

# International Cooperation for Higher Education in Aquaculture and Fisheries Science —A European Point of View—

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Since the signing of the Bologna Declaration in 1997, European (higher) education has gone through probably the most thorough and swift reform in its history. The process aims at transparency and mutual recognition leading to unlimited mobility across the European Communities' universities for students and teachers. The Lisbon declaration emphasized the role of top-quality education as a prerequisite in developing Europe as the most competitive and dynamic knowledge-based economy in the world. In the process towards these Lisbon objectives, much effort is invested in initiatives for lifelong learning (LL) as lifelong learning is considered to be a cornerstone in achieving competitiveness and employability. Lifelong learning contributes to social inclusion, active citizenship and personal development.

In response to the diversity and increasing specialisation of the European fisheries and aquaculture sector, a range of higher and vocational education programmes has developed responding to this diversity. AquaTNET, a European Commission funded network, promotes harmonization of education programmes in the European Union and serves as a representative and advisor for the aquaculture and fisheries education providers.

Internationalization of education is high on the agenda of the European Commission. The European Commission's ERASMUS Mundus programme features various activities that promote mobility of students and staff, and develops partnerships between European and non-European education providers. This programme eventually improves the appeal of the European education. Besides the centralised initiatives, numerous valuable cooperation projects on education exist between European and non-European states, institutes and other parties such as NGO's.

**KEYWORDS** education; cooperation; policy; Europe

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## 1. Introduction

Education is a cornerstone in the development of both individuals and modern societies. Education enhances social, cultural and economic development, active citizenship and ethical values. The maturity and quality of any society can be measured by the appeal that its culture has for other countries. Education is an excellent channel to promote intercultural appeal and understanding through bilateral exchanges with other countries.

## 2. Education Policy and Reforms in Europe

The European Community<sup>1</sup> in its effort to harmonize the education systems throughout its member states has experienced what is probably the most thorough educational reform in its history. The following paragraph describes the objectives of this reform and its implications for the educational sector.

### 2.1. The Lisbon declaration

The European Council<sup>1</sup>, at the 2000 meeting in Lisbon (Portugal), launched a comprehensive process to develop the European Union into the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion. To achieve this ambitious goal, European Heads of States or Governments asked for “not only a radical transformation of the European economy, but also a challenging programme for the modernisation of social welfare and education systems.” In 2002 it was specified that by 2010, Europe should be the world leader in terms of the quality of its education and training systems.

The drive to realize this objective has initiated an unprecedented transformation of

education and training throughout Europe. However, in Europe, education in general and higher education in particular are not subject to a “common European policy”: regulations concerning the content and the organization of education remains a competence of individual member states.

Therefore, the described educational reforms are implemented in each country according to national contexts and traditions. The European harmonization will be driven by cooperation between Member States at European level, through the sharing of experiences, working towards common goals and learning from what works best elsewhere.

Indeed, according to the Treaty of Nice (2001), the European Community <<shall contribute to the development of quality education by encouraging cooperation between Member States>>, through a wide range of actions, such as promoting the mobility of citizens, designing joint study programmes, establishing networks, exchanging information or teaching languages of the European Union. The Treaty also contains a commitment to promote life-long learning for all citizens of the European Union. Therefore, the European Commission<sup>1</sup>, which has a triple role to play: to add a European dimension to education, to help to develop quality

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<sup>1</sup> A brief glossary of Euro-speak

- The European Union (EU) is the economic and political partnership between 27 democratic European countries.
- The Council of Ministers of the European Union represents the member states. It is the EU's main decision-taking body. When it meets at Heads of State or Government level, it becomes the European Council whose role is to provide the EU with political impetus on key issues.
- The European Parliament, which represents the people, shares legislative and budgetary power with the Council of the European Union.
- The European Commission (EC), represents the common interest of the EU, it is the main executive body. It has the right to propose legislation and ensures that EU policies are properly implemented.

education and to encourage life-long learning.

## **2.2. The Bologna declaration and Bologna process**

As a result of the historical rich diversity of European societies, huge differences in educational organisation and content among the European countries have developed. In order to harmonise European education, the Bologna Process was initiated. The Bologna process derives its name from the Bologna Declaration, which was signed on 19 June 1999 by higher education ministers from 29 European countries. Although the Bologna declaration precedes the Lisbon declaration, implementation converged seamlessly with the spirit of the Lisbon Declaration.

