



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ

HELLENIC REPUBLIC

Α.ΔΙ.Π.

H.Q.A.A.

ΑΡΧΗ ΔΙΑΣΦΑΛΙΣΗΣ ΠΟΙΟΤΗΤΑΣ

HELLENIC QUALITY ASSURANCE AGENCY

ΑΝΩΤΑΤΗΣ ΕΚΠΑΙΔΕΥΣΗΣ

FOR HIGHER EDUCATION

EXTERNAL EVALUATION REPORT

DEPARTMENT Aquaculture & Fisheries

TEI of Epirus

December 11, 2010

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External Evaluation Committee

The Committee responsible for the External Evaluation of the Department **Aquaculture & Fisheries** of the Technical Institution of EPIRUS consisted of the following five (5) expert evaluators drawn from the Registry constituted by the HQAA in accordance with Law 3374/2005 :

1. Prof. Karim Erzini President
University of Algarve (Portugal)
2. Prof. Constantin Vamvakas
University of Ghent (Belgium)
3. Dr. Ioannis Nengas
Hellenic Centre for Marine Research of Athens (Greece)
4. Dr. Clara Boglione
University of Rome Tor Vergata (Italia)

Introduction

I. The External Evaluation Procedure

- Dates of the site visit

The visit was carried out from the 6 pm of the 6/12/2010 up to the 5 pm of 8/12/2010.

- Whom did the Committee meet?

Academic staff:

Professors

No professors were available: two of them left the institution for other positions and one retired, all three in recent months; one was for health reasons

Vice President of TEI

Soaki Dimitra

Director of Aquaculture and Fishery Department

Kanlis Grigorios

Associate Professors

Nathanailidis Cosmas

Assistant Professors

Lenas Demetrios

Dendrinos Panagaggelos

Logothetis Panagiotis

Professors of Applications

Theodorou Ioannis

Mpeza Paraskevi

Non tenure track Assistant Professors

Kakali Photini

Tzovenis Ioannis

Specialist Technicians

Gkouva Evangelia

Zarides Ioannis

Samara Athina

Chatzopoulos Achilles

Administration Personnel

Aidonis Ioannis

Papageorgiou Fotis

Library

Regga Euphrosyne

Karvounis Evangelos

Technicians

None

Scientific Associates working part-time for laboratory practicals

Papalexioi Helen

Part-time Laboratory Assistants

Tatsi Helen

- *List of Reports, documents, other data examined by the Committee*
 - Guidelines of the process (Guidelines members EEC.pdf)
 - Internal Accreditation Review (Dept Fisheries-Aquaculture accreditation review.pdf; in English)
 - Proposal for the reform of studies program of the Department of Aquaculture and Fisheries of TEI Epirus (in Greek)
 - Comparison between the new (accepted) and the old syllabi (printed version; in English)
 - Additional information on scientific research work of some member of the staff, facilities and activities of department (printed version; in English and Greek)
 - Some dissertations at under- and postgraduate level, samples of written semester examinations, conference posters, some publications (hard copies; in Greek)

- *Groups of students interviewed*

We met 11 students of the first year, 3 of the 11 semester and two graduating ones.

- *Facilities visited by the External Evaluation Committee*

1 Laboratory of Anatomy of Fishes

1 Laboratory of Microscopy

2 Laboratories of Chemistry and Aquatic Ecosystems

1 Laboratory of Freshwater Aquaculture

1 Laboratory of Marine Aquaculture and Algae culture

1 Laboratory for Fish Physiology and Pathology

1 Laboratory of Processing and Quality Control of Fishery Produce

1 Laboratory of Fish Histology

1 Laboratory for Biochemical Analyses

Library

Computer and technical design laboratory

5 classrooms

Student cafeteria

Student and staff restaurant

Administrative, didactic and master secretariats

Private fish farm in Sagiada collaborating with the Department for the practical training of the students and applied research

II. The Internal Evaluation Procedure

- *Appropriateness of sources and documentation used*

Some documentation was received by some members at home some days before the evaluation mission, while the others only received some documents at their arrival at HQAA. Some other documents were only received in Greek or during of the visit.

