important. Therefore, a training course could show the individuals effective methods of seed storage but this needs to be complemented by strengthening the social relations that enable communities to effectively manage their seeds.

Capacity building strategies

Given complex and constantly changing realities and perspectives; and given that knowledge for coping and managing realities is socially distributed, there is no single, ideal approach to capacity building. For over 10 years, ISNAR has produced more than 70 learning modules, on subjects ranging from management of agricultural research, law, and policy on the management of plant genetic resources, to facilitating agricultural innovation processes. All of these modules were produced in collaboration with many organizations. Over the least three years, this has diversified and intensified, and has included collaboration on project development. Based on our experience and the lessons learned from this, we propose the integration of eight strategies for fostering complementary interventions in capacity building. The eight strategies are briefly described here:

1. *Employ a holistic approach to development by integrating the various domains of learning.* Cognitive learning is a widely accepted field and is the main basis of education in academic institutions. However, human capacities also need to be developed through affective learning. This refers to a domain that focuses on internal change or processes for personal social development. It focuses on feelings,

emotions, morals, and ethics. Affective learning deals with intrapersonal behaviors (self-worth, creativity, being well-rounded) and interpersonal skills (communication and interpersonal relationships) (Martin and Reigeluth 1999). Modern theories of psychology and philosophy increasingly recognize the interrelationship between thoughts and feelings. Indeed the affective domain may actually dominate the cognitive. New brain theory claims that: "the state of emotional nuances is the organizing structure of thoughts and knowledge" (Martin and Reigeluth 1999). In experiential learning, emotions also mediate how we process and generalize our experiences. In science education the affective domain is very important. Science is a social activity. Yet in education systems, students are often only equipped with the scientific method for doing science. The deeply rooted emphasis on objectivity in science has made the subjective and personal taboo (Manicad 2004).

The integration of affective and cognitive learning enables the discovery and perception of new relationships and facilitates insight and understanding. Topics for learning could be broadly categorized into technical (e.g. plant genetic resources conservation), social processes (e.g. facilitating linkages among actors, appraisal of knowledge systems), and personal (e.g. inter- and intrapersonal skills and psychological processes). The technical, social, and personal learning topics need to be well integrated because in reality these are not segregated. For example, to implement participatory plant breeding, a researcher needs not only the tools (e.g. participatory varietal selection), but also an understanding of the social processes (how seeds are valued and exchanged). Moreover, on the personal level the researcher needs the ability to be open to new ideas and establish trust and develop relationships with colleagues and farmers. The individual's own roles in these contexts are also to be analyzed and enhanced through reflexivity. Changes in attitude and behavior are especially crucial in building capacities that foster multi-actor learning and action research, where expertise is no longer the sole domain of researchers.

2. *Mobilize innovative partnerships for complementary interventions.* Natural resources management involves a complex, diverse, and interdependent set of agroecological systems, knowledge systems, livelihood strategies, and social relationships between the people and institutions concerned with the management and utilization of natural resources. Such complexity and diversity calls for a holistic approach to capacity building. It is very difficult to find a single organization that can provide all the expertise required. Collaboration between specialized institutions to create interdisciplinary expertise (horizontal collaboration) and at a multitude of different levels from households, communities, and national and international structures (vertical collaboration), requires both time and resources. Therefore the value added by such partnerships needs to be well defined and appreciated by all concerned. This requires open

communication, sharing knowledge and expertise, shared objectives, well-defined plans and responsibilities, sources of funding, accumulation of trust, and embracing the values and norms that espouse such partnerships. A confident and nurturing leadership is very important to create synergy and coherence in such diversity.

3. *Generate social learning to foster collective action.* "While learning is highly individual, learning is most enabling and empowering when the process is collective and collaborative" (FAO 2003). Social learning is the way in which people interact and influence each other to form knowledge that is relevant to their lives. It is based on the assumption that knowledge is socially constructed by groups of people. We can therefore view learning as a complex of social relations. Learning enhances the awareness, capacities, and action of actors within and among social systems. This brings individual "learning by doing" (experiential learning) to learning within a given social context, given a collective goal. Through social interactions, different people with different values, tools, and perspectives negotiate towards complementary perspectives and behaviors that lead to concerted actions.

