

South Pacific Regional Environment Programme

Training Unit E1

TRADITIONAL RESOURCE USE AND MANAGEMENT

USE OF THIS UNIT

This unit gives some of the background to traditional or customary systems of resource use and management, including both good and bad examples. It shows the context within which these practices arose, and thus should help the participants to understand and appreciate them better. Some participants may still have a good knowledge of their own traditional systems, and they should be encouraged to discuss them and to use them to illustrate the points made. Others may know very little about their cultural heritage, and this section may help them to discover that the past is worth knowing about, and hopefully motivate them to try to learn more.

Since most participants in the Pacific Islands will already have some experience of these subjects, at least in their own area, the ideas in the text should be used to stimulate discussion on the value of this knowledge. The aim in many cases will be less to teach new knowledge than to change the attitudes of the participants towards knowledge they already have but may not have appreciated.

The discussion can be enriched by bringing in local people who know traditional resource management systems well.

EXERCISES

Field trips can be made to areas where traditional techniques for resource use and management are still practiced, hopefully with opportunities to discuss the techniques with people who still use them in their daily life.

(Unit written by A. L. Dahl, based in part on Dahl, 1985)
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TEXT

TRADITIONAL RESOURCE USE AND MANAGEMENT

Islands are by their very nature limited in many of their resources, such as the land and soil, fresh water, and the stocks of wildlife and fish, and modern society is not the first to have to learn to live within those limits. There have been many waves of migration across the Pacific in the past, bringing different peoples and cultures to settle in the islands. They either learned to live within their island limits, or they failed to survive.

The tragic example of Easter Island shows what can happen if people do not respect their island's environmental limits. The evidence suggests that the Polynesian population of Easter Island grew too large some centuries ago. The people cleared more and more of the island forest to grow food and to meet their need for wood. Finally all of the trees were cut down. There was no more forest to restore the fertility of the soil, and no more wood to build houses or even to build canoes to sail away from the island. The unprotected soil got poorer and poorer and could not produce as much food. Apparently these resource difficulties led to warfare and social decline as people fought over the few resources that were left. Today the island is covered with grass without a single native tree or shrub, and can support only a small population. The giant stone statues erected long ago stand as silent witnesses to the environmental disaster of the past.

As people settled in the Pacific Islands, they made many changes in the environment, cutting and burning forests, hunting wildlife, and clearing land for agriculture. Sometimes they destroyed a resource before they understood its limits, as in the case of the New Zealand Maoris who apparently hunted the moa (a large bird) to extinction.

Fortunately, probably after a period of trial and error, most island peoples learned to be careful, and to control their use of those resources that were in limited supply. Since each island is different, the techniques they developed varied from one place to another. Their methods showed great ingenuity and a deep understanding of the resources.

It is important to understand and judge these methods in their traditional context. There were very few materials available on the islands; wood, some leaves and fibres, shells and stone were the only things that could be used for tools or construction. Walking, paddling and sailing canoes were the only means of transport. Therefore some resource management problems did not arise because human impact was limited by the available technology. It was hard to clear large areas of forest with stone axes; fire was perhaps the most powerful land clearing tool available where it was dry enough. Remote reefs upwind from the village were seldom fished because they were too hard to get to. Fishing was selective because nets and traps were crude and let many fish escape. Hunting was equally difficult. In these cases direct controls on resource use were less necessary because the technology was already limiting. Sometimes the return to a simpler technology may be the best protection for a resource.

Traditional use and management methods often illustrate intelligent solutions to various resource management problems, and can thus serve as a guide to the limits to respect or the methods to apply today. The following are a few examples, but each country or island should explore its own store of traditional knowledge for the most appropriate local practices.

Agriculture

The biggest challenge in traditional island agriculture was to maintain a supply of staple foods all year round when the varieties available and environmental conditions made food storage difficult. Some crops like breadfruit were very seasonal, but yams could be stored for a few months and taro could often be held in the ground until needed. Still there could be times when people were reduced to eating bark and roots in the forest.

The types of agriculture were adapted to each island. Where there was enough land, shifting cultivation was widely practiced because of the problem of maintaining soil fertility. Where water was in short supply or variable, systems of irrigation and water management were developed. The following example from New Caledonia will illustrate traditional approaches to island agriculture.

