LORE

Capturing Traditional Environmental Knowledge

Edited by Martha Johnson

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Our culture is something that surrounds us, something that is part of us, and is inextricably linked with the land upon which we have lived for thousands of years. Our culture has a past, and it is that past especially as we find it embodied in our elders that we are pledged to preserve. It also has a present a present that threatens our culture, which we are pledged to protect. Our culture lives, and must have a future. We are pledged to promote our culture, especially among our young people, to ensure that they will identify themselves as Dene, in the full meaning of the term. The mission of the Dene Cultural Institute is to work with the people of the Dene Nation, and with other institutions and organizations, to preserve, protect, and promote the Dene culture, languages, spirituality, heritage, traditions, and customs.

The International Development Research Centre is a public corporation created by the Parliament of Canada in 1970 to support technical and policy research designed to adapt science and technology to the needs of developing countries. The Centre s five program sectors are Environment and Natural Resources, Social Sciences, Health Sciences, Information Sciences and Systems, and Corporate Affairs and Initiatives. The Centre s funds are provided by the Parliament of Canada; IDRC s policies, however, are set by an international Board of Governors. The Centre s headquarters are in Ottawa, Canada. Regional offices are located in Africa, Asia, Latin America, and the Middle East.

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Martha Johnson

DENE CULTURAL INSTITUTE
&
INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

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Foreword

In recent years, the value of the traditional knowledge of indigenous peoples, and particularly their traditional environmental knowledge, has been recognized. This has unleashed a flood of research. Some of the research has been undertaken by scientists working alone, but the most innovative responses to this trend have been developed by indigenous researchers working in collaboration with Western scientists. They recognized early on that the main objective was not simply to collect reels of audio or video tape as a form of folklore, but to catalogue this information so that it could be compared from one region and one culture to other regions and other cultures, and, even more, so that it could be brought to bear on policies for sustainable development in remote and typically fragile ecosystems.

This book presents the results of a workshop on the documentation and application of traditional environmental knowledge through community-based research. Organized and hosted by the Dene Cultural Institute (DCI) based in Fort Hay, Northwest Territories, Canada, and supported by Canada s International Development Research Centre (lDRC), the workshop brought together a small number of teams, each composed of indigenous and nonindigenous researchers from Northern Canada, Europe, Africa, Southeast Asia, the South Pacific, and South America. Their primary goal was to discuss effective methods for documenting the unique

environmental knowledge and understanding that characterizes the heritage of all indigenous peoples around the world.

In many ways, the workshop was unique. It represented an important initiative on the part of a Canadian aboriginal organization (DCI) and a Canadian development agency (IDRC) working together toward a common goal. The workshop was held in a traditional Dene camp along the shores of the Deh Cho (Mackenzie River) in the Canadian North. Participants flew to Canada from around the globe. Upon arrival in Canada, they faced another extended flight to Yellowknife in the Northwest Territories. From there, they were taken by bush plane and boat to the Dene camp. Daily life and workshop sessions took place in tents, which both represented typical living conditions during actual collection of indigenous knowledge and, unhappily but typically for the North, provided protection from the cold and rainy summer weather.

This book examines the process of collecting traditional environmental knowledge while using a participatory action or community-based approach. It looks at the problems associated with documenting traditional knowledge problems that are shared by researchers around the world and it explores some of the means by which traditional knowledge can be integrated with Western science to improve methods of natural resource management.

We hope that this book will assist others to develop effective, culturally appropriate research methods at a time when alternative understandings and approaches to sustainable development are increasingly critical to the survival of our planet.

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Acknowledgments

The Fort Good Hope workshop was a unique event and many people and agencies contributed to its success. The community of Fort Good Hope put on a show of hospitality that left our international guests with a true taste of traditional and modern Dene culture. The Chief and Council of Fort Good Hope provided generous logistical support for the camp. Star Tech Ltd lent tents and other camping gear and Northern Stores Ltd donated groceries. Special thanks go to Alfred Masazumi, Michael Lafferty, and Joe Cotchilly. They ensured that the camp ran smoothly despite inclement weather and a last minute change of site. Bella T seleie and Judy Lafferty assisted in setting up the camp, and Mary Barnaby and Margaret Kelly prepared some memorable meals of traditional Dene cuisine. Wilma Schreder of the Dene Cultural Institute made all of the travel arrangements.