The Bologna process is an intergovernmental European reform process aimed at establishing the European Higher Education Area (EHEA) by 2010. Ultimately, the European Higher Education Area must be an area that allows students, graduates, and higher education staff to benefit from unhampered mobility and equitable access to high quality higher education. In this European-wide area, students are or will be able to choose from a wide range of high quality courses and benefit from smooth recognition procedures among the countries implementing the Bologna reforms. The cornerstones of such an open area are mutual recognition of degrees and other higher education qualifications, transparency based on readable and comparable degrees organised in a three-cycle structure (bachelor/master/doctorate) and European cooperation in quality assurance.

The Bologna process affects more than the EC member states further adding to its complexity. Having initially started with 29 countries; the Bologna process is now sweeping through the 46 member countries of the European Cultural Convention. The Bologna Declaration has put in motion a cascade of

drastic reforms which, to the surprise of supporters and sceptics alike, are occurring at all levels involved in the process at a breathtaking pace.

The key to success of the Bologna process is the underlying partnership approach, in policy-making and implementation. The process currently unites not only the 46 participating countries, but also relies on cooperation with various international organisations and European associations representing higher education institutions, students, staff and employers.

An important feature of the European Higher Education Area is the social dimension of European higher education with an emphasis on participative equity and employability of graduates. This social dimension is to be achieved primarily through the use of lifelong learning.

Finally, the European Higher Education Area will display openness to the world. European Higher Education must become more compatible and comparable, more competitive and more attractive for Europeans and for students and scholars from other continents. A European education system that is attractive and competitive beyond Europe is essential if Europe is to match the performance of the best performing systems in the world, notably the United States and Asia.

## **2.3. Implementation of the Bologna declaration**

### **2.3.1. The European Credit Transfer and Accumulation System (ECTS)**

An essential tool for transparency and comparability of study programmes is a uniform credit system. The European Credit Transfer (and Accumulation) System is a student-centred system based on the student workload required to achieve the objectives of a programme, objectives preferably specified in terms of the learning outcomes and competences to be acquired. Conventionally, a competency is a skill or piece of knowhow

a person has acquired that enables him/her to perform a task in his/her working or social environment. A learning outcome is then a very specific statement that describes exactly what a student will be able to do in some measurable way. A competency may therefore have several specific learning.

ECTS was introduced in 1989 and has ever since been the only credit system which has been successfully tested and used across Europe. Initially the system facilitated the recognition of periods of study in another European country and thus enhanced the quality and volume of student mobility in Europe. But ECTS can be used for all types of programmes, whatever their mode of delivery, and for lifelong learning purposes. It serves both mobile and non-mobile students: it can be used for accumulation within an institution and for transfer between institutions. ECTS helps learners moving between countries, within a country, town or region, as well as between different types of institutions; it also covers self-study and work experience. For these reasons the well-known acronym "ECTS" now stands for "European Credit Transfer and Accumulation System".

ECTS enables local and foreign students to read and compare study programmes. ECTS facilitates mobility and academic recognition, it helps universities to organise and revise their study programmes and can be used across a variety of programmes and modes of delivery. In the end ECTS makes European higher education more attractive for students from across Europe and beyond which is one of the key objectives of the Bologna process.

### 2.3.2. The diploma supplement

The Diploma Supplement is a document attached to a higher education diploma providing a standardised description of the nature, level, context, content and status of the studies that were successfully completed by the graduate. The Diploma Supplement provides transparency among different educa-

tion programmes and facilitates academic and professional recognition of qualifications (diplomas, degrees, certificates).

### 2.3.3. Lifelong learning

Following the adoption by the European Commission in 2001 of the strategy paper "Communication on Making a European Area of Lifelong Learning a Reality", lifelong learning has become the guiding principle for the development of an education and training policy. Lifelong learning is believed to form a core element to competitiveness and employability. It contributes to social inclusion, active citizenship and personal development and enables individuals at all stages of their lives to pursue stimulating learning opportunities across Europe. The Communication sets out concrete proposals that aim to make lifelong learning a reality for all.

