CAN THO UNIVERSITY

AUN-QA

SELF-ASSESSMENT REPORT

ASEAN University Network

ADVANCED AQUACULTURE PROGRAM

COLLEGE OF AQUACULTURE AND FISHERIES

June 2014

COLLEGE OF AQUACULTURE AND FISHERIES
Can Tho University
Campus 2, 3/2 Str. Ninh Kieu Dist. Can Tho City
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LIST OF ABBREVIATIONS

AAP	Advanced Aquaculture Program
CAF	College of Aquaculture and Fisheries
CTU	Can Tho University
AU	Auburn University
IQA	Internal Quality Assurance
ELO	Expected Learning Outcomes
LRC	Learning Resource Center
MOET	Ministry of Education and Training
QATC	Quality Assurance and Testing Center
MD	Mekong Delta

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SELF ASSESSMENT REPORT
THE AVANCED AQUACULTURE PROGRAM

We hereby confirm to approve this Self–assessment Report of Advanced Aquaculture Program of College of Aquaculture and Fisheries to be officially accredited with AUN standards within the framework ASEAN-QA project.

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Dean

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Can Tho University

I. INTRODUCTION

1. Can Tho University (CTU)

Established in 1966, Can Tho University (CTU) is a key public higher education institution and a cultural, scientific and technical center of the Mekong Delta (MD) and Vietnam with about 48,315 undergraduate students, 2,958 Master students, and 226 PhD students. CTU has 2,042 staff including 1,194 teaching staff and 848 support staff. CTU is a multidisciplinary university which has been training variety of fields related to agriculture, aquaculture, technology, environment, law, basic science,… that meet requirement of social economic development of the Mekong Delta and the country. Currently, CTU offers 92 undergraduate training programs (including 02 college level programs), 31 Master and 13 Doctoral training programs. In addition, CTU also offers a short training specifically on tropical issues for students over the world. Every year CTU receives students on internship programs from the US, Belgium, Japan, Thailand,… under agreements between their universities and CTU.

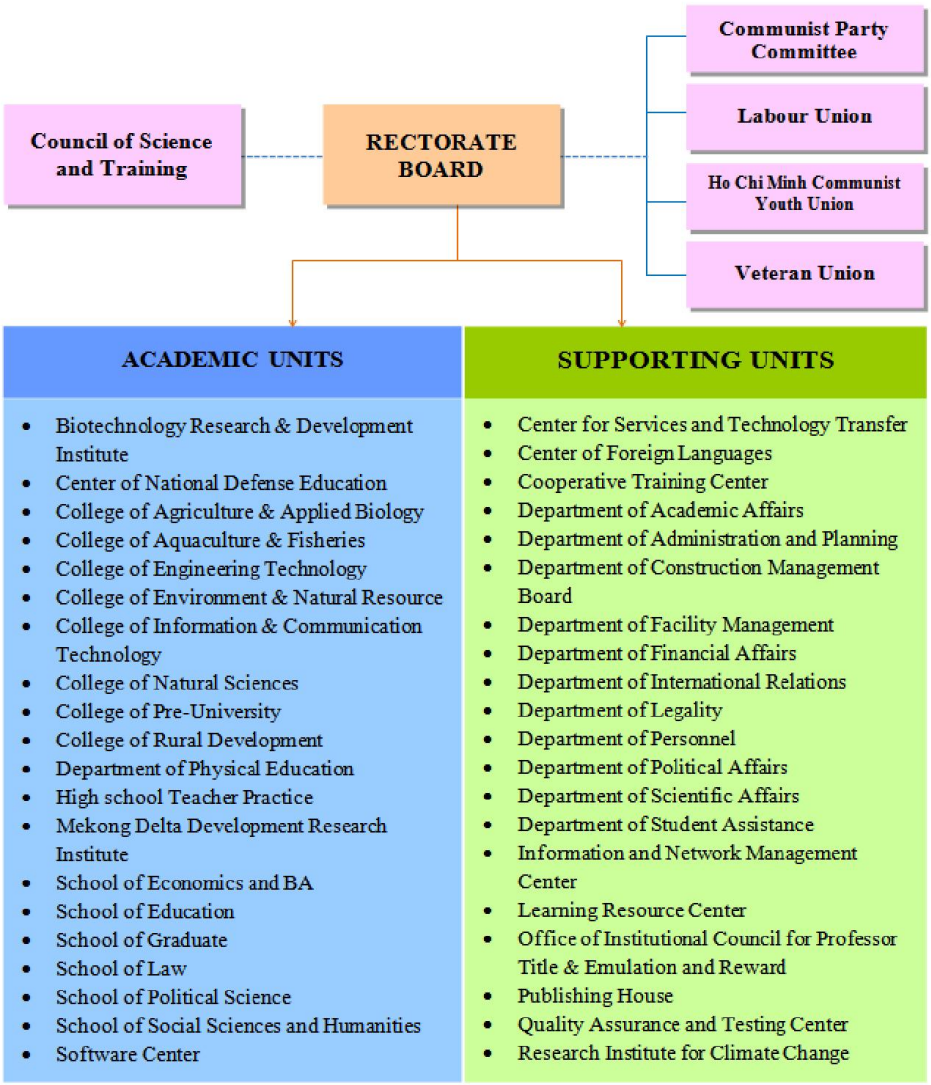

Figure 1: The structure of CTU and units

1.1. Vision of the university

CTU targets to be one of leading higher education institutions in Vietnam and recognized as one of the top universities in Asia-Pacific in training and research in 2022.

1.2. Mission of the university

CTU operates its resources to be the leading national institution for education, research and technology transfer making significant contributions to the development of high quality human resources, fostering the talents and the advancement of science and technology to cater for the regional and national socio-economic development. CTU is the crucial driving force for the development of the Mekong Delta region.

2. College of Aquaculture and Fisheries (CAF)

After 25 years being subjected to a number of organizational changes, the College of Aquaculture and Fisheries (CAF) has been re-established in April 2002. This was to meet an increasing demand of aquaculture and fisheries services in the Mekong Delta.

2.1. Vision of CAF

CAF's main tasks are to support the national strategies for aquaculture and fisheries development in the new millennium, but the focus has always been on staff capacity building and improving educational and research facilities within the field of aquaculture and fisheries. This has resulted in CAF staff becoming leading-edge in their fields of specialization, constantly adapting to new research and development challenges.

2.2. Mission of CAF

The generally major mandates of the College of Aquaculture and Fisheries are:

- Offering undergraduate and graduate educational programs in the fields of aquaculture and fisheries.
- Conducting researches related to aquaculture development, aquatic environment, fisheries resource management, and marine biodiversity.
- Transferring technologies of aquaculture and fisheries to farmers and the commercial production sectors in the Mekong delta and related regions.

