



### Global Conference on Aquaculture 2010 "Farming the Waters for Food and People"

9-12 June 2010  
The Imperial Queen's Park Hotel  
Bangkok, Thailand



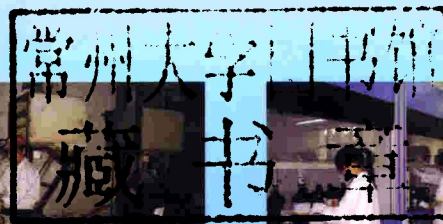




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## Role of Aquaculture to Food Security: Global Conference on Aquaculture 2010

Three important events served as paths to the World Food Summit, organized by FAO in Rome from 16-18 November 2009. A high-level expert forum “How to feed the world in 2050” held from 12-13 October 2009 examined policy options which governments should consider adopting to ensure that the world population can be fed when it nears its peak of nearly 9.2 billion people in the middle of this century. From October 14-17, 2009, the Committee on World Food Security, immediately following the high-level expert forum, considered reforms that will enable it to play a much more effective role in the global governance of food security. And the third major event was the World Food Day (celebrated annually every 16th of October) with the theme - how to ensure food security in times of crisis.

Now that the summit is over, declaration has been agreed, the greatest task, as in all other summits, is how to get down to implementation, how to get the words/narrative into actions. The Summit declaration vows governance, increased investment and proactive climate change strategy.

Aquaculture, although not specifically highlighted during the Summit can have a potentially strong role in contributing to food security even in times of crisis. With an average growth rate of 8.8 percent per annum since 1970, aquaculture is now recognized as a rapidly expanding sector of the global economy. During a period of slim prospects from capture fisheries and increasing demand for fish and fishery products, aquaculture will be expected to continue to increase its contribution to the world's production of aquatic food. Thus, its role in food security will be strengthened while also offering opportunities to contribute to poverty alleviation, community development and to reduce overexploitation of natural aquatic resources. The big diversity of species, farming systems, practices, environments and resource use patterns offer a wide range of opportunities for diversifying food production as well as income generation through aquaculture.

While aquaculture represents a viable solution to food security challenges confronting the global population, like other food producing sectors, it is also facing a number of important challenges and other emerging

issues in terms of sustainability, governance, public perception, conflicts with other users of aquatic habitat, environmental impacts, biosecurity and climate change, to mention a few.

Various public and private sector stakeholders are trying to do their best within their areas of responsibilities and capacities to contribute to the sustainable development of the aquaculture sector. On the part of FAO, apart from the many short- and long-term programmes being implemented including assistance to members, all aimed to contribute to the process, the Department of Fisheries and Aquaculture is organising the Global Conference on Aquaculture 2010 from June 9-12, 2010 in Bangkok, Thailand with the theme Farming the Waters for Food and People. The theme appears appropriate in current times as aquaculture now provides nearly 50 percent of food fish consumed globally and is recognized as a great source of jobs and income for millions of people directly involved in primary production and the support services.

The Conference will review the present status and trends in aquaculture development, evaluate the progress made in the implementation of the 2000 Bangkok Declaration and Strategy, address emerging issues, assess opportunities and challenges for future development and build consensus on advancing aquaculture as a global, sustainable and competitive food producing sector. While the task faced by the sector is not new, it is enormous. But the tools are available, developed and expanded since 2 300 years ago from the first publication “Fish husbandry” by Chinese scholar-statesman Fan Li who wrote the first how-to-do-it treatise. What is needed is to make these tools sharper and more versatile for a warming Earth.

Everyone is invited and welcome to participate in the conference and contribute to the ongoing multifaceted process of contributing to food security through responsible aquaculture.

**Melba B. Reantaso**  
Editor-in-Chief  
FAO Aquaculture Newsletter

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# Salient aquaculture issues discussed at the fifth session of the Regional Commission for Fisheries (RECOFI)

Dubai, United Arab Emirates, 12–14 May 2009

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The fifth session of the Regional Commission for Fisheries (RECOFI) was held in Dubai, United Arab Emirates from 12 to 14 May 2009. The Commission reviewed a range of regional issues and activities of importance to the conservation and management of fisheries and aquaculture. Members addressed intersessional activities and provided country reports. Administrative and financial reports were also considered. It was noted that as of 31 December 2008, eight Members had deposited their instruments of acceptance for the RECOFI Agreement.

The Commission discussed the report of the Working Group on Aquaculture (WGA) including the fourth meeting of the WGA (see FAN issue April 2009 No. 42), Regional Aquaculture Information System (RAIS), development of a regional strategy for aquatic animal health (see FAN issue December 2008 No. 41), sustainable marine cage aquaculture development (see FAN issue April 2009 No. 42) and a legal and policy framework for aquaculture.

Members also reviewed the structure and functioning of the Commission (see Box 1), its organization and *modus operandi* and terms of reference for RECOFI National Focal Points. In considering the programme of work and budget for the May 2009–May 2011 biennium the Commission approved seven activities for implementation.

**Harmful Algal Blooms** – Among the emerging issues discussed at the session, several Members recognized that the phenomenon of harmful algal blooms (HABs) was an urgent technical issue to be addressed. Although this phenomenon was not new in the region, recent outbreaks had caused serious damages to fish cage culture throughout the region, particularly in Oman and the United Arab Emirates where commercial companies had lost their entire production. It was noted that red tide also seriously affected capture fisheries and therefore it was agreed that the two RECOFI Working Groups on aquaculture and fishery management should plan for the current biennium (2009–2011) a joint activity covering this issue in close cooperation with other regional organizations, such as the Regional Organization for the Protection of the Marine Environment (ROPME).