Dr Evelyn Pinkerton served as the rapporteur for the workshop. Her work on the discussion summaries and her thoughtful insight on earlier drafts of the introductory papers were much appreciated.

Our special gratitude goes to Robert Ruttan, project biologist for the Dene Traditional Environmental Knowledge Pilot Project. His calm and sense of humour in overseeing the entire organization of the camp made the workshop the success that it was.

Thanks are also owed to the Canadian Broadcasting Corporation (CBC) and the Yellowknife *Press Independent.* Their generous publicity created better public awareness of the value of traditional environmental knowledge and the research that is being conducted to preserve and apply it today.

Finally, thanks go to all of the elders, community researchers, and scientists who travelled from the nearby community of Fort Good Hope and from the far corners of the globe to participate in this unique event. Their willingness to overlook the bad weather and the mosquitoes, and to share their knowledge and culture in the traditional setting that was the Fort Good Hope camp represented the true spirit of international and cross-cultural cooperation.

Martha Johnson
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Contents

Traditional Environmental Knowledge from the Marovo Area of the Solomon Islands

By Graham Baines, Environment Pacific, Brisbane, Australia, and Edvard Hviding, Centre for Development Studies, University of Bergen, Bergen, Norway.

The Solomon Islands is a country of many islands and large tracts of sea, neighbouring Papua New Guinea, about 3 hours flying time from Australia (Fig. 1). The Marovo area of Western Province, one of seven provinces of the Solomon Islands, is dominated by a large coastal lagoon embracing several high volcanic islands. This reef and lagoon complex skirts the northern and eastern coasts of New Georgia and Vangunu islands, covering an area of about 700 square kilometres. In the lagoon area and on the weather coasts of the main islands live some 8 000 people. These people form a cultural complex where the Marovo language is dominant, although four other languages are also indigenous to the area. The marine and terrestrial components of the environment are managed through a complex system of customary tenure where descent groups control ancestral territories of land, reef, and lagoon.

The main high islands of Marovo have a largely intact cover of tropical rain forest, only a few areas having been subject to commercial logging. The forest provides medicinal plants, housing materials, trees for dugout canoes, and animal protein (wild pig, possum, and birds, among others). Subsistence agriculture is carried out on the lower slopes. Commercial crops of cocoa and coconut are also grown, the latter occupying much of the small area of flat coastal land.

