Socio-Cultural Studies of Indigenous Agricultural Systems: The Case for Applied Research[1]

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Abstract: Agroforestry has the potential to contribute greatly to Pacific island development efforts. However, success will depend on fully realizing the social implications of agricultural research on island cultures. Agroforesters must recognize their role as "agents of change." Because of this, they must strive for the involvement of the community in all stages of their research. The applied research approach, exemplified by the Farming Systems Research and Development methodology, is offered as a model approach.

Agroforesters are among the newest actors to join Micronesia's efforts to develop their economic and political lands. I purposely speak of the "economic and political land;" it is a cultural view expressed in the Fijian term *vanua,* which literally means "land," yet means the social and cultural elements of the physical ecosystem identified with the family group occupying it (Clarke 1990, p. 247). This broader view of the island environment as a social ecology makes the challenge confronting agroforesters a bit more complex than general biological knowledge can address. As information specialists applying knowledge to the islands' development effort, many others have come before. The limited success of socio-economic development efforts over the first 20-30 years has been well documented (Fox 1978, Mason 1982, Nevin 1977, Workman and others 1983, Ballendorf and Karolle 1982). Agroforestry is being introduced to Micronesia as environmental concerns have increased in the world's political agenda. The extent to which agroforestry research can bridge the gap between Micronesian cultural knowledge of the ecosystem and Western science will determine the level of "success" achieved.

The Question of Methods

Micronesia's multi-cultural setting for research highlights often overlooked parts to the professional's role—a role which creates a conflict between doing "basic" research advancing the general biological sciences and doing useful "applied" research advancing traditional cultural knowledge of island ecosystems. Dwight Harshbarger (1984) used the concept of "value added" or the value of research to communities beyond the fact that research has been completed and reported. What contribution does research add to development? This question raises concerns for researchers that have not received much attention until recently.

Pacific Island governments face serious development difficulties, and they need the help of researchers to find ways to "incorporate traditional knowledge and resource-management systems or techniques into modem life" (Clarke 1990, p. 233). Graham Baines (1989, p. 273) has stated this larger dilemma quite explicitly;

> Governments are proceeding to implement forms of economic development which are in conflict with these traditional systems. This poses a development dilemma which is crucial for the future of the people of the South Pacific islands. To what extent can the traditional systems accommodate further change? Will serious efforts be made to adjust approaches to economic development so as to ease those disruptions to traditional resource-management systems which are eroding Pacific island societies themselves?

Any development program is a social effort by people to gain control of their communal and natural environments. Control refers to a capacity to have the outcome of actions match the intentions and planned objectives which a community wants. Islanders make choices about the allocation of their natural resources by applying their cultural system of knowledge to achieve their desires. Even so, there are many islanders and thus many different desires, opportunities, and amounts of resources. As information specialists, researchers provide information and training to help people make decisions. Thus, the role of researchers is to help people to exercise control over their development. This view of research as intervention into the pursuit for controlled development allows us to view the dilemma of research in a new light.

When the concept of applied research first emerged, it was generally believed that Western science could solve problems (Boeckmann & Lengermann 1978). Yet the application of research is a social process of negotiation that involves value-interest conflicts and organizational politics (Sjoberg 1975, Voth 1975, Burton 1978, Cronbach and Associates 1980, Hamnet and others 1984). The tasks of an applied researcher, therefore, are to help islanders obtain information useful for decisions among themselves and to assist in implementing island programs for desirable outcomes.

Applied research is born of decision-making needs of policymakers who pursue control of the development process. As such, research is inescapably linked to the change process—the researcher is an "agent of change." Thus, it is helpful to conceptualize research as a social process dependent on negotiation of values and interests. Also, although there may be no way to avoid the role of change agent, the role can be performed in several different styles. Styles vary in the extent to which change is promoted.