The two principal crops in New Caledonia in pre-European times were yams and taro, both the subject of intensive and highly specialized cultivation techniques (Barrau, 1956). Yams are a dry land crop with great cultural significance. They were grown in mounds specially prepared to provide ideal conditions for tuber development. On slopes, these mounds were crescent shaped with the points down hill. Stone or clod retaining walls were often used to retain their form, and the channels near the points were generally lined with stones to prevent erosion. On valley bottoms and along streams, the mounds were circular or more often linear, 3-4 metres wide, more than 1 metre high, and sometimes extending for several hundred metres. Lands subject to heavy flooding were avoided. The channels dug out to make the mounds provided drainage and helped to protect against flood damage during the wet season. The slopes of the mounds were often planted with sugar cane and other crops to retain the soil; windbreaks and mulching were also used. The vines were trained up straight poles, which could be removed in the event of a cyclone, or up basket-like trellises (in the Loyalty Islands). Special techniques such as planting the yams over hollow cavities allowed the production of tubers up to 2 metres long.

Taro requires saturated or continually humid conditions for growth, which with the seasonal and irregular rainfall patterns of New Caledonia makes irrigation essential. Legend records that the technique of irrigated taro cultivation was brought long ago by foreigners who made many mistakes at first, but the numerous traces of terraces still visible today all over the island show the extent to which the art was developed and perfected locally. Water was captured high up on permanent streams and conveyed through canals, often over several kilometres, to slopes where terraces could be constructed. Aqueducts were used to cross depressions, hollowed trees were used to bridge gullies, and special overflows protected against damage in heavy rains. Terraces generally 2 to 6 metres wide were carved out of slopes up to 80%, with an outer wall sometimes reinforced with stones or logs. Stone-lined spillways and sluice-gates directed the water from one terrace to

another, and permitted precise control of water flow, but the systems required constant surveillance and maintenance. The hydraulic works were protected by a code of prohibitions and taboos, but earthworms were a significant cause of leaks. Plantings along the banks had both magical and practical significance in stabilization and erosion control. Some heads of valleys became great amphitheatres of taro terraces, and terraces were also developed along streams, and in low swampy areas where the taro was planted in raised beds. Similar types of irrigated taro cultivation occurred where conditions were appropriate throughout Melanesia and Polynesia, and are still practiced in some parts of Vanuatu.

Both yams and taros are maintained as vegetatively reproduced clones. Many varieties were imported at different times, and others were probably generated spontaneously in gardens long left in fallow. The result was a large number of varieties adapted to different culture conditions and harvest times, which were grown in different gardens and even different parts of a terrace or mound. A small village could maintain 20 or more varieties of an important crop plant. There was an obvious awareness of the importance of these varieties, and new forms were sought out and tried. While various lists or descriptions of these varieties have been made, the precise conditions for which they were adapted have seldom been noted, nor has there been a comparable effort to preserve the varieties themselves, and with the decline in subsistence agriculture and the collapse of irrigated taro cultivation, a large part of this valuable genetic resource base has probably been lost.

Many secondary crops, such as sugar cane, bananas, and other fruits, greens and nuts, were grown in and around the principal staples, or gathered in abandoned gardens or in the wild. Some foods or varieties were restricted for use in times of drought or famine; these may have been more important in early pre-cultivation times. Others were important sources of fibres and other materials. These useful plants have been reasonably well documented for most of the region. There were presumably also traditional controls of plant pests and diseases, but these have not often been recorded.

There were two principal constraints on traditional agriculture in many islands. The first was the difficulty of maintaining an adequate food supply all year round. Periods of scarcity requiring the use of less palatable foods from the forest were common. The yam is a seasonal crop, and while it can be stored for about 6 to 10 months under cool dry conditions, there is often a gap before the next harvest, especially if much of the supply is consumed at an important event. Taro keeps only a few days after harvesting, but with regular rainfall or irrigation it can be planted all year round and held in the ground for a long period after maturity. This was a principal justification for the effort of maintaining irrigated taro where rainfall was erratic. The potential for growing both of these staples also varied from one island to another, and in some places it was necessary to rely on other crops including breadfruit and pandanus. The long-term accumulation of agricultural surpluses was therefore impossible, and a system of exchanges for immediate consumption remained the basis of the economic system. The food supply was also vulnerable to disasters such as cyclones, and plantings were often fragmented for better security. The success or failure of a crop depended on factors beyond human control, and much traditional magic was an attempt to influence these factors.

The second constraint was the lack of methods for maintaining or improving soil fertility in much of the region. In spite of the great investment in clearing forest and sometimes in constructing terraces or mounds, only a few harvests at most were generally possible before yields declined. A fallow period of 3 to 20 or more years was usually necessary before the land could be used again. This meant that very large areas had to be developed, with much of the land in fallow at any one time.

