STREAM

Support to regional aquatic resources management

STREAM Journal

Learning and communicating about the livelihoods of fishers and farmers

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Contents

Note

Learning, conflict management, information and communication technologies, aquatic resources management, legislation, livelihoods, gender, participation, stakeholders, policy and communications. These are themes in the six articles in this first *STREAM Journal*. They represent the sorts of issues around which the STREAM Initiative is promoting learning and communication. The *STREAM Journal* will showcase a range of perspectives on issues and contexts from a diversity of views, and document these voices so that our dialogues can be informed and inclusive. The intention is not to criticize, but to join with colleagues to be helpfully critical.

The *STREAM Journal* will grow and change as we learn and communicate about how to make it as informative, useful and enjoyable as we can. We've said that the articles should be in "plain English", so that they are accessible to a range of readers (some of whom may find opportunities for improving their "professional English"), and so that articles are more easily translated into national languages for distribution from the STREAM Communications Hubs in each country.

The *STREAM Journal's* first number opens with two articles that define a learning spectrum from face-to-face to online, both of which deal with "knowledge in the hands of users". The following three articles each raise the issue of participation: in farmer-managed research trials, in government policy and legislation initiatives, and in infrastructure operation. The final article highlights the "communications" side of STREAM's promotion of learning and communication, by looking at communications principles in nutrition, a field related to us all.

The *STREAM Journal* will also be one of several communications modes that we hope will become interactively linked. Thus we encourage readers to engage in discussion and debate about the contents of each *STREAM Journal* on the Discussion Forum of the STREAM Website at www.streaminitiative.org

Happy reading!

Graham Haylor, STREAM Director
William Savage, STREAM Journal Editor

Learning from Each Other about Conflict

Ronet Santos

A Village and a Company

Benyamin Tawaakng belongs to the Dayak people of East Kalimantan, Indonesia. He lives in the forest, about 300 kilometers from the central town of Samarinda. His livelihood consists of growing rattan, growing rice for consumption, hunting, and fishing in rivers. Benyamin is the head (chief) of his village association. He tells us that he has spent more than four months in prison. He led his village in burning the base camp of a company that wanted to establish a palm oil plantation on Dayak ancestral lands. He says the company had an agreement with the Indonesian government, but the Dayak people were never consulted about this. The company has refused to negotiate with them, so they were forced to burn its base camp.

Benyamin's village does not want the company to establish the palm oil plantation. They think the plantation will not benefit them and will only destroy their forests. The company argues that the plantation will be good for the Indonesian national economy and eventually for the Dayaks. Benyamin feels that the local government, local police and military agree with the company.

Questions and Answers

Benyamin was chosen as one of eleven participants on a SPARK study tour in the Philippines during August and September 2001. Along with three other Indonesians, three Thais and four Filipinos, he visited and discussed with local communities their experiences with conflict management. He is particularly interested in knowing how to negotiate with a powerful group such as a big company, and how to unite the differing interests of people in his community.

During the study tour orientation, the participants heard one of the presenters, lawyer Ipat Luna of the Babilonia Wilner Foundation, discuss *interest-based negotiation* as opposed to *positional bargaining*. They also heard other presenters speak about the importance of having "a level playing field" in conflict negotiations. Benyamin had lots of questions. If local communities are up against powerful opponents, how can they "level the playing field"? And what if some members of the community are co-opted (paid or recruited as workers) by the company? How does one generate the common interests of the community?

The study tour provided Benyamin an opportunity to answer these questions. He learned not from books, formal training courses nor experts, but from other local communities who are also confronting similar conflict situations. Study tour presenters informed him that "extra-legal" (also referred to as "meta-legal" in the Philippines) action may be necessary to "level the playing field". This may need to be done to impress upon the other party that the local community is serious and to force them to negotiate and not ignore the community.