- *Quality and completeness of evidence reviewed and provided*

The provided Internal Report has not been updated and does not reflect the current situation (i.e. number of students refers up to 2008; the real number and list of current Department staff) and does not clearly describe the structure and duration of the entire degree. The proposal of the new syllabus which does explain the entire degree was furnished only in Greek language. Further explanations were given during the visit and by telephone during the drafting of the report.

- *To what extent have the objectives of the internal evaluation process been met by the Department?*

Overall the Internal Report met the objectives of the Evaluation Process. However in specific issues related to syllabus, current Department staff, and student evolution the report was insufficiently updated.

A1. Undergraduate Curriculum

The Department offers one undergraduate course and participates in two postgraduate courses.

APPROACH

- *What are the goals and objectives of the undergraduate Curriculum?*

The undergraduate education objectives of the Department correspond to the promoting of the application of science in the fields of Aquaculture, Fisheries Management, Fisheries Processing and Quality Control, as well as in Aquatic Environmental Management & Assessment. By accomplishing studies the graduate of the Department of Aquaculture & Fisheries obtains the necessary scientific and technological knowledge to become an Ichthyologist-Technologist, self-employed or an employee of companies, services, organizations and cooperatives in the relevant subjects.

- *What is the plan for achieving them?*

The proposed undergraduate syllabus was implemented in the running academic year. It consists of 240 ECTS, in accordance with the Bologna process, over 8 semesters, of which 35 are mandatory courses (188 ECTS) and 4 are optional (22 ECTS, to be chosen from a total of 8 available courses). The other 10 ECTS are dedicated to practical placement or training and 20 ECTS to the preparation of a thesis. The entire course is foreseen to be accomplished in 4 academic years.

- *How were the objectives decided? Which factors were taken into account?*

Today's global aquaculture production of 50 Mt is projected to increase substantially in the next years (FAO data). Greece is the largest producer of sea bass and seabream in the world and these two species consist of the first export product of the country. Further, 20% of total Greek production comes from the area in which the Department is located.

The field of undergraduate studies of the Department is consistent with the local and national needs, dealing with science applications pertaining to Aquaculture, Quality Control of Fishery and Aquaculture products as well as with Assessment and Management of the Aquatic Environment.

Further, the students' background in Marine Biology, Ichthyology, Fish Quality Control etc could be useful for developing skills also in broader activities of economic and cultural interest, such as tourism and recreation in coastal zones.

- *Were they set against appropriate standards?*

The objectives are in line with the educational mission of similar programs focusing on the training of Aquaculture and Fishery technologists.

- *Did the unit consult other stakeholders?*

Yes, particularly with the private industry. Through the close collaboration with the industry, the new curriculum aims to meet the current requirements of the labour market, to expand the scope of the graduates, and as a corollary, to improve the course attractiveness.

- *Is the curriculum consistent with the objectives of the Curriculum and the requirements of the society?*

Aquaculture, Fisheries Processing and Quality Control, Aquatic Environmental Management & Assessment components are quite well developed; the curriculum in Fisheries Management is somewhat limited.

- *How was the curriculum decided? Were all constituents of the Department, including students and other stakeholders, consulted?*

The new syllabus was approved by majority vote in the Department Assembly, in which representatives of students were also included.

- *Has the unit set a procedure for the revision of the curriculum?*

No information is available

IMPLEMENTATION

- *How effectively is the Department's goal implemented by the curriculum?*

The composition of courses adequately meets the Department's goals, in particular the training activities with the industry and the thesis in the final year.

