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Traditionally based marine management systems in Vanuatu

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Introduction

In Vanuatu increased reliance is being placed on marine resources to support and sustain national development, because land-based mining is non-existent and the agricultural sector could never be productive enough for this purpose. Throughout the coastal area and in adjacent oceanic waters, Ni-Vanuatu and a few foreign interests target marine resources in operations that range in scale from subsistence to industrial.

In Vanuatu, religious, cultural and historical traditions play a modern role that is impossible to over-emphasize. As might be expected of a pastoral and hunting people, much of this tradition is intimately bound up with observation of and reverence for the natural world. As noted in the National Constitution:

A further major reason for natural resource protection in Vanuatu is the close identification that all ni-Vanuatu feel with the land, their own custom land in particular. Ni-Vanuatu living in a degraded environment will suffer a spiritual or cultural loss with a consequent lowering of the Quality of Life.

The preoccupation with custom pervades all aspects of environmental management in Vanuatu: 'Everywhere there are taboo areas, cemeteries, old village sites, important rocks and other custom places that need to be protected against damage from development'.

Among the fundamental duties which the Constitution of Vanuatu (Section 7) stipulates for 'Every person.... to himself and his descendants and to others [is]... to protect Vanuatu and to safeguard the National wealth, resources and environment in the interests of the present generation and of the future generation.'

This statement contains the basic elements of environmental management:

- protection of the environment;
- forms of resource use which minimise social and environmental disturbances; and
- a long-term view of balanced resource development.

Traditionally based management

This management system is the foundation of traditional, community-based marine tenure. It involves the owners protecting their marine resources from outsiders via self-imposed harvesting restrictions, which may vary from gear restrictions to closed seasons.

Land tenure

The ownership of inshore waters plus the fringing reef follows from land tenure regulations. Land tenure determines not only access to land, which is a prerequisite for most development projects, but also authority over land, which is a prerequisite for environmental management. In Vanuatu, the significance of tenure goes further, for the relationship to land is a fundamental aspect of Ni-Vanuatu cultures. The Constitution provides that :

'All Land in the Republic belongs to the indigenous custom owners and their descendants.' (Article 71, Chap. 12 of the Constitution of Vanuatu); and

'The rules of Custom shall form the basis of ownership and use of Land in the Republic'. (Article 72, Chap. 12 of the Constitution of Vanuatu).

Reef ownership

Article 72 of the Constitution can also be interpreted as 'the rules of custom shall form the basis of ownership and use of fringing reefs in the Republic.' Chiefs who own land that extends to the coastline automatically own the coastline plus the adjacent fringing reefs. These chiefs determine the use of the fringing reefs.

Inshore fisheries management requires that attention be paid to traditional rights exercised by customary owners. Some groups claim rights as far out to sea as one can fish or dive for commercial shells. There are even some groups who claim traditional fishing rights out to the horizon. But the Fisheries Department proceeds on the basis that the outer reef edge and beyond represents a realistic limit for customary claims, as laid down by the land legislation.

Traditional management, an option for marine resources management

The increasing demands on marine resources, coupled with the impracticality of Fisheries Officers patrolling all islands to ensure compliance with Fisheries Regulations, mandates that inshore resources be managed locally. Traditional management provides an effective and efficient option for managing inshore marine resources, by returning management responsibility to the chiefs and resource owners.

However, for traditional management to be effective, cooperation is required between the chiefs and the Fisheries Officers. A common error made by Government, then implemented by Fisheries Officers, is the destruction of traditional management systems. This is a result of a complete failure to understand traditional systems. To establish a working cooperative system with the chiefs and the resource owners, Fisheries Officers should not egotistically push their own views on management procedures.

Trochus and greensnail fisheries in Vanuatu

Trochus harvesting in Vanuatu for other than subsistence purposes has a long history. Commercial harvesting of trochus shells and green-snail shells

began in the 19th century. Thus these resources have been influenced by long-term sustained exploitation as well as natural phenomena.