Understanding and Acting

Through PRA (Participatory Rural Appraisal) tools of resource maps, seasonal calendars, ranking exercises, "needs and fears" exercises and stakeholder analysis, carried out with local Filipino communities in Anda, Pangasinan, Benyamin has "modeled" hidden and actual conflict management situations and strategies. Some strategies are successful; some not yet. But in the modeling process, Benyamin gained an understanding of the basic principles and steps in conflict management that do not use "force" to impose an agreement. He learned about a conflict management system that takes people's basic interests into consideration. Benyamin may not be able to directly transfer the experiences of other local communities, but learning with them gave him a space to reflect and analyze the situation in his own community. When he returned to his forest home, he intended to apply the lessons he learned through an action plan.

SPARK study tour participants with community and local government officials drawing a combination of a resource map, seasonal calendar and gear-use matrix to discuss conflicts related to natural resources management

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With a January 2000 start, SPARK (Sharing and Promotion of Awareness and Regional Knowledge) is a five-year program that encourages local groups to learn from each other about community-based approaches to natural resources management and sustainable livelihoods in Indonesia, the Philippines and Thailand. SPARK comprises an integrated package of complementary components to support existing organizations and communities in implementing community-based natural resources management (CBNRM) activities. These include volunteer development workers (VDWs), small grants, conferences and workshops, research, study tours, secondments, scholarships, program newsletter, and a CBNRM practitioners directory. Implementation in each country is informed by an advisory group of four proponents of CBNRM, two local employers of volunteers from VSO (Voluntary Service Overseas) and two VSO volunteers. SPARK also works closely with a hub organization in each country to ensure that benefits gained during its five-year lifespan will remain within each country's CBNRM network.

e-learning to Support Knowledge Sharing in Aquatic Resources

Robert T Raab and Jonathan Woods

Readers of the *STREAM Journal* are likely already aware of the importance of aquatic resources and the challenges associated with managing them sustainably. Worldwide, 150 million people depend on fish for employment. One billion rely on fish for the bulk of their protein needs. This consumption has resulted in severely depleted wild stocks, and the alternative – aquaculture – has not been widely proven to be sustainable or accessible to poor people (ICLARM, 2002).

Communication is the Key

Many people in the aquatic resources sector believe that the appropriate application of knowledge can improve sustainability and accessibility, particularly knowledge that is needed to better manage aquatic resources. As Degnbol (1998) notes, fisheries research has largely focused on management issues and "development thus would be contingent on better management of the available resources rather than expansion of the resource basis." Meryl Williams, the Director General of ICLARM, adds to this and believes "that knowledge about the interactions in aquatic resource systems – marine and freshwater, seas, lakes, rivers and ponds – put into the hands of the users, creates opportunities for meaningful dialogue on how to manage aquatic resources sustainably, particularly those that affect the poor" (ICLARM, 2002).

e-learning

The art of "putting knowledge into the hands of users" is rapidly advancing as new information and communication technologies (ICTs) empower organizations to more easily disseminate knowledge to their clients. For example, these tools promise to play an important role in the formal training and continuing education of aquatic resources professionals. Their use in education (e-learning) is one of their most exciting applications. e-learning takes place where teachers and learners are separated by distance, time or both, and takes advantage of network technologies to create, foster, deliver and facilitate learning, any time and anywhere.

Although STREAM itself does not have expertise in e-learning, it has partnered with the Asia-Pacific Regional Technology Centre (APRTC) to access this capacity. The APRTC is a regional e-learning organization that provides expertise, a range of online courses, and substantial technical competency that STREAM can tap to realize its goals.

APRTC

APRTC is a regional non-profit organization dedicated to improving the welfare of Asia-Pacific farmers and fishers. It was established to promote sustainable use of natural resources through improvements in user access to information and knowledge. Although previous advances in agriculture and fisheries have come through improvements in traditional inputs, the APRTC believes future improvements will rely on intelligently applying information to resource management. Knowledge-intensive management can improve profits, production and sustainability in the agricultural and fisheries sectors.

