STREAM

Support to Regional Aquatic Resources Management

STREAM Journal

Learning and communicating about the livelihoods of fishers and farmers

The STREAM Initiative is supported by AusAID, DFID, FAO, NACA and VSO

Published by the STREAM Initiative, Network of Aquaculture Centres in Asia-Pacific (NACA), Suraswadi Building, Department of Fisheries Compound, Kasetsart University Campus, Ladyao, Jatujak, Bangkok, Thailand.

Example citation for a *STREAM Journal* article:

Santos, R 2002 Learning from Each Other about Conflict. *STREAM Journal 1*(1), 1-2.

Contents

Note

This first number of the third annual volume of the *STREAM Journal* is another mix of articles reflecting a variety of work in which the STREAM Initiative and others engage with partners across Asia-Pacific. *SJ3*(1) in particular ended up with Southeast Asian flavors from Lao PDR, Cambodia and Vietnam.

Robert Arthur and Caroline Garaway write in the first article about how they worked with district-level staff in Lao PDR. From Cambodia, Pen Rotha and Brendan Boucher recall the emergence of a local NGO and describe its current activities, and then Philip Townsley and Sem Viryak report on an assessment of the impact of policy reform in the fisheries sector. Moving to Vietnam, Ngo Minh Khoi contributes what might be the *SJ*'s first article with a spiritual dimension, and Nguyen Viet Vinh describes efforts toward the farming of coral in a marine reserve. The sixth and final article places some of STREAM's current work on market chains and livelihoods into a global perspective, as seen through the lens of one of its own activities, the Media Monitoring Reports.

With another year's worth of *STREAM Journals* on the way, not only do we get to choose a new color for the cover, but we are also responding to reader feedback and increasing the font size for easier readability.

Happy reading!

Graham Haylor, STREAM Director
William Savage, *STREAM Journal* Editor

Creating Understanding and Ownership of Collaborative Research Results through 'Learning By Doing'

Robert Arthur and Caroline Garaway

The generation of potentially useful information that subsequently fails to be communicated and shared with those who could best use it, is a common problem in development research. This article describes one approach to sharing knowledge, generated through adaptive co-management, within and between a wide range of stakeholder groups. It was developed as part of the DFID-funded Adaptive Learning Project conducted in southern Lao PDR from 1999 to 2002 by the Marine Resources Assessment Group Ltd (MRAG), the Regional Development Center (RDC) and the Department of Livestock and Fisheries. The project developed a learning process that involved 38 villages who were collectively managing small culture-based fisheries, together with provincial and district-level government staff and external analysts. These groups collaborated in locally relevant experimental research about fisheries management through a coordinated comparative experiment that involved stocking either carps or tilapia or both to assess performance and investigate the costs and benefits of different management systems being used by villages.

Bringing together the various experiences, expertise and perspectives of the different groups increased the quality and scope of what was learnt and its relevance to those who were expected to benefit from it. However, it is acknowledged that this process is not always easy and developing trust and mutual respect – including of different knowledge types – is essential. To be effective – and to ensure that people could see the benefits of involvement – a great deal of commitment to transparency, skills development, empowerment and explanation is required. Addressing these issues was a challenge and, while we did not feel we were always successful, when we were, we were convinced the effort was worthwhile. To illustrate how some principles of the adaptive learning approach were put into action, this article focuses on some activities designed to increase the understanding and ownership of one of the key stakeholder groups.

Early on, district staff were identified as a key stakeholder group, providing a vital link between the provincial staff and external analysts on the one hand and villages on the other. Ensuring that this group understood the results of the experiment was crucial, as they would play an essential role in explaining results to villagers and discussing implications for fisheries management. However, capacity at this level was low, and innovative methods were required to increase the likelihood of effective information sharing.

District staff analyse data using spreadsheets

Results Workshops with District Staff

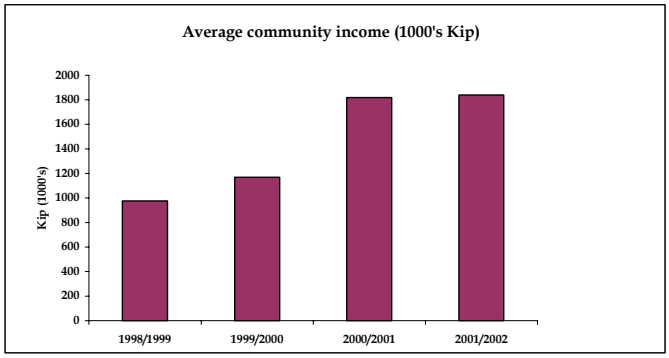
Results workshops were designed to enable district staff to analyse project data, produce graphs and explain results to each other. This 'learning by doing' approach – more usually associated with 'skills' training but here used as a workshop methodology – was possibly one of the most innovative that the project developed. It was time- and energy-consuming but proved successful in disseminating experimental results. Not only did district staff understand results better, they also increased their analytical capacity, and gained ownership of the information, which in turn led to more motivation and interest in project activities.