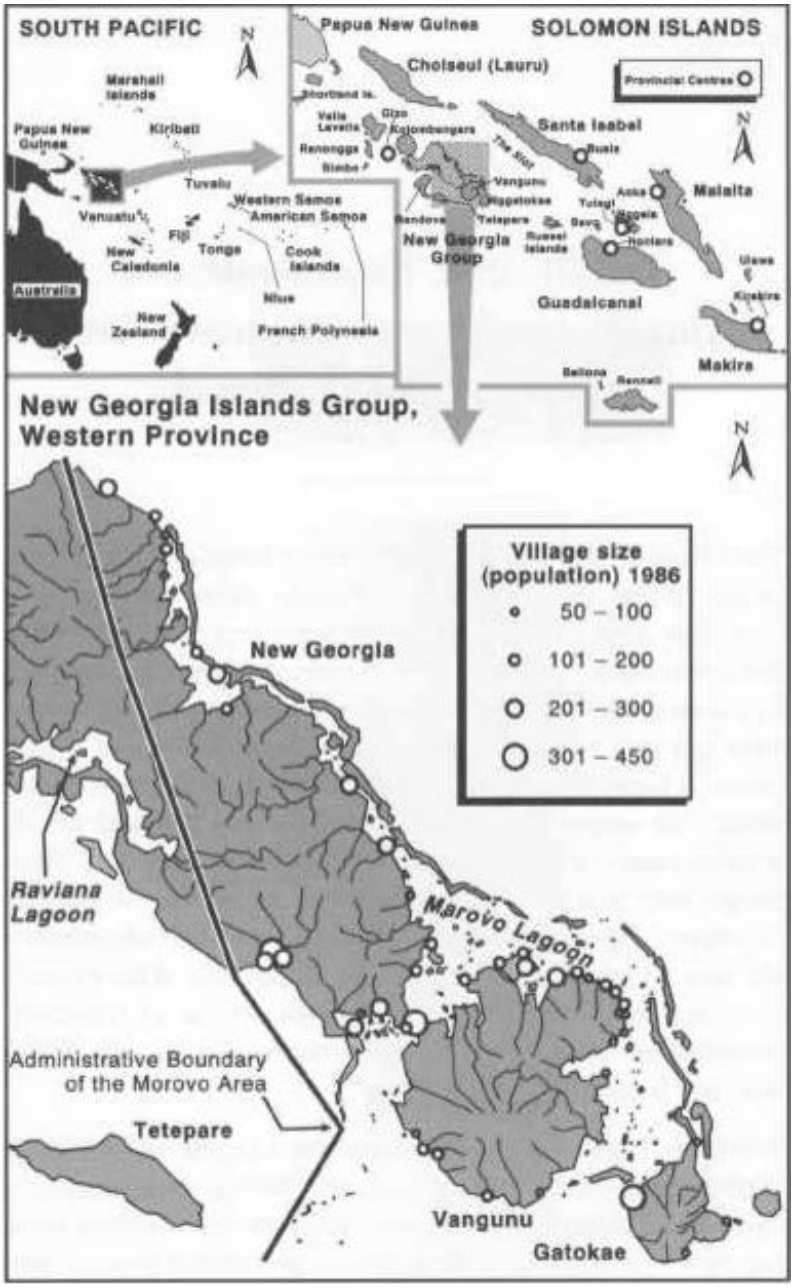

Fig. 1. Islands of the South Pacific, the Solomon Islands, and the New Georgia Island Group of Western Province, showing the location of Marovo Lagoon and the Marovo area.

The lagoon is studded with a myriad of small islands, many of which are covered with forest and fringed with mangroves; others are planted with coconuts. The barrier reef extends around a series of forested, raised fossil reef islands, intersected by passages. The complex reef environment surrounding the barrier islands contains Marovo s most important fishing grounds. A vast variety of fish, shellfish, molluscs, and crustaceans (as well as declining populations of turtles and dugong) is available at the barrier reef, in the lagoon, and in the extensive mangrove areas along mainland coasts. Marine resources also include commercial stocks of pearl shell, trochus, beche-de-mer, and precious coral. The barrier islands also supply certain valuable resources that are now becoming jealously guarded, such as Kerosene wood for carving and coconut crabs.

The environment of Marovo has been little disturbed by human activity, and many areas still have a near-pristine quality. The Marovo people have access to a diverse and rich supply of natural resources. However, prospects of further rapid population growth and an expected increase in commercial ventures of fishing, mining, logging, and tourism pose difficulties for Marovo community hopes of maintaining the current quality of resources and environment.

The Marovo Lagoon Resource Management Project

The Marovo Project was initiated in December 1985 with the first Marovo Community Workshop, held at the administrative centre of Seghe. Although provided with some government guidance in its early stages, the Marovo Project is essentially a community activity arising from an initiative of the Marovo community itself through the Marovo Area Council and with the active support of the government of Western Province.

The objectives of the Marovo Project are

- To define and describe the resources and environment of the Marovo lagoon and its islands, with particular reference to their close association with Marovo society;

- To describe and explain the various development activities underway and proposed, their benefits and shortcomings, and their environmental and social consequences;
- To assist the development of a local community capacity to assess, monitor, and sustainably use the resources of the people of Marovo;
- Building on traditional arrangements, to assist landholding groups to devise management plans for their land and lagoon areas;
- Through a focus on environment and resource use in relation to tradition and social and economic developmental needs, to foster the concept of Marovo community ;
- To encourage and support women to gain more recognition for their contribution to development and to assist them to further develop their understanding and skills in this area; and
- To offer knowledge and understanding gained from the project to other communities and agencies of the Solomon Islands and the South Pacific Island region.

It is clear, then, that the Marovo Project did not arise specifically to document traditional environmental knowledge. This is, however, a vitally important element.

Project perspectives

The Marovo people have a great pride in their lagoon and its surrounding rain forest islands. They are also immensely proud of the extent of their knowledge and understanding of the environment, which is the focus of their culture and livelihood. This is the background to a concern about ad hoc resource exploration and development in their area. In 1984, this concern led the Marovo Area Council to call for assistance that would lead to a more orderly examination of resource potential and to more involvement and a more informed choice of development options by the people of Marovo.