**Regional Aquaculture Information System (RAIS)** – The Commission welcomed the official launching of RAIS (see FAN issue April 2009 No. 42) with the distribution of the RAIS User Manual and congratulated the Secretariat and all

## BOX 1

### Strengthening RECOFI

At the fifth session of the Regional Commission for Fisheries (RECOFI), the Commission agreed to hold an *ad hoc* intersessional meeting in the Islamic Republic of Iran to consider ways and means to enhance RECOFI's role. Members recognised the need to make the Commission more efficient and to accelerate its growth. It is expected that the *ad hoc* intersessional meeting will consider funding options in order to strengthen the Commission and achieve planned activities which the current funding does not allow. With respect of the funding RECOFI activities, some Members indicated the benefit of seeking funds from organizations and institutions that had not funded traditionally Commission activities. It is also expected that the *ad hoc* intersessional meeting will address issues such as the role of the Chair in facilitating sessions and promoting intersessional activities, the possibility to exercise fisheries management power as per the Commission's status and seeking cooperation and partnership with other organizations in the Region that are involved with aquaculture, fisheries and related issues.

the WGA Focal Points for the achievement. Furthermore, the Government of Kuwait's extrabudgetary support that permitted the establishment of this regional information system was acknowledged. In order to further develop and consolidate this web-based information system it was strongly recommended to fully launch the communication strategy developed by the RAIS National Coordinators/National Focal Points as well as to establish national networks of authorized data entry users. It was also noted that to ensure the system's utility and visibility all Members should continue to input validated national data and information.

**Regional Aquatic Animal Health Strategy** – The Commission Members recognized that the issue of aquatic animal health was very important in aquaculture. Health threats relevant to the sustainability of aquaculture and the protection of capture fisheries included, *inter alia*, exotic

pathogens, diseases, contaminants, transboundary movement of aquatic animals. The urgent need to harmonize national programmes on aquatic animal health was reiterated along with the development of national strategy on aquatic animal health. The Commission endorsed the “Proposal for a regional programme for improving aquatic animal health in RECOFI Member countries” along with its components, elements and activities developed by the WGA. Furthermore, it noted that the report of the regional aquatic animal health workshop provided an excellent roadmap for Members to follow. It included actions and activities that would be implemented incrementally, some at the national level while others as regionally coordinated activities.

**Marine Cage Aquaculture Development** – The Commission noted that although there was a growing interest in developing cage aquaculture in the region, there were technical, physical and policy constraints that were faced currently by Members. The major constraints identified in the establishment of fish cages had been the limited availability of suitable farming sites characterized by shallow waters, highly fluctuating salinity and temperature levels and inadequate sea currents. Other limitations identified included: (i) price competition from wild-caught fish; (ii) inadequate farming technologies for the region (i.e. introduction and poor adaptation of existing technologies used elsewhere); and (iii) the limited availability of endemic candidate species of commercial importance suitable for cage aquaculture (currently many existing operations farmed the Gilthead seabream, *Sparus aurata*, and the European seabass, *Dicentrarchus labrax*, voluntarily introduced from the Mediterranean). The Commission further endorsed the two guiding proposals formulated by the WGA for an Environmental Impact Assessment (EIA) framework and licensing procedure and encouraged strengthening regional collaboration to promote further sustainable marine cage aquaculture.



Delegation of Oman. From left to right: Dr Ibrahim Al-Busaidi, Director General for Fisheries Development, Ministry of Fisheries Wealth; Mr Dawood S. Al-Yahyai, Director, Fishermen Training Institute and RECOFI-WGA Chairperson; Mr Fahad Saleh Ibrahim, Acting Director, Aquaculture Centre



Participants to the 5th RECOFI session

The table below lists the aquaculture activities endorsed by the Commission for the current biennium May 2009 to May 2011.

Aquaculture	Risk analysis in aquaculture (training)	TBD*	Oman	3–4 days	Approved
Aquaculture	Environmental monitoring in aquaculture (training)	TBD	TBD	10–14 days	Approved
Aquaculture / Fisheries (joint activity)	Red tides: Impacts on capture fisheries and aquaculture and counter measures (technical workshop)	2010	Kuwait	3–4 days	Approved
Aquaculture / Fisheries (joint activity)	Geographical Information System (GIS) and spatial tools applications for capture fishery and aquaculture	2010	Qatar	3–4 days	Approved
Aquaculture	Regional Aquaculture Information System (development and consolidation)	--	--	5 days	Ongoing

\*TBD to be determined



# GCP/KYR/003/FIN

## “Support to fishery and aquaculture management in the Kyrgyz Republic”

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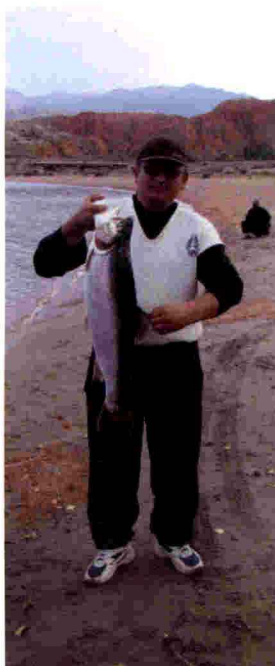
The Government of Kyrgyzstan recognizes the importance of the fisheries sector and the value of fish as a healthy product and an important component in the people's diet. Through aquaculture promotion and inland fisheries development, the government sees opportunities for poverty reduction, livelihood improvement and diversification of rural employment both for men and women.