Our basic principle guiding communications activities was that information has to be generated and shared in an appropriate and timely fashion, allowing people to develop their own understanding and knowledge. Being aware of how information can best be shared between

people – based on their knowledge, skills and experience – is as important as the information itself. We examined what was already practised and started from there. In our experience, participants often felt more comfortable in familiar learning environments, such as workshops with presentations, speeches and statements. While perhaps not ideal for sharing and discussing experiences, these methods were familiar. They were therefore kept but additional methods were used in workshops and gradually new and more dynamic learning methods – including role-plays and games – were introduced.

Workshop Format

To achieve 'learning by doing', district staff – working in small groups and assisted by provincial staff – were provided with worksheets containing data they had collected themselves relating to the community fisheries, together with instructions on how to analyse the data. Each worksheet required the production of a simple graph to illustrate the point being made. Graphs were produced using computers, a rare and appreciated opportunity for participants. The district staff then presented and discussed the finished graphs with their colleagues. These, together with the interpretation of the results, were incorporated into short booklets that each district staff member took away at the end of the workshop. At workshops with village representatives, district staff worked to facilitate their understanding of the results and their implications. This ensured that ideas were explained by those best equipped to understand the requirements of learners.



Graph created by district staff showing community fishery income trends

District staff interpret graphs they have produced in light of their own experiences

Having district staff involved in the process from start to finish - from data collection, to analysis, to interpretation - was unusual for those who either supply data to provincial staff or provide advice.

Participant workshop evaluations suggested that all had successfully learnt and that the methods were effective and valued.

Communicating and enabling people from groups with different perspectives to develop their own understanding, knowledge and ownership requires experienced facilitation. Through the 'learning by doing' approach that the project developed, we were able to ensure that those who needed to learn were the ones doing so. This is important, since when stakeholders understand results, can see their relevance and are committed to the process, the results are more likely to be utilised.

Graphs are presented and discussed as a group

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Fish Culture, Farming, Markets and Promotion – An Integrated, Sustainable Approach to Aquaculture and Rural Development

Pen Rotha and Brendan Boucher

Farmer Livelihood Development (FLD) was created by localizing SCALE (Southeast Asian Outreach in Cambodia for Aquaculture on Low Expenditure), an international NGO focused on fish and food security. SCALE was created by Southeast Asian Outreach (SAO) and commenced operations in Cambodia in 1991. SCALE found that a more broad-based integrated approach to rural development surrounding village fish culture provided greater benefit to a larger number of subsistence communities. Therefore, SCALE expanded its operations and developed into a program running several integrated farming projects. Localizing SCALE was always a long-term objective of SAO. This objective was successfully realised in 2002 when SCALE became registered as Farmer Livelihood Development, a local Cambodian NGO. FLD's mission is to contribute to sustainable improvement in nutrition, food security and income in rural communities by promoting appropriate technologies based on traditional knowledge.

FLD's Operations

Sustainable Livelihoods Projects – FLD's projects deliver rural development which specifically targets subsistence farmers and their families. Agriculture, small livestock production, rice intensification and village fish culture increase food security, diversify livelihoods and increase incomes. Projects are undertaken in collaboration with local government, village officials and most importantly are implemented by villagers themselves.

FLD classroom training

Consultancy – FLD provides professional development training to increase the capacity of officials from government departments and staff from other NGOs in a variety of subjects such as marketing, participatory rural appraisal, training of trainers, biogas production, rice-fish culture and others. FLD also works to deliver projects on behalf of other professional partners such as World Vision, Oxfam and CEDAC (Centre Etude et de Developpement Agricole Cambodgien).

Development Centre – FLD's 14-hectare Development Centre supplies piglets, chickens, ducks and goats to impoverished farmers, NGOs and commercial markets all over Cambodia. The Centre is also used for residential training where farmers receive a combination of classroom theory and practical instruction.

Aquaculture Hatchery – Located within FLD's Development Centre, the hatchery is of national significance, supplying more than two million fingerlings to subsistence farmers, NGOs and retail markets throughout the country. Importantly, fish bred and raised in the hatchery are also released into natural waterways to increase levels of natural fish stocks as part of the Royal Government's fish replenishment programs.

Integrated Aquaculture

Within the remote districts of Kampong Thom and Preh Vihear provinces, FLD undertook a project to provide farmer training in integrated aquaculture, in collaboration with World Vision. The project initially installed 12 village ponds. Fingerlings were supplied by World Vision from FLD's aquaculture hatchery. Farmers quickly saw the value of village fish culture and built their

own ponds, replicating project successes. There are now more than 100 fish ponds throughout the project area and as such, World Vision can no longer meet the demand for fingerlings.