2.3. Activities

Training activities

CAF offers educational programs leading to a number of different degrees within various fields and levels:

- Bachelor of Science in Aquaculture (taught in Vietnamese), Bachelor of Science in Aquaculture (taught in English), Marine culture and conservation, Aquatic resources Management, Fish Pathology, Fisheries product processing, Fisheries economics.
- Master of science in Aquaculture and Aquatic resources Management

- Ph.D. in Aquaculture

CAF is conducting researches in a wide range of subjects such as (i) nutrition and feeds, reproduction, aquatic animal health, and physiology; (ii) culture techniques of different aquatic species such as catfish, indigenous fish, giant freshwater prawn, marine shrimp, mud crab, etc.; (iii) aquatic environments including pond dynamics, water quality assessment and management, bio-ecological indicators; and (iv) fish stock assessment and management, coastal zone management, marine bio-diversity, etc

In 1995, the fisheries section of Can Tho University started changing vigorously in scientific research thanked to the tremendous supports for staff building capacity from the Dutch government, European Community and other donors. The researches undertaken are of breakthrough nature and resulting in high efficient results in technology science and production. The research projects are specified specifically as follows:

- Research on brine shrimp eggs (*Artemia* cysts) production started in the early 1980s and the stably produced procedure has been efficiently adopted in some coastal area in the Mekong Delta.
- Research program on reproduction, nutrition, biology, ecology, resources,…of the predominantly valuable catfishes was proactive in the Mekong delta. The successes obtained in 1995 have promoted the development of these catfish species culture in Vietnam in the recent years.
- Culture and larval production of giant freshwater prawn project has been conducted since 1998 under the supports from national and international organizations. The project has achieved significant results on breeding and larval rearing, as well as grow-out of freshwater prawn. The preliminary results have been effectively applied in several local areas.
- Mud crab research project: funded by the European Commission to study on reproduction and wild population dynamic of the dominant mud crab species in the Mekong Delta. It is likely that successful production of larvae has been being made and complete hatchery procedure has been transferred and expanded to the farmers over the Mekong Delta.
- Project on aquatic animal health research has been consecutively carried out for years and has obtained significant results with efficiently recommended therapeutics and prophylaxis for fish and shrimp. Several projects have been being conducted such as catfish disease project cooperated with the University of Stirling-Scotland (DFID – United Kingdom); Asia, EU catfish disease project (in cooperation with many nations); project funded by EU on antibiotics in fish-shrimp; penaeid shrimp diseases cooperated with CSIRO (ACIAR-Australia and World Bank).
- Propagation of indigenous fish research project has been undertaken to study biology and breeding of the potential indigenous species like snakehead, climbing perch, snakeskin gourami, *etc*…and has achieved many positive results.

- Research on marine shrimp reproduction has been successful with new technique procedure by applying the re-circulating system. Furthermore, a project on pathogen-free shrimp production has been also initiated (VLIR project-Belgium, ACIAR-Australia, Ministry of Education and Training sponsored).
- Projects on coastal resources and environmental ecology funded by DANIDA (Denmark), World Bank, IDRC (Canada) and USAID (United States), the projects have investigated the environmental ecology features and likely solutions to utilize efficiently the resources of some coastal areas in the Mekong delta.
- Projects on physiology of important fish species to scope with future climate changes funded by DANIDA, Denmark have brought significant insights for further study to select right species for aquaculture in the situation of climate change impacts.
- In addition to research projects, a program in joint education and training under the financial support of VLIR-OUS, Belgium has been conducted to develop an international master program in Aquaculture within a network of different universities and institutes of Vietnam and Flemish universities.

2.4. Organization of School of CAF

At present, CAF has a total of 108 staff members, of which 61 are teaching staff. More than eighty percent of staff has obtained graduate degrees mainly in foreign countries such as United States, France, Belgium, United Kingdom, Denmark, Australia, Thailand, Malaysia, *etc*. Their specializations are very diverse including aquaculture, marine biology and culture, environmental studies, fisheries resource management, economics, fish pathology, molecular biology, etc. The most prominent features of the staff are highly responsible, enthusiastic and motivated. Although rather young on their ages, they have been regularly approaching the practical aquaculture respects. Most of them are thereby very experienced, skillful and willing to contribute their efforts to the development of the College.

CAF is organized into 6 Departments and one Administrative unit as illustrated in Figure 1.

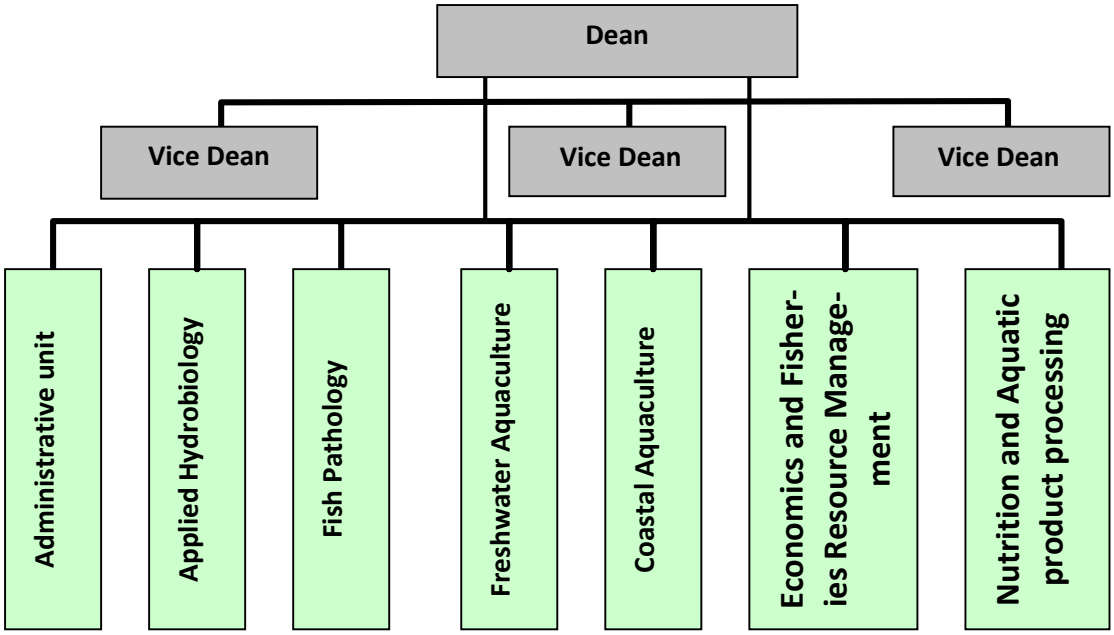

Figure 2: Organization structure of CAF

- Administrative unit: supporting the Dean board in administrative management and organization, education, research, training course, internal and external collaboration, financial management and other activities.
- Department of Applied Hydrobiology: responsible for teaching and doing research on fundamental issues such as water quality, aquatic ecology and biology, anatomy and taxonomy of aquatic organisms, aquatic population dynamics.
- Department of Fish Pathology: duties of the department are to teach, carry out research, and disseminate techniques on fish biology and diseases.
- Department of Freshwater Aquaculture: training, doing research and transferring culture techniques of freshwater species.
- Department of Coastal Aquaculture: responsible for training, doing research and transferring culture techniques of brackish water and marine species.
- Department of Economics and Fisheries Resource Management: the mandates of the department are training, doing research on fields of Fishing, Fisheries sources assessment, Socio-economics in aquaculture, and Fisheries management.
- Department of Nutrition and Aquatic product processing: Responsibilities of the department are teaching and research on aquatic physiology, nutrition and fisheries product processing.

3. Introduction on QA Activities

- At CTU level:

Quality Assurance activities began in 2003. CTU and CAF fulfilled a mission and vision, so it is necessary to establish an Internal Quality Assurance system at 2 levels. Total results of Ex-

ternal Accreditation (EA) at the university level according to 10 standards of MOET in 2006 are stated below.

