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NORAD funded project on climate change initiated

The inception workshop of the NORAD funded project *Strengthening Adaptive Capacities to the Impacts of Climate Change in Resource-poor Small-scale Aquaculture and Aquatic Resources-dependent Sectors in the South and South-east Asian Region* was held at the NACA Secretariat, Bangkok, Thailand from 19-20 March 2009.

Representatives from NORAD, project partner institutions (Akvaplan-niva ÅS, Tromso, Norway; Bioforsk - the Norwegian Institute for Agricultural and Environmental Research, Ås, Norway; Faculty of Fisheries, Kasetsart University; NACA), national project focal points from case study implementing countries (Indonesia, India, Thailand, Vietnam, Philippines and Nepal); and regional and international organizations (FAORAP SEAFDEC and DPI Fisheries Victoria, Australia) participated in the inception workshop. The workshop discussed and agreed on implementation approaches and methodology, developed work plan for country case studies, identified and agreed on roles and responsibilities, developed monitoring and reporting schemes, decided on future project meetings, and developed strategies for dissemination of project findings to a wider audience in the region.

This project is in line with the advocacy to strengthen adaptation capacities of relevant economic sectors, communities and households to climate change impacts. The project focuses on the small-scale aquaculture and the related sectors that consist largely of poor people who depend on aquatic resources for their livelihoods. The project will assess the impacts of climate change on small scale aquaculture sector (environmental, socio-economic and institutional) in selected study areas in five countries. The focus will be on specific farming sectors in the south and south-eastern Asian region, and mapping the farmers' perceptions and attitudes towards climate change impacts and their adaptive capacities to address these impacts. The project will develop future scenarios based on the current trends, assess the potential adaptive measures for different aquatic farming systems and prioritize better practices, suggest Codes of Practices and improved methodologies for such systems.

The project aims to establish guidelines, frameworks and tools for policy and action programs of governments, development assistance agencies, non government organizations, and farming communities that will increase the resilience and enhance adaptive capacities of resource-poor, small-scale aquaculture farmers and those dependent on aquatic resource for livelihoods, to the impacts of climatic changes. It will provide information for investments in research, technology development and transfer, public education, training, infrastructure and systems, markets, financial and other support services for the small-scale aquaculture farmers and aquatic resource users who are poor, most of all provide strategies to small scale farmers to maintain their resilience in the wake of climatic change impacts.

The project activities have been divided into five work packages in order make it convenient for project management and also assign responsibilities to each partner. Each work package will be focusing on main project issue, but will be addressing several sub-tasks that are linked to the main issue in the particular work package. The five work packages are as follows:

- Assessment of impacts of climate change on small-scale aquatic farming systems and the potential contribution of these systems to GHG emissions.
- Risk perceptions, attitudes and risk management behaviour, status of resiliency, adaptive capacities and adaptation strategies of small-scale farmers.
- Developing adaptive solutions and scenario-building of the changes on the resources and livelihoods options of poor and small aquaculture households, and the risks and opportunities presented by climate change.
- Policy and analysis and adaptation strategy development.
- Project coordination, results dissemination and follow up action.

The three-year project will be coordinated by NACA. For more information contact Dr CV Mohan, email: mohan@enaca.org, or visit the project web page at:

http://www.enaca.org/modules/inland-projects/index.php?content_id=8

Sign up for our free email newsletter service!

Starting in June NACA will begin publishing an email newsletter. It will carry the latest news stories, projects and of course our full-text publications for free download. It's a great way to stay in touch with developments in Asian aquaculture. If you would like to receive the newsletter, please sign up at the registration page on the NACA website:

http://www.enaca.org/modules/newsletter.

Market chains and biosecurity of 'low-value' aquaculture commodities

The international trade in cultured finfish is currently dominated by freshwater species, of which the Vietnamese tra catfish (*Pangasianodon hypophthalamus*) and tilapias collectively exceed commodities such as salmonids. In addition, there is a growing trade in species such as rohu (*Labeo rohita*), both internationally and regionally. All these species are relatively low valued compared to, for example, salmonids and some shell fish. The growing trade in these "low value high volume" cultured species, increase in production and associated processing facilities and service sectors have begun to contribute significantly to the economies of the producing countries. The trade is also providing new livelihoods to many thousands of people, further contributing to food security and poverty alleviation in the region. For example, the processing industry for tra catfish and rohu in Vietnam and Myanmar alone are estimated to provide over 100,000 livelihood opportunities, mostly for women, empowering impoverished households and rural communities.