<ul style="list-style-type: none"> • <i>How does the curriculum compare with appropriate, universally accepted standards for the specific area of study?</i> <p>The curriculum is in line with those of similar programs focusing on the training of Aquaculture and Fishery technologists.</p> <ul style="list-style-type: none"> • <i>Is the structure of the curriculum rational and clearly articulated?</i> <p>Yes, based on the approved new syllabus which contains a detailed curriculum.</p> <ul style="list-style-type: none"> • <i>Is the curriculum coherent and functional?</i> <p>Yes, based on the approved new syllabus which contains a detailed curriculum.</p> <ul style="list-style-type: none"> • <i>Is the material for each course appropriate and the time offered sufficient?</i> <p>Yes, for each course a detailed description of competence to be attained, the scope and the subject material are given along with recent bibliography. The number of teaching hours is appropriate for the ECTS of each course.</p> <ul style="list-style-type: none"> • <i>Does the Department have the necessary resources and appropriately qualified and trained staff to implement the curriculum?</i> <p>Technical infrastructures and equipment are more than appropriate (classrooms, labs, analytical equipment, library, rearing facilities, computer rooms, scientific equipment, external infrastructures offered by the industry, internet access). We consider the staff we have met highly qualified and enthusiastic, as confirmed by the students met. We regret not having the possibility to meet all the staff due to our short stay and also regret the departure of well qualified senior staff. We recommend the substitution of departed senior staff and the reinforcement of laboratory technical assistants in order to maintain the high quality education given by this Department and cover the recently introduced courses.</p>
<p>RESULTS</p> <ul style="list-style-type: none"> • <i>How well is the implementation achieving the Department's predefined goals and objectives?</i> <p>The new curriculum is in the first few months of application, which makes it impossible to evaluate.</p> <ul style="list-style-type: none"> • <i>If not, why is it so? How is this problem dealt with?</i> <p>N/A</p> <ul style="list-style-type: none"> • <i>Does the Department understand why and how it achieved or failed to achieve these results?</i> <p>N/A</p>
<p>IMPROVEMENT</p> <ul style="list-style-type: none"> • <i>Does the Department know how the Curriculum should be improved?</i> <p>The new curriculum is in the first few months of application, which makes it impossible to evaluate.</p> <ul style="list-style-type: none"> • <i>Which improvements does the Department plan to introduce?</i> <p>N/A</p>

A2. Postgraduate Curriculum

The first postgraduate course is entitled "*Aquaculture - Pathological problems of farmed aquatic organisms*" and it takes place in conjunction with the Veterinary Department of the University of Thessaly.

The second is entitled "*Agrochemistry - Organic farming*" and it is carried out in collaboration with other departments of the TEI of Epirus and the Departments of Chemistry and of Biological Applications and Technologies of the University of Ioannina.

The post-graduate programs are developed and upgraded continuously in order to meet the current scientific and technological requirements.

The program entitled "*Aquaculture - Pathological problems of farmed aquatic organisms*" in which the Department has an essential role, accepts in each cycle about six Department graduates. In addition it is estimated that each year approximately another five to seven of the Department graduates attend other postgraduate programs in Greece or abroad.

B. Teaching

APPROACH

- *Teaching methods used*

Teaching of most subjects is usually done via lecturing, while a great effort is paid to apply methods that stimulate active participation of the students. Modern teaching tools such as internet use, video projections and demonstrations are used while teaching outcomes are strengthened through tutoring and practical tutorials by the experienced teachers. Every student is encouraged to participate in preparation and presentation of papers, even in international conferences or academic journals in order to further improve his/her skills and scientific thinking.

- *Teaching staff/ student ratio*

The teaching staff/student ratio is very favourable (1/10), due to the current low number of students and the presence of as many as 11 tenure track staff, 7 non tenure track Assistant Professors and Lecturers, and 18 part time Scientific Associates and Laboratory Assistants. These figures are based on the Internal Report data and on some information obtained during the visit.

- *Teacher/student collaboration*

According to the interview with the students, this collaboration is highly satisfactory.