The first author of this paper, while Senior Planning Officer with the government of Western Province, was allocated the task of sifting through the ideas and information provided through the Marovo Area Council and of working with the people of Marovo to establish a project framework. He was also called upon to advise on how scientific or technical expertise could be applied to expressed Marovo needs in natural resource management. With the assistance of the London-based Commonwealth Science Council, the Marovo Lagoon Resource Management Project was subsequently established as a community-based program of activities with carefully chosen outside interventions in the form of visiting investigators invited to apply their skills and knowledge in ways relevant to the Project.

Key features of the Project s approach to documenting traditional environmental knowledge include

- A strong emphasis on partnerships between Marovo informants and investigators, whether local or visiting;
- A process of information exchange rather than formal interviewing;
- Visiting investigators learning traditional skills and information by doing; and
- Promoting feedback of traditional environmental knowledge in documented form to sustain and stimulate the interest of informants and to make others more quickly aware of the nature and extent of the environmental knowledge that is part of Marovo culture.

The reporting element of the Marovo Project is crucial. Various procedures for reporting have been and are being tried. The main community focus for reporting has been a series of annual workshops. These workshops provide a forum to report the results obtained by visiting investigators, discuss future investigative work with community representatives, and generally debate development issues of immediate concern to the community. Of the 8 thousand people that make up the community of Marovo, 50 to 60 representatives participate in each workshop.

Project administration

From December 1985 to May 1988, the Project was administered by an on-site Project Organizer working closely with a Research Organizer, who was affiliated with the Ministry of Natural Resources in the national capital of the Solomon Islands, Honiara. Their part-time assistance to the Project was funded by the Commonwealth Science Council. Additional support was provided by the administration of Western Province and by an unpaid informal support group of individuals resident at Gizo (the administrative centre of Western Province) and in Honiara. Project activities were organized in association with the local government administration, the Marovo Area Council. Research and surveys were undertaken by visiting investigators from local and overseas institutions. A total of 16 visiting investigators have been involved with the Project to date, in assignments varying in length from 1 week to 18 months.

The Research Organizer assists in identifying information needs, advising Project staff regarding suitable studies, and identifying investigators to undertake such studies. From the initial frame work of research priorities established in 1985 at the first Marovo Community Workshop, many Project activities have been formulated. Generally, they fall into five main themes: coastal zone systems, society and resources, traditional knowledge, coastal resource assessment, and education and training. Overall responsibility for the continuous planning of activities rests with the Research Organizer, in close collaboration with local-level Project staff, the Marovo Project Support Group, and visiting investigators. The Support Group is now the administrative focus of the Project.

Many new priorities and Project activities have arisen spontaneously in the course of daily interaction between visiting investigators and the citizens of Marovo. In many cases, as general attention has focused on environmental knowledge, Marovo elders senior men and women such as chiefs, local historians, and master fishers have requested detailed documentation of a certain aspect of traditional knowledge that they feel is of particular importance. It has usually been possible for investigators to comply with such

wishes, sometimes by bringing in outside expertise. For example, an experienced biologist well acquainted with spawning aggregations of coral reef fish was brought to Marovo. The biologist worked together with local experts to record the complex knowledge of Marovo fishers on such aggregations; a knowledge of which the local fishers are justifiably proud (see Johannes 1988).

On-site research has been characterized by a loosely formulated structure of informal research administration. Elders, local Project staff, interviewers, interpreters, and other villagers guide the visiting investigator to the topics and locations deemed to be particularly relevant. In the case of the spawning coral reef fish, the biologist was taken to several spawning grounds during various phases of the moon in accordance with the rhythms followed by the Marovo fishers. The research design was adapted as new findings emerged and lessons were learned. In those Marovo villages that have been most closely involved in Project research, there is an established emphasis on taking charge : organizing the working day of the visiting investigator and so influencing the research process. This is seen as a way of ensuring that the investigator receives his or her education in the soundest and most detailed manner possible. A researcher is often sent on to other villages to visit resident experts to obtain the truth about certain areas of environmental knowledge.

