The numbering of each household in the community proved to be very useful as this number was easily used as a reference to link all different survey results to a particular household dataset.

Household census and consumption surveys served to estimate the community's total seafood consumption of the community and its economic dependency on marine resources. While in fact 100% coverage of all households was achieved in most Tongan and Fijian villages surveyed, a much smaller coverage percentage is presumably necessary to reliably estimate both parameters.

Cooperation

The success of this type of survey was highly dependent on the availability and cooperation of local counterpart staff. Experience indicated that connection and familiarity with the communities is the most crucial factor rather than technical or scientific background. The support of local extension, technical or scientific staff members can shorten the time required for preparation, and increase interest and cooperation of target communities. Also, the incorporation of young women with secondary school education from the target communities in the survey team proved to be successful. Once familiarised and trained with a particular component of the survey, they had easy access to local community members.

Fishing grounds

Identifying names and localities of finfish fishing grounds proved feasible by using enlarged hydrological — or if lacking — topographic maps. Information on names and locations was obtained from individual persons or group gatherings. The popularity of fishing grounds could be easily established by encouraging fishers to perform scoring and ranking. However, fishing grounds used by reef gleaners and collectors of other seafood than finfish required resource mapping. The scale of hydrological and topographic charts, even if copies were enlarged, did not allow recognition of most invertebrate fishing grounds.

Fishing pressure

Complementary use of survey results from the "serious" fisher and individual groups interviewed requires avoidance of double counting (i.e. the same persons having filled in both questionnaires as well as the possibility for an a posteriori classification of fisher groups). Social status within one community does not necessarily reflect current fishing activity levels. Particularly in the case of Tonga, women's fishing activities are chronically underestimated and socially undervalued.

Experience demonstrated that the comparison and alignment of vernacular and scientific names for both, finfish and invertebrates is crucial. However, this task poses a major challenge as both systems follow different logic, and hence are not necessarily comparative at the species level.

The quantitative transformation of invertebrate units caught, marketed and consumed poses another difficulty. This part is much more diverse than finfish and requires in-depth field measurements.

School children survey

Although a complementary activity, participation and engagement of school children was extremely high. Field experiences also suggest that the role of children is an important factor in village fisheries, yet is underestimated.

Empowering Pacific Island communities

Silvia Troost

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The global community's image of Pacific Islands is one of paradise — azure water, palm trees, and other tourist brochure cliches. In reality, Pacific Small Island Developing States (SIDS) face serious and unique development challenges that render them as vulnerable as the poorest nations of Africa. Pacific Islands are geographically small and isolated. They have a limited and extremely fragile natural resource base with "no room for error" in terms of management decisions.

Pacific Islands have small populations with relatively limited opportunities for advanced education. The few people who do manage to receive higher education and skills are often recruited into higher paying jobs in New Zealand and Australia, resulting in a serious "brain drain".

Economically speaking, Pacific SIDS for the most part do not benefit from globalisation in its current manifestation. They are often the dumping ground

for developed countries, receiving damaged and expired food products, toxic waste, and in some cases, weaponry (Kwajalein Atoll in the Marshall Islands is the "catcher's mitt" for President Bush's missile defense tests). Their language and culture — again extremely fragile due to sheer lack of numbers — are overwhelmed by global pop culture in the form of videos, television and films. Their natural resources are exploited through unfair deals with developed and larger countries, particularly their timber, mineral and marine resources.

Globalisation is usually posited either as a panacea or as the root of all evil. Certainly in its current manifestation, Pacific Islands do not benefit and are indeed exploited by the global system. However, there are opportunities for Pacific Islands to benefit from globalisation as long as they are empowered to manage it (and the change inherent in globalised communications, transport etc) on their own terms. This will require Pacific nations to maintain and strengthen their fundamental building block — villages — through a process of knowledge, education, appropriate technologies, and equitable and transparent "smart" partnerships.

Tourism, waste destroying marine biodiversity

An example of where globalisation could potentially benefit Pacific SIDS is in the area of coral reefs and marine biodiversity. Currently, globalisation — in the form of mass tourism, international fishing, logging (with associated erosion and runoff onto coral reefs), and waste generated from western styles of consumption — threaten to destroy the coral reefs of the Pacific. The impact of this cannot be over-estimated. Pacific islands depend on coral and marine resources for their very survival. In countries such as Kiribati, fish represent the bulk of the population's diet. Coral reefs protect islands from damaging storms and waves, particularly in low-lying atoll nations such as Kiribati and Tuvalu. In countries such as Fiji, coral reefs attract tourists who bring much needed cash into the local economy. From a cultural point of view, coral reefs are part of the cultural "patrimony", with sacred places and totem species. From an environmental point of view, Pacific coral reefs harbor some of the greatest marine biodiversity in the world.

Though the coral reefs of the Pacific remain relatively intact, particularly when compared to other SIDS (such as in the Caribbean) where coral reefs are either dead or severely degraded, the current demands on these reefs threaten to destroy them. Overfishing, destructive fishing practices, land-based sources of pollution (from erosion of steep slope areas, improper waste management from coastal communities and tourist facilities, etc.) all threaten these reefs. It is now critical for Pacific Islands to conserve and manage these reefs before they are lost. It's possible to do this in a way that benefits both communities and biodiversity.