APRTC's main e-learning program is *agLe@rn*, which focuses on continuing education of professionals in the agricultural and fisheries sectors. These individuals can help farmers and fishers to access the information and knowledge they need for better management. They are often as much in need of better access to knowledge as the farmers and fishers they work with. They desperately need access to up-to-date information and knowledge, and opportunities to improve their professional skills. e-learning is ideally suited to these tasks, but a critical first step is to provide these individuals with basic digital literacy.

Digital Literacy

A key competency, and the basic foundation for anyone wanting to take advantage of online information and educational opportunities, is digital literacy: "the ability to access and take advantage of networked computer resources and to use and understand information as presented by computers." With a set of basic skills, some software and access to a computer connected to the Internet, anyone can:

- inexpensively communicate with other individuals connected to the Internet,
- access the ever-growing body of professional and general information available on and through interlinked computers worldwide, and
- take advantage of formal and informal training offered online from virtually anywhere.

STREAM-APRTC Collaboration

A major focus of STREAM's approach is that, "All possible communications channels will be considered to achieve widespread dissemination rapidly, reliably and at low cost. This will include access to digital information and use of the Internet, telephone, printed documentation and national and regional meetings." STREAM will "… help to gather and disseminate information and strengthen the capacity of existing media and other communications channels with the aim of sharing knowledge and utilizing learning" (Anonymous, 2002).

Unfortunately, the relatively low level of digital literacy among aquatic resources management professionals in the Asia-Pacific region could limit this effort. If STREAM's staff and local partners lack a minimal digital literacy skills set, the project will be hampered. STREAM is addressing this need by enrolling their national Communications Hub Managers in APRTC's course "Digital Literacy for Agricultural Professionals". Currently, three STREAM colleagues from Cambodia, Thailand and Vietnam, are "attending" an offering of this six-week online course. They are part of a class of 14 online learners representing various agricultural sectors throughout the Asia-Pacific region.

We hope to be able to write a follow-up article detailing the experiences and reactions of STREAM participants in the "Digital Literacy" course in a future issue. Looking a bit further down the road, we may even be able to talk about the application of these new technologies to getting information and knowledge directly into the hands of poor aquatic resources users. Already, several pilot efforts have proven that ICTs can be used effectively in reaching rural communities (Fontaine and Fuchs, 2000).

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To learn more about APRTC and its "Digital Literacy" and other courses, please visit the APRTC Website at http://www.aprtc.org

Livelihood Strategies, Gender and Participation in Aquaculture: Findings from Participatory Research in Northwestern Sri Lanka

Lindsay J Pollock and David C Little

Background

Sri Lanka's North Western Province is characterized by an abundance of irrigation tanks. Originally, larger perennial tanks supported the livelihoods of many farmers who were resettled there under various government schemes. These tanks have now begun to support the livelihoods of many fishermen and fish vendors dependent on the tilapia they yield. With the emergence of new generations of farmers, and increasing costs of agriculture production, many of the original settlers and their children have entered fishing as a supplementary livelihood activity. This has subsequently increased the pressure on the fishery. Catches in these tanks follow a seasonal pattern: highest when the water-spread area and winds are low, and lowest when water-spread area increases and weather conditions deteriorate in the monsoon season.

The seasonal fluctuation of income from fishing contributes to the vulnerability of fish-dependent communities. To offset this seasonal effect, pilot studies into cage-based fattening of tilapias were carried out with North Western Province communities. Live fish were collected from the tank and stocked in cages made from locally-available, low-cost materials. They were fed on homemade feeds prepared from rice bran and fish or fish waste, which could often be obtained free of charge.

Participation

This article describes the people who participated in a farmer-managed trial on cage-based fattening and the constraints they faced. The nature and level of participation is governed by several factors. The type of community and gender of the participants appear to be important factors that determine how people can or will participate.