The agricultural calendar is one of the most critical aspects of any agricultural system, yet little information on this has been preserved in many countries. Sometimes planting and harvesting were linked to celestial events, or to natural happenings such as the flowering of a tree. However, each local area adapted these to their weather patterns, crop varieties, and other factors, and there are great variations from place to place. Such timing was one of the most important aspects of island life, to the point that plants such as yams that permitted man to situate himself in time were sometimes given magic or ritual qualities. Counting or measuring time does not seem to have been part of many island cultures, and in such cases there was more reliance on celestial events and on a calendar by association with events in nature such as the flowering or fruiting of trees.

While big islands allowed large scale agricultural development, there could be equally sophisticated techniques for atolls where there was practically no soil and no surface fresh water. In Kiribati, for instance, pulaka (a kind of taro) is grown in pits dug down through the coral rock to the level of the fresh water in the underground lens. Soil has to be made for each plant. Baskets set at the water's surface are filled with leaves and vegetable matter which rot to produce the soil in which a single pulaka plant is grown.

Fishing

While in agriculture the amount harvested depends on the amount planted, fishing is different in that it is basically harvesting a wild resource, like hunting or gathering in the forest. A traditional fisherman could not increase the amount of fish over what was there naturally. The challenge for traditional fisheries was to make the greatest sustainable harvest all year round regardless of ocean conditions. This requires the control and management of the kinds and amount of fishing allowed, and there were many traditional methods to do this.

The first level of control was through the ownership of and thus limited access to fishing resources. Usually a section of reef, lagoon or river belonged to a village or family. They were responsible for the resource and depended on it for their survival, so management was both possible and necessary. Under these conditions it was possible to leave fish for later without fear that they would be taken by someone else.

The second level of control was the fishing technology itself and the fact that most fish caught could not be stored and had to be eaten immediately. Fishing with a spear, for example, or using a trap permitted selecting just the fish that were needed. Some parts of an island or reef were usually too difficult to get to or fish in with canoes, and thus served as reserves to maintain fish populations.

The basic fishing techniques seem similar in most Pacific Island areas. Women and children gleaned crabs, sea urchins, octopus and various shellfish from reef and mangrove areas accessible at low tide. Fishing with nets, lines and spears was a men's occupation. Nets were made with fibres from forest vines or coconuts and could reach 50 metres in length. The fish encircled with such a net were grabbed, clubbed or speared, so that only useful fish were taken. Special large nets were made for catching turtles and other large animals. Smaller nets served to catch small fish such as sardines or mullet. Coconut leaves were also used to encircle fish. Fish traps were constructed of basketwork or with stone walls. Dugong, turtles and even whales were hunted when possible. Sometimes these scarcer resources were reserved for chiefs or for special occasions. Poisons from various plants were also used for fishing in both rivers and the sea, with plants collected in the wild or even cultivated. Traditionally such techniques were usually used judiciously and in moderation.

A third level of traditional management was through controls on the times and places for fishing. Fishing calendars were as elaborate as agricultural calendars. There was sometimes an extensive lore linking the flowering or fruiting of various trees with the best times for catching different species of fish. Fishermen knew the behavior, migrations and reproductive cycles of many species of fish (Johannes, 1978), and used this knowledge both to make catching fish easier and to protect species when they were particularly vulnerable.

Most island peoples observed a complex set of rules governing fisheries which ensured both good catches and sound management of the resource. Some areas were protected by permanent taboos and served as reserve areas. Other taboos might be seasonal, either protecting a resource when it was particularly vulnerable, or reserving an easily caught resource for the bad season when other kinds of fishing were not possible. There were also occasional taboos, such as that on the death of a fisherman over the area where he customarily fished. Such closures of an area to fishing allowed the fish populations to recover.

For example, there is a traditional fishery in the Solomon Islands for certain shells used to make customary shell money. The fishery used to be managed by the pagan priest, who would put a taboo on an area of the lagoon for 3 to 5 years (which was just the time for the shells to grow to a reasonable size). He would then lift the taboo in that area and apply it somewhere else. Unfortunately, when the villagers converted to other religions, the priest kept the taboo on for 30 years because he was not given enough pigs to sacrifice, and the traditional management system broke down.

Hunting

The lack of adequate sources of animal protein on the land was a major problem on many islands, especially for tribes without access to or an orientation towards the sea. Only Papua New Guinea has significant large game animals. Elsewhere, the forest only provided flying foxes (fruit bats) and birds such as pigeons as game worth hunting. On some islands land snails and certain grubs were also eaten. As with fishing, hunting was limited by the technology available for killing or catching animals and birds, as well as by

traditional rules and practices. There were also taboo forest areas which, among other things, protected breeding stocks of hunted animals.