Lifelong learning encompasses learning for personal, civic and social purposes as well as for employment-related purposes. Lifelong learning takes place in a variety of environments, in and outside the formal education and training systems. Lifelong learning implies raising investment in people and knowledge; promoting the acquisition of basic skills, including digital literacy; and broadening opportunities for innovative, more flexible forms of learning. The aim is to provide people of all ages with equal and open access to high-quality learning opportunities, and to a variety of learning experiences, throughout Europe. Education systems have a key role to play in making this vision a reality. Indeed, the Communication stresses the need for Member States to transform formal education and training systems in order to break down barriers between different forms of learning.

The Lifelong Learning Programme is the flagship European funding programme in the field of education and training. For the first time, a single programme covers learning opportunities from childhood to old age. The

Lifelong Learning Programme covers the period 2007–2013, and is the successor to the Socrates, Leonardo da Vinci and eLearning programmes that ended in December 2006. The Lifelong Learning Programme consists of four sub-programmes: Comenius (for schools), Erasmus (for higher education), Leonardo da Vinci (for vocational education and training) and Grundtvig (for adult education). A transversal programme complements these four sub-programmes in order to ensure that they achieve the best results. The transversal programmes consist of four key activities: policy co-operation, languages, information and communication technologies, effective dissemination and exploitation of results generated by projects in the sub-programmes.

#### **2.3.4. The ERASMUS programme**

Thus, ERASMUS is the overarching programme that covers all EC initiatives pertaining to higher education. Erasmus supports actions in the fields of mobility (period of study or placement abroad for student, teaching staff exchange), European projects and networks. ERASMUS Mundus is a more recently launched sub-programme of ERASMUS that specifically supports education initiatives that reach out beyond European boundaries (see further).

For the period 2007 to 2013; the EU has allocated a significant budget of nearly EUR 7 billion, to lifelong learning programmes. EU funding of more than € 2 million is being allocated to 17 regional networks for lifelong learning. The projects involve 120 regions which are committed to developing advanced lifelong learning education and training strategies.

### **3. Fisheries & Aquaculture Education in Europe**

In order to meaningfully address fisheries and aquaculture education in Europe, some understanding of the European fisheries and

aquaculture sector is essential (Section 3.1). Pivotal in the EC policy towards this sector is the Common Fisheries Policy (Section 3.2).

#### **3.1. Status of fisheries and aquaculture in Europe**

Fishing and aquaculture provides a healthy and valued source of food, creates much-needed jobs in coastal areas and promotes the social and economic well-being of the European Union's fishing and culturing regions.

##### **3.1.1. European fisheries facts & figures**

Although the fishing sector's contribution to the gross national product of Member States is generally less than 1%, its impact is highly significant as a source of employment in areas where there are often few alternatives. In addition, it helps to supply fish products to the EU market, one of the biggest in the world. With a production of over 7 million tonnes of fish, in 2003, from fisheries and aquaculture, the EU is the world's second largest fishing power after China. Yet, while 6 million tonnes of fish products were exported, 10 million tonnes had to be imported to meet the needs of the EU. This imbalance between imports and exports resulted in a deficit of over € 10 billion in 2003.

Fisheries fleet capacity has declined over the past few years because it was too large for the available fish and had become uneconomic. The EU has facilitated the reduction of the fleet but further modernisation of the vessels is required.

##### **3.1.2. European aquaculture facts & figures**

According to the latest data available (FAO, 2006), EU aquaculture accounted for 2.3% of world aquaculture production, or some 1.38 million tonnes. This represents a value close to € 2.8 billion i.e. 7.5% of the value of world aquaculture production or roughly



30% by value of total EU fishery production (Fig. 1). However, these figures also vary considerably from sector to sector. EU production thus represents 5.7% of world shellfish production by weight, and only 1.3% for freshwater fish, but 10.9% for marine fish.

While global production rose by around 9% annually from 1995 to 2004, EU production grew by only 3 to 4% a year up to 1999, and may be considered to have stagnated since then. This stagnation itself disguises a decrease in mollusc and freshwater fish production, compensated by a continuing increase in marine fish.

The EU is well-placed to capitalise on the global growth in aquaculture. Europe has a strong market for seafood, a long tradition of freshwater and marine fish and shellfish cultivation, dynamic and advanced research, modern technology, qualified and trained entrepreneurs and fish farmers, suitable climatic conditions and sites for the species currently farmed. However, the EU aquaculture sector also faces a number of challenges which have an impact on production. These include limitation of space and of water of good quality, and measures to protect public health and the environment. The high EU standards put European aquaculture at the forefront of sustainable development in the world, both in terms of social and environmental impacts, but make it more difficult to compete price-wise with third-country producers especially in Asia and in South-America. A key issue to safeguard a competitive edge for the European fisheries and aquaculture sector is to provide the industry with well-trained workers, scientists and managers.