Agricultural Communities

Catching and selling fish is solely the reserve of men. The extent to which women are involved in fisheries remains limited to cleaning and mending nets and occasionally fish processing and drying. As a result, only men in these communities showed interest in participating in the research trial.

Women's Participation: Cultural norms associated with fishing, and lack of access to key resources, seem to be the main constraints to women's participation in the trial in agricultural communities. Since women do not go fishing, their participation is constrained by their lack of access to live fish for stocking and also their inability to access fish cages by boat for feeding.

Men's Participation: Livelihood monitoring indicated that the participation of men in cage culture is affected by their involvement in other income-generating activities. Cage operation was neglected when they became engaged in farming activities. This indicated that cage culture is a low priority, but this may change with future developments. Ranking exercises also revealed that low availability of fish for stocking caused some participants to stop cage operation. Others persisted and eventually harvested their cages. Their positive experiences appear to have regained the interest of farmers who have decided to restart cage operation. Some farmers have scaled up the number of cages they operate from one to three. These farmers chose to operate many small cages rather than one larger cage as a strategy to spread risk.

Fishing Communities

In Sri Lanka, many fishing families from coastal areas have moved inland and settled around large tanks. These communities have a strong tradition of fishing and no experience of agriculture. Women in these communities take a more active role in fishing and related activities compared to agricultural communities. Fewer social preconceptions about gender roles in fishing exist in these communities; some fishing pairs are comprised of husband and wife teams. However, many women seem reluctant to paddle boats and go fishing without a man present. This demonstrates that women are still dependent on men to participate in fishing.

Women's Participation: When the idea of cage-based fattening was introduced to this community, women were the first participants to get involved, installing their cages before the men. Despite their high interest level, they experienced constraints that affected their ability to operate cages independently of men. Women needed to be assisted by men to catch fish for stocking. For this reason, many of the poorest women, particularly those from woman-headed households, could not begin cage operation. Women with husbands or other male relatives were able to continue cage operation as they had better access to fish for stocking from the men's fishing activities. Many women reported that their relatives would not assist them to catch fish for the cage as other tasks take priority.

When women stocked their cages, they appeared to make better operators than men. They had good access to feed materials (fish processing waste and household scraps) and fed regularly. Many women rear livestock and saw similarities with cage-based fattening.

Men's Participation: The interest of men in cage operation in this community was constrained by their involvement in fishing. Fishing effort in these communities was much greater and subsequently a larger income can be earned from fishing without the need to diversify into other activities. Men operators delegated jobs such as feeding and feed preparation to women and children while they continued fishing or related activities.

Future Prospects

The situations described reflect the current status of participation during the past two seasons of research. The results from agricultural communities are encouraging as more farmers rejoin the project, indicating that they see some value in the concept of fattening fish in cages. Future improvements to the efficiency of the system may attract more people to adopt this technology. The importance of livelihood diversification to spread risk is more widely understood in the agricultural communities than in the fishing communities. The potential for overexploitation of fish stocks in large tanks through over-fishing, may eventually force fishing communities to consider diversifying their income sources. Therefore, the relevance of operating small cages as a means of managing income fluctuations may become more important to these communities in the future. Further monitoring of adoption would be required to validate these indications.

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Farming of Giant Tiger Shrimp in Northern Central Vietnam

Jesper Clausen

Introduction

The development of brackish water shrimp farming in general, and farming of *Peanus monodon* (Giant Tiger Shrimp) in particular, has received much attention in Vietnam's northern central provinces, from both the Vietnamese government and from people living in coastal areas. The reasons are obvious. The production of *P. monodon* can generate significant income in coastal areas where other possibilities for earning money are limited. Areas which were considered wastelands, or were used as salt farms that generated limited amounts of money, can be converted into shrimp ponds and profits can be increased considerably. However, there is a "but" to this scenario.