As in other societies where animal protein was limited, the desire for flesh sometimes led to cannibalism. Wars were sometimes motivated by a desire for meat, and in some areas it was even a role of certain families to supply one of their members for the chief's meat. The European introduction of large mammals made other sources of protein widely available, and these practices quickly died out.

Medicine

Traditional healing techniques depended on environmental resources, particularly on the medicinal use of many local plants. These practices often continue parallel to western medicine even today. Traditional medicine is known to include both rational and psycho-therapeutic techniques, together with a folk classification and names for ills and diseases, and involves both simple family remedies and specialist healers for different types of treatments. Traditional surgeons, for instance, were highly skilled, and were even able to replace parts of the skull with coconut shell.

Technology

Traditional technology concerned the knowledge and skills necessary to use the materials available in the environment to meet various human needs. There were techniques for the fabrication of bark cloth and various types of string and rope. Pottery was made in some areas, and jade and other stones and shells were worked to make different implements. While most of the techniques and the resulting articles have been recorded, the skills that can only come from practical experience have largely been lost.

While island structures sometimes achieved spectacular proportions (huts in New Caledonia could reach 9 metres in diameter and 12 metres in height), they were sometimes condemned by westerners as unsanitary and pressures were often great to replace them by European-style houses. Traditional construction techniques were often highly sophisticated and very beautiful. Each island developed types of structures adapted to local conditions. The open Samoan fale remains comfortable and airy in spite of the tropical heat. The closed hut of New Caledonia was much better adapted to the hot days, cold nights and mosquitoes of most rural areas, than the corrugated iron shacks that were built to replace them, and today many families keep both. Kanak huts also had a flexible construction that made them very resistant to cyclones.

The qualities of each material available in the environment were known and appreciated. Islanders were able to cut large trees in the forest, move them to a building site and erect them as centre posts, or hollow them out for canoes or aqueducts. There was obviously a very complete knowledge of the qualities and resistances of each wood and their appropriateness for different tasks.

General environmental knowledge

The scope of traditional knowledge of nature and the environment was very large. There were names for and a classification of every significant species of plant and animal. Periodic events like the movements of celestial bodies, the flowering and fruiting of trees, and the migrations of birds and fish were observed and incorporated into the system of knowledge. Celestial navigation was practiced, permitting long ocean voyages and precise landfalls. The weather could be predicted with only rare exceptions.

The traditional islander did not feel cut off from his environment but a part of it. He knew his local environment as well as he knew his own body. To the heritage of knowledge received from his parents, family and ancestors, he added his own personal experience from a lifetime of intimate contact with his surroundings. Only rarely would he be surprised by an unknown or unexpected phenomenon beyond his experience. Life was not always easy, but he learned to make the best of it through full and wise use of all the resources of his environment.

REFERENCES

- Barrau, Jacques. 1956. Native subsistence agriculture in New Caledonia. South Pacific Commission Technical Paper No. 87:45-153.
- Dahl, Arthur Lyon. 1985. Traditional environmental management in New Caledonia: a review of existing knowledge. South Pacific Regional Environment Programme, Topic Review No. 18. 17 p.
- Johannes, Robert E. 1978. Traditional marine conservation methods in Oceania and their demise. Annual Review of Ecology and Systematics 9:349-364.

QUESTIONS

Where did the people on your island come from?

What changes did they make in the island environment before the Europeans came?

What plants or animals did they bring with them that were not already on the island?

What kinds of traditional agriculture were there on your island, and how were they managed?

Was there any time of year when food was scarce? What did people eat?

How was traditional fishing managed on your island?

Was there ownership of or controls on access to coastal waters?

What fishing techniques were used and how did they work?

Were there taboo or closed areas or seasons in the sea? on land?

How was hunting managed?

Do you know the important medicinal plants in your area?

What are some of the ways in which traditional houses were adapted to the environment on your island?

Do you know some of the signs for predicting the weather?

What do you think should happen to traditional knowledge today?

South Pacific Regional Environment Programme

Training Unit E2

SORCERY AND SCIENCE

USE OF THIS UNIT

The purpose of this unit is to show that there was a scientific content and scientific approach in traditional Pacific Island cultures, and that science is therefore not just something new imported from outside but the continuation and expansion of processes central to traditional life in the islands. Unfortunately this traditional knowledge was often hidden under the name "sorcery" applied by the early missionaries and administrators, who tried by every means to stamp it out, and largely succeeded.

The discussion of this material should aim to help the participants go beyond the old labels of "sorcery" and "superstition", so that they can look again at traditional knowledge with a modern understanding to see what may still be useful today. By appreciating the scientific content of their heritage, the participants may also find it easier to study principles of modern science which may be useful to the management of their environment.