A wealth of information about Marovo, its people, and its resources has been documented in the course of research and survey activities, including a great deal of traditional knowledge on the environment, its resources, and their management. Unfortunately, Commonwealth Science Council support for the Project ceased unexpectedly in May 1988. Since then, the Project has continued on the basis of the unremunerated services of the Project Organizer, the Research Organizer, and the Project Support Group. Among other things, this break has frustrated action to establish a proposed Marovo Education and Training Network regarded as crucial to the success of the Project and vital for the distribution and application of the traditional environmental knowledge already documented.

Selecting investigators

While searching for individuals with the qualifications and experience suitable to the Marovo Project, the Research Organizer is mindful of criteria important to the Marovo people. Such individuals do, of course, have professional research ambitions. However, investigators must recognize that their first responsibility is to the community of Marovo. This implies the organizing, conducting, and reporting of their investigations in ways consistent with the needs of the community as revealed by the Project s objectives. Although some conflict between the academic objectives of investigators and the basic requirements of the Project might have been expected, in no instance has this developed. Quite the contrary, for those investigators who previously had not been involved in such participatory research, the experience has proved stimulating and gratifying, bringing rewards considerably greater than that provided through academic results alone.

The Research Organizer makes recommendations to the Marovo Project Support Group regarding the suitability of potential visiting investigators. The Support Group assists the visiting investigator in the cumbersome and often frustrating task of obtaining the required immigration and research permits for entry to the Solomon Islands. The Project Organizer is then responsible for introducing the investigator to Marovo and its informants. Inevitably, as they become settled, individual investigators establish their own networks of informants and guides, easing the responsibilities of the Project Organizer who, nevertheless, remains in close touch with all investigators.

Training

Because of the emphasis on participatory exchanges of information, there has been no formal training in matters such as interviewing techniques. Training has all been conducted on the job and shaped according to individual requirements. Every visiting investigator accepts an obligation to impart some knowledge and skills to the Marovo people; and, in the participatory spirit, the investigators themselves often benefit from on-the-job training by their local

counterparts. Now that a good general appreciation has been gained of the nature and content of Marovo traditional environmental knowledge, it is expected that more structured training will be provided for Marovo people intending to conduct their own investigations. This will build upon training already given in the documentation of oral history funded through the Canadian High Commission in Australia and conducted by the Cultural Affairs Office of the Western Province Government.

Some activities for recording traditional knowledge have developed spontaneously through Project partnerships. A number of Marovo residents who have worked as counterparts to visiting investigators have started their own follow-up research. Oral tradition, environmental knowledge, and resource management principles are now increasingly being recorded by these counterpart researchers, working in their local language and employing documentation skills obtained through the Project s on-the-job training. This work is vital to the environmental dictionaries that are being prepared. Furthermore, several of the older master fishers and other environmental experts who contributed most strongly to the Project s investigation of marine tradition have since continued to write down their specialist knowledge in detail, being encouraged by younger people.

Marovo Environmental Knowledge

Environmental knowledge is starting to fade in Marovo, particularly among younger residents who spend long periods at school away from Marovo and away from subsistence activities. It is still widely possessed, however, by those who remain actively involved in traditional subsistence activities at sea and on the land, including many people of the younger generations.

The Marovo people s knowledge and understanding of their environment is a complex system that has evolved over a very long period. Although termed traditional knowledge, traditional does not imply static. What makes a local knowledge system traditional is its firm roots in the past, with a specific origin in indigenous culture and the local environment. Such continuity is a

basic feature of any traditional system. The capacity of such systems to adapt, borrow, and innovate means that change is also a vital characteristic. Tradition is often unwritten, based not only on what each generation learns from the elders but also on what that generation is able to add to the elders knowledge.

Local knowledge of fish and other marine animals, and their ecological contexts, is primarily behaviour oriented, focusing on information required to find and capture. This knowledge is based on first-hand observation of fish in the fishing ground and has been accumulating through generations, each new generation verifying aspects of the previous generation s knowledge through its own experiences. When talking about a certain item of marine knowledge, active Marovo fishermen will often say, My father told me about this, but I had to see it for myself before I could really trust it. So I went out to the reefs and found out about it, and now I know.