This article focuses on some of the mistakes that can be and have been made in developing shrimp farming in poor coastal areas. The findings presented are based on fieldwork from October 2000 to March 2001 in Quynh Luu District, Nghe An Province, in the northern central part of Vietnam. The fieldwork was part of a thesis conducted at the University of Copenhagen in Denmark, and is based on 36 interviews with farmers from mostly extensive and semi-intensive shrimp farms. Interviews were also conducted with officials from the Quynh Luu People's Committee and the Research Institute of Aquaculture No 1 in Bac Ninh Province near Hanoi.

Better Farm Management

First, let it be said that farming of *P. monodon* and other aquaculture products can be done in an economically, socially and environmentally sustainable way. Examples are seen in Vietnam (MOFI, 2001) and other countries. However, because of often rapid expansion, and the "boom and bust" pattern experienced in China, the Philippines and Taiwan, there are also examples of unsustainable shrimp production. Problems occur because of unsuitable areas being converted into ponds, disease outbreaks and improper farm management. This can be a threat to adjacent activities and ecosystems in the coastal zone, and to the sector itself. To a high degree, these problems can be minimized through better farm management practice.

The case from Quynh Luu showed some of the constraints in developing sound and sustainable production of *P. monodon*. There is a considerably high amount of both nitrogen and phosphorus in the effluent from the shrimp farms using semi-intensive methods. Compared to figures from farms in Thailand, the loadings are high. Part of the explanation for this is the high feed conversion ratios (FCR), which are as much as 3.4:1. FCR should be around 1.5 in a well-managed pond, because any higher value will result in higher shrimp mortality, and increased nutrients and organic matter from the uneaten feed being let into surrounding waters. At present, feed accounts for 46% of the total running cost of semi-intensive farms. Taken together with the high mortality rates (90-98%) in Quynh Luu, it is suggested that feed management could be improved to benefit farmers in terms of money saved, and at the same time, to benefit the environment in terms of less pollution.

The sludge that accumulates in the shrimp ponds during the grow-out period is another impact of shrimp farming. At present, few farmers in Quynh Luu flush sludge, but according to those interviewed, nearly half of them plan to do so when they have enough money. If all farmers who want to flush sludge into the channel did so, this could cause serious water quality problems in the channel, which would affect both shrimp farming and the surrounding environment.

Approximately 90% of farmers in Quynh Luu get their water directly from the channel without any pretreatment. This is only possible if the water is of a good quality. If development of more shrimp farms in Quynh Luu District is to be sustainable, both pretreatment and settlement ponds should be mandatory for all new farms over certain intensities. A risk in developing more intensive farms is that the more undeveloped (and poorer) farms in Quynh Luu will have problems because of potentially decreasing water quality. If the poorer farmers do not have the financial resources to change their farming practice, they may end up with reduced production due to the intensification of adjacent shrimp farms. Further development of shrimp farming should ensure that poorer people in the coastal

areas do not become the losers. Some new shrimp farmers in Quynh Luu have lost money and are now poorer than before starting shrimp farming.

These problems can be solved, or at least minimized, if the farmers starting shrimp farming acquire better management practices and learn more about environmental considerations and implications associated with shrimp farming. Farmers should not be encouraged to start production of *P. monodon* without a certain level of training. The difficult climatic conditions for breeding *P. monodon* in Vietnam's northern central provinces increase the importance of some education before culturing this species.

Guidelines and Legal Issues

Some problems can be solved through farm management, but it is also necessary to have guidelines and legislation to control the development of shrimp farming. At present there are no specific guidelines on good farm management in Vietnam, but initial steps have been taken. The Vietnamese Ministry of Fisheries (MOFI) is currently working on a code of conduct for aquaculture in Vietnam. Also being drawn up are environmental impact assessment (EIA) guidelines for aquaculture which will focus on both local and government levels. The newly-agreed strategy called "Sustainable Aquaculture for Poverty Alleviation" (SAPA) is another example of ongoing activity.