The increasing demand for trochus and green-snail shells, together with the newly elected Government's 'Free Enterprise Policy' has resulted in the establishment in 1992 of a further five shell-processing factories, making a total of 8 in the Port Vila area.

Naturally, this has had the effect of increasing the harvesting pressure on these two species, such that management is urgently required.

Dissemination of information

The pressure to fish trochus and green-snails caused by the competitive prices offered by the shell factories means that it becomes a waste of time trying to direct all our energy to educating only the fishermen. Regardless of how much information a fisherman has, he will always violate the Fisheries Management Regulations when 'fast money' is involved.

Since conservation measures to protect commercial marine gastropods have been continuously violated, the Research Section of the Fisheries Department took steps to find a more effective way of managing the resource.

All reef flats in Vanuatu are owned either by a community, a chief or a tribe. Thus instead of directing all the attention and information toward only the fishermen, the Research Section targeted the resource owners, who, with encouragement and given a sense of responsibility, could play an important role in managing the resource.

The Research Section locates village communities where customary authority over local marine resources remains strong, and where the resource owners are interested in receiving management advice from the Fisheries Department. After assessing their local knowledge of their trochus resources and carrying out 'Trochus Stock Assessment Surveys' in the area, the research team advises the villages on such things as why minimum size limits on trochus are desirable, where trochus re-fuges might best be situated, whether the local trochus fisheries should be closed, and for how long, in order to re-build stocks.

The process is slow and sometimes frustrating. A lot of travelling, talking and practical teaching is involved. Local fishermen are recruited to work on the surveys on each island visited. In this way the fishermen are able to observe and learn from the

Research Officers. Every evening, after each day's diving, the Research Officers arrange for further informal discussions with resource owners and fishermen, about the importance of harvesting of only legal size shells. (These discussions are usually held around bowls of kava.)

So as not to confuse the resource owners, chiefs and fishermen, complicated scientific words or phrases are not used in the discussions. Discussions are kept as simple and informal as possible. The important message that is always the centre of the discussion is that of proper management of the resource and the vital role that resource owners can play in the management.

As part of the education program, a National Trochus Workshop was organised by the Research Section, in June 1991 (sponsored by SPC/ICOD) for chiefs and resource owners, fishermen and Provincial Government Representatives.

The two main purposes of the Workshop were to:

- increase the participants' awareness, knowledge and understanding of the marine resources, biological and economical, and encourage the resource owners to be strict on their traditional management systems; and
- group together the two parties, (i.e., resource owners and Provincial Government representatives) representing the two different management systems, (i.e., traditional and governmental) and explain how the two systems can work together to safeguard the marine resources.

The effectiveness of traditional management in a juvenile trochus re-seeding experiment

No existing fisheries management regulation protects the fieldwork done by the Fisheries Department Research Section from either disruption or vandalism. Thus there is no alternative but to rely solely on the traditional management system and the cooperation of the resource owners and the island chiefs to protect operations. This underlines the importance of establishing a working cooperation and trust with the resource owners and chiefs prior to carrying out any research work.

Trochus aquaculture has been initiated only recently in Vanuatu. The South Pacific Aquaculture Development Project (SPADP) provided funding to examine the feasibility of setting up a small-scale trochus culture facility in Vanuatu. The longterm objective of this was to determine whether re-seed-

ing reefs with hatchery-reared juveniles is a practical tool for management of the wild fishery.

As part of a Regional Trochus Workshop, run by SPC in Port Vila in May 1991, 1,400 juvenile trochus reared at the Port Vila Fisheries Hatchery were tagged and released on a reef flat owned by the people of Erakor Village.

Two months prior to the Regional Trochus Workshop, the research officers held meetings with the Erakor Village Council of Chiefs (EVCC), the Secretary of the Erakor Area Council (SEAC) – Council that looks after the implementation of government policies) and trochus fishermen, to discuss the possibility of using their reef as an experimental site for re-seeding.

It was explained that the purpose of the experimental study was to determine if the release of hatchery-reared juvenile trochus on their reef flat would have a measurable impact on population densities in the natural environment.