This new Trust Fund project aims to support the implementation of the Strategy for Fisheries and Aquaculture Sector Development and Management in Kyrgyzstan (2008-2012) which was approved by the Ministry of Agriculture, Water Resources and Processing Industry in February 2008.

The strategy has the following four overall goals of:

- using of the aquatic resources to contribute to the national economy, poverty alleviation and food security;
- augmenting the contribution of fisheries and aquaculture in generating socio-economic benefits and improving the wellbeing of the rural population;
- improving the economic viability of aquaculture farms through diversification of production in accordance with market demand; and
- increasing the availability of high quality fishery products for the domestic market, but also including increased production of low price fish for the popular consumption in the rural areas.

The present inland capture fisheries and aquaculture production in the Kyrgyz Republic is only about 10 percent of what it used to be in 1980s before the Soviet Union disintegration. Opportunities for the



*Rainbow trout*

sector lay in the fact that the consumer demand for fisheries and aquaculture products in the country is increasing with increasing incomes and growing health concerns of the modern population. The Kyrgyz Government is highly interested in implementing similar aquaculture based fish marketing systems as Finland created in the past.

The Government of Finland approved in May 2009 a USD2.2 million project; implementation started immediately with the First Steering Committee meeting.

A second major activity took place in September when the project organized a national workshop “Biodiversity Friendly Fisheries Management Regime (BDFMR) and Fisheries Co-Management” in close cooperation with the UNDP/GEF project Strengthening Policy and Regulatory Framework for Mainstreaming Biodiversity into Fishery Sector. The aim of this workshop was to discuss what new policies are necessary to make BDFMR and viable co-management options for Kyrgyzstan. The key problem addressed by the workshop was that of unsustainable management of fisheries and other natural resources at local level.

Some 40 people from various stakeholder groups attended this 3-day workshop held from 10 to 12 September 2009, in Cholpon-Ata Ecocentre at the Issyk-Kul Lake. FAO was represented by

Ms Cassandra de Young of the Development and Planning Service of FAO's Department of Fisheries and Aquaculture and Raymon Van Anrooy of the FAO Sub-Regional Office for Central Asia.

Issyk-Kul is the world's second largest mountain lake which has many problems, but most importantly the introductions of some new (alien) predatory species are blamed to have caused the disappearance of many endemic species, like naked osman (*Gymnoditychus dybowskii*) and Issyk-Kul marinka (*Schizothorax pseudoaksaiensis issykkuli*). Lately, tension has been growing against rainbow trout cage culture. Eight companies are growing this species in 26 cages. Fishermen and environmentalists claim that a lot of fish have escaped from the cages and free rainbow trout are causing further damage to the endemics. The truth may not be that simple, as very intensive irrigation development took place in the country during the last 30 years and heavy water abstraction led to reduced water-levels and the drying of many of the incoming streams previously used by endemic fish species for spawning.

However, close cooperation is needed between UNDP/GEF and FAO projects in order to avoid misunderstandings as FAO project supports the fish farming and the UNDP/GEF sees this as a big danger to all endemic fish species at the Issyk-Kul Lake. Luckily, the FAO Project has already been able to assist the UNDP/GEF project in searching and capturing some of the most endangered species in order to reproduce these species in captivity for restocking purposes.

The proposal for a new biodiversity-friendly fisheries management regime for Issyk-Kul Lake was presented and was considered a good basis for the discussions on the integrated aquatic resources management of the lake, and particularly the management of fisheries. An Issyk-Kul Lake Fisheries Management Plan should be developed in a participatory manner with all stakeholders, which will include guidance (based on scientific evidence where possible) on management tools to be applied (including establishment and enforcement of closed areas and seasons, fishing gear regulations, restocking of endangered indigenous fish species, aquaculture production limits, etc.). The management plan should include all subtractive sectors (commercial, subsistence and recreational fisheries) and aquaculture. The development of such a management plan should be supervised by the Fishery Advisory Council.

It was strongly urged that the two projects (UNDP/GEF and FAO) should be implemented without further delay and that they coordinate their efforts to the fullest extent. Capacity building should be at the core of the project activities.



*Naked osman*

A. ALAMANDY, KYRGYZ REPUBLIC

The proposal to establish sustainable integrated fish culture extension services in the Issyk-Kul oblast should be technically supported by both projects, and will include Best Management Practices (BMP) development.

Fisheries co-management, in terms of sharing management responsibility for aquatic biodiversity and fisheries resources of the Issyk-Kul Lake, is the most appropriate option to achieve the environmental, economic and social objectives of the stakeholders. In particular, the workshop participants agreed that the relevant authorities at national and local levels, research institutes and the communities around Issyk-Kul Lake would benefit from developing partnerships. It was recognized that co-management would only be successful if all stakeholders are committed to it and if the appropriate legal and policy frameworks are in place.

Fisheries co-management initiatives should be piloted with support from the above two projects in one or two areas in Issyk-Kul Lake, based on lessons learned in other parts of the world, while ensuring that these initiatives are appropriate to the local cultural and social contexts.