Table a. Results of External Accreditation, level 1&2, 2006			
Pass level / Evaluation	Level 1	Level 2	Standards of no evaluation
EA in 2006	9	44	0
%	17%	83%	0%

Notes:
Level 1: External accreditation at University level
Level 2: External accreditation at College level

Results of self-assessment of training programs from 2008 up to now is indicated in the following table:

Table b. Total number of programs with self-assessment					
Academic year	**Prog/2008**	**Prog/2009**	**Prog/2010**	**Prog/2011**	**Prog/2012**
Standards of MOET	15	15	x	x	01 External Assess.
AUN Criteria	x	12	16	11	10 + 2 in ASEAN-QA Project

Under CTU Rector's Decision No. 384/QĐ-ĐHCT dated on April 12, 2006 on setting up QATC and Rector's Decision, No. 42/QĐ/ĐBCL-ĐHCT dated on Oct 8, 2008 for full autonomous right *in QA activities at college level* and Rector's Decision, No. 892/QĐ/ĐBCL-ĐHCT dated on March 28, 2012 for use of an Internal Quality Assurance System of AUN Model at college/school level, CAF founded its QA team and since 2008 up to now, CAF has carried out internal self-assessments of 12 training programs under AUN standards.

- At CAF level:

CAF has paid much attention to improve and develop the quality of education and training programs towards the national standards and the trend toward regional integration as well as the world. Hence, the Quality Assurance Organization of CAF has established processes in order to check and evaluate the quality of education and training programs regularly; and to take responsible for long-term quality and effective operation.

The Quality Assurance Organization of CAF, founded in 2005, is a unit of the Quality Assurance and Testing Center of CTU and responsible for activities such as course assessment, teaching diary evaluation, and curriculum self-assessment from 2008.

The Quality Assurance Organization sets the schedule and assigns groups to gather evidence, analyzes data and reports the results. For collaborators, the organization also conducts specific tasks to each staff to help and support the process of collecting evidence and investigat-

ing data. Based on the reports from other departments, the organization evaluates the result, and builds the reports.

The information and evidence for the self-evaluation process are collected from the text stored by CTU and CAF. In addition, CAF also collected evidence through interviews, discussions in seminars/workshops and conferences. The members of the organization analyze and evaluate independently, then discuss and comment in writing and building up the text.

II. AUN-QA CRITERIA AT PROGRAM LEVEL

The Bachelor of Science in Aquaculture (taught in English) that is so called "Advanced Aquaculture Program" is evaluated in this report.

1. Expected Learning Outcomes

The Advanced Aquaculture Program (AAP) was developed in 2008 with the objectives of (1) orienting to international integration, (2) training high quality human resources for the development of aquaculture of Vietnam based on the National aquaculture development strategy to 2020 and to the vision of 2030 [Exh.1.1.Strategy for aquaculture development to 2020 and to the vision of 2030] and for the development of the Mekong Delta.
In order to meet these objectives, CAF had made a regional survey to obtain advices and opinions from the stakeholders to determine the appropriate expected learning outcomes and approved by CTU [Exh.1.2.Decision on issuing the learning outcomes of AAP].

In order to implement the mission of education, research and technology transfer of CTU and CAF for the MD and the whole country, the program is geared to train and produce students who have deep knowledge and good skills in aquaculture, career ethics and life-long learning consciousness. The curriculum of AAP was formulated based on the results from the workshop that benchmarked with the Aquaculture curriculum of the Fisheries and Allied Aquaculture, Auburn University (USA) [Exh.1.3.Curriculum of Auburn University], in combination with the survey results conducted from enterprises and labor markets [Exh.1.4.Survey questionnaires] and then modified to adapt to Vietnamese conditions [Exh.1.5.Curriculum compared to Auburn's University]. The program is instructed in English.

1.1. The expected learning outcomes have been clearly formulated and translated into the program

The expected learning outcomes were made based on the Blooms' Six Levels of the cognitive domain of learning from knowledge to evaluation. Upon graduation, students will be able to:

- ELO 1: Apply aquaculture knowledge to run and develop aquaculture production facilities
- ELO 2: Conduct proficiently techniques for running a hatchery or farm of economically valuable species
- ELO 3: Analyze and evaluate problems in aquaculture production to recommend solutions for quality improvement of aquaculture production
- ELO 4: Compare culture technology and models between regions for improvement of aquaculture production in Vietnam
- ELO 5: Design processes for organizing, managing and operating aquaculture activities such as hatchery, commercial farm, and service business.
- ELO 6: Manage fish health and culture environment for improvement of aquaculture production
- ELO 7: Exhibit skills in communication for exchange, sharing and collaborating with different stakeholders in aquaculture development.
- ELO 8: Exhibit life-long learning capacity and international integration in study and research.
- ELO 9: Apply knowledge on laws and current social – politic issues to undertake actions for protecting environment.

The expected learning outcomes were introduced to students during the orientation meeting at the beginning of the new school year and disseminated to stakeholders through the website of CTU [Exh.1.6.CTU Website] and student's handbook.

1.2 The program promotes life-long learning

The AAP is constructed based on the US higher education standards and followed the credit system [Exh.1.7.Decision 43/2007/QĐ-BGDĐT] to provide flexibility for learners. The learners are helped to (1) make whole study plan by themselves, (2) make their own decision on graduation time, (3) select optional courses, these help create the orientation for self-study and training. The contents of the curriculum ensure both depth and width of knowledge to help students to be able to further study at higher levels of Aquaculture or related fields.

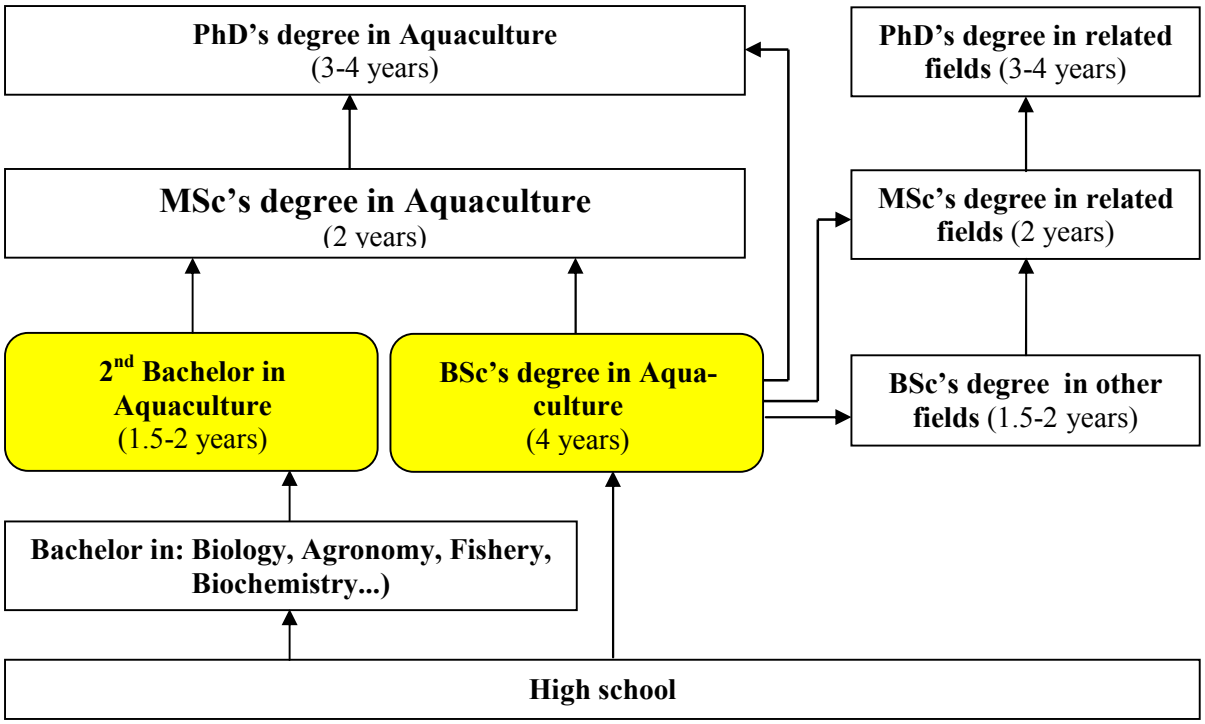

Figure 3: Pathways of life-long learning in Aquaculture

Initially, the learners can directly study AAP after passing the entrance examination. After graduating from university, the learners can continue to study higher levels such as MSc or PhD in Aquaculture [Exh.1.8.Decision on enrollment of AAP students to study MSc and PhD levels] or related fields including Fish pathology, Aquatic Resources Management, Ecology, Agronomy [Exh.1.9.Decision on enrollment of AAP students to study related fields]. In addition, the learners can also study at the same time another program to obtain second diploma (Figure 2). Moreover, as studied in English, the learners are therefore able to continue to study higher levels at different universities in the world [Exh.1.10.Decision on sending students to study abroad].