### 3.2. The common fisheries policy

The Common Fisheries Policy (CFP) is the European Union's instrument for the management of fisheries and aquaculture. Because fish and fisheries are located across country boundaries, fish and fisheries are

considered a common property. The Common Fisheries Policy ensures exploitation of living aquatic resources under sustainable economic, environmental and social conditions. To assure sustainability, the European Community applies a precautionary approach in adopting and implementing policies designed to protect and conserve living aquatic resources, to provide for their exploitation and to minimize the impact of fishing activities on marine eco-systems. This policy involves the progressive implementation of an eco-system-based approach to fisheries management that guarantees efficient fishing activities within an economically viable and competitive fisheries and aquaculture sectors. Finally, the CFP provides a fair standard of living for those who depend on fishing activities and takes into account the interests of consumers.

### 3.3. Specific education needs for the European fisheries and aquaculture sector

The trends in the European fisheries and aquaculture industry directly affect the European labour market. The diversification of the industry, that is mostly driven by new technological developments, calls for the training of a highly skilled and specialized workforce. Meanwhile, young entrants to the job market will be expected to be more flexible and mobile in the labour market. If education is to meet these labour market requirements than qualifications need to be more flexible, both in content and form, as well as more transparent (in accreditation and recognition). This means that a employer will be able to easily assess the qualifications of freshly graduated job applicants, wherever and whatever in Europe he/she has studied.

In traditional aquaculture facilities, farms are small and employees (and owners who tend to work on the site) usually are generalists who have to be capable of stock management, equipment maintenance and