- *Adequacy of means and resources*

There is some space for improvement, taking into account the administrative and financial difficulties, in order to obtain parts and consumables supplies, for the lab practical exercises and the instruments necessary for didactic purposes.

- *Use of information technologies*

Use of Internet resources is wide spread, including online bibliographic databases, electronic books. Also videotapes are available.

- *Examination system*

Multiple methods of assessing students are applied through written, or written plus interim oral exams and essays at the discretion of the instructor. In many cases the tests are multiple choice or questions that require critical thinking and general knowledge of the subject.

IMPLEMENTATION

- *Quality of teaching procedures*

The teaching methods seem mostly appropriate, based on the experience of the teaching staff and what was reported in the interview with the students.

- *Quality and adequacy of teaching materials and resources.*

According to the students' interview, teaching materials are appropriate and continuously updated.

As far as teaching resources are concerned, the current low number of students and the quite high number of non tenure track teachers ensure the adequacy of teaching resources. However there are new courses in the new syllabus that will require differently specialized staff.

- *Quality of course material. Is it brought up to date?*

According to the students' interview, course materials are appropriate and continuously updated: in many courses, notes provided by the teachers are also integrated with textbooks provided for free to the students. The library is also well equipped with textbooks. Technical visits in commercial units are also realized as a part of students' education.

- *Linking of research with teaching*

In the last semester, during which practical training and thesis research are undertaken, students are involved in research activity supervised by the academic staff, sometimes in cooperation with the industry. Students benefit also from the results of the research done by academic and technical staff of the Department.

- *Mobility of academic staff and students*

Due to Bilateral Agreements (Erasmus Program) referring to the mobility of Professors and Students between the Department of Aquaculture and Fisheries of Igoumenitsa and Departments of several Universities in different countries, members of Academic staff and Students benefit from exchanges. However, the students exchanges are limited by the scholarship quota allocated to the Department.

- *Evaluation by the students of (a) the teaching and (b) the course content and study*

material/resources

The evaluation of the students during the interview was very positive on both aspects. However some problems have been reported in the Internal Report, such as the difficulty or overspecialization of some subjects, the need for improvement of the teaching methods and the laboratory protocols, as well as on the quality and the presentation of the lecture notes. The test results are not always notified in time.

RESULTS

- *Efficacy of teaching*

According to the Internal Report, the current small number of students enrolled enhances contact between students and tutors and hence significantly supports the learning process. Moreover it permits the formation of small study groups, which is essential for effective learning. The average degree for the academic year 2008-2009 was 7.1, with the following distribution: 5.0-5.9: 0.5%; 6.0-6.9: 55%; 7.0-8.4: 44% and 8.5-10.0: 0.50%.

The Committee considers that average degree is not a reliable indicator of efficacy of teaching.

- *Discrepancies in the success/failure percentage between courses and how they are justified.*

Based on Table 11-5.1 of the Internal Report, we consider that there are no major discrepancies.

- *Differences between students in (a) the time to graduation, and (b) final degree grades*

The first cohorts of students graduated in 4-5 years; however the tendency has been increased up to 7.5 years, on average.

- *Whether the Department understands the reasons of such positive or negative results?*

According to the interview with Teachers, the main reason could be the lower educational level and preparation of students, together with the fact that some student may find employment while they are studying.

IMPROVEMENT

- *Does the Department propose methods and ways for improvement?*

Yes, particularly for post-graduate courses: the applied character of the Department, the interdisciplinarity that characterises the staffing (biologists, agronomists, veterinarians, chemists, etc.), the appropriate infrastructure to support aquaculture, the special technical personnel and the relationships with the industry make the Department an essential partner for collaboration with university departments in postgraduate programs in aquaculture. The Department should therefore seek to maintain these benefits while ensuring a continuous improvement in quality.