Further information can be obtained from Heimo Mikkola by e-mail at: [heimomikkola@hotmail.com](mailto:heimomikkola@hotmail.com)



GCP/KYR/003/FIN Logo  
designed by Sylviane Borghesi, FAO



# TCP/TUR/3101: Developing a roadmap for Turkish marine aquaculture site selection and zoning using an ecosystem approach to management

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## BACKGROUND

In 2006 the Turkish Environmental Law 2872 was amended as Law 5491. According to this law “Marine aquaculture facilities should not be constructed in sensitive areas such as enclosed bays and gulfs and in natural and archeologically protected areas. Fish farms existing in contradiction of this article will be closed after 1 year of the publication of this law”. The notification describing the criteria for aquaculture site selection in enclosed bays and gulfs was published in 2007. The law indicates that monitoring is necessary of fish farms, which already exist in enclosed bays and gulfs, if these sensitive areas have an eutrophication risk as calculated with the TRIX index. If these sensitive areas have high eutrophication risk, marine aquaculture facilities will not be constructed. Fish farms found to be in violation of this notice were under threat to be closed.

## OBJECTIVES OF THE ASSISTANCE

The specific objectives of TCP/TUR/3101 are: (i) to develop a road map for the moving of farms offshore, (ii) to determine the constraints and support needed for this to happen and (iii) to develop a plan of action within an ecosystem approach strategy for the growth of mariculture in Turkey.

## METHODOLOGY, ACTIVITIES AND PARTICIPATION

The project considered the following activities:

- elaboration of an initial map or estimate of conflicting farm distribution in the main marine cage culture areas of Turkey
- identification and analysis of information available about environmental and social issues of cage farming in Turkey through two stakeholder workshops
- initial training of farmers on site selection criteria and management aspects with an ecosystems perspective
- field work to develop a pilot zoning plan
- elaboration of a draft project for the development

of sound mariculture growth with an ecosystem approach in a multi-stakeholder environment

- development of aquaculture information brochures with selected data obtained and agreed in the workshops
- preparation of a road map for the recommended activities and presentation of the plan to government institutions.

All these activities were undertaken in close cooperation with the Ministry of Agriculture and Rural Affairs (MARA) and supported by the technical team consisting of the following: (i) two national consultants specialised in environmental issues, with a wide experience in coastal fish farming, large involvement with farmers and government offices and (ii) two international consultants, with wide expertise on issues of cage farming, site selection and modelling aquaculture impact, expertise in fish farming technologies and offshore aquaculture. Additionally, government counterparts participated actively in all technical activities. Overall coordination and backstopping was provided by FIMA in Rome and with the support of the FAO office in Turkey.

A very relevant element in this project was the participatory approach particularly through the two initial workshops with stakeholders and farmers and final workshop with government authorities.

The first workshop “Developing a Roadmap for Turkish Marine Aquaculture Site Selection and Zoning Using an Ecosystem Approach to Management” was held in Izmir, Turkey on 16 -17 July 2008. This facilitated workshop, attended by 37 participants belonging to 22 national institutions, farmer groups, companies and NGOs, identified issues of conflict between aquaculture and local communities and other sectors and potential solutions, as well as agencies who could implement the solutions and

develop a time-line for action. A road map was developed for the Turkish marine cage culture sector to prepare for the move from inshore sites to offshore sites (1 kilometre from the shore line).

The second workshop (same title), held in Muğla, Turkey from 10 to 11 August 2008 was attended by 62 participants belonging to 5 national institutions, 16 fish farmer companies/clusters, 6 aquaculture support industries, 3 farmer associations. At this workshop, the draft road map was presented and discussed and presentations were made on site selection criteria, offshore cage culture technology and management.

The pilot zoning plan started with field work involving the technical team and farmers in Gerenge Bay and Ildir Bay. Two meetings with authorities in Ankara elaborated further the process and discussed the main issues. The project team met weekly through internet conferences (Skype) to analyse progress in the development of the roadmap. Additionally, several informative flyers on Turkish cage fish production were prepared to inform other users of the coastal zones and to clarify many misconceptions.

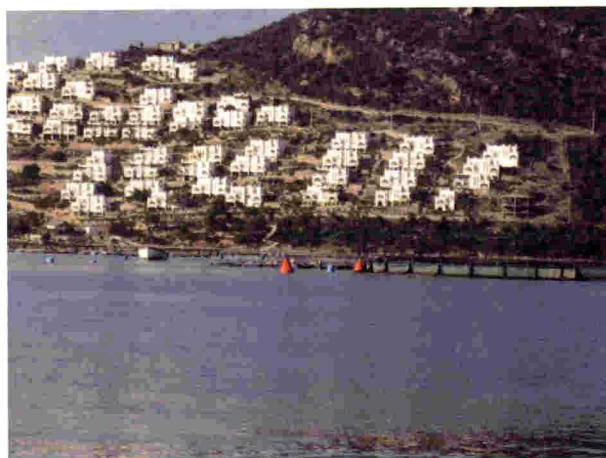
The final roadmap and plan of actions was presented to government authorities in a workshop in Ankara at the MARA headquarters in January 2009. Seventy people attended the workshop, most of them belonging to different ministries involved (Environment and Forestry, Tourism, and Agriculture and Rural Affairs). Such meeting demonstrated the willingness from different sectors and institutions to understand this new sector and to make efforts to integrate it in to a well-planned coastal zone management.