Social learning principles challenge the conventional view of research, which is an isolated process of inquiry amongst scientists. Instead research could be undertaken as a learning process amongst a community of actors. Social learning is a strategy for diverse knowledge systems to generate collective knowledge that is connected and meaningful to all (Manicad 2004). Shared learning and collective generation of knowledge enables the actors to better understand, plan, and take actions accordingly.

However, social learning is often confined within homogenous knowledge systems. In terms of pedagogical/ andragogical (how adults learn) development, there are well-established concepts and methodologies in terms of how individuals learn. There is also a growing literature in terms of how organizations learn. However, there is very limited literature and even more limited experience in terms of how different actors from different institutions and knowledge systems learn from each other (Manicad 2004). Much pioneering work is needed to develop concepts, methodologies, and ways of measuring such impacts.

4. *Demonstrate the principle of "learning by doing".* The central focus of this principle is that learning and behavioral change are a result of experience, in which the learner discovers personal meaning and relevance of ideas (FAO 2003; Dainow and Bailey 1988). The experiment and observation cycle in Figure 1 illustrates how farmers conduct their research based on real life questions, formulate a hypothesis based on their own perceived possibilities, and formulate their conclusions based on their experience through experimentation. This is an example of experiential learning.

5. *Enable learners to influence the content and process of learning.* Learners are the main source of knowledge and experience. Good facilitators or trainers merely provide the framework for eliciting, orienting, and systematizing the knowledge and experiences of the learners. ISNAR has developed well-established learning methodologies wherein the facilitators only provide 20 percent of the input during learning workshops, and the rest are elicited from the participants' contributions. Through a strategic learning cycle (Figure 2), the learners contribute to the content of learning materials from diagnosis and planning, right through to evaluation. This framework helps ensure that all learning materials are validated according to the context in which they are used.

6. *Apply capacity development as a strategy for empowerment.* Capacity development is not something outsiders can do for people; it is something that people must do for themselves (UNDP 2000). To develop capacity, the most crucial undertaking is not the transfer of know-how to people, what counts most is assisting people to empower themselves to be able to access, process, generate, and apply knowledge in their own context. Fostering a learning environment and critical thinking amongst people helps to enable them to challenge the status quo, and generate and commit to liberating alternatives for effective social change (Agris et al. 1985). Real examples help contribute to policies that nurture and govern enabling environments. People empowerment requires long-term commitment and partnerships, especially with experienced grassroots organizations.

7. *"Training of Trainers" ensures a "multiplier effect" and sustainable impact.* ISNAR had been refining and applying the "Training of Trainers" (TOT) approach which prepares participants to facilitate and take full ownership and control of their own capacity building. At the heart of this approach is the fundamental principle that capacity building is something that people must do for themselves, and the principle that people can actually develop their own capacities. The TOT approach helps ensure learning (experience and practice) and guarantee that, at the end of learning activities, the participants are "equipped" not only with their own development (new knowledge, attitudes, and skills) but also with a series of learning plans to guide them when carrying out events that promote opportunities for other people's development in their communities. Project partners can identify strategic organizations and innovative staff and farmers to be trained as trainers. A country plan can be designed accordingly. In addition, mentoring and apprenticeship are useful for building competences.

8. *Complement formal and informal education to ensure comprehensive development at all levels.* Most capacity building interventions, particularly by research institutions, are geared for professional development. While continuous education and training are important, responsive professional development could begin early on, from primary to university levels. At the same time, many real-life research results could be integrated in the formal education curriculum. One challenge is how to translate these competencies into appropriate curricula.