To further sustain fish-rearing ponds and increase food security and incomes, farmers required local access to fingerling suppliers. FLD identified three appropriate sites within the project area to train local farmers to construct, manage and maintain small-scale fish hatcheries. This allows for greater expansion of the aquaculture pond network and provides for greater project sustainability and success. Construction of fish hatcheries will create a mutually beneficial market network which will stimulate further demand and income generation. These hatcheries support approximately 150 local fish ponds throughout the project area. Each hatchery can produce up to 50,000 fingerlings per six-month season.

Selected farmers are also trained to construct and manage approximately 40 additional fish ponds. These also serve as water storage areas for vegetable gardens. A variety of vegetables are grown around the pond to minimize soil erosion. As part of the integrated aquaculture program, training and supply of small livestock such as pigs, chickens and ducks are also provided. Animal manure fertilizes fish ponds, increasing the production of plankton. Fish feed on this plankton. Surplus fish, livestock and vegetables are sold in the village. Market networks are also created between villages to further stimulate demand and support the project's production processes.

Sustainability

Professional instruction is also delivered at FLD's Development Centre station. Selected farmers are transported to undertake an intensive residential training program in a combination of hands-on and classroom training programs. Importantly, farmers are also transported to study integrated aquaculture projects at other FLD village project sites in Kandal province. Villagers are able to appreciate project successes as enjoyed by people with whom they can identify. This leads to a genuine desire for adoption and adaptation of new technologies.

Farmers being trained at FLD hatchery

FLD also train World Vision staff to construct and manage small-scale fish hatcheries. One hatchery will be constructed on World Vision land to be used as a local hatchery training center. This will allow World Vision to provide on-going assistance over the long term. With successful project expansion, small-scale hatchery models can be replicated in new areas.

Selected farmers will also act as promoters by monitoring and training their neighbors throughout the target area. These Village Seed Promoters will encourage and assist other villagers in undertaking projects. Technological dissemination is further facilitated by expertly trained Farmer Promoters who continue to monitor, promote and train their neighbors in the target area.

Conclusion

The project outlined above may be adapted to improve the livelihoods of other fish-focused rural communities throughout Cambodia, Southeast Asia and the Pacific. Where possible a holistic approach should be taken to improve food security in aquatic resources communities. This could include diversifying livelihoods to sustainably increase incomes and living standards, such as small livestock and agricultural production which provide mutual benefit to village fish culture.

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Fisheries Policy Reform Impact Assessment in Cambodia – Understanding Policy and Poor People

Philip Townsley and Sem Viryak

Access, Conflict, Reform and Impact

Given the importance of fisheries in the livelihoods of Cambodians, sustainable and equitable access to fish is critically important for the country. However, the late 1990s saw an increase in the levels of conflict surrounding access to fishing, with frequent episodes of violence and, in some cases, deaths. Representations and complaints to the authorities, politicians and legislators increased significantly, particularly in provinces around the Great Lake. Issues of fisheries access were taken up by various advocacy groups supporting the "traditional" rights of fishing communities to fisheries resources. The policy reforms, announced in October 2000, were introduced in this context of growing tension and conflict in Cambodian fisheries. Fisheries policy reform aimed to contribute to national efforts to alleviate rural poverty by giving rural poor people better access to fisheries resources. This article presents some findings from the first round of an assessment of the impact of the policy reforms.

Impacts on Poverty

Impacts on poverty have been diverse and highly dependent on local conditions, making generalization difficult. Immediately after the policy reforms, communities located within or adjacent to released fishing lot areas perceived positive impacts on their livelihoods through:

- Easier and more secure access to fisheries resources
- Reduced costs due to the lifting of licence fees on medium-scale fishing gear
- Improved income, and
- Improved food security.

Small-scale fishers in Kampong Cham – More small-scale fishers on released lots has created opportunities for small-scale fish trading but may have made it more difficult for consumers to access cheap fish from larger producers.

This benefited poor small-scale Khmer, Cham and Vietnamese fishers, small-scale farmers and agricultural laborers. These benefits are now perceived to be declining as individual catches are reduced due to increased competition for the resource and the widespread use of illegal fishing gear. In some cases, fishers see themselves as being worse off than before the reforms.

Impacts on Food Security

After initial improvements in food security for poorer fisheries resources users following the policy reforms, the overall decline in individual catches is now felt by most stakeholders to be leading to reduced fish consumption. Many factors besides the fisheries reforms may be playing a role in this, including fluctuating flood levels and changes in the fisheries environment. There is also widespread concern over the decline in access to fish for household processing into *prohok* (fish paste) or *phaork* (fermented fish), although it is currently impossible to attribute this to the policy reforms.