One problem is the pace of development because of unplanned shrimp pond construction. Legal issues are not being considered, nor decisions made, as quickly as shrimp farms are being built. Another concern is the local implementation of guidelines once they are finalized. The Vietnamese government is, however, taking these issues into account and there is significant participation of local people in some of the processes. It is important that government and non-governmental extension workers, who will be implementing any guidelines and legislation, also promote the participation of shrimp farmers and other local stakeholders. This will ease the task of implementing government initiatives.

Conclusion

The introduction of *P. monodon* has seen some success in northern central Vietnam. However, the development in some provinces is proceeding so fast that present planning and environmental initiatives have difficulties keeping up. It is time to let the legislation and planning of the coastal zones develop before local people are further encouraged to convert their present farm activity into shrimp monoculture. If time is given to more training and planning, the short-term slow-down in production will be regained through the long-term benefits of a well-guided and well-planned shrimp sector.

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Interacting with Stakeholders and Policy-Makers

To Phuc Tuong

Infrastructure and Innovation

Increasing demand for rice in the 1980s and 90s, for both domestic consumption and export earnings, prompted the Vietnamese government to plan and invest in infrastructure development to increase rice production, particularly in the Mekong River delta. From 1993 to 2000, a series of embankments and sluices were constructed along the coast in Soc Trang and Bac Lieu provinces to protect an area of about 200,000 ha from salinity intrusion, and to intensify rice cultivation. However, at the end of the 1990s, before the last sluice of the Quan Lo-Phung Hiep water control scheme was built, Vietnam was already exporting four million tons of rice annually, and rice prices on the local market rapidly declined.

At the same time, traditional shrimp cultivators in the western part of this area were exposed to several innovations in shrimp culture, which boosted the productivity of shrimp farms. They no longer depend solely on the natural supply of fry, which was decreasing, but are now able to import shrimp seed from central Vietnam. They know better how to monitor and control water quality in their fields. Also, under the reform economy, shrimp is exported to international markets, which considerably increased the farm-gate price.

A Participatory Project

The DFID-CRF[1] project "Accelerating Poverty Elimination through Sustainable Resource Management in Coastal Lands Protected from Salinity Intrusion: A Case Study in Vietnam" was conceptualized in 1999 and became operational in early 2000. The project used a participatory approach with local government to quantify the impact of the salinity protection schemes on the environment and people's livelihoods, and to identify technologies that maximize the benefits and minimize the negative impacts of salinity prevention measures on small-farm holders.

From the early stages of this research project, the team members interacted closely with local authorities in explaining the study objectives, getting their feedback and cooperation in data collection, and reporting research findings as the study progressed. Interaction was facilitated by a "local coordinating unit" headed by the Vice-Director of the Department of Agriculture and Rural Development, who is assisted by one permanent project staff recruited from the Center of Agricultural Extension Services.

Livelihoods and Policies

When the sluices in the western fringe of the Quan Lo-Phung Hiep scheme became operational in 2000, the supply of brackish water needed for many shrimp ponds was cut off. Many farmers were forced to abandon shrimp raising, suffering a serious loss of income. The project carried out systematic land-use change and participatory socio-economic studies to quantify the impacts of the water control scheme on the shrimp-based and rice-based livelihoods of wealthy, average and poor households. The project identified that, besides the "gainers" (rice farmers in the eastern part of the project site), there were many "losers" (shrimp farmers in western parts and many poor and landless farmers whose livelihoods had depended on the wild fishery).

These data, together with events in February 2001 during which some of the "losers" destroyed major salinity control structures, supplied the local government with convincing evidence to present to the central government to re-examine the original development objective, which focused on increasing rice production. The local government is now allowed to explore land-use alternatives that would accommodate shrimp cultivation in the western part of the province, while maintaining the areas of intensive rice production in the eastern part.