Further, the Department proposes to change its name in order to improve its attractiveness. Attracting new students is crucial for its survival, as in recent years, especially after the introduction of the entry level 10, the number of admissions has decreased dramatically. The current title "Department of Aquaculture & Fisheries" uses an obsolete Greek word for pisciculture not used anywhere anymore except in the Greek TEI. It is also restrictive, and does not include other types of aquatic organisms. Finally, it implies manual labour for agriculture, fisheries, etc., which inhibits the attractiveness of the Department.

- *What initiatives does it take in this direction?*

Teachers augmented the practical component in the courses. A new syllabus was implemented, and also steps have been taken to officially change the name of the Department and to include the Department in a more appropriate selection field, thereby clarifying the choices and then increasing the number of student applicants. The Committee recommends the update of the TEI web page, and particularly the Department's one.

C. Research

APPROACH

- *What is the Department's policy and main objective in research?*

The Department mainly carries out applied research related to fish farming optimization, with strict connection with Fish Farm, and Pharmaceutical and Chemical industries. Objectives include development of nutritional and chemical products, production technology of marine Invertebrate, marine zooplankton, biotechnological application of algae and other aquatic microorganisms, environmental biotechnology for the marine environment and quality and hygiene control of aquatic products. Some projects were carried out also in the field of mussels rearing, environmental protection and fishing tourism.

- *Has the Department set internal standards for assessing research?*

Yes, they used the International standards for assessing the published results of research (i.e., Citation Index, Impact Factor)

IMPLEMENTATION

- *How does the Department promote and support research?*

The Department provides laboratory facilities for research, some modern instruments and actively promotes research collaboration with industry. The Department actively encourages and promotes the submission of application to National and International funded projects by the Academic staff.

- *Quality and adequacy of research infrastructure and support.*

Laboratory spaces and equipment are adequate. However, in some fields there is a lack of specialized technicians.

- *Scientific publications*

According to the Internal Report, during the period 2004-2009 the Academic Staff of the Department published more than fifty papers in peer reviewed academic journals and ninety abstracts in conference proceedings. Most of the publications come from a limited number of the Academic Staff.

- *Research projects*

In the period 2003-2009, the Department undertook 9 funded national and international research projects. In addition, a substantial number of projects have been supported financially by the industry.

- *Research collaborations*

The Department collaborates or has collaborated with the Universities of Ioannina, Thessaly, Patras and Athens, with the Hellenic Marine Research Centre, the Institute for Fisheries Research and several private hatcheries, ongrowing units and the fish feed industry in Greece, as well as with Departments abroad (e.g. Turkey, Iran).

RESULTS

- *How successfully were the Department's research objectives implemented?*

In general, the research objectives have been successfully implemented with practical application in the industry.

- *Scientific publications*

Some results are published in prestigious journals of the sector, like Aquaculture, Fisheries Research, Food Chemistry, Environmental Biology and Fisheries, Journal of Applied Microbiology, Journal of Environmental Management, i.a.. However, the Committee has identified several publications that are not directly relevant to the field of study (e.g. in the European Journal of Obstetrics & Gynaecology and Reproductive Biology, Angiology). The impact factor of published papers ranges from 0.4 to 2.2, and there have been approximately 600 citations of the publications, excluding self-citations.

- *Research projects*

The number of funded research projects is quite low actually, whereas research projects supported by the industry are substantial.

- *Research collaborations*

Mainly carried out with the industry and with the Universities of Ioannina, Thessaly, Patras and Athens, the Hellenic Marine Research Centre, the Institute for Fisheries Research, as well as with Departments abroad (Iran, Turkey, Denmark, Norway and Italy). The Committee recommends increased international research collaborations, taking into

consideration the strategic location of the Department in relation to neighbouring countries such as Albany, Croatia, and Italy.

- *Efficacy of research work. Applied results. Patents etc.*

The close collaboration with the industry on applied research in products development resulted in three (3) innovative industrial products – patents, named Aquachampion™, Chemix 1™, Chemix 2™, according to the documents presented to us.