Teaching methodology used in the program is the active learning method (learner is center) which helps the learners develop self-study and self-research capacity. During the teaching period, the instructors apply various didactics such as assignment, group working, group discussion, seminar, laboratory practical work, field work, research and thesis [Exh.1.11.Course syllabi]. These didactics and learning methods help the learners obtain diverse knowledge and proficient skills. In addition, the learners are also enhanced soft skills such as independent working, group working, communicating

and sharing, and collaborating with others. These important skills will help the learners easily adapt to studying at higher levels.

The program also includes study tour and exchange to/with other universities in the South-East Asian countries. This helps the students to improve knowledge, formulate learning motivation for global integration [Exh.1.12.The decision to study tour in Thailand].

Additionally, CTU also provides students learning facilities such as computers, free internet, email, library (learning resource center), advisers, entertainment means,… these stimulate and encourage students self-study and lifelong study [Exh.1.13.Learning facilities, student services].

1.3 The expected learning outcomes cover both generic and specialized skills and knowledge:

Based on the training objectives, missions of CTU and CAF, and to meet requirements of the labor market, the curriculum emphasizes on training students on knowledge, skills and attitudes. CAF, therefore determined the expected learning outcomes of students at graduation to obtain both generic and specialized skills and knowledge. In addition, the attitudes required from students are also indicated in the ELO.

The AAP curriculum consists of 150 credits [Exh.1.14.Curriculum] in which there are two blocks of knowledge including generic (47 credits) and specialized (103 credits) knowledge. The generic knowledge block includes courses containing contents relating to basic natural science knowledge (mathematics, chemistry, biology, politic, social), generic skills (English, information technology, physical training) and attitudes such as ethics, responsibility [Exh.1.11.Course syllabi]. The specialized knowledge block consists of courses on principles (biochemistry, physiology, ecology, morphology and anatomy) and techniques (feed and nutrition, breeding, farming, environment and disease management) that can be applied in aquaculture. The contents of these specialized courses also provide specialized skills on hatchery operation; farming of highly economic valuable species; disease management; water quality management; aquaculture business operation and management. In addition, skills on writing research proposals, doing research and reporting are also developed [Exh.1.15.Skill matrix].

Table 1. The relationships between knowledge, skills and expected learning outcomes

Knowledge and skills		**Expected learning outcomes**
Generic knowledge	Mathematics, chemistry, biology, politics, sociology, informatics, foreign language (English)	ELO1, ELO6, ELO9
Generic skills	Communicating, independent and group working, managing, computer using, researching, self-studying	ELO7, ELO8
Specialized knowledge	Specialized principles and techniques, problem analyzing and solving	ELO2, ELO3, ELO4
Specialized skills	Hatchery practicing, commer-	ELO3, ELO4, ELO5, ELO6,

	cial farming, managing and operating hatcheries and aquaculture business units, conducting scientific research activities	ELO8
Attitudes	Ethics, responsibility, collaborating and sharing	ELO1, ELO6, ELO7, ELO8, ELO9

Teaching, learning and evaluating activities are implemented based on Regulations for official training in university and college following the credit system [Exh.1.7.Decision 43/2007/QĐ-BGDĐT]. Moreover, in order to obtain the ELO, every course syllabus also describes in details the contents, teaching and learning methodology, time allocation for theory and practice, missions of learners, evaluation methods and ranking [Exh.1.11.Course syllabi].

1.4 The expected learning outcomes clearly reflect the requirements of the stakeholders

The curriculum and ELO were formulated based on benchmarking with curricula from other countries, from the standard curriculum issued by Ministry of Education and Training, opinions from experts, researchers, and requirements from employers.

The curriculum and ELO were constructed based on:

- Opinions from experts, teaching staff of CTU and AU [Exh.1.16.Survey from experts]
- Consultancy from aquaculture sector managers in all provinces of the Mekong Delta, from aquaculture production and services enterprises, and research institutes [Exh.1.17.Question form from stakeholders].

These are as specific as following:

- The Research Agencies require from the graduated students to have proficient specialized knowledge and skills, good English and skillful in making research proposal, conducting research and reporting [Exh.1.18.Results of survey/minutes from employer].

- The Management Agencies require the graduated students to have proficient specialized knowledge and skills, be able to analyze and solve problems in aquaculture, well mastering regulations and laws related to aquaculture production.

- The Aquaculture Enterprises wish to obtain graduated students that are proficient in specialized knowledge and skills, able to organize, operate and conduct business in aquaculture [Exh.1.19.Meeting minutes, workshop, and questionnaires from enterprises].

In order to assure the quality of the training, every year the Ministry of Education and Training implements a checking on teaching and learning activities of AAP to recommend and adjust the problems, weakness of the program. Since 2008, CAF has conducted a modification of the curriculum [Exh.1.20.Curriculum before and after adjustment], in which there is supplement of 12 credits of advance English. In addition, some other courses have been modified both structure and contents to fit well with conditions of Vietnam, especially of MD. The

modified courses include AQ207, AQ209, AQ302, AQ303, AQ305,…[Exh.1.21.Syllabi of courses before and after modification].

2. Program Specification

2.1. The university uses program specification (PS)

The program specification [Exh.2.1.Program specification] of AAP is available at the CAF website [Exh.2.2.CAF Website], leaflets [Exh.2.3.Leaflet on program introduction], and student's handbook [Exh.2.4.Student's handbook]. The PS provides information on name of the program, type of training, training duration, title of degree, program structure, language used, list of lecturers, facilities, enrollment requirements, expected learning outcomes and career potential.

CAF uses the program specification to develop teaching plan for each semester. Based on the teaching plan, the Department of Academic Affair uploads the list of study schedules for each student, teaching schedules for instructors, and arranges classrooms for teaching.

The program specification of the AAP is as following:

(1) Degree awarding Institution: Can Tho University

Training institution: College of Aquaculture and Fisheries

(2) Name of the specialization: Aquaculture

Name of the program: Advanced Aquaculture

Type of training: full time

Year of establishment: 2008

(3) Degree awarded: Bachelor of Engineering in Aquaculture (in Vietnamese by CTU) and Certificate of Engineering in Aquaculture (in English by Auburn University and CTU)

(4) Enrollment requirements:

Students who passed the entrance exams in Group A (Mathematics, Physics, and Chemistry), Group B (Mathematics, Biology, and Chemistry), and Group A1 (Mathematics, Literature, and English) of Can Tho University can apply to take an English test (TOEIC) for joining the AAP. The minimal score of English requirement can vary by year [Exh.2.5.Application announcement]. All announcements for the application form and process are available at the websites of CAF and CTU [Exh.2.2.CAF Website].