FAO and NACA convened a workshop on *Market chains and issues associated with biosecurity of low-valued cultured commodities in Asia* in Siem Reap, Cambodia from 23-26 February 2009. The objectives of the workshop were to identify the crucial issues related to the marketing, quality and certification-associated issues surrounding relatively low-valued fish, including biosecurity and health. The workshop also sought to develop a plan of action for sustaining the trade of these commodities and to provide necessary guidelines to governments of the required legislative and or policy changes to achieve these objectives.

The workshop was opened by the Hon. Vice Minister and Secretary of State for Agriculture, Forestry and Fisheries, H.E. Chan Tongyves, and was graced by the Vice-Governor, H.E. Chan Sophal, Siem Reap Province, the Director General of the Fisheries Administration, H.E. Nao Thuok, and FAO representative for Cambodia, Mr. Ajay Markanday.

Representatives from nine NACA member countries (Cambodia, China, Lao PDR, Myanmar, Thailand, Vietnam, India, Indonesia and Bangladesh) participated in the workshop and made country presentations and case studies relevant to the theme of the workshop. Three senior professional officers from FAO (FIIU) and two professional officers from NACA participated.

Rohu heading for the processing line, Myanmar.

A total of 26 presentations were made at the workshop. The presentations and the ensuing discussions focused on the following thematic areas:

- Marketing and value chains of low value cultured fish.
- Fish products from low valued cultured fish.
- Bio-security and human health issues associated with the consumption of low value fish and their products.
- Nutritional value of low value cultured fish.
- Diseases of low value cultured fish and development of better management practices for important low valued cultured commodities.
- Consumption patterns of fish globally and in the region.

The workshop identified important R&D issues for taking follow up activities to support the sustainability of the sector in the Lower Mekong Basin countries. Important R&D issues identified during the workshop included:

- Need for further work on food safety and public health issues associated with fish borne zoonotic parasites (FZP) (e.g. fish borne trematodes such as liver fluke) in most countries of the region, particularly where fish is consumed in raw condition or as various fermented products (e.g. fish paste).
- Need for further work on serotyping of *Salmonella* associated with low valued cultured fish and their products.
- Need for developing better management practices for low value cultured fish in order to address the food safety and fish health issues.
- Need for developing better handling, transportation and processing practices to counter human health related issues and reduced post harvest handling losses, which is presently estimated between 30-40%.
- Need to improve market chains in respect of low valued cultured fish and to popularize the nutritional benefits of consumption of low valued commodities.

In the region low valued fish are transformed into many products, such as fermented fish, fish paste etc. These are traditional practices that have remained unchanged and unimproved over the years. As such there is need to investigate the efficacies of conversion of wild caught and cultured indigenous freshwater fish to major fishery products in Asian countries.

FAO and NACA will work together to follow up on some of the recommendations relevant to the Lower Mekong Basin Countries. Comprehensive documentation of the status of the associated market chains, nutritional value and health hazards pertaining to production and consumption of cultured low-value finfish will also be prepared in the form of a forthcoming FAO Fisheries Technical Paper.

The workshop also included a half-day field visit to the Greta Lake (Tonle Sap), when the participants were able to observe a variety of aquaculture and fishing activities, house hold processing of aquatic products and which provided the opportunity to interact with small-scale aquaculture farmers.

Global Conference on Aquaculture 2010

The 28th Session of the Committee on Fisheries of the FAO, attended by 113 member governments and 84 inter-government and international non-government organizations, has endorsed the convening of a Global aquaculture Conference to be held 9-12 June 2010 in Bangkok, Thailand. The conference will be jointly organized by the FAO Department of Fisheries and Aquaculture, NACA and the Thai Department of Fisheries which will host the conference. The suggestion to hold a Global aquaculture Conference follows a decision of the NACA Governing Council at its 19th meeting held in Kathmandu in March 2008. For more information email the Conference Secretariat at: aqua-conference2010@enaca.org, or download the first announcement brochure from:

http://library.enaca.org/AquaMillennium/plus10/millennium-plus-10-1.pdf

Extending information and technical services to aquaculture farmer groups in Aceh

The Aceh Aquaculture Communication Center (AACC) has been newly established by the Regional Centre for Brackishwater Aquaculture Development (BBAP) at Ujung Batee, Aceh Besar District of NAD with assistance from the ADB funded ETESP-fisheries project. The communication centre is a new resource to support the future development of aquaculture in Aceh, and will be one of the supporting structures for a network of Aquaculture Livelihood Service Centres (ALSC) providing a better interactive technical advisory service, such as disease diagnosis, information, and training services, for farmers. The centre has equipment to produce posters and brochures, as well as a disease diagnosis laboratory next door.