TEXT

SORCERY AND SCIENCE

The development of modern science has provided the foundation for the explosive development of western civilization. Today it is through science that we look for the answers to the problems of the material world, whether in human health and medicine, in the development of resources and industry, or in the protection of the environment.

Yet science is not something fundamentally new and different. It is an accumulation of knowledge based on looking carefully at the things that go on around us in nature, and then thinking about and organizing all our observations into systems of structures, theories or laws that best explain what we have seen. The proof that such an explanation is the right one is that it can successfully predict what will happen if the same things are done or similar conditions occur again. The law of gravity predicts that if we drop a heavy object it will fall towards the earth. We would be very surprised if the object suddenly fell upwards, and would have to change the law of gravity.

At different times or in different cultures, the events or facts observed may be the same, but our ways of explaining them may change as new ideas or theories provide better or more complete explanations than older ones. For instance, after hundreds of years of believing that the sun turned around the earth, scientists discovered that it was more logical to see that the earth turned around the sun. In another example, it is only some 20 years ago that earth scientists realized that the continents, long thought of by most people as fixed, really drift over the surface of the earth, separating from or colliding with each other.

The general public has never fully understood what scientists do and why they do it. In Europe in the past, the distinction between astronomers or alchemists and magicians or sorcerers was not very clear, and scientists able to predict future events such as an eclipse were looked upon as having special and perhaps dangerous powers.

The same problem occurred in the Pacific. The early European visitors, and particularly the missionaries, did not understand the beliefs underlying island cultures, and they worked hard to destroy the "sorcery and superstition of the natives" and to replace it with enlightened European ways of thinking. Looked at without the biases of European society which has always thought of itself as superior, island cultures included logical and internally-consistent explanations of the natural world and man's position in it. There is some belief in magic and superstition in all cultures, often mixed with sound observations, and quite a high proportion of traditional knowledge would today be called scientific. Unfortunately the attempts of well-meaning missionaries and educators to destroy these traditional beliefs in order to replace them with something else have led to the loss of much valuable information on the environment along with ideas and practices that had outlived their usefulness.

The ways in which people observed the workings of nature in island societies were similar to those of modern science. The master fisherman, for instance, would spend many hours watching the sea and the behavior of fish. He would thus add to the knowledge received from his forefathers, and he would in turn pass on his accumulated knowledge to his successor, just as scientific knowledge is accumulated and passed on. However, the intellectual context within which the observations were interpreted was very different. An unfavourable change might have been interpreted as the influence of an enemy's magic powers, to be counteracted by the use of other magic. Even the way in which man saw himself in relation to the natural world was different from that of the European. The kanak of New Caledonia, for instance, did not identify himself as separate from the world around him; on the contrary, he was part of the world and perceived himself by analogy with objects in nature such as the yam, whose cycle symbolized the cycle of life. The ancestors were born from trees, and the body was identified with the vegetable kingdom.

Many things in the natural world had a mystical or spiritual significance, often related to the ancestors and the origins and history of the people. The different plants even had symbolic meanings that were used as a kind of language. The land was the spiritual as well as material source of life. It is no wonder that the habitat was worshipped and that there was no distinction between magic or myth and the natural world.

Knowledge in island cultures was not held equally by everyone; there was a tendency towards specialization in the community. Each family often had its own knowledge and magic passed from generation to generation, and its assigned hereditary role in the community. In New Caledonia, the family of chiefs symbolized the clan and provided political leadership, announcing decisions taken in consultation with appropriate specialists. Other families provided priests, war chiefs, orators and other figures in the community. Many of these specialists had a role in managing environmental resources. The family of the first occupants provided the master of the land who distributed the land and preserved in his memory the record of all land boundaries and ownership. There was often a master of yams or dry (male) crops, and one or more masters of wet or female crops (taro, bananas, sugar cane) who were the agricultural technicians and decided the timing of gardening operations. The doctors and healers had their special knowledge of sicknesses, medicines and other treatments. Fishing knowledge and magic was held by the families responsible for supplying fish to the chief. A clan might be foresters or carpenters, with a knowledge of the forest trees, the qualities of each wood, the techniques for cutting and hauling a tree to the building site, and the construction of huts or the making of canoes. Families might own magic to control the sun, the rain, cyclones, or the land breeze to chase away bad weather. These different specializations were not mutually exclusive, and the number varied with the area and the size of the community. The rolls could also be combined; a sculptor might also be a surgeon, since both required similar cutting skills.