- *Is the Department's research acknowledged and visible outside the Department? Rewards and awards.*

According to the Internal Report, international recognition of the academic staff of the Department is reflected by invitations from research fund organizations to review proposals, by participation as editors or peer reviewers in international academic journals, as members of organizing or scientific committees of national or international conferences or of the board in public organizations or governmental bodies and conference and innovation awards.

IMPROVEMENT

- *Improvements in research proposed by the Department, if necessary.*

The Department suggestions for improving the research activity are:

- increasing of the corresponding level of national research funding
- modernizing facilities and equipments
- giving incentives for young scientists
- delegating responsibility and relieving the academic staff from administrative work as well as reducing the time dedicated to teaching activities.

It also considered that it is important to:

- promote the cooperation between the Department's research teams
- exploit the undergraduate and postgraduate theses
- encourage the linking of the research teams with those of other Departments in Greece and Europe in view of networking for accessing national and European research funds
- make effective utilisation of research outcomes through patent writing
- link research efforts with society and industry.

Some efforts are recommended by the Committee to improve the participation in application for international funds, taking into account the lowering of current national funding. Furthermore, the Committee recommends that the Department Academic Staff takes advantage of the current situation of limited number of students to publish in international Journals and to increase their involvement in scientific research, in particular in international projects.

- *Initiatives in this direction undertaken by the Department*

According to the Internal Report, the Department must respond to important social and economic challenges of the region of north-western Greece (important fisheries resources, numerous aquaculture units, different aquatic ecosystems, developed export trade). For these purposes it has promising collaborations but requires some reinforcement in terms of technical staff. The Department should continue to pursue applied research projects and to ensure its dissemination and utilisation. The Committee agrees with the initiatives of the Department and strongly recommends greater efforts to obtain International funding and to publish the results.

D. All Other Services

APPROACH

- *How does the Department view the various services provided to the members of the academic community (teaching staff, students).*

The distance between the Department and the central Administration offices of the TEI Epirus creates important delays in communication and in general administrative procedures. The effectiveness of administrative and technical services is generally poor due to endogenous and exogenous factors. Specifically:

- the Technical Service of the Institution is generally understaffed
- the Technical Service is usually called to address priority issues and thus it cannot support a plan of its own for infrastructure construction and maintenance
- regarding the issue of the Annex Building of Igoumenitsa, the Technical Service of the Institution can not undertake any work on it as the building is still under the responsibility of the Technical Department of the Thesprotia Prefecture, which has not yet received it from the constructor, although 10 years have passed since the end of the construction works
- difficulties have been found in coordination and communication between administration staff and their supervisor, with clearly negative effects on the functioning of the Department
- the administrative staff has a great difficulty in organizing assignments and archiving files as part of their mission.

Some positive factors were highlighted: technical staff is highly skilled and cooperative; administrative staff is helpful and efficient in student care; the library is well equipped with books and electronic communication and access.

Concerning student care services, there are no dormitory and sport facilities.

- *Does the Department have a policy to simplify administrative procedures? Are most procedures processed electronically?*

It is very difficult for the Department to simplify administrative procedures since it is committed to follow National rules of management and running of public services. Nevertheless the Department uses as much as possible all the possibilities available to decrease the difficulties by using modern communication procedures.

- *Does the Department have a policy to increase student presence on Campus?*

No information is available.

IMPLEMENTATION

- *Organization and infrastructure of the Department's administration (e.g. secretariat of the Department).*

The Department administrative staff is well organized. Three different secretariats are present: one financial, one for undergraduate students and one for graduate students. There are also two librarians for the three Departments of Igoumenitsa.

- *Form and function of academic services and infrastructure for students (e.g. library, PCs and free internet access, student counseling, athletic- cultural activity etc.).*

The student secretariats are quite efficient, the library is well organized but the only recreational-cultural facility is the cafeteria (television, music, table games). No sport facilities are available. Free internet access is available in the library and in the computer lab in the Department.

RESULTS

- *Are administrative and other services adequate and functional?*

See above paragraphs.