(5) Curriculum design

The curriculum was formulated based on the stipulated criteria for advanced programs issued by the Ministry of Education and Training (MOET) [Exh.2.6.Documents on advanced program of MOET], and on benchmarking with curriculum which have been applied in famous universities in the same field, including Auburn University (USA), Tasmania University (Australia), Hawaii University (USA) [Exh.2.7.Program specifications of three universities]. Partners contributed to the curriculum formulation included lecturers from CAF and relating

faculties/colleges, aquaculture sector managers and stakeholders (employers), and the feedback from alumni organization [Exh.2.8.Minute of meeting on program development; Exh.2.9.Feedbacks from alumni].

(6) Auditing and quality assurance:

The APP is annually assessed by the MOET [Exh.2.10.Minutes of annual meeting with MOET].

(7) Expected Learning Outcomes of the program are:

- ELO 1: Apply aquaculture knowledge to run and develop aquaculture production facilities
- ELO 2: Conduct proficiently techniques for running a hatchery or farm of economically valuable species
- ELO 3: Analyze and evaluate problems in aquaculture production to recommend solutions for quality improvement of aquaculture production
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- ELO 8: Exhibit life-long learning capacity and international integration in study and research.
- ELO 9: Apply knowledge on laws and current social – politic issues to undertake actions for protecting environment.

The program includes 150 credits, in which the Generic knowledge block contains 47 credits (31.3%), and the Specialized knowledge block comprises 103 credits including theory with 78 credits (52.0%), practice with 15 credits (10%), and graduation thesis 10 credits (6.7%). The duration for the whole program is 4.5 years including one semester for English enhancement (12 credits). Students are offered free for the enhanced English course that aimed to improve and enhance their English capability before taking all main courses. Although the total credits of the curriculum is 150 (including 12 credits of enhanced English) which has been followed the curriculum of Auburn University, in the modified curriculum, many courses, specially specialized courses, had been adjusted with more hours of practices to offer students more practical knowledge and skills [Exh.2.11.Modified syllabi]. In addition, seminars presented by professors from Auburn or other foreign universities and CTU are also regularly organized to provide and supplement related specialized knowledge and information for the students [Exh.2.12.Seminar schedules].

Table 2 . Course structure

Knowledge blocks		Credit	Percentage (%)
1. General knowledge		**47**	**31.3**
	Foreign language	12	8
	Natural Science	15	10
	Social Sciences	12	8
	Military and physical trainings	8	5.3
2. Professional knowledge		**103**	**68.7**
2.1. Aquaculture fundamental courses	Advanced English for aquaculture	12	8.0
	Social skills	2	1.3
	Aquaculture fundamental courses	35	22.3
2.2 Aquaculture specialized courses	Compulsory specialized courses	43	28.7
	Seminars	1	0.7
	Graduation thesis	10	6.7

Courses in the program were integrated and cohesively designed [Exh.2.13.Curriculum map]. Based on the linkage among courses, students know what stage of the program they are currently in, and propose their own study plan for the following semesters.

(8) Strategies for personnel development

- Improving man-power abilities together with upgrading materials and facilities served for teaching and learning.
- Enhancing international collaboration in fields of education and training by exchanging students and staff members.
- Improving teaching and learning in English, providing better opportunities for international integration.

(9) Strategies for teaching and evaluation

Teaching and evaluation strategies are documented in course syllabus [Exh.1.11.Course syllabi] available at CAF's website [Exh.2.14.Website for course syllabi].
Strategies for teaching and evaluation include:

- Active learning (student-oriented and problem-based approaches)
- Theory incorporates with practice
- The training agency closely collaborates with local organizations
- Training incorporates with research and technology transfer
- The teaching program is open and flexible, so that students have more opportunities to select subjects and time for their study.

Evaluation of Student learning

Results of students' learning are assessed during the period of each course via different forms including individual homework, group exercises, presentation, midterm/quizzes and final exams. Grading structure varies by courses; general grading ranges are as following:

- Individual homework, group exercises, and presentation: 20-30%
- Midterm exam: 20 -30%
- Final exam: at least 50%

The final grades are then converted into 4 maximal scale stand by Alphabet levels from A to F [Exh.2.15.Grading system], as following:

> 90% : 4 (A)
80 – 90% : 3.5 (B+)
70 – 79% : 3 (B)
65 – 69% : 2.5 (C+)
55 – 64% : 2 (C)
50 – 54% : 1.5 (D+)
40 – 49% : 1 (D)
< 40% : 0 (F)

The grading results of all courses in a semester are then reported in a student's academic record (transcript) released at the end of each semester by Department of Academic Affair. The transcript also indicates the cumulative grade point (CGP). Both CGP and GPA determine the status of learning capability of the students.

In addition, students' attitude, morality, and behavior are also evaluated via their participation in different extracurricular activities by the self-training development grading [Exh.2.16.Self-training grading].

(10) Strategies for research:

- Improving both education and development of technology for aquaculture.
- Enhancing applied research on artificial reproduction and culture technology of aquatic species.
- Developing basic and advanced specialized research in fields of biology, physiology, biochemistry, nutrition, etc., which provides the base for the development of applied research in aquaculture.
- Increasing research on other areas such as environment, aquatic resources, socio-economics, resource-economics, effects of climate change on aquatic animals, and sustainable development of aquaculture
- In addition to inland (freshwater and brackish water) aquaculture, research also focuses on marine culture and marine resources in order to develop marine economics and marine and coastal resource conservation in the Mekong Delta.

(11) Extracurricular activities supporting student learning and personally ethical development

To help students obtain better results in their study, CTU and CAF have organized different extracurricular activities to support them, as follow:

- Students can take part in practical sections, field trips to companies, farms, natural ecosystems, etc., in different subjects [Exh.2.17.List of courses with practice credits]. These activities help students reinforce their understanding of theories, experience real situations, realize potentials and challenges of the career in the future.
- Students in the AAP receive the financial support from the University for a Study Tour abroad in some South-East Asian countries such as Thailand [Exh.1.12.The decision to study tour in Thailand]. Students get a lot of benefits from this activity. They have opportunities to exchange study experiences and culture, and also become more confident and gain better skills of academic communication in English. These benefits in tern help students build up stronger motivations in their study to better integration.
- Students can also get funding for carrying out scientific research, attending international and national workshops at CTU. These activities help students become more interested in science, enhance group working skills and confidence [Exh.2.18.List of students doing research and presenting at workshops].
- CAF monthly organizes special seminars presented by experts, managers working outside the university, which provide update information on aquaculture practice or career skills [Exh.2.19.List of seminar and presentations by outside experts].
- Students are encouraged to express their opinions in different issues relating to their study and life in the annually orientation meeting with CAF at the beginning of the academic year. They are also free to send their feedback on materials, facilities, and teaching methods of each course at the end of each semester [Exh.2.20.Minutes of annual meeting, evaluation forms].
- In addition, students also participate in other social activities such as volunteer for activities of the entrance exam season, “green summer” campaign, blood contribution, visiting elderly and disable and poor kids.

(12) Facilities

Facilities for teaching at CAF include classrooms (21 equipped with LCD), a library (4,152 books in Vietnamese and 1,781 books in English), computer labs (2 labs with 81 computers connected with internet) laboratories/wet labs (49 labs with total areas of 1.716 m2) with modern equipment, which are used for research and teaching. In addition, a free WIFI system was set up for the campus (Campus II), which is useful and advantageous for teaching and learning. Moreover, facilities which are only used for the AAP include 2 classrooms equipped with air conditioners, one audiovisual room with 25 computer units for teaching/learning English, and one office for the program Manager Board, Consultants, and invited lecturers.