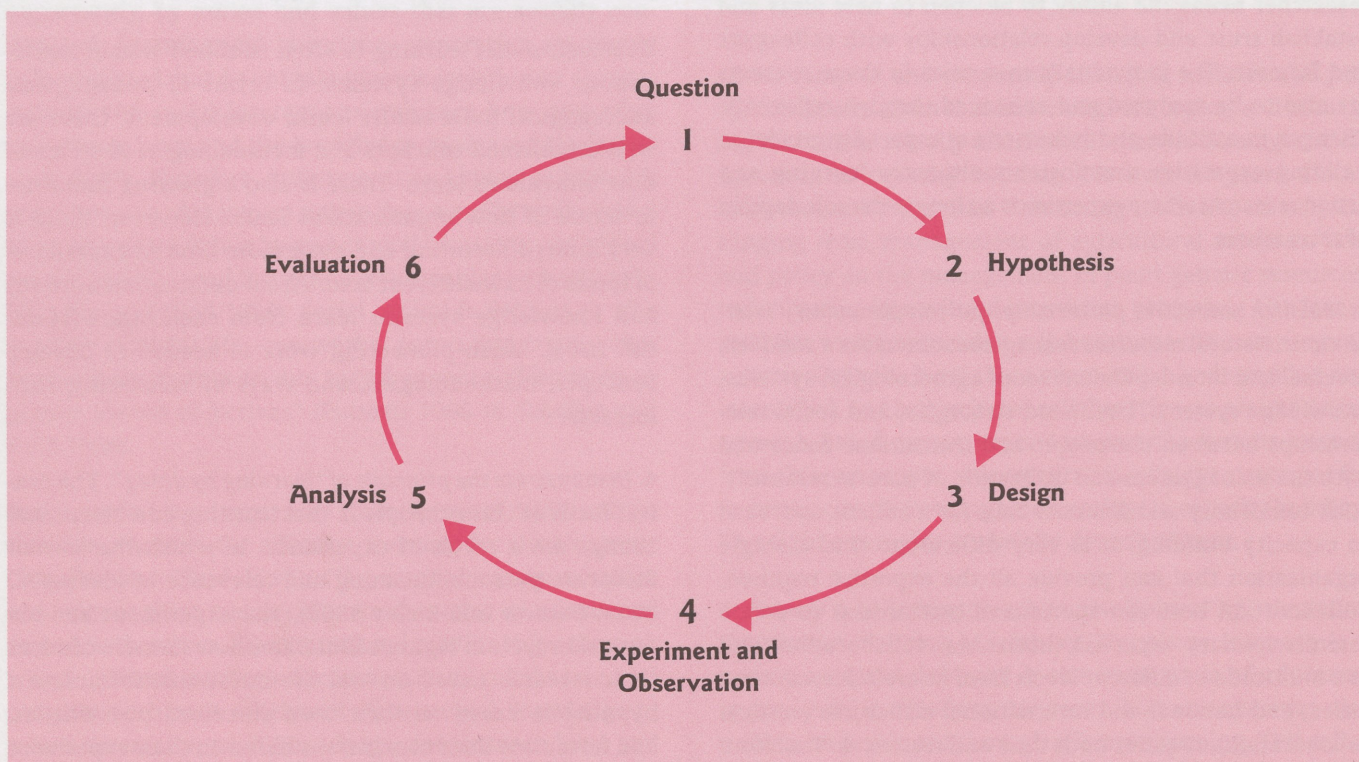


Figure 1. Experiment and observation cycle. Source: FAO 2003

An approach for integrating capacity building strategies: Research-based capacity building

When dealing with more complex environmental and social issues, we highlighted the need to collaborate with partners in order to draw in more expertise. We also highlighted the dynamic role of learners, not as passive absorbers of information but as active contributors to knowledge generation, and as active players in the development of their own capacities. Over time, ISNAR has developed and consistently applied a strategic learning cycle in which the learners take an active role in setting the objectives and implementation of their learning needs (Figure 2). From our experience in applying the strategic learning cycle, and from developing action research projects, we are developing a methodology whereby the learners take a more active part as researchers. This methodology is particularly useful when there is a need for collaborative problem solving, and a need to correspondingly develop and apply new capacities through social learning.

Research based capacity building (RBCB) is drawn from a combination of action research methodology and Kolb's experiential learning cycle (Kolb and Fry 1975), as adapted and applied by ISNAR for the last seven years. RBCB involves *collaborative inquiry and action* to develop a common understanding about a specific problem in order build capacity to design and implement action to deal with the problem. As it deals with real world situations, an interactive *process of responsive reflection* is practiced to constantly improve both the action and research outcomes while building specific capacities. RBCB differs from conventional approaches to capacity development in which researchers do the research and transfer their knowledge to develop their client's capacity. In RBCB, the partners are involved throughout the process, from diagnosis to planning, monitoring, and evaluation (PME).