Through these processes, most inherited items of knowledge are retained. Also, aspects that become less relevant for fishing may fade and, as a response to new developments in the local fishery, new aspects are added.

Although an appreciation of the ecosystem concept may be lacking in Marovo environmental knowledge, ecological linkages are often well understood. Depletion of a resource, seen as growing scarcity or decreasing mean size of a species, is quickly perceived and noted. Although depletion is regarded by some people as inevitable (but certainly not a good thing), the idea of a rest period for stocks to build up is a part of traditional resource management practices, now as before. Some fishing methods are perceived as destructive to the marine environment and the resource base. This particularly applies to dynamite fishing, which is occasionally practiced by a small number of people. The problem with dynamiting, many experienced fishers say, is twofold. Not only does it kill all fish, both large and small, that are present at the moment of explosion, but the explosions also destroy the coral stone, which is the home of the fish; therefore, there will seldom be good fishing again in a reef area that has been bombed.

Local ecological understanding also appreciates the possible negative consequences for the reef and lagoon environment of large-scale logging, mining, and commercial fishing. Much discussion now occurs in Marovo about soil erosion, river-carried sedimentation, lagoon currents and reef siltation, and ecological interactions in the lagoon between stocks of food fish and bait fish harvested for use elsewhere by commercial tuna fishing boats. These contemporary examples of complex, indigenous ecological models are all underpinned by generations of accumulated understanding of processes in the coastal and marine environment.

Documenting Traditional Environmental Knowledge

The Marovo Project was initiated by the Marovo people. This logically influences the approaches chosen to document traditional knowledge. For one, it is important that all scientific work be closely integrated with local ways so as not to be perceived as something external to Marovo. A high degree of local influence over the research process is taken for granted by most Marovo people involved with the Project. This decisive approach on the local level has no doubt tended to frustrate some visiting investigators, particularly those whose stays have been short and whose research designs have been based on tight logistic schedules and predetermined priorities. However, such initial frustration has often evolved into a deep appreciation of a unique form of close partnership in research.

Marovo villagers show a preparedness to take charge of the visiting investigator, not just by providing food and housing according to customary hospitality but also by guiding the day-to-day work of the visitor, thereby influencing the research process itself. In many ways, Marovo society seems to be highly participatory in relation to visitors, drawing visiting investigators into daily practical life and village discourse. Facilitated by the widespread command among villagers of conversational English, this process nevertheless requires the willingness of the visitor to eat

local food, to engage in conversations on a great variety of topics, and to listen, learn, and teach.

The following approach to documenting traditional marine knowledge emerged during 18 months of continuous work by the second author.

At Marovo, the emphasis was on following and respecting traditional channels of authority. This implied that, even after clearance by the Marovo Area Council, practical issues such as places of residence and entitlements to fish were settled by seeking customary permission from the chiefs and other leaders concerned, such as master fishers. Similarly, when seeking information the investigator consciously attempted to use the established networks of specialists, visiting and talking with those recognized as the Marovo experts (or leading persons) in their respective fields of knowledge. This pattern of parallel clearance by the Marovo Area Council at a general level and by chiefs and other leaders for the specific villages visited has

become the norm for new Project investigators and for guiding their documentation efforts. It is generally taken care of by the Project Organizer resident in Marovo, who is a well-respected local politician and traditional leader.

As much as possible, visiting investigators are encouraged to learn traditional skills and information by doing, rather than just listening. In line with both the personal observation approach to environmental knowledge and the participatory emphasis of the on-site research process, investigators often find themselves on the fishing ground, in the gardens, or in the rain forest together with their informants, the informants becoming practical teachers, showing the visiting novice how to apply traditional knowledge. Such was the approach continuously taken in documenting some 60 different fishing methods. In Marovo, it is often emphatically stated that only by doing it and seeing it yourself can you find out whether what they tell you is true, and project investigators are often told by elders in scholarly terms that after the theoretical come the practical lessons.