Students in the AAP are also supported with studying materials and references. They have also access to e-books and different literature resources via the Learning Resource Center.

(13) Graduation requirements, credit exchange and university transfer

Students who complete the program (within maximum 8 years, but normally, 4 and a half years) can get the approval of graduation [Exh.2.21.Academic regulation].

Students also have a right to pursue the second diploma in the same university. The application requires students finishing at least the first semester and a cumulative grade above 2.0/4 [Exh.2.21.Academic regulation].

After graduation, students have opportunities to study abroad in different countries. They can apply for a scholarship thanks to the recommendation of CAF faculty members or by their own contact with foreigner professors who they have contacted during previous workshop participation. With the advantage of learning in English, most of them are very good in English, and have therefore more chance to receive a scholarship.

2.2 The program specification shows the expected learning outcomes and how these can be achieved

There are nine learning outcomes *(See in Criterion 1)* that students of this program are expected to attain. The assessment of these learning goals and the role of the program in helping students attain these outcomes are presented below:

Learning outcomes 1: *Apply aquaculture knowledge to run and develop aquaculture production facilities*

- Assessment of student achievement of outcome 1

+ Successful completion of compulsory theoretical and practical courses on natural science (e.g. Physic, Chemistry, Biology), bioinformatics, and English. These core courses impart competency of students' analytical capabilities.
+ Successful completion of core courses (theory and practical) belong to basic and specialization of aquaculture such as ichthyology, physiology, ecology, nutrition, farming and hatchery techniques, fish health management, water quality management, …
+ Minimum acceptable grading level is C or 2.0 in a 4.0 scale.

- Roles of the program in helping students to achieve outcome 1

+ Completing these course requirements, including examinations, assignments, and projects in each course [Exh.1.11.Course syllabi].
+ Periodic review of student transcripts is done by Academic advisors who provide advice and feedback to the students so that appropriate action can be taken. A copy of student transcript is also sent to the Dean.
+ Teaching effectiveness of instructors is evaluated; if the effectiveness is below expectations, the Dean will work with instructors to improve.
+ Periodic review of assessment tools is implemented. A continuous feedback mechanism, such as an exit survey is established to ensure that program goals and processes in place to achieve them (i.e., those listed under each goal) are regularly reviewed and adjusted as needed.

Learning outcome 2, 3, 4, 5 and 6: *Conduct proficiently techniques for running a hatchery or farm of economically valuable species; Analyze and evaluate problems in aquaculture production to recommend solutions for quality improvement of aquaculture production; Compare culture technology and models between regions for improvement of aquaculture production in Vietnam; Design processes for organizing, managing and operating aquaculture activities such as hatchery, commercial farm, and service business; Manage fish health and culture environment for improvement of aquaculture production*

- Assessment of student achievement of outcome 2, 3, 4, 5 and 6

+ Successful completion of theoretical and practical courses on advanced specialization including Aquaculture production, Finfish hatchery operation and management, Shellfish aquaculture, Shellfish hatchery operation and management, Introduction to fish health and clinical fish disease diagnosis, Fish and shell fish diseases, Fish Genetic Enhancement and Resources Management, Fisheries Biology and Management, Facilities for Aquaculture, Live food production.

+ Successful completion of courses relating to economics and aquaculture management such as Principles of Economics, Aquaculture planning and management, Aquaculture economics, Fisheries laws.

+ Minimum acceptable grading level is C or 2.0 in a 4.0 scale.

- Roles of the program in helping students to achieve outcome 2, 3, 4, 5 and 6

+ Number of credits for practical sections of advanced specialization courses is designed enough (30%) for students acquired techniques and experience [Exh.1.11.Course syllabi]. Time periods for practical sections are set to fit with seasonal aquaculture production.
+ Students are required to complete all these course requirements including examinations, assignments, and seminars [Exh.1.11.Course syllabi].
+ Students received hands-on experience and face-to-face advice from lecturers and teaching assistants of the above mentioned courses.

Learning outcome 7 and 8: *Exhibit skills in communication for exchange, sharing and collaborating with different stakeholders in aquaculture development; Exhibit life-long learning capacity and international integration in study and research.*

- Assessment of student achievement of outcome 7 and 8

+ Successful completion of core courses on English (English bridging program, Advanced English), Agriculture extension, and elective seminar course. The completion of these courses includes:

- Completing examinations, assignments, and seminar presentation
- Minimum acceptable grading level is C or 2.0 in a 4.0 scale.

+ Students should know the standard structure and be able to communicate effectively in the written and oral formats of research articles, research report for different clients.
+ Evaluation and timely feedback from instructors of the courses which written requirements is compulsory (such written requirements help synthesize topics instructed in the class)

+ Evaluation and feedback of the instructors on the writing and oral presentation skills of their thesis.
+ Successful completion of thesis defenses.
Successful completion on all fundamental and specialized courses in aquaculture.
+ Successful completion on courses on Statistics and experimental design and Scientific Research Methodology
+ Successful completion on undergraduate thesis which accomplished by utilizing their knowledge and research capacity throughout the study process. A successful completion includes:
(1) Public defense (oral presentation) of thesis. The defense is assessed by a committee including the student's supervisor and two other staff members. English is the only language used during the defense.
(2) The thesis is also critically judged by the committee [Exh.2.22.Defense minute, and judgment comments]
(3) Student's presentations (oral/poster) at the national or international conferences [Exh.2.18.List of students doing research and presenting at workshops]
+ Completing self-research projects and publishing papers on peer-reviewed journals [Exh.2.23.Self-research by students and awards]
+ Admitted for graduate program study in international or local universities [Exh.2.24.List of Students studying abroad]

- Roles of the program in helping students to achieve outcome 7 and 8

+ Offering several field trips to different aquaculture hatcheries/farms/companies within compulsory courses.
+ Offering a one-week study tour abroad (1 credit) to South-East Asian countries (e.g., Thailand), where students exchange their research and culture with host-country students [Exh.2.19.The decision to study tour in Thailand].
+ Organizing weekly seminars on different topics in aquaculture and related areas, presented by CAF staff members [Exh.2.25.List of seminars by CAF staffs]
+ Inviting experts from companies and other organizations to share their experience and soft skills [Exh.2.19.List of seminar and presentations by outside experts].
+ Inviting foreigner experts when they are working at CAF to give seminars [Exh.2.26.List and presentation documents of foreign professors at teaching time].
+ Encouraging students to attend all seminars [Exh.2.27.Periodic announcements on website].
+ Sharing examples of students who have awarded regional and national prizes for their research achievement during the study period [Exh.2.28.Awarded certificates of students].
+ Instructing students to write scientific research abstracts and other writing formats in written assignments during the courses.
+ Encouraging and facilitating students to present their research or give training to other students (both in-class and outside the classroom). Instructors will then provide feedback on their presentation skills.

+ Providing early research orientations such as research methodology and opportunities for participating in research activities to the students. For instance, students are introduced op-

portunities to do research with CAF staff members or applying research grants from the university [Exh.2.29.Student research activity].
+ Regularly reviewing and assessing the study and research progress of the students on their research interest, and providing timely feedback so that appropriate action can be adjusted.
+ Regular interaction and discussion are made between students and their academic advisor and research committee members in choosing research topics as well as completing their thesis.

Learning outcome 9: *Apply knowledge on laws and current social – politic issues to undertake actions for protecting environment.*

- Assessment of student achievement of outcome 9

+ Successful completion of law and politic courses (i.e., Military training, Fisheries Laws), Physical training (e.g., swimming), and Fisheries Biology and Management.
+ Minimum acceptable grading level is C or 2.0 in a 4.0 scale.