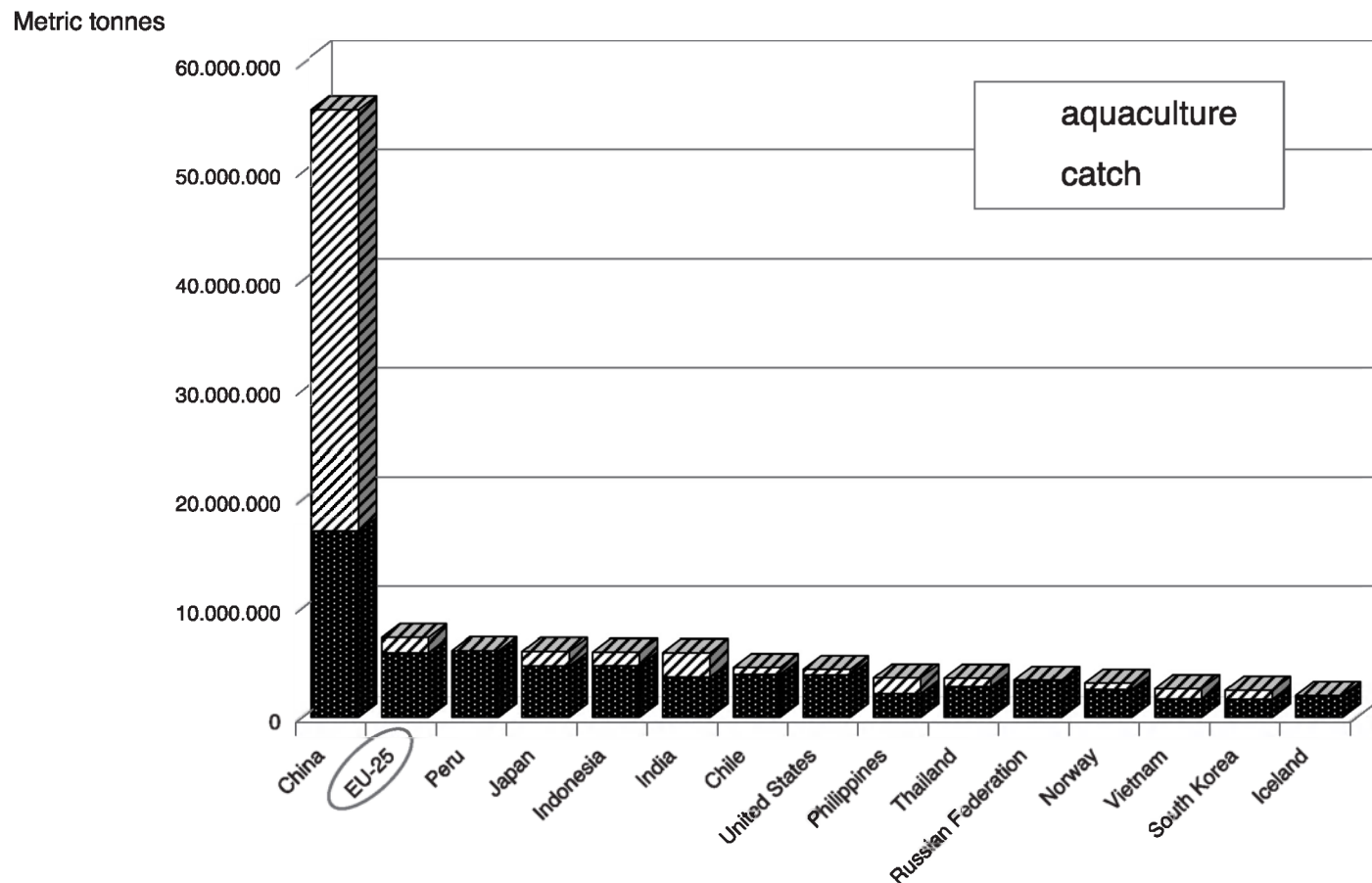


Fig. 1. Fishery and aquaculture production of 15 leading producing countries in 2005 (source: Facts and figures on the CFP 2006).

even selling the end product. The trend towards increased mechanization, specialization in production techniques and increased size of production units has led to the need for specialists. Recirculation units, used for the production of salmon smolts, eels, turbot and even some shellfish need both husbandry specialists and maintenance personnel familiar with the complex equipment needed to maintain water quality. Larger boats, cranes and forklift trucks, normal items of equipment on a sea pen farm, all require special training and certification for staff. Further, specialists are required in fields including bioengineering, biotechnology, fish biology, environmental issues, fish health, HACCP and food quality systems. Obviously, the increased complexity of aquaculture products and direct links with buyers also requires staff with special skills.

Traditionally, needs of the fishery and aquaculture sector for specifically trained employees were predominantly addressed by national or regional vocational and higher education. Since the recent European education reforms, nearly unlimited student mobility and improved accreditation has abolished local boundaries and students can now virtually 'shop' throughout Europe for study programmes that optimally meets their needs and interests. The range of study opportunities in aquaculture and fisheries has now extended to a European scale. This is a considerable asset for students, but also a challenge for universities that now face competition with an increasing number of similar programmes at universities that were previously too remote to compete. A number of European top-quality providers of aquaculture education have soon realized that it is wiser to cooperate than to compete. These universities (Universities of Algarve (Portugal), Bergen (Norway), Cork (Ireland), Trondheim (Norway) and Warmia & Mazury (Poland)) have formed a consortium and are working towards a modular European MSc programme in Aquaculture and Fisheries, called MAqFish.

### 3.4. AquaTNET

As a result of the reform of European education, a Thematic Network was established that specifically promotes harmonization of aquaculture education among all universities and institutes that provide aquaculture and/or fisheries education. AQUA-TNET is a multidisciplinary Thematic Network that unites the academic and vocational aspects of the Bologna reforms and the establishment of the European Higher Education Area in Aquaculture, Fisheries and Aquatic Resources Management. The network was established in 1996 and is funded by the European Commission. AquaTNET discusses and formulates recommendations on geographic and functional mobility of staff and students, trans-national placements, delivery of specialized and advanced education and training, joint development of specific courses, and accreditation and mutual recognition of learner<sup>2</sup> qualifications.

## 4. International Cooperation for Higher Education

Transeuropean education is becoming increasingly common in Europe. Many European countries are running exchange programmes via bilateral relations with non-European countries, and there are a number of transnational higher education initiatives within the European Union. However, in Europe there is a firm conviction that more should be done if European universities and learning centres are to derive the full benefits of internationalization in education.

European education ministers stated in the Bologna Declaration: "The vitality and efficiency of any civilisation can be measured by the appeal that its culture has for

<sup>2</sup> 'learner' is a term that is broader than 'student' in the sense that it includes all persons taking part in a learning process, irrespective of the age or career stage of that person.



other countries. We need to ensure that the European higher education system acquires a world-wide degree of attraction equal to our extraordinary cultural and scientific traditions” (Bologna declaration, June 1999). Later statements encouraged international collaboration on education with third countries<sup>3</sup> outside the EU.