More Aquaculture Liveliood Service Centres are currently under development in Bireuen District and scheduled to be completed by the end of the month to provide various services to groups of aquaculture farmers in Aceh who will own and run the network of centres.

The communication centre is located at the BBAP at Ujung Batee, and five technical staff are working there. The centre has a growing network of collaborating agencies from Aceh, Indonesia, and other regional organizations to exchange information, news, and extension materials.

The centre is establishing an information system and fully interactive website called Jaringan Petambak Aceh (Network of Aquaculture Farmers in Aceh) that provides practical information and materials for aquaculture farmers, covering market information, extension materials, business directories and others developed based on the needs identified by participation of the farmers themselves.

ETESP-Fisheries will further assist BBAP for development of operational practices for the new communication centre, in cooperation with partners in ACIAR, FAO other agencies in Aceh and farmer stakeholder groups.

The AACC concept is new, but together with the ALSC is expected to continue to provide necessary information and technical services to aquaculture farmers in Aceh to maintain and expand their livelihoods in this economically important rural sector in Aceh.

The communication centre is supporting farmers to get back in business.

Giant Prawn 2011, Quingdao, China

Giant Prawn 2011, a landmark technical conference on the culture of freshwater prawns, will be held as an important component of the annual conference and exhibition of the World Aquaculture Society, World Aquaculture 2011, which will be held in Qingdao, China, 6-10 June 2011.

The predecessor of this event, Giant Prawn 1980, was a pioneer meeting organised by Michael New and held in Bangkok through the auspices of the Thai Department of Fisheries with support from FAO, IFS and the Rockefeller Foundation. That meeting was confined to the culture of the giant river prawn *Macrobrachium rosenbergii* and attracted 159 participants from 33 countries, plus about 200 Thai freshwater prawn farmers.

In 1980 the global production of farmed freshwater prawns was a mere 1,300 tonnes per year. Now, thirty years later, it exceeds 450,000 tonnes per year, with a farm-gate value exceeding US$ 1.8 billion.

Giant Prawn 2011 will encompass the rearing of several freshwater prawn species, including the giant river prawn (*M. rosenbergii*), the Oriental river prawn (*M. nipponense*), the monsoon river prawn (*M. malcolmsonii*) and the Amazon river prawn (*M. amazonicum*).

China is the largest producer of farmed freshwater prawns, with a total output of over 300,000 tonnes per year of giant river and Oriental river prawns, and conducts significant research on the biology and rearing of these species. Qingdao is therefore an ideal location for this event. Several other Asian countries are also major producers, including India, Thailand, Bangladesh, Vietnam and Taiwan Province of China.

The programme for Giant Prawn 2011 is currently being developed by Michael New, with his many friends and colleagues working in this field. It is anticipated that, like its predecessor, Giant Prawn 2011 will be a single session event held over several days and will include review papers on important topics such as genetics, size management, health management, nutrition, hatchery and grow-out management and marketing, as well as submitted papers.

The meeting will therefore provide a unique opportunity for all those involved in freshwater prawn research and production to share knowledge and meet with their colleagues. It is also an opportunity for those interested in becoming involved in freshwater prawn farming to gain the latest information in this field.

Further details about Giant Prawn 2011 can be obtained from Michael New, OBE (email: new.macrobrachium@yahoo.co.uk).

New publications

Alien species in aquaculture and biodiversity: A paradox in food production

Sena S. De Silva, Thuy T. T. Nguyen, Giovanni M. Turchini, Upali S. Amarasinghe, and Nigel W. Abery

Abstract

Aquaculture is seen as an alternative to meeting the widening gap in global rising demand and decreasing supply for aquatic food products. Asia, the epicenter of the global aquaculture industry, accounts for over 90% of the global aquaculture production quantity and about 80% of the value. Asian aquaculture, as with global aquaculture, is dependent to a significant extent on alien species, as is the case for all the major food crops and husbanded terrestrial animals. However, voluntary and or accidental introduction of exotic aquatic species (alien species) is known to negatively impact local biodiversity. In this relatively young food production industry, mitigating the dependence on alien species, and thereby minimizing potential negative impacts on biodiversity, is an imperative for a sustainable future. In this context an attempt is made in this synthesis to understand such phenomena, especially with reference to Asian inland finfish, the mainstay of global aquaculture production. It is pointed out that there is potential for aquaculture, which is becoming an increasingly important food production process, not to follow the past path of terrestrial food crops and husbanded animals in regard to their negative influences on biodiversity.

Published in AMBIO 38(1):24-28. 2009.