It was also explained that prior to the release of juveniles, baseline surveys of trochus population would have to be conducted in the intertidal and sub-tidal zones of the selected reef, to locate natural recruitment areas and to quantify existing juvenile and adult densities.

For these surveys the Research Officers requested help from local trochus fishermen, who would be paid by the Research Section at a rate of 1,500 vatu per diving day.

It was emphasised during the meetings that the success of the experimental study would be of great benefit to the community, but that it would depend entirely on the goodwill and cooperation of the people of Erakor.

The EVCC and the SEAC imposed a two-year taboo on the Erakor reef, from the moment the juveniles were released, and set a fine of 15,000 vatu for any person found diving and collecting trochus shells on the reef, or disrupting the experiment. Radio messages were sent by the SEAC, informing the public and nearby villages of the taboo and fine.

The cooperation of the people of Erakor has been very good. The Research Section continued to liaise with the Erakor Council of Chiefs about the progress of the reseeded experiment, and recruited two or three local fishermen every two weeks to help with the recapture surveys of the released juveniles.

Conclusion

The difficulties and complexities of facilitating development based on custom have meant that efforts to develop procedures for accommodating community-based marine tenure systems have had to be put aside.

Traditional community-based marine tenure is not, as is widely suggested, necessarily a hindrance or problem in itself. The problem is the apparently irreconcilable gap between traditional and modern concepts of natural resource development and of

financial security, and the difficulty which foreigners have in understanding the true nature and cultural significance of communal tenure.

The Vanuatu Fisheries Department is committed to developing a procedure for marine resource development which incorporates the best of the customary management systems in a modern context. After all, the reality is that when resources are degrading you can't wait for science.

On traditional knowledge, fish and databases: a call for contributions

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FISHBASE is a joint project between ICLARM and the Food and Agriculture Organization (FAO) of the United Nations and funded by the Commission of the European Communities (CEC). As of September 1992, a third of the over 20,000 fish species in the world have been entered in FISHBASE. These cover over 80% of the world's fish catch, and include all species used in aquaculture, all commercial species of the North Atlantic and the Mediterranean, most European freshwater species, over 800 African freshwater species, over 1,500 Asian marine species, all freshwater species introduced to another country, all fishes included in the IUCN red list, all marine fishes dangerous to humans, all important game fishes, and more. For all of these species, FISHBASE contains over 8,600 synonyms and over 20,000 common names catalogued by language and country where the name is used, a prime example of traditional knowledge.

The database has four elements or 'levels'. The first is a commercial relational database, DataEase 4.5 which permits the easy development of applications that can be distributed without copyright restrictions. The second level is the so-called 'ichthyological structure', which assembles the different types of biological and ecological information into topic-specific tables or forms, e.g., on reproduction, eggs, larvae, population dynamics, nomenclature, introductions, etc. FISHBASE now consists of over 60 tables, each with 10-200 fields. The third level, the actual entry of data, performed exclusively at ICLARM headquarters, is done either by extracting information directly from the literature or from data collection forms sent by colleagues and/or collaborators. The fourth level is a collection of data analytical tools, i.e., routines that will permit checking and inter- and intra-specific comparisons of the data in FISHBASE.

The ichthyological structure in Level 2 enables FISHBASE staff to enter large amounts of information rapidly with a minimum of typographic and other errors; information is reduced to mostly numeric or categorical inputs which do not have large memory storage requirements. Moreover, this structure enables even complex searches for the information contained in the database to be performed straightforwardly.

A first (diskette) version of FISHBASE is available since September 1992 to collaborators and to experts who will check the information in the database. The second (CD-ROM) version is scheduled for release in late 1993, both in English and French, with annual updates, based on continued data entry at ICLARM headquarters.

If traditional knowledge and the management systems based on it are to have any role in modern fisheries management, then there is an urgent need to record traditional knowledge. This was emphasized by Arizpe (1989) who stated that a 'massive

effort should be made, the world over, to record local and traditional knowledge ... using computers and ethnographic methods.'