- *How does the Department view the particular results?*

The Department is aware of the limitations in term of services provided to the students and staff.

IMPROVEMENTS

- *Has the Department identified ways and methods to improve the services provided?*

Yes, the Department highlights that improvements must be made in managing the

Department's issues related to its mission, the promotion of the Department's and student's care. The administration should support all the objectives of the Department.

- *Initiatives undertaken in this direction*

Some initiatives have been undertaken to facilitate and improve the running of the laboratories but local authorities did not approve them, for example the possibility of pumping sea water to the rearing facilities in the Department, thereby obliging the Department to run only recirculation systems and not developing a further system of outdoor tanks for research and teaching purposes.

Some initiatives have always been taken to ask the help of local representatives in the Parliament and Regional authorities in order to create better accommodation conditions for the students either in private houses or just to finish the existing partly built dormitory. This point is also underlined by the students.

The Committee recommended to the library to undertake the appropriate steps in order to increase its publications with periodicals and books freely offered by European Union institutions, such as DG MARE of the EU Commission, EUROSTAT and the European Parliament.

Collaboration with social, cultural and production organizations

The Committee underlines the importance of the location of this Department in this remote area of Greece, where there are a lot of aquaculture units and important and diversified aquatic ecosystems (fresh, brackish and marine). This makes the Department a quite unique educational and applied science unit, especially regarding the collaboration with the industry at the local and international level.

The Department interacts with regional authorities and SCP Bodies by organizing workshops with participation of aquaculture producers, cooperating with local municipal authorities for management and protection of aquatic ecosystems and proposing to the students theses on local social or producer's issues. Furthermore, the Department has in various ways contributed to the cultural activity of the city of Igoumenitsa by organizing music concerts or round tables with experts open to the participation of the public.

The Committee supports the Department's decisions to undertake such actions, but it considers them not enough in view of the magnitude of opportunities and issues in the region.

E. Strategic Planning, Perspectives for Improvement and Dealing with Potential Inhibiting Factors

- *Potential inhibiting factors at State, Institutional and Departmental level, and proposals on ways to overcome them*

At a State level, the change of name is considered necessary by the Department because it should more accurately reflect the education and research perspectives offered. According to the Committee, it is even more important that the Department changes the field of selection and passes from the polytechnic and engineering field selection to the agronomic and biological one. Another inhibiting factor is the low quality of entering students since the 10/20 base has been eliminated: this causes prolonged time to complete the course and lowers the teaching and research effectiveness of the Department. So, the Committee proposes to restore the 10/20 minimum base. The Committee also proposes that the Department should offer separate diplomas on Aquaculture Technologist and Fishery Technologist. This should be based on the reorganization of courses given by the Department, e.g. by a common base of fundamental core courses in the first two years, followed by two years of specialized courses in the two branches (including a dissertation).

According to the Department, the inhibiting factors at the Institutional level are the lack of professors, particularly for the specialized courses of the new syllabus. Also, some technicians and an appropriate budget are required for the functioning of the equipment for research and didactic activities.

Administrative and bureaucratic procedures should be improved in order to ensure better functioning of the Department.

The Committee agrees with the Department's analysis of these improvements. The Committee thinks that at the Department level, better visibility and dissemination is required in order to attract more and better students, and national and international partners for research.

- *Short-, medium- and long-term goals*

According to the Department:

- some laboratories could be further exploited by adopting clear research and educational goals, and importantly, by hiring specialist technicians in permanent positions ;
- participation and investment in postgraduate studies should be strengthened;
- the appropriate infrastructures to support aquaculture, the special technical personnel and the relationships with producing bodies should be maintained, while a continuous improvement in quality should be considered a priority;
- new staff is required particularly for certain specialisations related to specific subjects, such as Fisheries Management, Fish Processing, Statistics, etc.;
- functioning of the administration should be improved, particularly concerning the management of the Department's issues related to its mission, the promotion of the Department and the student care;
- technical and administrative support could be greatly improved;
- merging with other Departments could be envisaged.