One type of change being criticized intensely is the replacement of indigenous island knowledge systems with technologically structured "scientific" information. Although the knowledge of island farmers and agroforestry researchers differ, they may be compatible, and it may be possible to integrate them. However the role often taken by researchers is that of an "expert"—the person who possesses a unique knowledge. Seeing

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oneself in this role can interfere with the ability to learn from the knowledge of the community. Many "experts" lack interest in local island knowledge or distrust it as practical and parochial (not global). Johannes (1981, p. ix) is more blunt, stating that a reason natural scientists routinely overlook local knowledge is "the elitism and ethnocentrism that run deep in much of the Western scientific community."

By being aware of their role as agents of change, researchers can purposefully expand the total "value added" by their research.

Basic Versus Applied Research Methods

Science is by definition very method-oriented, with a great deal of emphasis put on "scientific" methods. Yet there are differences between methods for increasing indigenous knowledge systems and those for increasing structured "Western" knowledge. Research methods also differ depending on whether the purpose is to gain knowledge for action among islanders or to gain publishable research advancing general knowledge amongst the scientific community. Currently, "research" is rarely used in the political policy-making process in the Pacific islands, and thus rarely contributes to any changes in local island environments.

The difference between "basic" and "applied" research methods is the difference between research for validating knowledge versus research for informed local policy making. Basic research may seek to influence policy, but the highest priority is to select methods that maintain accuracy for validation. In contrast, applied research also seeks to maintain accuracy for validation, but the highest priority is to select methods that lead to the use of research findings in the political policy process. This difference between basic and applied research is displayed as follows:

Applied Research	*Basic Research*
Utility in practice	Accurate for validation
Feasible over time	Feasible over time
Accurate for validation	Utility in practice

Research, merely defined as scientific appraisal, emphasizes experimental research design and methods that lead to academic validation of knowledge. The basic research study goes through four successive phases that involve only the researcher(s): planning, execution, interpretation, and reporting. The "time" of the research is a "time out" from the world of action; it is removed from the system of politics and policy-making so the procedure can be more "value free." Yet it is assumed that when the research findings are reported, they will affect change, contributing in some way to controlled action.

The limitations of this "basic" approach to research for achieving a study that gets "used" is well documented, and argued more eloquently than needed here (Cronbach and Associates 1980, Hamnett and others 1984, Patton 1978, 1985). The main issue has been well expressed by Champion (1985, p. 30).

> Could it be that many professionals in this business are more interested in being seen as doing splendid methodological work by their colleagues and peers than in making a useful, but largely invisible, contribution to good policy, good program design and even good government? Could it be that immaculate or ingenious methodology becomes too much an end in itself?

Cronbach and Associates (1980) call this conventional model of basic research a "stand alone study." They assert that the valued priority on accuracy for validation dictates against involving the people who will use the research results in planning and policy-making, and against getting them results in time for making policy decisions.

Cronbach sums up his "critique" of basic research by stating that it is a myth for both basic and applied science to believe that "one best action" will be made crystal clear by a factual study. He also asserts that the timeliness of reports is a major factor to a research study's contribution to policy-making. Interaction between the researcher and the users of the research results are important determinants of the use of research by decision-makers.

To make research useful to indigenous Pacific Island leaders then, an applied research methodology is justified to the extent that the purpose is to facilitate policy development. Methods, therefore, should be selected by their contribution to public thinking and action to be influenced by the study. Excellence ought to be judged by how research can *serve* the island society. Applied research can improve the welfare of citizens only by contributing to the political process that shapes social actions. Research pays off to the extent that it offers knowledge related to pending actions and helps people think more clearly.

Applied research methods differ from basic methods by the addition of two procedures:

(1) Involving people who will be influential in the use of the research results in planning and conducting the study, and

(2) Distributing timely communications to potential users as the study begins and proceeds.