Impacts on Fisheries Resources and Ecology

Access to fishing areas has improved, but there are concerns regarding the sustainability of the benefits that this improved access has allowed, particularly for poorer groups who are increasingly suffering from high levels of competition seen in newly-opened fishing areas. There is a widespread perception that fisheries resources have declined in the wake of the policy reforms. This is blamed on the higher number of people engaged in fishing and the increased use of illegal and destructive fishing gears. It is not possible currently to establish whether this perception is due to greater numbers of fishers, annual variations in the fish stock due to climactic, hydrological and other external factors, or whether it is actually indicative of a longer-term decline in fisheries resources due to over-exploitation.

Children help their mother prepare fish for smoking along National Road No 6 in Kampong Cham Province.

The release of fishing lots has reportedly accelerated processes already underway of clearing flooded forest, expanding dry-season rice cultivation in lowland areas and increased use of pesticides and herbicides, all of which may be affecting fisheries ecology.

Impacts on Institutional Arrangements

Provincial Fisheries Offices

The introduction of the policy reforms – with the withdrawal of fisheries inspectors from the field – was widely seen as "punishing" them for perceived abuses of their positions. This has had a longer-term impact of effectively delegitimizing Provincial Fisheries Offices in their role as enforcers of fisheries regulations.

Civil Society and NGOs

In working out the details of how to implement the fisheries policy reforms, and in the development of the Sub-Decree on Community Fisheries, the role of NGOs has been important in representing the interests of a broader group of stakeholders in the process. This role needs to be built up and strengthened to complement the activities of the Department of Fisheries.

Local Authorities

While it is generally recognized that commune councils are likely to play a critical role in supporting communities in the management of their resources, the mechanisms by which this may take place – and the relationships among Community Fisheries, local authorities and Provincial Fisheries Offices – are still unclear.

Community Fisheries

Many of the respondents on the ground, although they were "users" of Community Fisheries, still had only the vaguest of notions regarding what Community Fisheries actually were. Where people were more informed regarding the notion of Community Fisheries, there was general recognition that they represented a "good idea" but there was little understanding of how they were to be implemented and what their precise roles, responsibilities and powers would be.

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“Shrimp Hero” Phan The Phuong[1]

Ngo Minh Khoi

The “Father of Shrimp Culture”

On 30 December 2003, His Excellency Tran Duc Luong, President of Vietnam, signed a decision awarding a “Labor Hero in the Reform Era” medal to the late Mr Phan The Phuong, a modern legendary figure on the Tam Giang – Cau Hai Lagoon of Thua Thien Hue Province. Mr Phuong was once the Director of the Provincial Department of Fisheries and is often referred to as the “father of shrimp culture” in the area. This is good news to Tam Giang – Cau Hai Lagoon shrimp culturists, who set up a shrine more than ten years ago to honor him. The shrine is said to be so sacred that people never leave the incense pot cold inside. Many shrimp farmers in Phu Loc and Phu Vang also travel there across the lagoon to invoke the mercy of the “father’s” soul. For a long time, Mr Phuong would go here and there, wrestling with so many hardships, showing farmers how to excavate ponds, and looking for shrimp seed. Through his efforts, people’s livelihoods have changed dramatically for the better. Finally, the “shrimp hero” laid the groundwork for the production of export-oriented shrimp.

The story is set in Village 14, Quang Cong Commune of Tam Giang – Cau Hai Lagoon, 40 km from Hue City. We came to a double-shrine situated near a vast area of shrimp ponds looking over the lagoon. This is truly a meticulous work of firm pillars and roofs carved with dragons and phoenixes as in royal designs. “In this double-shrine,” said Ms Khoa, a shrimp farmer, “One part is to worship Mr Phuong and the other is for the earth-spirit of this land. Since we began worshipping these two gods ten years ago, their spirits have helped villagers’ livelihoods be much better.” Placing an incense stick on the altar, I tried to catch a glimpse of Mr Phuong in his photo – grey hair, a brightly intelligent face and a gentle smile. A flow of tears found its way to my eyes.

Tam Giang – Cau Hai Lagoon Fisherfolk

Shrimp farming in Tam Giang – Cau Hai Lagoon

The huge Tam Giang – Cau Hai Lagoon, covering an area of 22,000 ha, is a “gift” to Thua Thien Hue Province. The hundreds of thousands of fish reserves include grouper, siganid, pomfret, mullet and sea bream. But this resource-rich water body could not provide stable livelihoods for 30,000 houseless fisherfolk who led difficult lives on tiny ragtag sampans. Each fishing boat was often filled with seven to eight kids, born without birth certificates, and growing up illiterate. Fisherfolk made their daily living by fishing using traditional gears of bamboo pens, cast nets, hooks, push-nets and traps. Their poor livelihoods were also vulnerable. The 1985 Sexil typhoon ended in a tragic scenario: thousands of sampans were blown out to the sea, and more than three hundred people went missing.