The Committee largely agrees with the proposed short-, medium- and long-term goals of the Department. However, specific attention should be given to an eventual merger, taking into consideration the quality and importance of the course, the privileged location of the Department in a remote area close to the related industry, the socio-economic losses for the local community, and the costs associated with an eventual merging.

F. Final Conclusions and recommendations of the EEC

Conclusions and recommendations of the EEC on:

- *the development of the Department to this date and its present situation, including explicit comments on good practices and weaknesses identified through the External Evaluation process and recommendations for improvement*

The main positive aspects identified are:

- 1) the Committee underlines the importance of the location of this Department in this remote area of Greece, where there are a lot of aquaculture units, coastal lagoons and important and diversified aquatic ecosystems (fresh, brackish and marine). This makes the Department a quite unique educational and applied science unit, especially regarding the collaboration with the industry at a local and international level. The Department provides teaching, expertise, research and training in an area of strategic economic importance for Greece;
- 2) in general, the staff, the equipment, the laboratories, the syllabus, the teaching methods, the communication between teachers and students, the library, the catering services and the collaboration with the industry are of high quality;
- 3) the social dimension of the Department and its interactions with local communities is important;
- 4) the Department participates in two postgraduate courses;
- 5) the evaluation of the students during the interview was very positive in all aspects.

The main weaknesses identified are:

1. the reduction in the number of students in the recent years and a lowering of their educational background at entrance. The first cohorts of students graduated in 4-5 years, while currently the average has increased up to 7.5 years;
2. the recent departure of senior staff members (3 professors) and a high percentage of non tenure track teachers;
3. the financial regulations, the functioning of the administration and the location of the TEI headquarter in Arta, that complicate and slow down the necessary procedures for the good functioning of the Department;
4. the lack of financing for the research.

The Committee recommends:

- A. to improve the visibility and the promotion of the Department and of the courses through appropriate media, e.g. web sites of TEI of Epirus and of the Department as well as to change the field of selection, from the polytechnic engineering selection field to the agronomic and biological one;
- B. to restore the 10/20 minimum base for entrance in order to improve the quality of students;
- C. that the Department offers separate diplomas on Aquaculture Technologist and Fishery Technologist in order to augment its attractiveness. This should be based on the reorganization of the courses given by the Department, e.g. by a common base of fundamental courses in the first two years, followed by two years of specialization in the two branches (including a dissertation);
- D. to increase the international research collaboration, taking into consideration the strategic location of the Department in relation to neighbouring countries such as Albania, Croatia and Italy;
- E. to improve the participation in applications for international project funding, taking into account the limited access to the national funds. Furthermore, the Committee recommends that the Department Academic Staff take advantage of the current situation of a limited number of students in order to publish in international Journals and to increase their involvement in scientific research, particularly by joining international projects;

F. that, in the eventuality of a possible merger, special attention should be paid to the quality and importance of the course, the privileged location of the Department in a remote area close to the related industry, the socio-economic losses for the local community and the costs associated with such an eventual merger.

- *the Department's readiness and capability to change/improve*

The Committee believes that the members of the Department are aware of the needs of change and have by themselves proposed many of the above mentioned changes and improvements in the Internal Report, as well as during the site visit.

- *the Department's quality assurance*

Following the Department's proposal, the Committee agrees with the establishment of a permanent internal accreditation review committee and considers that it should be responsible not only for the monitoring of the professional careers of the alumni, of the development of the academic staff, and of the status and upgrade needs of the facilities and services of the Department but also of the syllabus and of the academic, the research and the administrative performances of the staff. Unequivocally, the utilization of the Review by the responsible parts should be in a manner that would positively contribute to the future of the Department.

The Members of the Committee

TECHNOLOGICAL EDUCATIONAL INSTITUTE OF
EPIRUS (IGOUMENITSA CAMPUS)
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