The central role played by the participants in RBCB draws from the experiential learning cycle. Experiential learning (Kolb and Fry 1975) is a cyclic process in which learning takes place through an individual's reflection on, and transformation of, a concrete experience. The learning process has two dimensions: grasping and shaping experience. We

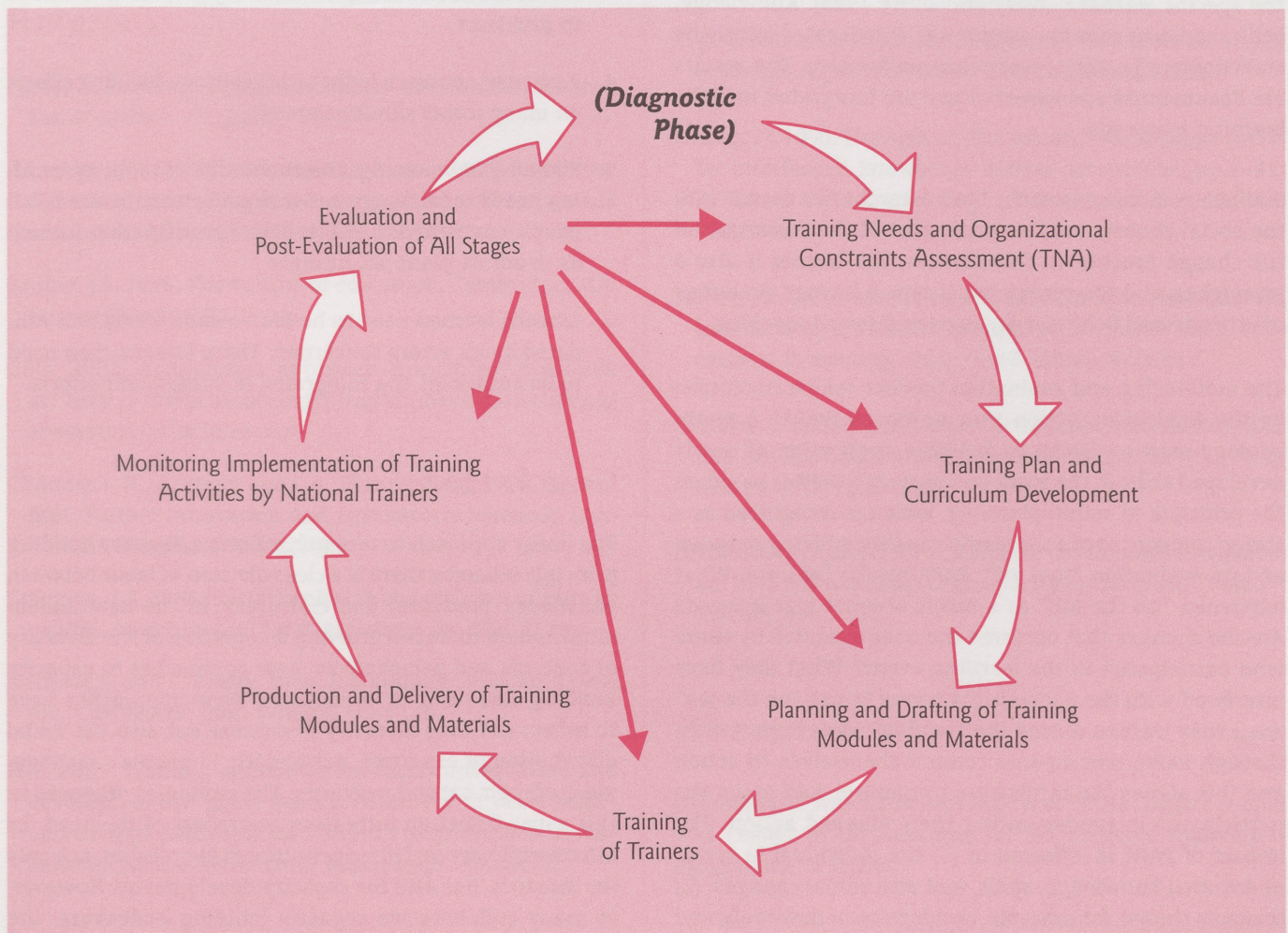


Figure 2. Strategic learning plan. Source: ISNAR (2003)

grasp experience by feeling and doing (Stage 1: Experience: the data gathering part through undertaking concrete activity), and by thinking/theorizing (Stage 2: Process: reflection on the intellectual and attitudinal reaction to the activity). We shape experience by determining what is important (Stage 3: Generalization: formation of conclusion based on the individual's "real life") and by doing/applying (Stage 4: Application: applying learning to real life) (Regis University 2003). For learning to occur, all the four parts of the learning cycle must be completed. The potency of this model lies in its application to the learning design: e.g. clearly defined goals and relating individual learning to social learning.