Aquatic ecosystems and development: Comparative Asian perspectives

Schiemer, F., Simon, D., Amarasinghe, U.S. and Moreau, J. (eds.)

This book is the principal output of the EU-funded FISHSTRAT project on a holistic approach to sustainable reservoir and lacustrine fisheries in three tropical Asian countries. It explains the broad research context and the project's origin and rationale of the research The study linked three diverse disciplines, namely limnology, fisheries and socio-economic development. The importance of such holistic, catchment-oriented approaches to research and management is increasingly widely recognised.

The five water bodies studied were Minneriya, Udawalawe and Victoria reservoirs in Sri Lanka, Ubolratana reservoir in Thailand's Khon Kaen Province, and Lake Taal, a natural volcanic lake south of Manila on Luzon Island, the Philippines. They were selected in order to represent a wide range of productivities and trophic structures of fish communities, and also a variety of direct and indirect impacts from human activities in their respective catchment areas. This enabled us to understand better the impact of limited biological productivity upon commercial fish yields as well as the extent of any unexploited fish populations.

The volume provides a comprehensive overview of the principal research findings and policy conclusions, structured broadly in line with our objectives and the implications of our interdisciplinary and comparative methodology.

The remaining 22 chapters following this Introduction are divided into six sections, on the basis of coherence and progressively increasing degrees of interdisciplinary integration and comparative analysis.

Section A (Chapters 1-4) provides general descriptions of physical, hydrological and catchment characteristics of the water bodies in the three countries, as the foundation for the more detailed analysis that follows. The key conditions for understanding the limnological processes are set by the overall catchment characteristics, its human utilisation and the seasonality of the monsoonal climate.

Section B (Chapters 5-9,) examines comparative aspects of the aquatic ecosystems, focusing successively on phytoplankton; the regulation of phytoplankton primary production; microbial aspects of carbon dynamics and the detrital food chain; the effects of seasonality on zooplankton populations and status; and the production, biomass and productivity of copepods and cladocerans.

In Section C (Chapters 10-14) the focus shifts to fish ecology. The important themes covered include; the innovative use of hydro-acoustics for assessing fish stocks; feeding ecology of fish assemblages; ecomorphological correlates of diet; selective feeding of small zooplanktivorous pelagic fish species; and a modelling approach to daily feeding patterns and food consumption in certain fish populations.

Section D (Chapters 15-18) addresses fisheries and aquaculture, analysing capture fisheries; population dynamics of non-exploited and under-exploited fish species; population dynamics of commercially important species; and the status and significance of aquaculture. Chapter 18 also examines the socio-economics of aquaculture, thereby providing a useful bridge to Section E (Chapters 19-20) on socio-economics, which comprises detailed surveys of the social economy of fish and fishing in littoral communities, and of fish trading and marketing.

Finally, Section F (Chapters 21-23) attempts to bring together the principal findings and conclusions from each disciplinary area and part of the investigation, in order to offer a holistic analysis as the basis for more appropriate policy and management guidelines for the promotion of sustainable resource utilisation.

Chapter 23 assesses the overall contribution of the study, summarising and explaining the principal findings and conclusions, and exploring the implications for sustainable resource utilisation and management.

The book may be ordered from Margraf Publishers / Backhuys Publishers, visit www.margraf-publishers.eu or email inbox@margraf-publishers.com. ISBN: 978-3-8236-1530-9.

Macrobrachium: The culture of freshwater prawns

By New, M.B., Nair, C.M., Kutty, M.N., Salin, K.R. and Nandeesha, M.C.

The book is a compilation of information on the global farming of the freshwater prawn with special emphasis on the industry in India. In India, the annual production increased from 500 tonnes in 1996 to 43,000 tonnes in 2006. It is a large industry with nearly 6,200 tonnes exported from India alone, with a value of US$ 56 million.

Based on research and commercial experience over the past decade, the book outlines the developments in the industry in India. It provides technical information on the biology and culture of the prawn. The authors have planned the book as a reference book for industry, from academicians, policy makers to investors. It is also a manual in freshwater prawn farming which will be useful for the farmer.

The Book is modestly priced at US$ 25 + P & P overseas and Rs. 750 + P & P within India. The profit from the sales and the royalties received will be donated to Aquaculture without Frontiers (AwF), a global NGO working for the promotion of Aquaculture as a means of rural livelihood. Copies are available from Dr. C. Mohanakumaran Nair, Professor & Head (Aquaculture), Kerala Agricultural University, College of Fisheries, Kochi 682506. Kerala, India. Email: naircm@hotmail.com.

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