Marovo people greatly enjoy conversation, and experts on fishing knowledge are no exception. Typically, much documentation work takes the shape of information exchange rather than formal interviewing. As the visiting investigators are regarded as experts within their respective fields, their Marovo counterparts generally ask them questions. The second author once acted as interpreter during a lengthy discourse between an expert Marovo fisher and a marine biologist of high international standing on the subtleties of courtship and spawning among a group of small coral reef fish seemingly insignificant, as they are not eaten locally. It transpired that the Marovo expert had observed a number of things unknown to Western science. In Marovo, such discursive research is firmly reciprocal in nature, to the point where an anthropologist tells a legend from his native country in exchange for a Marovo legend just narrated, and where a marine biologist is asked for advice on how to efficiently get rid of sharks after Marovo experts have explained the lunar spawning cycles of the barracuda. Such reciprocal discourse typically leads to further fruitful exchange of ideas, as when the prospective shark fishers react to the received wisdom of shark biology by adding their own knowledge of lunar periodicity in shark aggression.

When visiting villages for the first time, investigators are encouraged to give talks to the community at large, explaining their work and answering questions. These sessions, usually held in the church or village meeting hall after the evening meal, have often developed into lengthy exchanges of information in which most of the adult members of the community participate. During the more successful of such meetings, a give-and-take process develops, whereby newly documented information is presented to the community, becoming the basis for further discussion. Such prompt feedback of traditional environmental knowledge in documented form sustains and stimulates the interest of Marovo collaborators, elders, and others who have provided information, and makes others more strongly aware of the nature and extent of the accumulated environmental knowledge that is part of Marovo culture.

The Interview Process

Five languages are spoken in the Marovo area. All of them are related, however, and most people understand the Marovo language itself, which acts as a common language throughout the area. The majority of villagers also understand and speak Solomon Islands Pidgin, a mainly English-derived Creole language. Many younger people also have a good working knowledge of English. As is common in the Melanesian region, the Marovo people are capable linguists, many of them being comfortable with all five local vernaculars in addition to Pidgin and English.

This diverse linguistic picture has some consequences for Project investigations. Counterparts to visiting investigators are fluent in several vernaculars, Pidgin, and usually English. Thus, they act also as interpreters during interview sessions. Only long-term residence in Marovo makes it possible for investigators to become independent of interpreters; even then, local linguistic assistance is normally required when discussing subtle details of traditional knowledge with elderly specialists. Such is the case with Marovo taxonomy. As with other folk taxonomies, Marovo taxonomy the naming and classification of fish, plants, animals, topography, and other aspects of the environment has a structure considerably different from that of Western science. Although there are many cases where a Marovo fish, plant, or animal corresponds with species of Western science, such correspondence is far from general.

Many visiting investigators have had previous experience in the Melanesian region, and have found their knowledge of Melanesian Pidgin (of which Solomon Islands Pidgin is but one of three forms) to be a great asset, not just during interviewing but particularly during informal interaction and participation in village life. Whatever the gender of the visiting investigator, knowledge of Pidgin is a prerequisite for free and active conversation with Marovo women, most of whom are reluctant to speak English.

As for the interview process, informants are not usually chosen by investigators; rather, they present themselves or are recommended by authoritative persons as and when appropriate.

Marovo elders are the key to much traditional knowledge and generally the highest authorities on matters relating to the customary law of resource management. However, many younger active specialists in restricted fields such as net-fishers, underwater spear-fishers, and dedicated gardeners also have a recognized status as keepers of knowledge. To teach the deeper detail of environmental knowledge as related to practical activity, elders often recommended such specialists to visiting investigators.

There are important gender differences in the distribution of environmental knowledge. For example, whereas men generally possess the widest and most detailed knowledge of the marine environment, women have unsurpassed knowledge of the near-shore zone and its fauna of shellfish and crustaceans. Marovo women have a particularly close awareness of the phases of the moon because of their relationship to menstruation cycles. As women usually gut the fish catches, and so are able to observe changes in gonad condition, they have developed an intimate knowledge of the relationship between lunar stage and the reproductive cycles of important food fishes. Whereas the uphill primary rain forest is generally the domain of men, the low-hill garden areas are largely the domain of women. Old women are the gardening counterparts of master fishers, and it is these women who possess the deep and detailed knowledge about cultivating innumerable varieties of staple crops. For example, the senior women of one Marovo village could immediately list more than 100 varieties of ngali nut *(Canarium* spp.).