Broadly, applied research ought *to inform and improve the operation of programs in the island community.* This broader view of science is grounded in the same basic assumptions and objectives that underline the community development process. Drawing from several sources (Littrell 1977, Burton 1978) these can be presented as:

1. Applied research is interested in developing the ability of public decision-makers to meet and deal with their environment.
2. Public decision-makers are capable of shaping much of their environment, and of giving direction to the collective behavior through interaction and the conscious assessment of information about their environment.
3. There exist multiple interpretations of reality among decision-makers, and these value interests can often conflict.
4. A variety of policy needs may exist simultaneously, but these are not the only ends which decision makers may want a research study to serve, since research findings have a variety of political and economic as well as social functions.
5. Group action and community decision-making results in "better" and more lasting change efforts.

Farming Systems Research and Development

The uniqueness of applied research, and one of its leading strategies—Farming Systems Research and Development (FSR&D)—is that successful implementation of research re-

sults necessitates the involvement of people in the community. FSR&D focuses on people in their environment. This environment is studied by examining all its various elements: economic, political, social and physical. While these elements are often separated in academic research, in real life the elements are inseparable.

FSR&D looks at the interactions taking place within the whole farm setting and measures the results in terms of farmers' and society's goals. Basic research separates tasks into progressively narrower subject areas to be studied independently and evaluates results by standards within the discipline. Several factors contribute to the greater adaptability of FSR&D:

(1) the involvement of critical decision-makers to the development process, including the islands' local innovators and entrepreneurs

(2) comprehensive inclusion and consideration of multiple contributing factors

Basic research objectives are often increased farm income and commercialization. In contrast, FSR&D defines "farm development" as efficient and productive use of limited agricultural resources. FSR&D assumes that productivity is more truly measured by the *quality and quantity* of food output and ecological efficiency from the farm unit.

FSR&D also takes into consideration local values and cultural motivations which are often very different from those of Euro-American societies. In Micronesia, as in many other parts of the developing world, island lifestyles and values leading people into farming are often unaffected by research appealing to capitalist commercial enterprise. The pressure in academic research concentrates effort toward those few economic and biological factors most crucial to crop production and profit margins. Yet, as Harwood (1980) points out, the greatest advances in farm development have occurred only where such technological crop production factors are encouraged by cultural values. FSR&D directs attention to "appropriate" technology and resource management practices based on the motivating interests of local people.

The applied research approach of FSR&D gives it great potential for stimulating change initiated by local innovators/ farmers. The key remains the involvement of community people in research. Basic research, where the scientists "do it all by themselves," is the easiest and quickest way for scientists, especially off-island consultants, to do research, since they can control the research activity. On the other hand, the applied approach to research requires the commitment of local island researchers—both for involving local people, and in overcoming the reluctance of funding institutions to accept local involvement.

Involving People as Research Partners

Planning and conducting a research study consists of many decisions. The project leader (researcher) is responsible for a continuous series of choices between actions, changes in the original plan, and interpretations of data collected. Successful applied research depends on the joint effort of local village leaders, public officials, local professionals, and research technicians and scientists. None can be excluded from the process if it is to be effective. A mutually agreeable methodology has to be developed by the community being studied and the researchers doing the study. By participating in the discussions and decisions, both researcher and user/decision-maker validate the information resulting from the research. Acceptance and use of research is built into research procedures encouraging a shared sense of ownership - "our study showed..."

Involving people means including non-scientists in the research process and conducting events that occupy their attention. Applied research procedures are only partly influenced by the researcher. His/her expertise is needed to identify the alternative choices and explain details. But it is through the involvement of local people that decisions are made, since decision-making requires the consideration of cultural values, personal beliefs and opinions. These are the areas of "expertise" provided by community people. Research procedures should encourage the participation of various individuals and groups in the community and involve them in different ways, at different times, and with different levels of responsibility. Involvement thus includes a wide range of activities.

Methods of involvement consist of several objectives as the researcher builds a relationship with community people. Patrick Boyle (1981) lists four of these objectives:

1. Creating awareness of the decision situation, unsolved problems and/or opportunities
2. Designing the decision question, listing alternative choices, and specifying decision criteria
3. Organizing event(s) leading to a decision choice based on information and criteria
4. Implementing alternatives, reassessing decision conesquences or redesigning the decision question

Different types of decisions will differ in the amount of effort needed by the researcher to achieve these objectives. For example, routine administrative decisions will need less time for objectives 1 and 2, and involve fewer people than non-routine decisions. Decisions tied to emotions or values will be more complicated and need more time than impersonal decisions. Decisions on specific technical research procedures will allow more input from the researcher, while those addressing issues of wording, behavioral styles, and implementation of procedures will need more input from local people.