RBCB develops the capacity of the actors involved by drawing on their experiences, facilitating collaborative learning, and enabling them to apply what they learned through concrete actions. RBCB takes the experiential learning cycle a step further to actual application in real-life, collaborative problem solving. Thereby, contributing to the framework of social learning. Instructional design is applied using problem-based learning in which learning issues and actions plans are based on the real-world problems of the learners. Situated-cognition is also applied, which engages experiential learning based on interactions that are unique, context-bound, and part of the sense-making process of the specific learner (Savery and Duffy 1995). Knowledge, skills, and attitudes are acquired and generated jointly by stakeholders be they researchers or farmers. The results are documented and assessed and are integrated into the learning materials.

Similar to action research, the researcher is drawn into the social context, and becomes part of the research and the change process. In this context, the learner is also a researcher, and the researcher is also a learner. A change of attitude and behavior are expected for all involved.

The monitoring and evaluation process can be reinforced by the Participant Action Plan Approach (PAPA), a methodology used by ISNAR to facilitate application of newly developed skills in the work environment. PAPA is based on the principle of action planning, which is recognized as a strong component of a successful capacity building program and its evaluation "tool kit". PAPA results indicate: What happened "on the job" as a result of what was learned? Are the changes that occurred the ones intended by those who participated in the learning event? What may have interfered with the participants trying to use "on the job" what they learned during the training? Most importantly, through PAPA, participants commit themselves to action and this allows the facilitators to monitor and assist the participants in implementing their planned action. The impact of PAPA is reflected in (1) the individual in terms of acquired knowledge, skills, and attitudinal changes, (2) teams as shown, for example, by adoption of new tools, and (3) the organization – by not just using new tools but creating new programs, products, and institutional processes.

RCBC is still at the pilot stage, and will need to be refined through its course of implementation. Comparing this methodology to similar initiatives could provide lessons for further developing this method.

Guiding principles of collaborative capacity building

A number of principles developed in another ISNAR study on capacity development provide useful guidance for applying the strategies and methodology described earlier (Horton et al. 2003):

1. The people involved should play a central role in designing and managing their own capacity building endeavors. This helps build ownership and use of the lessons learned.
2. The underlying theories and assumptions of the capacity building efforts should be articulated, tested, and validated by the actors involved, preferably in an applied research mode.
3. Facilitating change processes to enable problems to be solved is more enabling than merely providing solutions to problems.
4. A systems approach helps tackle capacity building efforts on many fronts simultaneously.
5. Planning, monitoring, and evaluation of capacity building needs to be integrated and made transparent to all people concerned to enable active participation, as well as to adjust plans accordingly.
6. Lessons learned need to be drawn collectively and validated by all actors concerned. These lessons then need to be embraced and integrated in subsequent efforts.

Conclusions

The linear approach to research reflects a capacity building principle whereby there is a clear division of labor between knowledge producers and end users. In the new millennium, where there is a growing recognition of the diversity of contexts and perspectives, new approaches to capacity building also need to be explored. New approaches have to reflect not only diversity in context but also the social distribution of expertise, particularly in people's management of their natural resources. The strategies proposed in this paper reflect an increasing awareness of the need for interdisciplinary and interinstitutional approaches, not only for research, but also for capacity development. However, in many collaborative capacity building endeavors, the role of education specialists and practitioners of capacity building are neglected. Moreover, comprehensive learning

plans are often ignored. It seems that capacity building does not merit the same rigor as applied to research. This is unfortunate, as the science of learning is rich in concepts and methodologies which, when explored and applied well, can enable the public to have access to and use public goods produced from research. How can research contribute to poverty alleviation if research is not effectively linked to capacity building?