The Marovo Project has a policy regarding payment level for Marovo individuals who are assigned to assist visiting investigators. Payment is set to cover the cost of being unable to do regular work, such as fishing or gardening. In the Project payment policy, there has been a conscious effort not to appear to be rewarding an individual for contributing to what is fundamentally a community Project, a project of whole Marovo.

The question of payment for information, however, has occasionally arisen. Most visiting investigators have, under guidance from the resident Project Organizer and others, grasped key Marovo concepts

of general reciprocity and have avoided any direct payment of money. Reciprocity by the visiting investigator is directed toward

- Coworkers (including main informants), taking the form of gift-giving and perceived as arising from a friendly and mutually rewarding social relationship;
- Households with which investigators live, taking the form of day-to-day contributions of food and other store goods; and
- Villages in which an investigator spends time, taking the form of donations to church, school, etc.

In several cases, investigators have maintained contact and reciprocity with individuals, families, and villages after leaving the Solomon Islands.

Reporting, Outputs, and Consequences

Reporting on the progress and results of the Project is required not only for technical agencies of the Solomon Islands Government but also to keep the Marovo community informed and involved. In general, investigators are required to produce at least an interim written report before they leave. Copies of all reports are filed with the Research Organizer and supporting government agencies. Reports are available in whole or in part to other interested agencies of the Solomon Islands Government.

Usually, more is expected than only a written report. Many investigators, for example, have given seminars on their work. These seminars are held in Honiara through, for example, the Extension Centre of the Fiji-based University of the South Pacific and attended by government officers and others with interest in the subject, not the least of which are Marovo people resident in Honiara. Also, investigators are encouraged to report to local communities visited in the course of the investigation.

At each Marovo Community Workshop, verbal reports are given on Project activities undertaken during the previous year. Investigators present in Marovo at the time make their own presentations; other presentations are handled by the Project Organizer, Research

Organizer, or a Marovo person who worked in close collaboration with a particular investigator.

When information gained by investigators is also used for academic purposes, copies of any published articles must be sent to specified number of Solomon Islands Government agencies, including the National Museum, National Library, and Western Provincial Government, as well as to regional institutions such as the University of the South Pacific and the University of Papua New Guinea. The Solomon Islands National Museum has also suggested that copies of research reports be deposited in the libraries of Marovo primary schools, in line with the national policy on promoting local feedback on research results.

Copyright restrictions may apply to some reports or parts of reports. With respect to the traditional knowledge documented by visiting investigators in Marovo, copyright remains with the Marovo community, held in trust by the Project. However, the founding Project document (March 1987) clearly states that permission for investigators to publish traditional knowledge that they have helped to record will not be unreasonably withheld.

Direct and tangible outputs of the Marovo Project include a large number of interim and final reports on specific Project activities as well as more substantial reports for different audiences, such as those of Johannes and Hviding (987) for the Marovo community, Hviding (1988a) for fisheries managers, Johannes (1988) for fisheries scientists, and Hviding (1988b) for social anthropologists. A set of technical dictionaries are being prepared, entries and glosses in each being presented in one of the four main Marovo area languages: Bareke, Hoava, Marovo, and Vangunu. These dictionaries will cover terrestrial and marine plants and animals, together with general environmental terminology and technical vocabularies. Each typically has upwards of 400 entries (see Vaguni 1988). A series of booklets of local custom stories, some of which embrace elements of environmental knowledge, is also soon to be published (for example, Vaguni and Hviding n.d.; Hviding n.d.).

Some indirect consequences of the Marovo Project approach to documenting traditional environmental knowledge should also be mentioned. A selection of Project material has inspired some recent efforts in developing secondary school curricula in the Solomon Islands (such as the *Resources from the Sea* unit for Form 2, currently under trial in Solomon Islands schools) and in the United Kingdom (Barrett et al. 1989).

Subject to future funding, a complex of three related workshops on the Marovo Project will be held. The three workshops will cater to the community, technical (government planning and management), and academic groups. They will overlap and interlink to enable each group to understand the perspective and contributions of the others. They will also be used to examine the Project s attempts at participatory planning and to consider its effectiveness in contributing to community-based conservation efforts. Further, the workshops will assess the relevance of the Marovo Project for other traditional land- and reef-holding communities in the Solomon Islands and elsewhere in the South Pacific. The reports and guidelines that will come out of this,innovative workshop experience are expected to be of widespread interest.

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