[1] Translated from Vietnamese by Nguyen Song Ha, STREAM Vietnam Communications Hub Manager, Hanoi. An earlier version of this article was published in February 2004 in *Con Tom (Shrimp) No 97*, a bulletin of the Vietnam Fisheries Society.

Observing the disaster, hovering in the mind of newly-graduated fisheries engineer Phan The Phuong was the question: How can people settle and survive? A courageous idea came to him: settlements need to be established, and aquaculture embarked on for export purposes. But how to start? Mr Phuong took many trips alone on "taxi boats" from Hue City to Quang Ngan and Quang Cong communes on the other side of Tam Giang – Cau Hai Lagoon, brainstorming ways for people to settle down, and discussing the issue with commune leaders.

Village 14 was then given birth within the area of Quang Cong Commune on National Highway No 49, sheltering 36 typhoon-affected migrant fishing households. In this small village, Mr Phuong started encouraging people to dig shrimp ponds. Mr Pham Hoa, a successful shrimp farmer, recalled, "Mr Phuong called on us lots of times. Whenever he came, he took off his trousers and waded out into the lagoon. He spent nights persuading me to take up shrimp farming. Listening to him, I saw that many benefits could be gained, so eventually I followed him."

An Important Workshop

In those days, Mr Phuong worked almost all the time with the village. After two hours on the boat from Hue to Con Gai pier, he continued the journey on foot to the village, and on arrival, he went directly to shrimp ponds to check hygienic conditions and feed. By the end of the first successful year in 1989, he conducted an "on-farm shrimp culture workshop", which attracted 150 representatives to cross the lagoon to participate. One hundred of the participants were fisherfolk from Phu Loc, Phu Vang and Quang Dien communes, and the rest were fisheries and agriculture specialists – friends and colleagues of Mr Phuong from the time when he was Vice-Dean of the Fisheries Faculty, Agriculture University No 1, and then Head of the Training Management Division, University of Fisheries, and afterwards, Rector of Hai Phong High School of Fisheries. Quang Cong Commune people called the workshop the "Dien Hong Conference[2] on the Lagoon Economy." Following the workshop, Mr Phuong replicated the Village 14 model in other communes and districts of the province. Village 14 itself has expanded to 46 households, and is verdant and as lively as a town. Many families live in two- or three-storey houses that are as well furnished as people living in Hue City. People say, "Mr Phuong's settlement-plus-aquaculture solutions are the key to the prosperous and civilized life of the community."

Phan The Phuong

A Hero Remembered

On 6 October 1991, Mr Phuong was killed in a car accident in Binh Thuan Province. He was on his way from southern Vietnam, carrying shrimp seeds to Hue in preparation for the 1992 crop. He was hurrying so as not to miss the reception of a specialist from Nha Trang who would come to support shrimp breeding. His funeral was one of the most crowded since 1975. Tens of thousands of shrimp pond owners and workers gathered to see him off for the last time, and many could not help bursting into tears, in remembrance of the hero who had taught them to culture shrimp, given them employment and showed them a way to a better life.

Phuong's photograph hangs not only in the shrine but is also worshipped in private hatcheries or by shrimp ponds. Phan The Phuong has been away from this world for twelve years, but for shrimp farmers around Tam Giang – Cau Hai Lagoon, he is still living in their hearts and accompanying them on the road to sustainable livelihoods and economic achievement.

Ngo Minh Khoi is a reporter with the Thua Thien Hue *newspaper in Hue, Vietnam.*

[2] In reference to a royal referendum issued in 1284 by King Tran Nhan Tong to gather community leaders nationwide to make decisions on the struggle against Gengis Khan's invaders.

Coral Farming in Vietnam

Nguyen Viet Vinh

Coral Reef Situation in Vietnam

Coral reefs are diversified and biologically productive ecosystems. One square kilometer of coral reef may consistently generate as much as 37 tons of fish, enough to provide incomes for 600 people (Rubec et al., 2002). Aside from tourism and prevention of coastal erosion, coral reef ecosystems are important for rehabilitation of marine living resources, as they are also breeding grounds and nursery areas for high-value species. Negative impacts from consumption markets and free access – combined with destructive fishing methods such as dynamite and cyanide – have continuously pushed these ecosystems to the verge of serious degradation.