#### THE ROAD MAP

The roadmap addresses the actions to be taken from the immediate- to the long- term. It also proposes responsibilities, leadership and participation of various institutions.

The proposed roadmap covers 5 years including stages or periods of the first 6 months, the first year, 3 years and 5 years. Starting point could be considered the moment this roadmap is adopted by the Turkish government and adapted to current priorities.

Urgent issues to be addressed during first 6 months and actions include: i) assisting small farmers that are still inshore, ii) reviewing of the monitoring system for the farms, iii) implementation of a better planning system, iv) improving coordination between related ministries and institutions, and v) producing solutions for urgent issues such as logistic support (e.g., jetties and facilities for offshore farms). Some immediate action will be transitory until a more formal process is in place and the creation of the new institutions allow for more permanent measures. In this respect, a framework of at least 12 months is proposed for such needed transitory measures.



G. YÜCEL, TURKEY

*Fish cages in tourist area, Gulluk Bay/Muğla*

During the first year period, the most relevant action suggested is the establishment of a inter-ministerial “Special Commission for Mariculture Development” to carry out the following tasks: coordination and planning process, education and training aspects, public relations activities, investment and credit issues, amending current legislation on site rental period and rental charges, identifying research priorities and ICZM among other duties.

Within 3-5 year period, there shall be a process of strengthening institutional organization. Other activities include education and training programs, data collection and monitoring, setting up of databases, assessment of carrying capacities of allocated mariculture zones, revision of implementation of current aquaculture regulations and preparation of a new/separate “aquaculture legislative act”.

This has been a model project with very close and coordinated work between FAO and MARA but also in close contact with other stakeholders such as the farmers themselves and other users of the coastal zones.

The roadmap for mariculture development as well as the pilot zoning plan could also be used as a model for other Mediterranean countries. The pilot zoning plan could be used by the CAQ (Committee of Aquaculture of the GFCM) and tested in other member countries. In fact, the project approach and results were presented as an example of an ecosystem approach to management of aquaculture sector during a side event of the 29th session of the Committee on Fisheries held in Rome.

For additional information, please contact Doris Soto at [doris.soto@fao.org](mailto:doris.soto@fao.org)



# TCP/RER/3205: Inception planning workshop

## "Advice to central Asian governments on the feasibility of commercial fish and livestock feed production"

### Tashkent, Uzbekistan, 24 -26th June 2009

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A sub-regional Technical Cooperation Programme (TCP) "Advice to central Asian Governments on the feasibility of commercial fish and livestock feed production" [TCP/RER/3205] was approved in January 2009. The governments of Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan are the recipients of this TCP. The project's development objective is to strengthen the capacity of the ministries of agriculture of the participating countries in taking appropriate decisions and formulating adequate policies in support of increasing access to and availability of high quality commercial aquaculture and livestock feeds in the countries of Central Asia.

The project is implemented under the overall supervision by FAOSEC in Ankara, Turkey with FIMA, FAO HQ, as the lead technical unit. Duration of the project is from January 2009 to October 2010. The respective governmental national focal agencies implementing the national activities of the project are: Kyrgyzstan: Ministry of Agriculture – Department of Fisheries; Uzbekistan: Ministry of Agriculture – Uzbek Fisheries Development Center; Tajikistan Ministry of Agriculture – State Unitary Enterprise (Tajikriba); and Kazakhstan: Ministry of Agriculture – Scientific Research Institute of Fisheries. Stakeholders and beneficiaries include both the public and private sectors involved in aquaculture and livestock feed production.

The first activity of the TCP was an Inception Planning Workshop, convened at Hotel Shodlik Palace in Tashkent, Uzbekistan from 24 to 26 June 2009. The workshop, was hosted by the Uzbek Fisheries Development Center of the Uzbek Agricultural Scientific and Production Center, Ministry of Agriculture and Water Resources.

The workshop discussed follow-up project activities and finalized their modus operandi with primary focus on the following: a) project concept, rationale, envisaged outputs and broad outline of activities and the feasibilities of carrying out the different activities, b) share experiences and review information available on fish and livestock feeds, feed components, supply and demand issues, trade in feeds, custom tariffs for commercial feeds, and technological issues related to feed processing and marketing, c) review of the draft questionnaire outlines that were prepared for different surveys to be carried in all four countries, d) discuss a draft methodology for the (pre-) feasibility/assessment study, ensuring that both traditional and modern feed production technologies can be considered and that various feed alternatives are taken into consideration and agree on a common methodology to be used by the project in the four countries, e) in-country logistics for conducting different project components including training and survey plans for each country, f) overall work plan including the time-frame of implementation and responsibilities of all project holders, and g) other important issues/problems to be addressed before launching the field activities.

Six presentations by fish and animal feed experts from the four participating countries consisted of country overviews of the current state of aquaculture and aquafeed production and two overviews on the state of livestock and animal feed (Tajikistan and Uzbekistan). International experiences on the global state of aquaculture and livestock feeds were presented respectively by international experts for aquafeed and livestock feed. The aspects of financial feasibility were presented to sensitise the participants and further



introduce a methodology for conducting the feasibility study. During the plenary, extensive discussions were held on the design, scope and strategies for implementation of different project activities with country specific considerations including some related logistic and procedural issues. The structure of the feasibility study report was discussed in detail. In order to acquaint the participants with the situation in Uzbekistan, a half day field visit was organized to an aquafeed plant and a fish farm.

