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Regional technical cooperation in reducing dependence on trash fish

A project on *Reducing the dependence on the utilization of trash fish/ low-value fish as feed for aquaculture of marine finfish in the Asian Region* was approved in July 2008 under FAO's Technical Cooperation Program. The project involves China, Indonesia, Thailand and Viet Nam and aims to assist development of sustainable grouper/Asian seabass farming systems in these countries. An inception planning workshop for the project was held in Krabi, Thailand from 8-10 September 2008, hosted by the Thai Government.

The inception planning workshop was convened to:

- Discuss the project concept, rationale, outputs and activities.
- Finalize questionnaires for livelihood analysis of trash fish/low-value fish (hereafter referred to as 'low value fish' which is more accurate) suppliers and environmental impact assessment components.
- Discuss and finalize the methodology to study the farmers' perception on the use of low-value fish vs formulated feeds.
- Determine the in-country logistics of conducting different project components and to finalize the survey plans for each country.
- Reach agreement on and to finalize the overall work plan including time frame of implementation and responsibilities of all project holders.
- Identify important issues/problems to be addressed before launching the field activities.

The workshop included presentations on mariculture in the four participating countries, i.e. China, Indonesia, Thailand and Viet Nam highlighting the status of the sector and importance of the present TCP for its sustainable development. Presentations were also made on environmental impact assessment, surveys and livelihood analysis of low-value fish suppliers and rapid rural appraisal (RRA) of the farmers' perception on the use of low value fish as opposed to compounded pellet feeds.

Participants in the inception workshop, 8-10 September 2008, Krabi, Thailand.

During the plenary session, extensive discussions were held on the design, scope and strategies for implementation of different project activities with country specific considerations. Some related logistic and procedural issues were also discussed. The workshop agreed on: i) the extent on the information to be collected for livelihood analysis of low value fish supplier, ii) type, size and location of samples for livelihood analysis survey in respective countries, iii) methodology of RRA for the farmers' perception study, iv) methodology of environmental impact assessment including type of water quality monitoring, sample size and frequency of data collection, and v) a broad framework for farmer's participatory trials including the selection of site in each country, type of species, number of farms, cage size, duration of growth cycle and monitoring requirements.

The workshop was attended by sixteen participants (eleven from four project participating countries, China, Indonesia, Thailand and Viet Nam, three from NACA and two from FAO) and one observer from a feed industry.

NACA would like to thank the Government of Thailand and staff of the Department of Fisheries for hosting the workshop and for their excellent hospitality. Further details of the workshop report and the proceedings are available from Mohammad R. Hasan at FAO/HQ (E-mail: Mohammad.Hasan@fao.org) and Sena S. De Silva at NACA/Bangkok (Email sena.desilva@enaca.org). For more information, please also see the project website at:

http://www.enaca.org/modules/marine-fishprojects/index.php?content_id=2.

Culture, capture conflicts in Indonesian reservoirs: Phase 2

Phase two of the ACIAR-funded project *Culture, capture conflicts: Sustaining fish production and livelihoods in Indonesian Reservoirs* got underway on 20 August with formal inception taking place at the Directorate General of Aquaculture in Jakarta, presided by Dr Marde Nurdjana in the presence of Prof. Sena S De Silva (Principal Investigator and Director General of NACA) and Mr. Julien de Meyer, ACIAR Country Manager, Indonesia.

The second phase will develop and fine tune co-management measures that have resulted from the project's earlier research, primarily based on carrying capacity estimations for the three reservoirs under consideration. The project will now focus on the Jatilnuhur (8,300 ha) and Cirata (6,200 ha) reservoirs, which account for about 10,000 and 60,000 tonnes/ year of cage-farmed tilapia and common carp, and 12+ and 10 tonnes/year of capture fishery production consisting mainly of tilapia, catfish and *Colostoma*, respectively. Fisheries activities in these two reservoirs provide 5,000 to 6,000 livelihoods directly, and many more indirectly.