#### **4.1. Perceptions of European higher education in other parts of the world third countries**

During 2005, a major study was carried out entitled: ‘Perceptions of European higher education in third countries’ (Academic Cooperation Association 2004). The conclusions of this study served as a basis to shape instrument to improve the international position of European education, mostly through the ERASMUS Mundus programme.

##### **4.1.1. What were the main findings of this study?**

- Europe is regarded as a union in an economic and political respect, but not in terms of higher education. When it comes to higher education, the perception focuses on the continent’s individual countries, and mostly on the larger ones (Germany, France, UK, ...).
- Europe’s higher education institutions are perceived positively: Students coming to Europe cited the high quality, accessibility and long tradition of European universities. However, the study also showed that Europe is losing out to the US on a number of issues, such as the perceived prestige of institutions, labour-market acceptance of qualifications, and the dynamism and innovation capacity of our university campuses.
- The most important factors influencing the decision for a destination were quality of education, reputation and prestige of the institution and of the degrees earned, as well as affordability, and safety.

- A very clear signal emerged that there is a lack of information on higher education in Europe, the outstanding opportunities for study which it offers and the advantages of studying here compared with other parts of the world.

Based on the survey results, the following recommendations were formulated:

- A perception of European higher education as a whole should be created, by means of a “European brand”, with characteristics common to all European countries.
- Study opportunities in Europe must be have higher recognition outside of the European Union. Higher recognition of European educational opportunities can be achieved by way of a coherent and convincingly implemented information policy, including the creation of a single, well functioning web portal.
- Marketing alone is not sufficient: Europe must improve its educational programmes in order to become and remain attractive to students from elsewhere.

#### **4.2. ERASMUS Mundus**

As mentioned above, the ERASMUS Mundus programme is the ‘international’ (read: extra-European) section of the higher education programmes installed by the European Commission. Erasmus Mundus was first introduced in July 2001, as a response to a Communication by the European Commission on strengthening EU-third country co-operation in higher education. The Commission adopted a programme proposal, Erasmus World, in July 2002. The programme was then renamed Erasmus Mundus. “Mundus” is the Latin word for “world”.

<sup>3</sup> In a EU context, ‘third countries’ is commonly referring to all non-EU countries.

The Erasmus Mundus programme is a co-operation and mobility programme in the field of higher education. It aims to enhance quality in European higher education and to promote intercultural understanding through co-operation with third countries. The Erasmus Mundus programme has earned political support from governments, policy-makers and higher education institutions all over Europe. The programme is seen as a useful means to respond to the challenges European higher education faces today, in particular the need to promote convergence of degree structures and to enhance the attractiveness of European higher education world-wide.

Erasmus Mundus supports European top-quality Masters Courses and provides EU-funded scholarships for third country nationals participating in these Masters Courses, as well as scholarships for EU-nationals studying at partner universities throughout the world. The budget of the programme is 230 million euros for 5 years (2003–2008), plus 66 million euros for student scholarships for citizens coming from a range of specific countries (China, India, etc.).

Inspired by the highly successful Erasmus programme (an internal EU programme supporting cooperation and mobility between European higher education institutions) Erasmus Mundus offers a framework for valuable exchange and dialogue between cultures. Erasmus Mundus is a global scheme, providing a distinct “European” variety in higher education programmes to those beyond EU borders. By supporting the international mobility of scholars and students, Erasmus Mundus prepares European and non-European participants for life in a global, knowledge-based society.

Erasmus Mundus complements the European Union’s existing regional programmes and bilateral agreements on higher education with third countries. Regional programmes, such as Tempus, ALFA and Asia-

Link, will continue to foster international co-operation in higher education between the European Union and its partners.

The specific aims of the Erasmus Mundus programme are:

- The support of joint programmes of outstanding academic quality at Master’s and Doctoral level, including a scholarship scheme for high-calibre EU and third-country students and academics;
- The promotion of partnerships between European and third-country universities in specific regions as a basis for structured co-operation, transfer of knowledge, and exchange and mobility at all levels of higher education;
- The support of measures which will help to enhance the world-wide appeal of Europe as an educational destination.