There was usually some separation of specializations between men and women. Taro was a female crop, and women knew more than men about the different varieties of taro. Pottery, tattooing, midwifery and some types of healing were also women's roles in New Caledonia. Each island culture had its own ways of dividing up and transmitting such traditional knowledge.

It is clear that many examples of "magic" were really based on scientific knowledge allowing the holder of that knowledge to predict the probable outcome of natural events. The head of a family on Lifou in the Loyalty Islands had magic allowing him to climb up on a promontory and to ask the relations of his god in another locality to send him fish; although the rite is no longer followed, when the wind blows from the other locality it still washes fish up on the sand, just as it did the day after the magician performed the rite. The magic was thus related to a natural happening, and the skill of the magician may have lain in knowing how to read the natural signs that the event was about to happen, and then to use his magic.

The master of a crop in New Caledonia frequently had a small sacred garden in which he first practiced the different acts in the cultivation of the crop. These ritual gardens probably served as small experimental gardens and weather stations permitting the master to observe the development of the plants and to adapt his decisions and advice to the variable climate.

A knowledge or skill was intimately related to the myth or magic with which it was inherited. Again in New Caledonia, one missionary described the case of a skilled sculptor and surgeon whose confidence rested in the gift from his deified ancestors; when he became a Christian, this confidence was destroyed and his skill was lost. This shows how closely practical skills and knowledge were linked to the values and beliefs that underlay traditional cultures. There was not the same separation into intellectual compartments as there is between science and religion in modern European cultures.

Traditional environmental management was often the responsibility of the priests or other holders of spiritual or magical powers. Their controls and prohibitions generally had the force of religious taboos, with all that that implied for the effectiveness of enforcement. A taboo might be placed on a garden to protect the crop before the harvest, or an area of tall grass might be protected because it was needed to repair the thatch on the huts in the village. In the Solomon Islands example cited in the previous unit, it was the pagan priest who was responsible for controlling the harvesting of the shells for making shell money. He would apply or remove taboos on the lagoon at intervals necessary for the growth of the shells to a reasonable size. In that situation, the conversion of the villagers to other religions meant the breakdown of the system of resource management.

This close relationship between what would today be called science and religion (or belief) has made it much harder to appreciate the values of traditional cultures. The replacement of pagan beliefs by Christianity meant a rejection of all that was associated with those beliefs, including much that was socially or scientifically valuable. Today we must overcome the prejudices of the past and search out those parts of island cultures that continue to be valid today, and that can help to find appropriate solutions to modern problems. We must in a sense bridge the gap between sorcery and science.

REFERENCE

- Dahl, Arthur Lyon. 1985. Traditional environmental management in New Caledonia: a review of existing knowledge. South Pacific Regional Environment Programme, Topic Review No. 18. 17 p.

QUESTIONS

What do you think about science?

Was there science in your traditional culture?

How was man's place in nature seen traditionally?

Did your family have any particular magic or scientific knowledge?

What different kinds of traditional specialists were there who might be said to have had scientific knowledge?

Can you think of scientific explanations for things that were traditionally thought of as magic?

Why were taboos respected traditionally?

Do you think it would be useful to try to preserve traditional knowledge of the environment?

How can traditional environmental management practices that were part of the pagan religion be brought up to date and applied today?

South Pacific Regional Environment Programme

Training Unit E3

SALVAGING AND EVALUATING TRADITIONAL KNOWLEDGE

USE OF THIS UNIT

One of the most important steps in preparation for local environmental management is to reconstruct what knowledge still remains about traditional management systems and to evaluate its pertinence to modern needs. The previous units should have given the participants an appreciation for their heritage of traditional knowledge, yet the chances are that their understanding of it will be partial and imperfect. This unit gives some ideas for the collection of traditional knowledge, with emphasis on the kinds of documentation necessary to ensure that the records will also be useful to others in the future. Information without enough data on its origin is nearly worthless, like an old photograph without information as to who it is and where it was taken. The participants must realize the importance of recording what they know or learn, and the presentation of this unit should emphasize this.

If there are already local cultural preservation activities (often associated with a museum or cultural centre), a person responsible for these activities could participate in the discussion on this topic.

EXERCISES

The intent of this unit is to get the participants to start recording the traditional knowledge of the environment in their own village or family. This could be started as field exercises during the course, with each participant reporting back to the group.

If there are existing cultural preservation activities, the participants might be able to assist with the field work for those activities.

Some countries already have an archive of written or recorded documents on traditional knowledge. Participants could be assigned to search through some of the archival material for information useful to resource management.