The main outputs of the workshop were:

- Better understanding of the aquaculture and livestock sub-sectors in the four participating countries and the importance of this TCP for sustainable development of these two sub-sectors;
- Increased understanding of the project concept, rationale, mechanism of project implementation and envisaged outputs and preparation of a work plan of the project for the next 12 months (July 2009 - June 2010);
- Outputs related to the implementation of different activities of the project with specific reference to participating countries include:

- ▶ nature and extent of the information to be collected for the different surveys to be carried out and suggestions for revision of draft questionnaires and guidelines to be used for these surveys. The type of surveys to be carried out are: a) general demographic information; b) overall assessment of aquaculture; c) overall assessment of the livestock and poultry sectors; d) assessment of fertilizers and feed resources of the country; e) aquaculture and feed management practices; and f) aqua- and animal feed plants in respective countries,
- ▶ a common methodology for carrying out fish and animal feed production feasibility studies in the region;
- ▶ an outline for preparation of database of the locally available feed ingredients to be used for production of aqua- and livestock feed; and
- ▶ agreement on venue and date of the next regional expert workshop to discuss the findings of the national level activities and preparation of feasibility analysis report.

The workshop recommended that the project should concentrate on aquafeeds, poultry feeds and supplements of cattle feed, assess requirements for introduction of appropriate technology, collection of input and output information for aquaculture and livestock, assessment of human resource capacities as well as provision of financial and extension services. The collection of data for the feasibility study and advice on better quality feed production on the basis of best international practices will be one of the core activities of the project, as well as the development of new approaches by feed



M. R. HASAN, FAO

*Preparation of grass carp fingerling transportation from Government Fish Farm, Tashkent, Uzbekistan*



R. VAN ANROOY, FAO TURKEY

*Soviet style control panel in animal feed plant near Tashkent, Uzbekistan. Old, but still functioning*

companies for distribution of the feed in the region. It was recognized that if all the participating countries gather all the necessary information, the project would be able to come up with high quality outputs that would help to address the problems confronted in both the aquaculture and livestock sectors.

The workshop was attended by 22 participants (16 from four project participating countries (two each from Kazakhstan, Kyrgyzstan, and Tajikistan and 10 from Uzbekistan), 3 international consultants, 3 from FAO and 2 observers from the feed industry. The workshop was facilitated by FAO officers (Raymon van Anrooy, Mohammad R Hasan and Abdul Baki Mehraban) and international consultants.

More information on the project can be obtained from Mohammad R. Hasan at [Mohammad.Hasan@fao.org](mailto:Mohammad.Hasan@fao.org) or Raymon van Anrooy at [Raymon.vanAnrooy@fao.org](mailto:Raymon.vanAnrooy@fao.org)



# TCP/CKI/3201(D)

## Aquaculture development project in Cook Islands

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The project TCP/CKI/3201(D) “Aquaculture Development Project in Cook Islands” was approved in May 2008 to provide technical assistance in aquaculture to Cook Islands, with a total project budget of USD72,973. The project is designed to assist the Ministry of Marine Resources in Cook Islands in developing appropriate framework of project implementation in aquaculture, to enhance the capacity of the Ministry and potential farmers to sustainably develop, monitor and document aquaculture activities, and to practically implement the recommendations from various consultancies carried out in the past.

The first mission of the FAO project team, conducted in July 2009, was carried out to review past and current national fisheries policies, management, development and strategic plans, for sustainable aquaculture development, and to assess the impact of aquaculture in Cook Islands, including technical, economic, social, environmental and institutional aspects through collection of necessary information and data from concerned government agencies and the private sector involved in the culture of tilapia (*Oreochromis niloticus*), freshwater prawn (*Macrobrachium rosenbergii*) and milkfish (*Chanos chanos*), as well as other potential aquaculture commodities.

The mission recommended measures as to how aquaculture development, activities and projects should be designed to further improve its effectiveness, development impact and sustainability, and appropriate technology packages and preliminary outline designs for pilot-scale farming in Cook Islands as follows.

A structured R&D programme should be formulated for the species and farming systems. The outline of the structured R & D programmes for milkfish, tilapia and freshwater prawn was provided including economic, social and environmental justifications for projects and priority technical areas of each commodities.

A choice between focusing on specific stand-alone projects and going for a programmatic approach has to be made with the justifications for either option.

A framework for a R & D programme for aquaculture development was recommended, which includes the technology components of the aquaculture production system, such as production, marketing, production technology (comprising broodstock, larviculture, nursery, grow-out and post harvest technologies), marketing, socio-economics and livelihoods, fish health, environment, certification for food safety and quality, and training and extension.

The elements and basic information, including expertise required and indicative costs of some inputs, were provided to design pilot projects for specific production systems of milkfish, tilapia and freshwater prawn culture in identified sites. The potential objectives and outputs of the pilot projects were indicated.

Based on the above recommendations of the first mission, the project second mission was conducted in August 2009 to provide technical assistance in the field. Further, the project third mission has been planned early 2010 to provide practical or on-the-job training and mentoring to government counterparts and potential farmers.