The project is headed under the guidance of the Director General of the Directorate of Aquaculture (DGA) Dr Made L. Nurdjana, and coordinated by Dr Reza Shah Pahlevi, Head of Program Division, with the field team headed by Dr. Fatuchri Sukadi, ably supported by Maskur, Station Head of the Main Centre for Freshwater Aquaculture Development, Sukabumi; Dr Sonny Koeshendrajana, Centre for Marine and Fisheries Socio-Economic Research Agency for Marine and Fisheries Research and Development; Dr Endi Setiadi Kartamihardja, Central for Capture Fisheries Research, Agency for Marine and Fisheries Research and Development; Ms Rina M. Si, Center for Fisheries Extension, Agency for Marine Affairs and Fisheries Human Resource Development, all of the Ministry of Marine Affairs and Fisheries; together with Dr Sutrisno Sukimin, Faculty of Marine Science and Fisheries, Bogor Agricultural University, amongst others.

Although inception was delayed by a few months due to the introduction of new regulations, the team has continued to advance the project. The key areas of progress are:

- A draft plan co-management plan, drawn up based on consultations with stakeholders during the work of the first phase and the plan has been released to stakeholders for common on 3 July 2008.

- The recommendations on stocking of the reservoirs to support the capture fisheries and to facilitate the reduction of nutrient loading has begun to be implemented, with 2.1 million milkfish fingerlings (5 to 7 cm; hatchery reared and salinity adapted) released to Jatilnuhur reservoir. The stocking program was inaugurated by the Hon. Minister for Marine Affairs & Fisheries, Dr Freddie Numberi on 30 July 2008.

- 30,000 fingerlings have been stocked in Cirata reservoir, where the fishers are in a process of beginning to get organised. This program will proceed based on the progress of in the involvement of the fishers in the co-management process, which is advancing fast and efficiently.

Cages on Cirata Reservoir.

Above, below: Preparing seed for stocking and discussions, Jatilnuhur Reservoir.

- The fishers of Jatilnuhutr have already agreed to the principle that the Society will levy Rp 1000/kg of milkfish landed and the proceeds be utilized for procuring seed for the next round of stocking (seed costs Rp 2000/ tail). The results of the stocking program will be closely monitored.

- The DGA has allocated the equivalent of AUD$ 47,000 to facilitate the implementation of the co-management plans in the two reservoirs, and expects to use the lessons learnt to other reservoirs in Indonesia.

- In addition, the Directorate of Human Resources Development has appointed two Research Assistants to monitor the effectiveness of the stocking program as well as for interacting and facilitating the farmer and fisher interactions in adopting co-management strategies for sustaining the capture fishery and the cage culture operations of the two reservoirs, which are of immense significance to the communities involved.

- It is interesting to note the increasing involvement of provincial and district organisations in extending their support and cooperation in implementation of the co-management strategies. For example, the Bupati Purwarkarta District Organization, responsible for local fisheries regulations, issued a decree on the minimum mesh size and types of fishing gear that could be used in Jatilnuhur reservoir for the first time ever on 14 July 2008. The fishers are all willing to comply with these regulations now that they have witnessed the benefits of the stocking program – a clear example of the project's impact on policy development.

- A further stakeholder meeting of fishers, cage culture operators and Provincial and District DINAS officials on 20 August 2008 to apprise them of the concurrent developments that have taken place and the plans for fine tuning the co-management plans with the concurrence of all stakeholders, and implementing the same over the ensuing one to two years. Hopefully this will reduce the incidence of fish kills, increase the well being of capture fishers and make the fishery activities in the two reservoirs sustainable.

What is the next step?

At the stakeholder meeting held on 20 August it was decided that one cage culture zone out of the five in Jatilnuhur will be adopted as 'demonstration zone' for the implementation of the co-management plan within the next two months. This unit will be closely monitored and will be available for cage farmers from other zones as well from Cirata and Saguling reservoirs to visit and observe the activities. As time progresses, gradually the implementation of the co-management strategies, together with Better Management Practices to other cage farming zones, with suitable modifications.

For more information about this project, please refer to the project summary page at:

http://www.enaca.org/modules/inlandprojects/index.php?content_id=3

Progress on the IFC/NACA ACEH Shrimp Project

The objective of the project, jointly implemented by the International Finance Corporation (IFC) and NACA, is to support the recovery of brackishwater shrimp and fish pond farming in Bireuen district of the Province of Nanggroe Aceh Darussalam in Indonesia. The project started in 2007, assisting 47 farmers in 12 villages of Gandapura sub-district for the first crop, and 83 farmers for the second crop, in the same location. The emphasis was on assisting farmers to implement a simple set of "Better Management Practices" (BMPs) adapted for local conditions.