TEXT

SALVAGING AND EVALUATING TRADITIONAL KNOWLEDGE

One of the greatest tragedies in the recent history of the Pacific is that so much of the traditional culture and environmental knowledge accumulated over generations has been lost. Such information was only stored in the memories of men and women, and passed verbally and by apprenticeship from generation to generation. The disturbances and population decline following European contact meant that many people died before giving their knowledge to their children, and the children were often taken out of the village and put in schools where other kinds of knowledge were taught. Some missionaries and anthropologists have written down what they observed, but there was much that they could not understand, or that was withheld from them.

As a result, only a tiny fraction of most traditional cultures has been written down or otherwise recorded. Much has already been lost, and the old men and women who still possess such knowledge reasonably intact are not passing it on to the next generation; it will die with them. There is clearly some hesitancy to pass on this precious heritage either outside the family line, or to those who do not appreciate it. Persons of middle age often recall the existence of such knowledge from their childhood, but for them it has fallen into disuse, and their personal experience in its application is generally limited. The young in general see no pertinence in such traditions to the modern way of life they hope to live, and are thus not interested.

There are many reasons why this traditional heritage is being lost. For generations, the "superstitions of primitive peoples" have been discredited by missionaries, administrators, educators and European colonists. One missionary, for instance, declined to record all the "superstitious ceremonies related to fishing", pitying the poor natives whom only the Christian message could save from such darkness. Children are no longer educated in the family or the tribe, but in schools where western-style education gives little time to traditional cultures. Traditional patterns of social organization for collective action have been disrupted, making it impossible to continue group occupations such as collective fishing or the irrigated cultivation of taro. New occupations in towns, industries or commercial agriculture have attracted the most able, and reduced the extent of traditional subsistence activities. Traditional knowledge no longer passes automatically from father to son or mother to daughter. Even where subsistence activities have continued, new technologies have replaced old, and the old knowledge has seemed superfluous even where it would still be useful. The technological fix is an easy temptation for all societies.

Clearly there is no point in going back to a traditional technology such as hand-woven sennit nets when new nylon nets are readily available and more efficient. However, much of the knowledge of the fisheries resources is even more necessary today if catches are to be maintained and overfishing, made easier by new technologies, is to be avoided. The same is true in many other areas of resource use. Many imported development approaches have proven destructive of the resource base, and local traditional techniques which have

been adapted to local conditions and refined over centuries may provide a better guide to sustainable development.

Some kinds of traditional knowledge have been reasonably well recorded by anthropologists or missionaries in a few areas of the Pacific, while others have entirely escaped the review of western scholars. The number of studies in depth based on extensive field work is very limited; many papers simply repeat the observations of earlier workers with slight additions or reinterpretations. Often the existence of some type of knowledge or practice has been noted, but the actual content or necessary detail has not; a reference to the flowering of a tree is of little use without knowing what tree is referred to. Even more unfortunately, the published literature consists almost entirely of reports by outside observers. Few islanders have yet come forward to record their own cultures free of the biases inherent in any outside perspective.

Today many traditional practices for resource use and environmental management have diminished or disappeared entirely. Traditional agriculture has declined steadily since the arrival of the Europeans, and today in some countries only the simpler types of subsistence cultivation remain. In New Caledonia, the European introduction of cattle and deer that trampled hillside irrigation structures and raided gardens was disastrous for the water systems on which taro depended. With the displacement of many clans from their ancestral lands, and the colonization of the best agricultural land by Europeans who did not understand or appreciate traditional agriculture, the continuity of agricultural development was broken. The population decline, the breakdown of traditional social structures, the competition for land and labour from cash crops such as coffee and other employment, the introduction of crops easier to cultivate such as manioc, and the availability of imported foods have all contributed to the collapse of traditional agricultural systems. Even where traditional cultivation continues, the less demanding crop varieties are now preferred. Little remains today of the elaborate and sophisticated agricultural systems of the past.

Subsistence fishing has suffered the same decline as agriculture, and those techniques requiring collective effort are rarely if ever practiced. The changes brought by European fishing technology and improved boats have probably been even greater than in agriculture. Even where great areas of reef and lagoon are available, overfishing has become an increasing problem. A return to more traditional fisheries management techniques might be a solution.

A review of traditional environmental management shows what a rich heritage there must have been and how little has been preserved or recorded. On some subjects there is a good written description, but without the skills that can only come from practical experience. For other topics, there are only generalities without the detail necessary to be useful. In some areas there is only a hint of the former existence of practices or knowledge that might have been very useful as a guide to solutions to modern resource management problems.

What we do not know is how much of this information may still exist, perhaps unconsciously, in the daily practices of rural workers or the memories of old people. While no one living today can remember back to pre-colonial times, there may still be some who were young when such skills were still valued in the family.