Some decisions will also require more formally organized involvement methods than other decisions which can be handled informally. A number of different involvement methods are available depending on the situation and type of decision. The following are some of the most common methods employed to achieve involvement:

1. Task Force or Project Steering Committee
2. Community Advisory Group
3. Ad Hoc Nominal Group Meeting or Village Forums
4. Formal Hearings With Community Organizations
5. Brainstorming Meetings
6. Focus Group Interviews
7. Surveys (e.g., Rapid Rural Appraisal)
8. Project Collaborators (Ombudsman)

Involving people in a research project is accomplished by inviting them to join and then working with them as influential partners. The elitist view that research is purely a technical matter, that only scientists have the expertise, that research comes from, is produced by and written for outsiders, not islanders, must be avoided. When Micronesians perceive that a research project is being handled in this way, they may help for immediate social or dollar rewards, but they will see nothing they can offer to or use from the final results. Their involvement is limited only to serve the researcher's purpose—to complete the study. To do more depends on the researcher.

Considerations of Local Culture

At times, it appears that researchers can set island goals and public policy. This is not the case, and both local officials and farmers will quickly demonstrate that such decisions are theirs. However, researchers generate information so people can judge the consequences of their various actions. Even when not trying to effect change, researchers intervene into the lives of local people and their culture. The researcher cannot avoid consideration of whose interests and values decide which research should be undertaken or what role local culture takes in the research process.

Culture is a human phenomenon that marks one group of people as being different from another. It marks boundaries that, when crossed, inform people that they have entered a place with a different set of rules, values, and understandings. The term is used to discuss differences between all sorts of groups, including ethnic, political, economic, and even scientific cultures. People in different cultures tend to (Workman and others 1987):

— have different world views

— differ in regard to how to make assertions about the world

— attribute the right to make assertions about the world to some certain select group of people and not to others, and

— determine what is polite for the stranger (e.g., researcher) to ask and for the host to answer

Unfortunately, many researchers view differences in language, customs, perceptions of time, values for non-economic development and resistance to change as problems to be overcome. This is short-sighted. Cultural differences, especially differences in world views, can provide the impetus to create more useful research for development efforts and also increase our knowledge about the world.

Several considerations seem to be essential for deciding when culture is important to an applied research study (Workman and others 1987):

1. Whenever there is confusion over "what is it we're talking about?," "What is the unanswered question before us?" or "exactly what decision needs to be made?";

2. Whenever there are conflicts where the researcher must assess the situation and understand whether the problem is due to the research methodologies being culturally alien, organizational factors in the lines of authority, working relationships, and/or patterns of interaction;

3. Whenever questions arise about the purpose of the research project.

The essence of these considerations for researchers is that they are members of a particular interest group affecting the lives of other people. Social cultures are dynamic human creations that are constantly changing. The researcher needs to consider culture to (1) respect the right of self-determination and (2) to enable those who experience change to participate in creating that change.

Conclusions

Researchers in indigenous agricultural systems must take an applied methodological approach in order to improve island ecosystems. Applied methods ensure that the research project will help local people gain mastery of their natural and social environment, and that it will take actions needed to integrate local knowledge systems with the global technological knowledge system (Clarke 1990, p. 224).

Researchers in Micronesia must accept the role of "change agent," either intentionally or unintentionally. This introduces a responsibility to select research methods that can ethically carry out that role. Unfortunately, the "basic" research philosophy is based on the belief that scientists only create knowledge, they are not responsible for its application. By understanding the difference between methods for basic and applied research, researchers can more assertively influence the kind of change promoted by their research.

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