In 2008, the project was extended to a further 3 sub districts and 34 villages, assisting 260 farmers, 360 ponds for a total of 200 hectares (water surface area) responding to increased demand from farmers to join the project.

The project team was made up of 15 field facilitators providing technical guidance and BMPs to farmers. The team resided in the villages of duty, where they provided technical guidance to the farmers on a daily basis. No financial support was provided, except quality shrimp seed was subsidized to the farmers, who paid about 30% of the seed price. The seed (PL25) was screened for WSSV through PCR three times before distribution to farmers. The history of each pond was determined by field staff throughout the culture period, and comparisons were made with non-assisted farmers.

Extension video show and discussion.

During 2008, new extension channels for BMPs were introduced: 13 BMP video shows were organized in villages, and 45 BMP radio talk shows organized with call-in facility to allow farmers to ask questions. BMP "spots" containing a total of 10 key BMP's were aired five times per day by three different local radio stations. At the same time, distribution of BMP material (manuals, leaflets, posters) has been carried out widely in project and other areas. The result has been a strong interest in participating in the project.

Above left, right: Preparation and stocking of PL.

A healthy crop ready for harvest.

The impact on farmers receiving technical assistance was monitored, with excellent outcomes. Ponds throughout the project have been found to be have a 25-30% increase in net profit over non-assisted ponds. The success rate in the third crop (2008) was 62% at an average productivity of about 200 Kg/ha. As per baseline surveys, non-assisted farmers widely used pesticides (54%, 47%, 49% for crops 1,2, 3) in the form of cocktails of agricultural products, while assisted farmers did not use pesticides at all. The project initiated local farmers groups, and meetings are held on a monthly basis, to discuss technical issues with the project staff.

The project introduced in 2008 some BMPs for shrimp harvesting, in collaboration with FAO and a nearby processing plant: demonstration harvests have been carried out by project staff under the supervision of an international specialist, to be shipped to a local processing plant which has sent the product to Japan for evaluation by a lead exporter

and consumers. At the field level, a strong collaboration with FAO, ADB, ACIAR and UMCOR has been conducted. Furthermore, two benchmark reports have been commissioned by the project, on mangrove plantation feasibility and gender balance in the district. A "coastal aquaculture livelihoods baseline study" by FAO was actively facilitated by the project, through provision of data and organization of focus groups.

The project also mediated a canal rehabilitation by USAid for the sub district of Gandapura.

The outcomes show the benefit of simple technical assistance in reducing risks and improving crop outcomes through simple management improvements for farmers of Aceh in the recovering post-tsunami environment.

Indian shrimp farmer societies succeed through better management practices

The Krishna district covers about one third of the total brackish water area developed into shrimp ponds in Andhra Pradesh, India. Although untill the mid 1990s shrimp farmers earned good returns and investment in technologies for good management practices were generally ignored. As a result, shrimp farming in Krishna district failed to withstand the impact of viral disease outbreaks in the mid 1990s. As the situation failed to improve, a large number of farmers abandoned shrimp farming. Presently, farmers from socially and economically challenged communities dominate the shrimp farming population in the district who lack skills, information and organization.

In Andhra Pradesh NaCSA has organized more than 100 farmers societies, 30 of them are in Krishna District. The first three societies in Krishna were organized in Penduru village, which is located in Bantumilli mandal of Krishna District. There are 164 farmers involved in shrimp farming owning 384 ponds in 600 acres farming area. Out of this, 63 farmers formed into three societies in the village earlier in the year.

All the 63 farmers (84 ponds, 67 ha area) agreed to follow the better management practices (BMPs) starting with getting disease free seed through contract hatchery system where farmers collectively placed bulk orders to a hatchery, 45 days in advance of the planned stocking date, for production of required quantity and quality of seeds. Through a consultative process, facilitated by the NaCSA team, a mutual agreement has been formed between the selected hatchery and three societies. The agreement included included screening broodstock for disease, using only disease free broodstock for seed production, single spawner systems, no use of banned antibiotics, good feeding practices and other terms and conditions for production and procurement of quality seed.