Capacity building can be used as a development tool by starting with development agendas that are not prescribed but are actively drawn from people's needs and their expertise in managing their natural resources. Social organizations need to be strengthened, not only for a participatory articulation of development agendas, but just as importantly, for participatory implementation and evaluation of the agenda. Capacity building needs to be integrated in learning processes. New concepts and methodologies need to be explored and developed. To facilitate this, institutional partnerships for collaborative interventions need to be pursued. To build capacities in natural resource management, a comprehensive approach needs to be taken that integrates ecosystems and people, the social and technical, the cognitive and affective, as well as the individual and collective.

References

- Agris, C., R. Putnam, and D.M. Smith. 1985. *Action science*. San Francisco, CA: Jossey-Bass.
- Anderson, J.R., L.M. Reder, and H.A. Simon. 1997. Rejoinder: Situative versus cognitive perspectives: Form versus substance. *Educational Research*, 26: 18–21.
- Bruner, J.S. 1996. *The culture of education*. Cambridge, MA: Harvard University Press.
- CBD. 2002. *Ecosystems approach principles*. Available at: <http://www.biodiv.org/programmes/cross-cutting/ecosystem/principles.asp>
- Chambers, R., A. Pacey, and L.A. Thrupp (Eds). 1988. *Farmer first: Farmer innovation and agricultural research*. London: Intermediate Technology.
- Coleman, J.S. 1988. Social capital in the creation of human capital. *American Journal of Sociology*, 94: S95–S120.
- Dainow, S. and C. Bailey. 1988. *Developing skills with people*. Chichester: John Wiley & Sons Ltd.
- FAO. 2003. *Training manual for on-farm conservation and development of plant genetic resources in pearl millet and cowpea (with special reference to conditions in sub-Saharan Africa–Mali)*. Draft Manuscript. Rome: FAO.
- Horton, D., A. Alexaki, S. Bennett-Lartey, K.N. Brice, D. Campilan, F. Carden, J. de Souza Silva, Le Thanh Duong, I. Khadar, A. Maestrey Boza, I.K. Muniruzzaman, J. Perez, M.S. Chang, R. Vernooy, and J. Watts. 2003. *Evaluating capacity development: Experiences from research and development organizations from around the world*. The Hague: ISNAR; Ontario: IDRC; and Wageningen: CTA.
- ISNAR. 2003. *Facilitating the agricultural innovation process. A set of three learning modules*. The Hague: ISNAR.
- Kolb, D.A. and R. Fry. 1975. *Toward an applied theory of experiential learning*. In *Theories of group processes*, edited by C. Cooper. London: John Wiley & Sons.
- Manicad, G. 2004. *Facilitating knowledge systems interaction in the management of plant genetic resources*. Unpublished draft document.
- Martin, B.L. and C.M. Reigeluth. 1999. *Affective education and the affective domain: Implications for instructional-design theories and model*. In *Instructional-design theories and models. A new paradigm of instructional theory (Vol II)*, edited by C.M. Reigeluth. Mahwah, NJ: Erlbaum Associates, Publishers.
- Regis University. 2003. *The Kolb model*. Available at: <http://academic.regis.edu/ed202/subsequent/kolb2.htm>.
- Rolling, N. 1990. *The agricultural research–technology transfer interface: A knowledge system perspective*, pp.1–41. In *Making the link*, edited by D. Kaimowitz. Boulder, MA: Westview Press.
- Savery, J.R. and Duffy, T.M. 1995. *Problem based learning: An instructional model and its constructivist framework*. *Educational Technology*, 35(5):31–37. initials authors
- Schuller, T. and J. Field. 1998. *Social capital, human capital, and the learning society*. *International Journal of Lifelong Education*, 17: 226–235.
- UNDP. 2000. *Capacity for sustainable development*. Available at: http://www.undp.org/capacity21/docs/BDP_Policy_Journal_Vol_1.pdf

About the authors

Gigi Manicad was a Research Fellow at ISNAR. Zenete Franca was Leader of the Learning for Institutional Innovation programme at ISNAR.

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ISNAR Program
P.O. Box 5689, Addis Ababa, Ethiopia
Tel: +251 1 463215 • Fax: +251 1 461252/464645
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