This process has begun in Fiji, where villages are taking the initiative to reinstate traditional management measures, including imposition of marine protected areas (tabu areas), as well as "modern" management measures, including active coral restoration through coral planting or "coral gardening", appropriate forms of waste management and other activities. They are "managing globalization" in support of their reefs by using the global tourism and aquarium industries as an impetus for conservation. This exciting work is taking place in a number of communities in Fiji, in partnership with the Government of Fiji and NGOs, including the Foundation of the Peoples of the South Pacific International (FSPI), Worldwide Fund for Nature South Pacific program (WWF), the University of the South Pacific, and other locally-based NGOs and organizations.

Project to restore coral reefs

Take the work of the communities of Cuvu Mina, located on Fiji's Coral Coast. The Cuvu communities are working with an NGO, the Foundation of the Peoples of the South Pacific Fiji (FSP Fiji), to bring their coral reefs back to life. These reefs are severely degraded, largely due to the heavy impact of tourism and overfishing.

The Cuvu people have approached the major resort in the area — the Fijian Shangri-la (part of the global Shangri-la chain of hotels) — and forged a major partnership to restore their coral reefs. First and most importantly, the communities decided to declare a tabu area to restrict fishing activities. They have designated fish wardens — youths from the community — to enforce the tabu**.** With assistance from FSP Fiji, the communities have replanted mangroves and other coastal trees to reduce erosion and absorb nutrients (reducing the amount of pollution spilling onto the reef from the coast). They have also improved their waste management practices, moving pig pens away from the coast, and collecting and sorting rubbish.

The Fijian Shangri-la Hotel has also come to the table — an example of how globalisation (through the global tourism industry), if managed, can positively affect people's lives in Pacific SIDS. With assistance from FSP Fiji, the Fijian Hotel has upgraded its waste management infrastructure through the development of "constructed wetlands" — artificial wetlands that absorb nutrients generated from the

hotel sewerage system. Chemical analyses are now showing a substantial reduction in pollutants emanating from the hotel onto the reef. The Resort has also initiated a campaign to involve guests in coral reef conservation, setting up snorkeling trails and educating guests on "no-impact" coral reef tourism. They have also supported training efforts, providing financial assistance to FSP Fiji to train community members in active coral restoration methods, including coral gardening (planting certain species of fast-growing corals in degraded areas to bring back the coral reef), habitat enhancement (removing deadly crown of thorn starfish from the reef, reseeding the reef with shellfish including giant clams and trochus), and construction of "fish houses" (stone and cement structures places strategically on the reef to recruit fish and coral). Plans are underway for the Resort to establish a community trust fund — through guest donations — for long-term conservation and sustainable management of Cuvu coral reefs.

This partnership between a local community, a national NGO and an international resort has already resulted in an improvement in the coral reef environment. Village members are reporting an increase in fish and shellfish. And they are benefiting from the tourist industry through jobs (for example, village youth are working at the Resort as "reef guides"), and increased income.

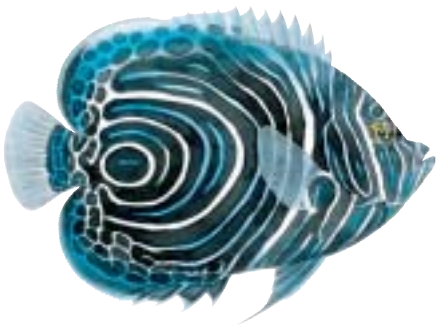
Capacity building of communities is the underlying foundation of this exciting work. By arming people with knowledge and skills, communities can forge equitable partnerships with international players in a way that they manage and control, and that ultimately benefits them.

Effort to transform aquarium industry

Another potential avenue for communities to manage globalisation comes in the form of the aquarium industry. The aquarium trade is a multi-billion dollar industry that sources its products for the most part from poor countries. The Pacific, particularly Fiji, provides a significant percentage of live coral, live rock and fish for the industry, with communities currently benefiting very little (and not at all in some cases, through unsustainable extraction of aquarium products — cyanide, crow bars, etc.).

NGOs are now working with communities and consumers in developed countries to transform the aquarium industry into a sustainable trade through certification. This process is still in its infancy, but has the potential of enabling communities to take part in a global industry on its own terms, by receiving a fairer share in income generated from the industry through "value added products" (similar to shade-grown coffee), and by protecting their marine environments through sustainable collecting and handling of aquarium products. In Fiji, FSP Fiji is working on a small component of this trade by training communities in coral aquaculture. This will enable communities to sustainably grow corals for the trade, rather than extracting corals from the wild. Again, communities benefit by earning income through production of a value-added product, while maintaining the integrity of their environments.

The examples mentioned here are presented in an effort to highlight the opportunity that economic globalisation can bring Pacific SIDS if communities are armed with training and information to manage globalisation on their own terms. The international community can contribute to this process by supporting industries and companies that do not pay mere lip-service to sustainable development, but actually incorporate this idea into their everyday *modus operandi*. The international community can also support training and skills development in Pacific SIDS through donor funding. Globalisation and all its inherent problems are here to stay. Pacific SIDS need to be smart players in this new system by demanding equitable and transparent partnerships with global players. Pacific SIDS must also have a foundation of internal good governance and rule of law so that everyone benefits from the process. The examples mentioned here — partnership with the tourism and aquarium industry — rest on the premise that communities drive the process, rather than a few corrupt government officials. It is through this process that globalisation and localisation can merge in a fashion that maintains the integrity of people and culture, while contributing to economic development.



Pomacanthus imperator
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