# FAO Expert Workshop on Improving fish farm biosecurity through prudent and responsible use of veterinary medicine (antimicrobials) in aquatic food production

15-18 December 2009, Bangkok, Thailand

**I**ntensification and diversification of modern fish farming have created an ideal environment for disease-causing organisms to flourish in the environment. Irresponsible trading of aquatic animals paved the way for the transboundary spread of many pathogens together with host movement and thus have caused serious damage to aquatic food productivity.

One of the most effective management responses to emergencies associated with infectious disease problems is the use of appropriate antimicrobial therapy. However, such measure created problems related to the increase in the frequencies of bacterial resistance, occurrence of antimicrobial residues in aquaculture products, and the potential transfer of resistance genes in bacteria from the aquatic environment to other bacteria through horizontal gene transfer and eventually possibly reaching human pathogens. Using antimicrobials in aquaculture farming operations, or any agricultural farming systems, on a routine and regular basis, to control infectious diseases will be difficult to sustain. Since disease emergencies will occur even in well-managed fish farming operations, careful planning on the use antimicrobials is essential in order to maximize their efficacy and minimize the pressure for increased frequencies of resistant variants. Chemotherapy and vaccination are traditional ways of managing aquatic animals diseases. However, in isolation, they cannot prevent diseases losses. A holistic approach can be achieved through effective biosecurity where disease-causing organisms are excluded from the environment. In modern fish farming, this is done by blocking external (spread of disease onto and off a fish farm) and internal (spread of disease within the fish farm) barriers.

Correct and responsible use of veterinary medicine (antimicrobials and other chemotherapeutants) is very important. These measures will help ensure that the pathogen challenge is minimized, the fish natural defence against infection is maximized, incidences

of disease and mortalities are reduced, and money saved on what would have been spent on containing, treating and/or eradicating the disease. Biosecurity plays a very important role in every stage of the life cycle of a fish from hatching to harvesting and processing and has thus become a necessary tool for ensuring sustainable and healthy aquatic production. The irresponsible use of veterinary medicine poses a great biosecurity risks. In order to develop appropriate strategies or guidelines that will enable the rational and prudent use of antimicrobials and chemotherapeutants, particularly for use by small-scale aquaculturists, we need to assess the current status of usage of these agents and to have a good general understanding of how these agents are being used in aquaculture.

FAO is convening the above workshop in collaboration with the Aquatic Animal Health Research Institute, Thailand's Department of Fisheries from 15-18 December 2009 in Bangkok, Thailand as part of the project Improving Fish Farm Biosecurity through Prudent and Responsible Use of Veterinary Medicine (Antimicrobials and Chemotherapeutants) in Aquatic Food Production, undertaken under the supervision of the Aquaculture Management and Conservation Service (FIMA) as part of the Aquatic Biosecurity Project funded by FAO's Multi-Partnership Programme (FMPP).

This project is being carried out to (1) understand the current status of the use of veterinary medicine in this rapidly growing and expanding aquaculture through survey, thematic reviews and an expert workshop, (2) identify effective and meaningful alternatives to therapeutic treatments for aquatic animal diseases and (3) use the above as basis for preparing technical guidelines.

Further information can be obtained from Dr Melba B. Reantaso at [Melba.Reantaso@fao.org](mailto:Melba.Reantaso@fao.org)



# TCP/DRK/3204

## Supporting marine finfish aquaculture in DPR Korea

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The Democratic People's Republic of Korea is a predominately mountainous country with some 15 percent of its land area suitable for agriculture. The country has very long coastal line and with rich marine fisheries resources in proportion to its territory. An estimated half million coastal dwelling Korean have almost no access to arable land and derive their livelihood from fishing, foraging and aquafarming activities. In recent years, drastic decline of stocks of high valued marine fishes has been observed, resulting from various factors. On the other hand, catch of small fish of low quality has increased significantly. Such change has not only threatened the livelihood of the coastal fishing community, but has significant impacts on the domestic fish supply and export. To compensate the declining catch from marine fisheries, the Government of the Democratic People's Republic of Korea has shifted its policy from capture fisheries focus to promoting marine aquaculture development. Marine finfish have been identified by the government as the priority species for aquaculture development.

Due to the lack of appropriate mariculture technologies and technical know-how, the government requested FAO for technical assistance in developing its marine finfish culture in 2007. A complete TCP project document was developed and submitted following a TCP project formulation mission, conducted by two Chinese experts from the Yellow Sea Fisheries Research Institute (YSFRI) in Qingdao, at the end of 2008. The TCP project TCP/DRK/3204 "Capacity building in fingerling production and farming of selected marine finfish species" was approved July 2009. The approval of the TCP project was highly appreciated by the government. It is considered as

another major FAO support to the fisheries industry of the country after the successful implementation of an earlier FAO TCP project TCP/DRK/3001 "Strengthening marine aquaculture development", a project focused on farming scallop, sea cucumber and kelp.

Project implementation started in August 2009 with the identification and dispatch of Technical Cooperation among Developing Countries (TCDC) experts to assist the Yanghwa Fishing and Mariculture Cooperative, the main project beneficiary, in setting up a functional hatchery for the artificial propagation of turbot and black rockfish and establishment of pilot cage culture facilities through the purchase of necessary equipment and material.