[1] UK Department for International Development – Competitive Research Fund

Various levels of policy- and decision-making need to be involved in effecting changes in land-use policy and management of the water control scheme to address this emerging situation. The district and provincial authorities in Bac Lieu Province involved the project team members in devising a land-use zoning plan, taking into account the existing situation and farmer needs, and the opportunities and constraints of the water control scheme. The ability to implement land-use zoning depends on appropriate management of the sluice gate operation so that shrimp farmers get brackish water, rice farmers get freshwater to produce multiple rice and upland crops each year, and farmers in the transitional zone get to raise shrimp in the dry season and grow rice in the rainy season. The project team used a GIS-linked hydraulic and salinity model to simulate the movement of saline and fresh water in the canal network under different sluice operation scenarios. The simulation results were discussed with district and provincial authorities to select a land-use zoning map that was agreed by various districts. The project team provided data and got support from land-use planners of the Sub-National Institute for Agricultural Planning and Projection based in Ho Chi Minh City.

Operation and Cooperation

Using the hydraulic model, the project team worked with the hydraulic company in charge of operating the water control scheme to determine how the existing sluices should be operated to let saline water into the western part for shrimp culture in the dry season, but still prevent salinity intrusion into the double and triple rice area in the eastern part. The most preferred scenario of sluice operation was implemented in 2001. The operation schedule was adjusted using feedback data from a water quality monitoring network which the project helped the local government set up throughout the province, and which is run by district personnel. E-mail exchanges between the “local coordinating unit” and the project team members within and outside Vietnam played a pivotal role in this decision-making process. Having obtained satisfactory results in 2001, the local authorities decided to continue using the simulation model as a decision-making tool for operational water management in 2002.

For the remainder of the project until April 2003, the research team will continue to monitor and assess the impacts of these changes on rural livelihoods, with particular emphasis on poor farmers and on the environmental quality of the study area. It is hoped that the lessons learned can be extended to other coastal areas.

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The project is being implemented by the International Rice Research Institute, in collaboration with University of Newcastle upon Tyne, International Center for Living Aquatic Resources Management, Cantho University, Department of Agriculture and Rural Development of Bac Lieu Province, Sub-Institute of Water Resources Planning, and the Integrated Resources Mapping Center.

The Role of Nutrition Communications in Meeting the Nutritional Challenges of the Asia-Pacific Region

Georgina Cairns

Good Nutrition for All

The food we eat has many functions: it is a source and symbol of pleasure, celebration and friendship; it is a source of essential nutrients, and sometimes a threat to personal health because of microbiological, anti-nutritional and chemical contaminants. Achieving a healthy diet depends on the availability of sufficient food of good nutritional quality that is safe to eat. Nutritional and medical sciences understand much about the nutritional elements of a healthy diet. How best to use that knowledge to develop messages which support and encourage healthy, enjoyable food choices is less well understood but is of increasing interest to the many parties concerned with food and health.

The 1992 WHO/FAO International Conference on Nutrition recognized the many roles that food plays in our lives, and sent a clear signal in its "Nutrition Declaration and Action Plan" that the goal of "good nutrition for all" must be a shared responsibility. Meeting this goal requires the input and commitment of all sectors of society: agriculture, health and education, finance and planning, the food industry, consumers and non-governmental organizations.

More than any other region in the world, Asia faces two quite different nutritional challenges with different health and communication priorities: inadequate nutritional consumption and excess consumption.

Inadequate Nutritional Consumption

A large proportion of Asia's population suffers from under-consumption of specific nutrients. Although this proportion is believed to be declining, malnutrition is still a significant problem in many countries, and more common in rural areas. There are a number of reasons for this, including limitations in the choice and accessibility of locally-produced foods, or periodic fluctuations in their availability.

Basic hunger (protein-energy malnutrition) is the most obvious example of inadequate nutrition. However, micronutrient deficiencies (especially of iron, vitamin A, zinc, iodine and calcium) may be less easy to recognize, but are probably a greater cause of ill-health in Asia. Inadequate nutrition is recognized as both a direct outcome and an important influence on national development. Micronutrient deficiencies have been linked to poor mental development, increased susceptibility to infections, and high childbirth and infant mortality rates.