Coral reefs in Vietnam are being depleted day by day. Surveys conducted from 1994-97 at 142 sites showed a gloomy picture: only 1% were in perfect condition (i.e., 75% coral coverage), 26% very good (50-70% coverage), 41% good (25%-50% coverage) and 31% bad (coverage as much as 25%) (Rubed et al., 2002). Since then, market impacts and ineffective law enforcement for coral reef protection have definitely worsened the situation.

The research *Reefs at Risk in Southeast Asia* (Rubec et al., 2002) found that 96% of coral reefs are being threatened by human activities, with about 75% at very high risk. Destructive fishing is overwhelming and dangerous: 85% of reefs are at medium and high risks as a result. Over-exploitation is estimated to pose a threat to 69% of Vietnam's coral reefs, upper-basin sediments to 50%, and coastal development to 40% of the country's reefs.

The Government of Vietnam has given consideration to coral reef issues as reflected in national strategies for fisheries and tourism (which contributed 6% of GDP in 2000 and is hoped to increase to 12% by 2010). In response to the need for marine resource rehabilitation to sustain development in these economic sectors of fisheries and tourism – and to conserve important coral reefs and areas – there should be a strong emphasis on research for restoration of degraded and even depleted coral reefs.

Coral Farming in Trao Reef Marine Reserve

One of International Marine Life (IMA) Vietnam's efforts in marine protection and resource restoration was to set up coral farming trials in Trao Reef Marine Reserve in Van Ninh District of Khanh Hoa Province. These activities have brought several positive outcomes of importance for both scientific research and development planning.

Trao Reef Marine Reserve has experienced successful management thanks to the enthusiastic and effective participation of local people. This has helped to control destructive fishing and facilitate rehabilitation of aquatic resources. It has also created favorable conditions for scientific research on installment of artificial reefs, coral transplantation and demonstration of environment-friendly livelihoods models.

Following technical guidance from IMA International on coral farming, IMA Vietnam established an experimental lot and the first batch of coral transplantation was started in November 2002. Even with little experience and few facilities, the results are promising. Artificial reefs attracted a good number of fish stocks, and two of 20 samples of transplanted coral fragments survived. In June 2003, after a first phase evaluation, IMA Vietnam implemented the second transplantation batch with more than 100 samples, with spectacular outcomes.

How It Worked

What IMA considered important was that the "core group" (people who are selected by local residents to monitor and protect Trao Reef Marine Reserve) and local people should participate

right from the beginning in all stages, from plantation protection to monitoring. In this way, it is hoped that coral farms will later be founded among local communities for resource rehabilitation and income generation.

Having analyzed the first phase outcomes, IMA started the second phase of experimentation[3] by revising the substrates, mooring ropes, coral species and location of transplantation lots for each species. A monitoring mission in November 2003 confirmed that 100% of the transplanted samples survived and grew normally.

In February 2004, survey sampling and demonstrations were introduced at a workshop on Trao Reef. Transplanted coral samples proved to be progressing well, for example:

- Sample weight increased vigorously, especially for *Acropora* species*,* and sample height even increased up to 1.5 times.
- Samples stuck cohesively to the substrates.
- Roots of the samples on the substrates grew to be strong stems, wrapping over polyethylene mooring ropes.

After two experimental batches, we already had already identified important technical and biological criteria and technological coral farming processes in a natural environment.

Lessons Learnt

Fish start to gather at the coral reef after one year

The success of IMA's coral farming makes great scientific sense and opens bright socio-economic perspectives in Vietnam, where 96% of coral reefs may have been destroyed to various extents. As an example, Ha Long Bay used to be a refuge of numerous coral reefs characterized by rich biodiversity, but the uncontrolled reef fish trade and destructive fishing activities led to serious coral reef depletion there. IMA's research has opened up opportunities for translating its findings into benefits in resource rehabilitation and bio-diversity protection. This promises to give Ha Long Bay's coral reefs a more attractive underwater appearance.

To refine the technologies and replicate the research outcomes to other coral species, the research needs extension. The Trao Reef Marine Reserve, which is managed by people of Van Hung Commune themselves, is always ready to welcome others and share experiences with researchers and concerned organizations and individuals.

Reference

Rubec P, Burke L, Selig E and Spalding M 2002 *Reefs at Risk in Southeast Asia*. Washington DC, USA: World Resources Institute.

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[3] The experiments were carried out under the instruction of IMA Vietnam consultants, namely Dr Nguyen Viet Vinh and Mr Dao Viet Long.

The Global Fisheries Market – Can Rural Poor People Benefit? – Issues Raised by STREAM Media Monitoring Reports

Paul Bulcock

The international trade in aquatic products is a topic which currently dominates global fisheries and aquaculture news media. It is predicted that developing countries will produce, consume and trade in a greater share of the world's fish by 2020. According to recent reports, it is thought that after the next 16 years, developing nations will be responsible for 77% of global fish consumption and 79% of production. However, the links between this trade and aquatic resources users are poorly documented, although a number of problem areas are already known and frequently raised in news reports[4].