- Roles of the program in helping students to achieve outcome 9

+ Students are required to complete course requirements including examinations, assignments, and seminar presentation [Exh.1.11.Course syllabi].

2.3. The program specification is informative, communicated, and made available to the stakeholders

The program specification is available at CAF website and linked to CTU website [Exh.1.6.CTU Website] and in the student handbook which is distributed to the new students during the Orientation meeting.

When students have officially been selected for the AAP, an orientation meeting is organized at CAF where CAF leaders meet and introduce them the program specification, learning approach guidelines, as well as answer all their concerned questions. The program specification provides enough detailed information so that students can choose their interested field, knowledge and skills that they need to obtain, and also opportunities for future career and further study.

The program specification is also provided to instructors to help them create a linkage between knowledge of their courses to that of other courses during lecturing to consolidate and improve knowledge for students.

Employers can access easily to the CAF or CTU website to see the program specification. Based on available information, they can predict capacity and working abilities of students in the AAP [Exh.2.30.Feedback from employers on program specification consultance].

International partners can learn about the program via CAF and CTU website [Exh.1.6.CTU Website] in English, or via official meetings with CAF and CTU leaders. Experts and professors from international universities, those interested in the AAP are invited to give lectures or seminars.

The program specification is annually updated based on feedbacks from employers, former and current students, lecturers [Exh.2.30.Feedback from employers on program specification consultance; Exh.2.31.Feedback from students; Exh.2.32.Feedback from lecturers] and CTU training plan [Exh.2.33.CTU training plan]. It is also adjusted based on the meetings at the beginning of the academic year between students and CAF leaders, lecturers, and academic advisors. Results of training and research from previous year and those planned for the coming year are also discussed in the meeting.

As a result of the above mentioned process, and based on the requests of students and the capacity of CAF lecturers, the current program has been improved from the one at the establishment. Twelve credits of English have been added to the program, in which, 6 credits are taught by CAF teachers, helping students expose earlier to specialized terms in English. In addition, several courses that require region-specific information (i.e. AQ207, AQ209, AQ302, AQ303, AQ305) have also been instructed by CAF teachers (instead of foreigner lecturers as the beginning of the program) [Exh.1.20.Curriculum before and after adjustment]. The improvement of the program is also based on the annual assessment by MOET [Exh.2.11.Minutes of meetings with MOET].

3. Program Structure and Content (PSC)

3.1. The program content shows a good balance between generic and specialized skills and knowledge

PSC was designed based on the framework of MOET and the programs of three well-known universities including Auburn University (USA), Hawaii University (USA), and Tasmania University (Australia) [Exh.2.8.Program specifications of three universities]. In addition, PSC also complied with requirements of credit-based education system [Exh.3.1.Decision 1411/DHCT-DT].

The division of knowledge in the program is balanced and effective. The program consists of 58 courses with 150 credits in total and divided into two blocks including General knowledge (47 credits in the first 2 semesters) and Professional knowledge block (103 credits including 10 credits of graduation thesis in the rest 7 semesters) [Exh.1.14.Curriculum]. Knowledge is arranged from low to high levels (Figure 3). The arrangement of courses in each semester is considered to be suitable and effective [Exh.2.30.Feedback from employers on program specification consultance; Exh.2.31.Feedback from students; Exh.2.32.Feedback from lecturers].

The general knowledge block (47 credits) provides basis of natural sciences (Mathematics, biology, and chemistry), social science and basic English. In addition, students are also trained on military training (conditional course for all students), and some sports including swimming, a necessary skill for aquaculture students [Exh.1.7.Decision 43/2007/QĐ-BGDĐT].

The professional knowledge (103 credits) consists of fundamental aquaculture (49 credits), specialized aquaculture (44 credits), and graduation thesis (10 credits). In fundamental courses, students learn about biological statistics, research methodology, and basic aquaculture courses such as Principles of Aquaculture, Microbiology, Introduction to fish science, Water

science, General ichthyology, Limnology, Principles of ecology, Aquatic animal physiology, and nutrition. Especially, in this stage (second year), students are continuously trained in English for aquaculture. As a result, they accumulate more specialized glossaries and basic knowledge in aquaculture, which is helpful when they learn specialized courses in English [Exh.3.2.Feedback on teaching English for Aquaculture from students]. The specialized aquaculture courses provide knowledge on culture techniques, hatchery techniques and management, aquatic resource management, and supporting courses such as disease management, live food production. In addition, students also learn about laws in fisheries, agriculture extension. At the last semester (9th semester), students carry out their thesis research based on the knowledge they have gained during the previous years [Exh.2.21.Academic regulation; Exh.1.7.Decision 43/2007/QĐ-BGDĐT].