Children and women of child-bearing age are especially at risk because of increased nutritional demands, and sometimes because traditional diets result in these two groups receiving the poorest quality diets within the family (for example, high-bulk, low-nutrient, cereal-based gruels are common weaning foods). The vulnerability of these groups, along with recognition that population-level dietary inadequacy is strongly linked to low literacy levels among women, low birth weight, and weight-for-age growth rates of young children, suggest that targeting of these groups may be particularly effective. Strategies to combat nutritional inadequacies may involve approaches which include supplementation, fortification and subsidized food schemes; socio-agricultural intervention and educational initiatives.

Excess Consumption

Excess consumption of total energy (calories), saturated fats and refined carbohydrates, coupled with reduced physical activity, increases the risk of obesity and associated diseases such as diabetes, osteoporosis, cardiovascular diseases and possibly some cancers. The incidence of these so-called non-communicable or lifestyle diseases is rapidly increasing in many Asian countries.

Such disease patterns are often associated with increasing affluence of populations. However, it is misleading to say that increased wealth is the cause. These illnesses affect both the poorest and the richest. It is probably more helpful to look at the link between physical activity levels and the increase in non-communicable diseases. Industrial development and the migration of rural populations to urban areas are almost always associated with declines in physical activity levels.

Many of those previously employed in manual labor such as agriculture are now engaged in more sedentary employment. Those regularly engaged in heavy physical labor often find it difficult to consume food to meet their daily energy needs, particularly those with low incomes and limited diets. People leading more sedentary lifestyles often find it difficult to restrict their food intake to match their energy expenditure levels. The result may be a gradual increase in body weight, as excess calories consumed are converted to body fat. Overweight is closely associated with many of the lifestyle diseases, and in many instances even moderate weight loss results in a reduction in disease symptoms. There is also increasing evidence that low physical activity levels may be an important and independent risk factor, even in those who are not overweight.

From Nutritional Guidance to Nutrition Communications

Approaches to both malnutrition and excess consumption have shifted from simply providing science-based nutrition information, to advice based on detailed understanding of the concerns, motivation and current knowledge of the target group. For example, nutritional guidance increasingly reflects:

- local food availability (including cost, convenience and seasonal availability),
- lifestyle patterns (for example, how much time is available to gather or shop for, prepare and eat food),
- the importance of food as a source of pleasure (taste and familiarity are the most influential factors in food choice), and
- the symbolic role of food in local culture (many traditional celebrations involve feasting and fasting, and food selection is determined by traditional practice on these occasions).

New information on health and food choice must also demonstrate credibility. The demonstration of tangible benefits at an acceptable personal cost (e.g., financial, social, convenience) is required for new information to be used in future diet and lifestyle choices. The use of role models and strategies based on small incremental changes can also be helpful in building confidence and credibility.

A better term for this approach to educational nutrition initiatives is probably “nutrition communications”. This reflects an increasing emphasis placed on the need to develop interventions which are both lifestyle-friendly and based on current scientific evidence.

Georgina Cairns is Executive Director of the Asian Food Information Centre (AFIC), and can be reached at <info@afic.org>.

AFIC works to provide science-based information on food safety and nutrition in Asia to health professionals, government agencies, the food industry and the media. For more information visit www.afic.org

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 communication 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 version which will be printed and distributed by the STREAM Communications Hubs,
- a version which can be accessed and downloaded from the STREAM Website at www.streaminitiative.org, and
- a printed version which will be distributed from 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 Programme 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 through National Coordinating Teams comprising the National Coordinator (a senior national colleague agreed with the government) and the 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 units dealing with livelihoods, policy development, communications and special issues. A communications matrix links interactions, lesson learning and partnership activities.

STREAM implementation will be an iterative process, initially piloting in Cambodia and Vietnam 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 associated Discussion Forum on the STREAM Website are components of this strategy.

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