After 110 days of successful culture farmers started harvesting, none of the ponds were affected by disease. To share the successful experiences of Penduru society farmers NaCSA organized farmer field day on Wednesday, 11 June, 2008 in Pendurru village to spread the awareness about "participatory approaches" among farmers across Krishna District. More than 200 farmers from different parts of Krishna participated in the programme along with the presidents of 30 societies. It was a learning experience for all the Andhra Pradesh society coordinators participating in the function. The function began with a brief introduction by the CEO of NaCSA followed by Sri. Vijay Aqua Farmers Welfare Society President Sri. Srinvasa Rao, who shared his society's success with the invited farmers. Sri. Chinna,

Andhra Pradesh shrimp farmer society Coordinators.

a farmer from Sri. Sivsai Welfare Society explained in detail the better practices followed in the society starting with the contract hatchery system. Sri. Saifuddin Anis, Deputy Director of MPEDA urged all the farmers to follow the example of Penduru farmers and achieve success in each and every society. Prof. Sharma from Nagarjuna University stressed the importance of participatory approaches and the technical information available from NaCSA through society coordinators to society farmers. Later Chandra Mohan of NaCSA made a presentation in Telugu about better management practices and presented the current market situation. All the participant farmers keenly listened to the Penduru farmers experience and later discussed the requirements of their own societies. One common demand from all the societies is to get assistance in supplying electricity to their farms.

Positive outcome of this demonstration

- No disease incidence: None of the three Penduru societies ponds were affected by disease. More than 50% of non-society ponds affected with white spot disease in this area in this summer season. Photo: Andhra Pradesh shrimp farmer society Coordinators.

- Increased confidence in contract hatchery system: Prior to the demonstration, farmers from this area never went to hatcheries to purchase seed, they were all dependent on poor quality seed from commercial nurseries. With 100% success now they are confident about getting good quality seed through the contract hatchery system.

- Reduced cost production: Through efficient use of feed (FCR of 1:1) and other resources, including reduced use of chemicals, all the farmers will achieve a very good profit for the first time in many years.

- Production of safe shrimp: No use of antibiotics. Seed, shrimp and other inputs have been screened for antibiotic residues and they were negative.

- Motivated farmers in abandoned areas: Seeing the success of the Penduru farmers more and more neighboring farmers and farmers from abandoned areas are coming forward to organize themselves as societies. We could see the positive impact of this success in coming crops as new societies implement BMPs and more societies will be organized in Krishna District. This could pave the way for full scale revival of most of the abandoned ponds in Krishna and other places.

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In brief

Multidisciplinary situation appraisal of mangrove ecosystems in Thailand

The MANGROVE Project has published a new report, *A multidisciplinary situation appraisal of mangrove ecosystems in Thailand*, which is now available for download.

The Nakhon Si Thammarat Province from the southern part of Thailand has been selected for the appraisal due to their highest priority and score provided by expert evidence. The three communities have been selected to represent different characteristics of the mangrove ecosystem; (1) Ban Kong Khong, Pak Phanang Fang Tawan Ok Subdistrict, Pak Phanang District to represent a community with healthy and old mangrove forest, (2) Ban Pak Nam Pak Phaya, Ta Sak Subdistrict, Mueang District to represent a community with new mangrove plantation areas from abandoned shrimp ponds and (3) Ban Talad Has, Pak Phun Subdistrict, Mueang District to represent a community with new mangrove area from a new sedimentation area, respectively.

The report is available for free download from:

http://www.enaca.org/modules/wfdownloads/singlefile.php?cid=196&lid=953.

New CIFA Director appointed

Dr. Ambekar E. Eknath (photo below) has assumed the post of Director, Central Institute of Freshwater Aquaculture (CIFA), taking over from Dr. N. Sarangi who retired on 30 June. Dr. Eknath is an internationally acclaimed geneticist who has worked with the WorldFish Centre, Philippines and GenoMar, Norway in managerial capacities. He has been associated with many international organizations over the years including NACA, ADB, FAO, INGA, UNDP and the World Bank. He played instrumental role in developing genetically improved farmed tilapia (GIFT), a variety that contributes significantly to the food fish production in many areas of the world.

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NACA is a network composed of 17 member governments in the Asia-Pacific Region.

FAO Glossary of Aquaculture

The FAO Glossary of Aquaculture, previously published on the web in April 2006, has now also been made available in hard copy print, CD-ROM and PDF form to reach a wider audience and to assist those without fast internet connections.

The Glossary contains approximately 2,500 terms and includes definitions, information sources, synonyms, related terms and images when available.

Terms and definitions are available in five FAO official languages (English, French, Spanish, Arabic and Chinese).

The PDF version is available for download from the FAO website at:

http://www.fao.org/fi/glossary/aquaculture/