M. WEIMIN, FAO

FAO Officer (centre) with the National Project Coordinator (NPC) and Manager of Yanghwa Fishing and Mariculture Cooperative

To date, the two FAO TCDC Chinese experts (marine fish hatchery design and operation; marine fish breeding and culture) have completed their first in-country field mission. The experts surveyed the sites for setting up the marine finfish hatchery and installation of the experimental, but commercial size marine cages. The experts further completed the detailed design of the hatchery and rearing facilities to be constructed inside an old fish storage building. The preparatory earthwork for the construction is almost completed. Furthermore, the site for the future installation of the marine cages has been identified in the Yanghwa Bay in close consultation with the national experts taking into account important environmental parameters and conditions to ensure proper selection of the site. The experts also helped in finalizing the technical specification of equipments and materials to be provided by the project and identification of potential suppliers.

Arrangements for another important project activity, i.e. the training of key technical staff from the government in China was also finalized. Four technical staffs from the Yanghwa Cooperative, Wonsan University and a fisheries institution in a neighboring province are scheduled for training on related technologies and technical know-how at YSFRI (Qingdao, China) starting at the end of October 2009.

The first technical backstopping mission of the Aquaculture Officer from the FAO Regional Office for Asia and the Pacific, carried out in September 2009, consisted of meetings with the TCDC experts, Assistant FAO Representative in Pyongyang, Project National Project Coordinator (NPC) and local project staff; visit to Yanghwa project sites and inspection of the progress in the construction of the hatchery and rearing facilities. Extensive discussions were also held with the TCDC experts on the project progress, constraints and solutions to overcome the difficulties. The FAO Officer noted the dedicated work of the experts and national project staff and the strong support given by the project NPC. The project progress has been generally satisfactory despite some delay in procurement and delivery of equipments and materials caused by communication and logistical constraints. A visit was made to the large Bay of Jinpu where marine cage aquaculture is likely to expand in the future due to the availability suitable and extensive sites. The project NPC informed that



*FAO Officer and TCDC experts meeting with NPC and Assistant FAO Representative*



*TCDC experts working on the project site*

the Ministry of Fisheries is planning to support a large-scale expansion of marine cage aquaculture in the area following the implementation of the TCP project.

During a wrap-up meeting with project NPC, TCDC experts and the Assistant FAO Representative, the FAO Officer briefed the mission findings and recommendations on project implementation, particularly with regard to the introduction of fish seed and fertilized eggs from China. The NPC reassured the full support to the project implementation from the government and looked forward to the successful implementation of the project, which is expected to further promote the development of marine finfish culture in the country.



# Updates on UTF/SAU/017: Support to the Fish Farming Center in Jeddah, Kingdom of Saudi Arabia

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The main thrust of the present unilateral trust fund (UTF) project in the Fish Farming Center (FFC) (or Center) in the Kingdom of Saudi Arabia (KSA) is technical capacity building for the national staff to carry out applied scientific research in the field of aquaculture and particularly in support of mariculture development. To accomplish this objective, the researchers of the Center are taught how to plan and conduct scientific research. New research proposals were written and the researchers were guided in the actual conduct of experiments. In addition, selected staff were sent for targeted technical training courses outside the country especially in areas where the Center needs advancement. Technical training courses attended by some of the staff include marine fish hatchery operations and management, fish health management, and culture of natural food organisms. For other activities, consultants were brought to the Center to train the staff and improve the Center's capabilities. In the latter scheme, a consultant on fish disease visited the Center for 3 weeks in January 2009 to train the staff of the Fish Health Laboratory on disease diagnosis and prevention. The consultant also evaluated the Center's readiness and capability to apply molecular-based tools, e.g. polymerase chain reaction (or PCR) for disease diagnosis. Furthermore, an English Language Course for research staff is a continuing activity considering that the majority of scientific literatures are largely in English.

The present UTF project in the FFC is entering into the third year of its five-year of implementation. To assess the progress and the achievements made by the project, a Joint Program Committee Meeting (JPCM) between FAO and the Ministry of Agriculture (MOA) of KSA was held in late March 2009. Aside from presenting the progress of the FFC and other projects under the same UTF, the meeting also highlighted the various difficulties so far experienced. Present during the JPCM were the technical officers of the various

projects from FAO headquarters and regional offices and the senior officers of the MOA of KSA. The chief technical advisers or national project directors of each project presented the achievements and problems for each project. The overall assessment indicated that the cooperation between FAO and MOA is progressing well, and that the achievements and delivery status of the various projects were satisfactory. Among the problems pointed out, the one that most applies to the project in the FFC is the limited number of national technical staff that can be trained. This is most relevant to the FFC since capacity building of the national staff is a major objective of the project.

The FFC was established as a research center to support the development of aquaculture. However, although the FFC has significantly contributed to the growth of the aquaculture industry in the country (particularly with regards to shrimp and tilapia aquaculture), the current shortage of technical manpower has severely lowered its support to the sector. To strengthen the role of the FFC, two senior officers of MOA in-charge of guiding the future course of the facility, namely, Dr Anwar Essa Al-Sunaiher (Director, Department of Aquaculture) and Mr Baheej Mohammad Rasem (Director, FFC), recently visited the Southeast Asian Fisheries Development Center - Aquaculture Department (SEAFDEC-AQD), a renowned aquaculture research center based in the Philippines. The main objectives of this study tour were to enable the MOA senior officers to visit the research facilities of SEAFDEC-AQD, observe its operations and appreciate the processes leading to the various research and training programmes. Furthermore, this visit was taken as an opportunity to discuss on future collaboration between the two institutions. SEAFDEC-AQD top management officials expressed willingness to extend technical assistance to FFC in specific areas identified by FFC.