The salvage of the valuable heritage of island cultures and of the environmental knowledge that is part of this heritage cannot be left to outsiders. There are too few of them, and problems of confidence and language make it much more difficult for them to collect and record this information correctly. The islanders who have such knowledge must ensure that it is passed on, or at least recorded in some way for future generations. However, only a major effort by the young people of each family or island to renew their interest in this heritage and to make the effort to learn it will truly save what is left.

A culture is never something that is rigid or dead, it is always changing and adapting to new conditions. The effort to learn your traditional heritage will inevitably be accompanied by an evaluation of that knowledge and a selection of those parts of it that are still valid today. This will both keep island cultures alive and help them to evolve and adapt to the new economic and social climate of an inter-related world.

Techniques for salvaging traditional knowledge

There are many categories of traditional knowledge that are worth saving for the future. These include:

- Legends, history, genealogies
- Religion, magic, taboos
- Social structure, relations, family roles
- Land and reef ownership
- Rights to and management of resources
- Agriculture
- Fishing
- Hunting
- Food storage and preparation
- Forest use, gathering
- Medicine, healing
- Construction or fabrication of:
 - houses
 - canoes
 - implements
 - materials
- Warfare
- Other subjects you may think of.

In order for the information you collect to be useful, you should note as much about that information as possible, answering the basic questions: Who? When? Where? What? Why? A possible format showing the kinds of things it is useful to write down with traditional knowledge is shown in the annex to this unit. This format could also be used as a questionnaire for projects collecting traditional knowledge.

The following are some ways in which traditional knowledge can be saved or recorded for the future.

- Record the stories and descriptions of the elders on cassettes, or even (if facilities are available) with video or film, especially if manual techniques are demonstrated. Think of what you would want to hear or see if you were going to learn the knowledge from the cassette or film. Always write down the particulars of what you record (who, when, where).
- Write down the stories and descriptions as you hear them. Young people could write papers on some aspect of traditional knowledge in their family or village as part of their school assignments.
- Prepare written reports or articles on traditional knowledge which could be published in the newspaper or by a local society or museum. There is no reason why outsiders should be the only ones to write about your culture.
- Photograph examples showing traditional knowledge, or make drawings of them, or collect examples if objects are involved. Be sure to label these well with information on what it is, where it is from, what it is used for, and who made it.
- Make surveys or interviews of people in a village or area, filling out a questionnaire for each person talked to.
- Try out traditional techniques to see how they work, and note the results.

These materials or copies of the materials collected should be given for safekeeping to your local museum, archives, cultural centre, library, or other safe depository where they will be taken care of and made available to those who are interested in them. Even if no one seems to care now, the chances are good that in 10 or 20 years, people will appreciate the care you have taken to preserve your heritage.

Sometimes people will not want to share or reveal knowledge that has always been kept secret within the family. The ideal would be to find a member of the family interested in learning and carrying on the traditions. If not, it may be possible to get permission to record the information by fixing certain conditions for access to the records, such as access only with the permission of the family, or after some fixed period of time (such as 5 or 20 years), or upon the death of the person providing the information. If such conditions are agreed to, they must be noted with the records and always respected.

Evaluating traditional knowledge

It is difficult to say what is the real value of traditional knowledge, because no one can predict what will be needed in the future, just as earlier generations did not understand the needs brought on by the environmental problems of today. Thus it is better to record everything, and not just what we think is important.

Sometimes we may not know enough to see the importance of something. It can often be helpful to discuss the information with a scientist, school teacher or other knowledgeable person. What we can judge is usefulness to our immediate situation. In evaluating traditional knowledge or practices, try asking the following questions:

Does it relate to modern problems? How?

Does it have information of possible scientific interest?

How might it be put to use again?

Can traditional and modern techniques be put together in some way?

REFERENCE

- Dahl, Arthur Lyon. 1985. Traditional environmental management in New Caledonia: a review of existing knowledge. South Pacific Regional Environment Programme, Topic Review No. 18. 17 p.

ANNEX

Format for collecting traditional knowledge

Name of person collecting information:

Place:

Date:

Name of person providing information:

Address:

Place and date of birth:

Title or traditional role:

Family relationships:

Subject:

(text of legend, description of practices, how used or prepared)

(with sketches, photographs, maps showing places, other illustrations)

Supporting materials: (objects, plants [dried pressed branches with flowers, etc.] or parts used)

Origins of knowledge

Traditional or legendary origins:

From whom received (genealogy of transmission):

Restrictions on use or transmission of knowledge (kept secret, passed from person to person, or within family, etc.):

Conditions for access to this information (if any):