Constraints

The shrimp trade is a significant issue; in certain instances, shrimp production has contributed to both the loss of natural resources and livelihoods options for poor people in some Asian countries. Additionally, as a result of WTO[5] sanitary and phyto-sanitary (SPS) measures and market-driven labelling schemes, the level of market access open to poor producers in developing countries is also changing. These problems are readily reported in the world's news media, along with further constraints such as environmental damage and degradation, over-fishing and the construction of trade barriers which often lead to disputes. It is becoming increasingly apparent that the global trade in aquatic products is one issue that frequently grabs headlines.

Based on the present state of the fisheries trade between developed and developing countries presented in the media, such problems should not be underestimated. For instance, US shrimp groups and Asian and South American shrimp producers are presently on the brink of fighting one such trade war in the US courts over the issue of whether or not foreign producers are dumping product in the US. This follows a recent decision from the US International Trade Commission, which agreed in a unanimous vote that imports of Vietnamese frozen catfish fillets were injuring the US catfish industry, clearing the way for the imposition of trade duties on Vietnamese catfish imports.

These disputes occurred concurrently – and continue to do so – with the issue of the use of antibiotics such as chloramphenicol in Asian shrimp production, giving rise to bans on exports to the European Union. A further variation on this theme is the coverage given by the press to the amount of polychlorinated biphenyls (PCBs) from environmental pollution found in US and European farmed salmon and their implications for human health.

Environment of Uncertainty

In this environment of uncertainty, food scares and rising environmental awareness, the Washington, DC-based International Food Policy Research Institute (IFPRI), along with the WorldFish Centre, recently announced that developing nations, particularly those in Asia, will in fact dominate future fish and aquatic resources production and its global markets. However, as stated previously, they accepted that problems such as trade wars, environmental damage and over-fishing are foreseen as major constraints. In response to these concerns, the IFPRI recommended improved food safety regulation, eco-labelling and as aquaculture expands, policies that promote sustainable intensification.

[4] See STREAM's Media Monitoring Reports http://www.streaminitiative.org/Library/MediaMonitor.html, also the source material for this article.
[5] World Trade Organization

It is a timely suggestion. Global consumption of fish has doubled since 1973 and developing nations account for 90% of this growth. In China alone, consumption has grown 10% annually since 1985 and is now the world's greatest producer, currently accounting for 36% of global production. The world will eat 128 million tons of fish in 2020, an increase from 91 million ton in 1997 and 45 million in 1973. As frequently reported and focused on, over-fishing remains the greatest threat to wild fish stocks (landings of wild fish have levelled off since the mid-1980s) and aquaculture is often touted as a potential alternate source. Indeed aquaculture is likely to account for over 40% of total production by 2020 compared to 31% in1997. However, aquaculture – and in particular intensive aquaculture as represented by shrimp in Asia and salmon in other regions – is still associated with frequently reported problems such as chemical additives, organic pollution, escaped stock, genetically modified organisms and disease outbreaks.

The Role of Developing Nations

When combined with problems such as trade barriers, there is also concern that, although the boom in aquaculture will occur in developing nations, it may not be poor people who will benefit. According to IFPRI, developing nations are more likely to become exporters of high-value fish and importers of low-value fish, which may be used to produce fish meal and fish oil for use in aquaculture, poultry and pigs rearing. There are also concerns that aquaculture technologies and environmental requirements are likely to favor large-scale commercial enterprises that could exclude landless, traditional, small-scale fishers. These issues present pressing challenges for policy-makers and planners. The need for poverty reduction strategies around the seafood trade is therefore becoming increasingly urgent. Seafood is currently high on the global trade agenda, but the formation of the WTO and countries' entry into it mean that international trading regimes are changing, with more open market access. But with the EU and other developed countries taking increasingly stringent food safety measures, legal actions of domestic producers, subsidy issues and non-tariff barriers, there is concern that moves towards certification and eco-labeling of seafood products may raise further barriers for poor people to enter the trade, with significant implications for poor producers.

Supporting Sustainable Livelihoods

It was with these concerns in mind that NACA and STREAM recently embarked on an EC-PREP[6]-funded project addressing the international seafood trade, and especially its capacity to support sustainable livelihoods among poor aquatic resources users in Indonesia, the Philippines and Vietnam. The project is a collaboration between Poseidon Aquatic Resource Management Limited of the UK and NACA-STREAM.

The project aims to identify innovative policies which support responsible capture fisheries and aquaculture and combine these with environmental and social sustainability. It also hopes to identify practical entry points for rural people in a pro-poor seafood trade. In the current environment of trade disputes, and environmental and health concerns, it is intended that the links among the fisheries trade, poverty alleviation and the livelihoods of poor people will become more apparent, and that this will contribute to benefiting and including rural poor people in the expanding fisheries production of developing nations.

