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**INTERVIEW: Consortium Aims to Develop EU-Wide Aquaculture Research Infrastructure**

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**24 January 2012 - Next month, many of Europe's leading aquaculture researchers will gather in Las Palmas for the 1st annual meeting of the project AQUAEXCEL – 'Aquaculture Infrastructures for Excellence in European Fish Research'.**

Initially launched in March 2011, AQUAEXCEL aims to coordinate and improve access to top class European aquaculture research facilities. On a regular basis, the project invites proposals from European research groups to utilize the facilities of any of the participating 23 Aquaculture Research Infrastructures.

The project, running until February 2015 with an overall budget of 11.8 million euro, will receive a total of 9.2 million euro of EU funding under the 'Research Infrastructures' area of the Seventh Framework Programme (FP7).

AQUAEXCEL is coordinated by France's Institut National de la Recherche Agronomique (INRA) which leads a strong partnership of 16 institutions from Belgium, Czech Republic, France, Greece, Hungary, Ireland, Netherlands, Norway, Spain and the UK.

Not only will the project map out the aquaculture research infrastructure capacity across Europe by creating shared access to scientific facilities (data, instruments, computing, and communications), but it will also seek to play a part in Europe's quest to produce high quality seafood with reduced environmental impact, spurred by strong demand from public and private research units.



**Dr. Marc Vandeputte**  
INRA Fish Research  
& AQUAEXCEL Coordinator

Summing up the main objectives, Dr. Marc Vandeputte, INRA researcher and AQUAEXCEL coordinator, said: "Today, as consumers become more concerned about where their food comes from, the European aquaculture sector faces complex challenges, which can only be solved through providing research teams with access to a wide range of state-of-the-art infrastructures and the right biological resources".

Feedinfo News Service spoke to Dr. Vandeputte to discuss why the European Union considers aquaculture research as a priority and to find out what he believes are the main challenges ahead.

Dr. Vandeputte stated that Brussels is fully conscious of the need to develop aquaculture in the EU and to maintain its global leadership position in terms of aquaculture research and technology.

"On the one hand, more than 70% of EU seafood is imported and these imports are increasing. On the other hand, aquaculture production, for which the EU has excellent knowledge and technologies, is stagnating", he commented.

In a November 2011 interview published by Feedinfo News Service, it was estimated that aquaculture has grown at an average annual rate of only 1.7% since 1970 (behind Latin America) with former leading aquaculture-producing countries such as France showing a decrease in production over the last decade.

Dr. Vandeputte explained that production conditions (climate, legislation, social and environmental situation) in other parts of the world have enabled faster development and the production of cheaper products than those in Europe. Moreover, the European aquaculture sector has to cope with changing conditions, such as new consumer preferences, growing concerns for environment and animal welfare issues, new standards (e.g., Water Framework Directive, traceability...), effects of climate change, and conflicts with users of coastal areas and water resources.



According to the AQUAEXCEL coordinator, conflicts about the use of space, complex legislative procedures coupled with ever stronger environmental regulations are some of the main constraints on the growth of the European aquaculture industry.

"Europe is still a leader in terms of aquaculture research and technology, but this advantage does not compensate for the limitations imposed by these constraints. Whereas at the EU level the objective of developing aquaculture is clear and unambiguous, this has not been translated into incentives at the practical level on the field. At the same time imports from countries where such constraints do not exist are growing", he commented.

The AQUAEXCEL coordinator highlighted the fact that the EU's interest in prioritizing aquaculture is ongoing, continuing from its implementation of the 2002 and 2009 initiatives which aimed to boost the aquaculture sector by promoting research for competitiveness and environmental sustainability. AQUAEXCEL comprises a key component of this strategy by enabling an improved combined use and development of the capacities of the EU aquaculture research infrastructure.

However, Dr. Vandeputte argued that AQUAEXCEL alone will not re-boost the EU aquaculture sector but will come in synergy with other EU projects dedicated to specific research topics. Even so, other actions will have to be undertaken by EU Member States to resolve the organisational and legislative issues restricting the development of European aquaculture.

In the meantime, the focus continues on the ever-improving efficiency of aquaculture production.

"In a finite world, with a finite level of inputs available, efficiency is a major factor in sustainable development, even though improved efficiency cannot do everything without the achievement of a level playing field in respect of the previously-mentioned constraints. However, the development and use of novel feed ingredients, actual domestication of fish and the development of new aquaculture systems (offshore, multi-trophic, recirculation) are key points that could greatly improve the efficiency of aquaculture production. What's more, one should not forget that aquaculture is already very efficient compared to other animal production systems, and this should normally be a strong incentive for its development", he said.

AQUAEXCEL will provide the means to improve the quality of the results provided by EU aquaculture research infrastructures, new tools will be built, related to remote access for infrastructures, which will upscale research results, enable a better phenotyping of fish and help in the production of stable isogenic experimental lines of fish, seen as quite a long -term process.

Commenting on this aspect, the AQUAEXCEL coordinator said: "Strategic research agendas will have to be implemented in the appropriate research facilities. From the detailed description of the infrastructure available within and outside the consortium, we will be able to see how fit they are for the purpose of achieving these strategic goals, and to propose the changes needed. For example, it is necessary to have reliable and stable experimental lines in order to have a better understanding of the genetic and environmental basis of important traits in commercial species. AQUAEXCEL will produce stable isogenic



lines of salmon, carp and sea bass and promote their use as reproducible experimental material (like mouse lines for biomedical research)".

As a result, a great deal of effort is being placed on networking and facilitating information sharing, necessitating a significant investment in e-Infrastructure to be carried out by SINTEF, AQUAEXCEL partner and the largest independent research organisation in Scandinavia.

"The aim is to set up the functional requirements needed to allow remote access to the infrastructure, while still collecting all necessary data and being able to interact with the experimental procedures. This will allow coordinated multi-site experiments and better management of long-term experiments, without the necessity for researchers to be continuously on site. Data collection and transmission methods will be implemented, as well as more general guidelines to help new infrastructures to develop this capacity for remote access", explained Dr. Vandeputte.

He added: "European aquaculture production is based on many different species, rearing systems and environments. Nevertheless, all partners have developed knowledge on how to make better use of available resources, how to collect reliable data, etc. Much of this knowledge is clustered as research communities have traditionally focused on specific species and rearing systems. We anticipate that sharing these methodologies will result in an exponential increase in the quality of research produced by all partners". This part of the project is led by the University of Las Palmas with the participation of all AQUAEXCEL partners.

Dr. Vandeputte went on to say that companies needing access to research infrastructure are most welcome to participate in the trans-national access programme, and he is hopeful that many will avail themselves of this opportunity.

Currently, the AQUAEXCEL consortium includes: the Institut National de la Recherche Agronomique (INRA); Havforskninginstituttet (IMR); The University of Stirling (UoS); Agencia Estatal Consejo Superior de Investigaciones Cientificas (CSIC); Hellenic Centre for Marine Research (HCMR); Research Institute for Fisheries, Aquaculture and Irrigation (HAKI); Institut Français de Recherche Pour L'Exploitation de la Mer (IFREMER); Nofima Marin AS (NOFIMA); Jihočeská univerzita v Českých Budejovicích (VURH); Norges teknisknaturvitenskapelige universitet (NTNU); SINTEF Fiskeri og havbruk AS (SINTEF); Universidad de las Palmas de Gran Canaria (ULPGC); Wageningen Universiteit (WU); Universiteit Gent (UGent); Institute for Marine Resources & Ecosystem Studies (IMARES); AquaTT UETP Ltd (AquaTT); and Inra Transfert S.A. (IT).