To achieve these objectives, four main actions were initially launched: Action 1 — Erasmus Mundus Masters Courses, comprising integrated courses at masters level offered by at least three universities in three different European countries; Action 2 — Erasmus Mundus scholarships for students and scholars from third countries; Action 3 — Partnerships with higher education institutions in third countries. The partnerships offer scholarships for students and scholars from EU countries for research and study mobility towards third countries; Action 4 — Projects to enhance the worldwide attractiveness of European higher education. In the second phase of the programme a number of changes were introduced:

- More opportunities and variety in the institutional cooperation activities between European and third-country universities and in the individual mobility scheme;
- Extension of Erasmus Mundus to doctoral studies and, partially, to the undergraduate level;
- Stronger financial support for European students through the offer of more attractive scholarships.

**Table 1.** Currently approved European Master programmes in the field of maritime and aquatic sciences.

Title	URL
EMBC (Erasmus Mundus Master of Science in Marine Biodiversity and Conservation)	<a href="http://embc.marbef.org">embc.marbef.org</a>
Comem Erasmus Mundus MSc (Coastal and Marine Engineering and Management)	<a href="http://www.comem.tudelft.nl">www.comem.tudelft.nl</a>
EURO-AQUAE (Euro Hydro-Informatics and Water Management)	<a href="http://www.euroaquae.org">www.euroaquae.org</a>
European Joint Master in Water and Coastal Management	<a href="http://www.ualg.pt/EUMScWCM">www.ualg.pt/EUMScWCM</a>

Erasmus Mundus started in 2004. In the first three academic years (2004–2006), more than 2,300 students have participated in the programme and over 1,800 have been selected to start their studies in Europe in September 2007. The second phase of Erasmus Mundus builds on this by becoming the EU reference programme for cooperation with third countries in this area. Over a period of five years, just over 950 million euros will be available for European and third-country universities to join forces in joint programmes (masters and doctorates) or collaborative partnerships, and to grant scholarships to European and third-country students for an international study experience.

To date, 103 MSc programmes have successfully applied for the European Master label. Unfortunately, it is a competitive selection process and only 4 programmes related to marine sciences, fisheries or aquaculture have as yet been selected (see Table 1). This limited success does by no means imply that there is little international cooperation on fisheries and aquaculture education by European countries. Bilateral agreements and other large initiative provide several valuable approaches to cross boundary fisheries education. Individual agreements among countries and NGO's are much harder to trace and assess. Typically, cooperation projects with a distinct educational aspect involve student and staff exchange (in both directions!) for the reinforcement of

research-based educational capacity. Individual agreements also support infrastructure improvement ranging from construction of teaching facilities (classrooms, laboratories, ...) to computer and communication support. Currently, the growing maturity of the cooperation between partners increasingly allows for a more comprehensive approach including joint study programmes, mutual recognition of study modules and eventually joint degrees. For instance, Ghent University (Belgium) with Trondheim University (Norway) and Wageningen University and Research Center (The Netherlands), have launched an initiative with both a Chinese and a Vietnamese consortium of aquaculture and fisheries institutes and universities to exchange MSc students for thesis work and PhD students for research stays.

## 5. Conclusions

Internationalisation of education is a priority for Europe as it is believed to be the basis for better intercultural understanding. Education is an excellent instrument to spread European cultural richness and diversity and technological assets. Substantial efforts have been invested to increase attractiveness of European education for non-European students. Support for more comprehensive education ranges from support for student and staff mobility in between education institutions and the development of

integrated courses and eventually joint degrees.

Parallel to this process, European education is reforming towards pan-European harmonised study structures and complete transparency and mobility among European Universities. These internationalisation and harmonisation processes are interlaced and contribute equally to the Lisbon objective of making Europe the most competitive and dynamic knowledge-based economy in the world by 2010.

Aquaculture and fisheries education is characterized by rapidly increasing specialisation and diversity, both geographically and technologically. AquaTNET provides an example of an European network for higher

education in aquatic resources. AquaTNET attempts to harmonize education programmes and represent the interests of all fisheries and aquaculture universities and institutes on the European level.

International cooperation in aquaculture and fisheries education is still predominantly managed by individual institutes or local partners but is increasingly regulated on a European level for instance through the ERASMUS Mundus programme of the European Commission.

Finally, international education cooperation is evolving from pure development cooperation to cooperation with mutual benefits between equal partners, a reassuring notion.

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