As has been shown by STREAM Media Monitoring Reports, the issues surrounding the seafood trade are large and complex. The project is focusing on a combination of two important commodities – shrimp and reef fish species – the latter emphasising the trade in marine ornamental species.

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[6] European Community – Poverty Reduction Effectiveness Programme

About the *STREAM Journal*

Published by STREAM – Support to Regional Aquatic Resources Management

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Purpose

The *STREAM Journal* is published quarterly to promote participation, communication and policies that support the livelihoods of poor aquatic resources users in Asia-Pacific, and to build links within the aquatic resources management and other sectors across the region. The *STREAM Journal* covers issues related to people whose livelihoods involve aquatic resources management, especially people with limited resources, and government, non-governmental and international practitioners who work with them in communities. Such issues include learning, conflict management, information and communications technologies, aquatic resources management, legislation, livelihoods, gender, participation, stakeholders, policy and communications.

Another equally important purpose of the *STREAM Journal* is to provide an opportunity for seldom-raised voices to be heard and represented in a professional publication that is practical yet somewhat academic. The contents of the *STREAM Journal* should not be taken as reflecting the views of any particular organization or agency, but as statements by individuals based on their own experience. While authors are responsible for the contents of their articles, STREAM recognizes and takes responsibility for any editorial bias and oversights.

Distribution

The *STREAM Journal* is available in three formats:

- An electronic PDF version which is printed and distributed by the STREAM Communications Hubs in each country
- A version which can be accessed and downloaded in PDF format from the Virtual Library on the STREAM Website at www.streaminitiative.org, and
- A printed version which is distributed by the NACA Secretariat.

Contribution

The *STREAM Journal* encourages the contribution of articles of interest to aquatic resources users and people who work with them. The *STREAM Journal* also supports community-level colleagues to document their own experiences in these pages.

Articles should be written in plain English and no more than 1,000 words long (about two A4 pages of single-spaced text).

Contributions can be made to William Savage, *STREAM Journal* Editor, at <savage@loxinfo.co.th>. For more information, contact Graham Haylor, STREAM Director, at <ghaylor@loxinfo.co.th>.

About STREAM

Support to Regional Aquatic Resources Management (STREAM) is an Initiative designed within the five-year Work Program cycle of the Network of Aquaculture Centres in Asia-Pacific (NACA). It aims to support agencies and institutions to:

- Utilize existing and emerging information more effectively
- Better understand poor people's livelihoods, and
- Enable poor people to exert greater influence over policies and processes that impact on their lives.

STREAM will do this by supporting the development of policies and processes of mediating institutions, and building capacity to:

- Identify aquatic resources management issues impacting on the livelihoods of poor people
- Monitor and evaluate different management approaches
- Extend information, and
- Network within and between sectors and countries.

The STREAM Initiative is based around partnerships, involving at the outset a coalition of founding partners (AusAID, DFID, FAO and VSO) supporting NACA. It has adopted an inclusive approach, reaching out to link stakeholders engaged in aquatic resources management and supporting them to influence the Initiative's design, implementation and management.

The partnerships' work is coordinated in each Country Office through a National Coordinator (a senior national colleague agreed with the government) and a Communications Hub Manager (a full-time national colleague supported in the first two years by STREAM), and linking a range of national stakeholders. The Communications Hub is provided with hardware, software, training, information-technology support, and networking and human resources support, and links national stakeholders through an internet-based virtual regional network.

National coordination is guided by an annually-reviewed Country Strategy Paper (CSP) drawn up by the Coordinator and Hub Manager in consultation with stakeholders with whom they regularly network. A CSP identifies key issues, highlights regional linkages, proposes and prioritizes key actions, and seeks funding for these from STREAM and elsewhere (with STREAM support).

The STREAM Regional Office (at the NACA Secretariat in Bangkok) directs the Initiative, provides a regional coordination function, and funds and manages cross-cutting activities dealing with livelihoods, institutions, policy development and communications, the four outcomes-based STREAM themes.

STREAM implementation is an iterative process, initially operating in Cambodia, India, Indonesia, Lao PDR, Myanmar, Nepal, Philippines, Vietnam and Yunnan, China, and expanding within Asia-Pacific where opportunities exist to tackle poverty and promote good governance, as experience is gained, lessons are learned, impact is demonstrated and additional funding is secured. STREAM's communications strategy aims to increase impact by ensuring that existing knowledge and expertise inform ongoing change processes around the region, and that the lessons learned are disseminated throughout Asia-Pacific. The *STREAM Journal* and the STREAM website are components of this strategy.

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