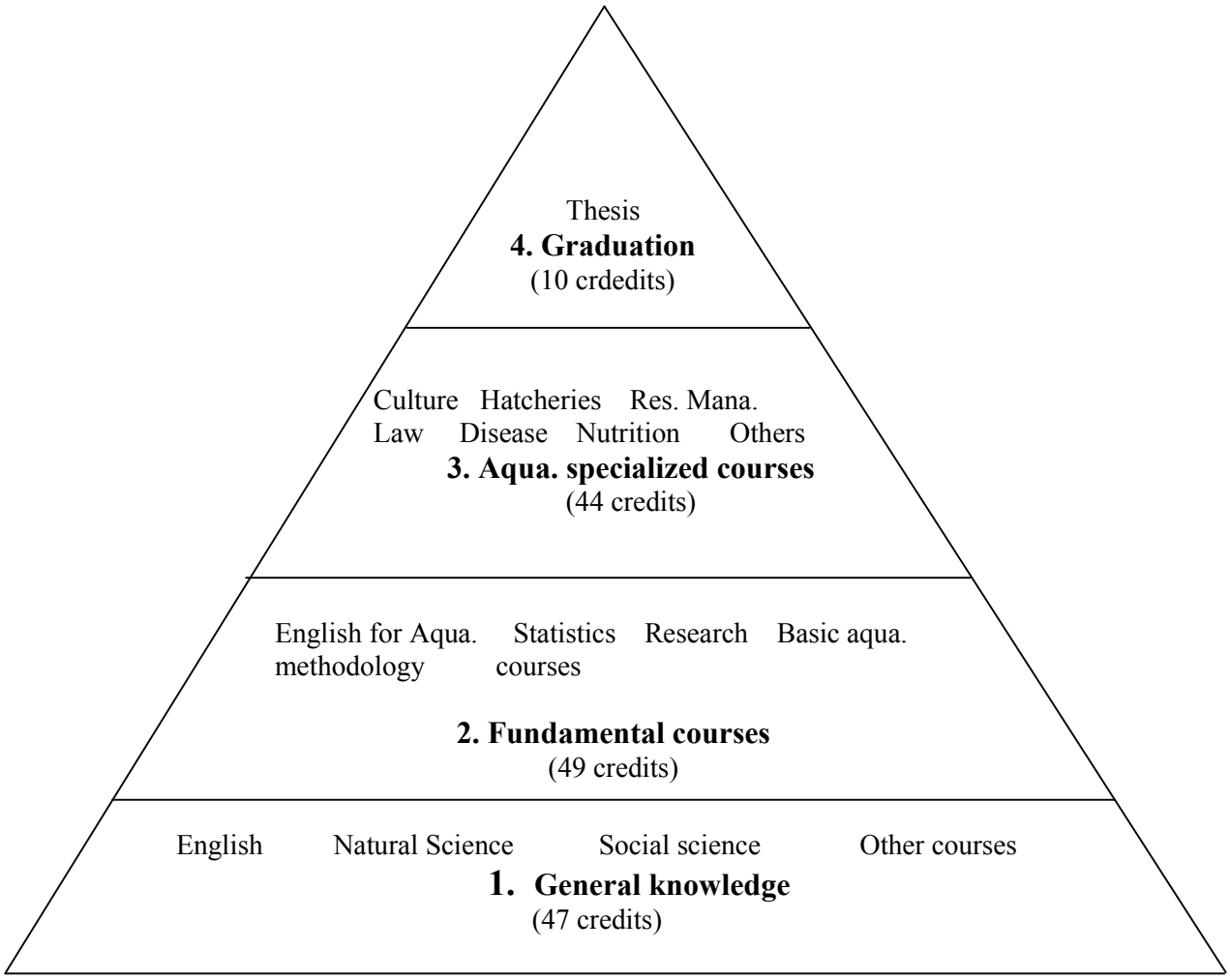

Figure 4: Diagram of program knowledge

3.2. The program reflects the vision and mission of university

Can Tho University has the mission to operates its resources to be the leading national institution for education, research and technology transfer making significant contributions to the development of high quality human resources, fostering the talents and the advancement of science and technology to cater for the regional and national socio-economic development.

CTU is the crucial driving force for the development of the Mekong Delta region [Exh.3.3.Mission and vision of Can Tho University].

The program aims to train students advanced knowledge in aquaculture, being professional in career and skillful in research, and good attitude and morality. Therefore, the purposes of the program completely meet the mission and vision of the university [Exh.2.1.Program specification; Exh.1.6.CTU Website].

The program content is originally formulated based on that of Auburn which is internally reviewed the university every 10 years [Exh.3.4.Minutes of program review from AU]. All courses are instructed in English by foreign lecturers (coming mainly from USA, and some of them from Denmark, Thailand, Australia,….) and CTU lecturers who are highly experienced and qualified in professional fields and teaching.

3.3. The contribution made by each course to achieving the learning outcomes is clear

The contribution by each course to the expected learning outcomes is illustrated in Table 3.

Table 3: The contribution by each course to expected learning outcomes (LO) (S: Strong support: M: Moderate; W: Weak support; Blank-Not relevant)

No	Code	Course	# Credits	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9
1	QP001	Military training	6							S		
2	TC000	Physical fitness training	1							S		M
3	TC013	Physical fitness training (swimming)	1							S		M
4	AQ100	English bridging program	12	S	M	W	M	M	S	M	M	
5	TN051	Fundamental of chemistry I – inorganic	2	S	M	W	W	W	W	W	M	
6	TN052	Fundamental of chemistry Lab I – inorganic	1	S	M	W	W	W	W	W	M	
7	TN053	Fundamental of chemistry II – organic	2	S	M	W	W	W	W	W	M	
8	TN054	Fundamental of chemistry Lab II – organic	1	S	M	W	W	W	W	W	M	
9	TN055	Analytical chemistry	2	S	M	W	W	W	W	W	M	
10	TN056	Analytical chemistry Lab	1	S	M	W	W	W	W	W	M	
11	TN057	Principles of biology	2	S	M	W	W	W	W	W	M	
12	TN058	Principles of biology Lab	1	S	M	W	W	W	W	W	M	
13	TN059	Calculus	3	S	M	W	W	W	W	W	M	

No	Code	Course	# Credits	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9
14	ML009	Basic Principles of Marxism – Leninism 1	2						M	S		S
15	ML010	Basic Principles of Marxism – Leninism 2	3						M	S		S
16	ML006	Ho Chi Minh's thought	2						M	S		S
17	ML011	Revolution line of Vietnam Communist Party	3						M	S		S
18	KT101	Principles of Economics	2	W	W	W	W	S	W	W	M	M
19	AQ201	Advanced English I	3	S	M	W	M	M	S	W	S	
20	AQ202	Advanced English II	3	S	M	W	M	M	S	W	S	
21	AQ203	English for Aquaculture I	3	S	M	M	M	M	S	W	S	
22	AQ204	English for Aquaculture II	3	S	M	M	M	M	S	W	S	
23	AQ205	Microbiology	3		S	M	M	M	M	W	M	
24	AQ206	Introduction to fish science	3		S	M	M	M	M	W	M	
25	AQ207	Water science	3		S	M	M	M	M	M	M	
26	AQ208C	General ichthyology	4		S	M	M	M	M	M	M	
27	AQ209C	Limnology	4		S	M	M	M	M	M	M	
28	AQ210	Principles of ecology	2		S	M	M	M	M	M	M	S
29	AQ211C	Aquatic animal physiology	4		S	M	M	M	M	W	M	
30	AQ212C	Aquatic Animal nutrition	4		S	M	M	M	M	W	M	
31	AQ213	Principles of Aquaculture	3		S	M	M	M	M	W	M	
32	AQ214	Statistics and experimental design	3		S	M	M	M	M	W	S	
33	AQ215	Public Speaking	2		W	W	W	W	W	S	M	
34	AQ216	Scientific Research Methodology	2		S	M	M	M	M	W	S	
35	AQ301	Aquaculture production	4		M	S	S	M	M	W	M	
36	AQ302	Finfish hatchery operation and management	4		M	S	S	M	M	W	M	
37	AQ303	Shellfish aquaculture	4		M	S	S	M	M	W	M	

No	Code	Course	# Credits	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9
	C											
38	AQ304	Shell hatchery operation and management	4		M	S	S	M	M	W	M	
39	AQ305	Introduction to fish health and clinical fish disease diagnosis	3		S	M	S	M	M	W	M	
40	AQ306	Fish and shell fish diseases	4		S	M	S	M	M	W	M	
41	AQ307	Fish Genetic Enhancement and Resources Management	3		S	M	S	M	M	W	M	
42	AQ308	Fisheries Biology and Management	3		S	M	S	M	M	S	M	
43	AQ309	Facilities for Aquaculture	3		S	S	S	M	M	W	M	
44	AQ310	Live food production	2		S	S	S	M	M	W	M	
45	AQ311	Aquaculture planning and management	2		M	W	S	S	M	M	M	
46	AQ312C	Aquaculture economics	3		W	W	S	S	W	W	M	M
47	AQ313	Fisheries law	2		W	W	S	S	M	S	W	S
48	AQ314	Agriculture extension	2		W	W	W	W	S	M	W	M
49	AQ315	Seminar/special topics	1		W	W	W	W	S	M	S	S
50	AQ401	Graduation thesis	10		S	S	S	S	S	S	S	

3.4. The program is coherent and all subjects and courses have been integrated

All courses are designed to be integrated and coherent. The prerequisite courses are required to provide enough necessary knowledge for advanced courses [Exh.2.1.Program specification]. The program has elective courses. However, all students in the same cohort take the same elective courses because of the uniqueness of the advanced program (inviting foreign teachers, teaching in English and only one class). Course selection differs among students in choosing seminar and thesis topics [Exh.3.5.List of students' theses].

3.5. The program shows breadth and depth

The design and construction of the program focused on both breadth (including all areas relating to aquaculture) and depth of knowledge (consecutive courses are more specialized and synthesized from preceding courses [Exh.2.1.Program specification; Exh.1.11.Course Syllabi]. The systematic design of the program aimed to prepare for students to be able to work at different areas in commercial practice as well as in academic institutions. Moreover, the

wide and specialized program ensures to provide strong background for students for further study at national and international universities.

Difficulty levels of courses are arranged in the gradual increase basis, indicated by the arrangement of knowledge from generic to aquaculture basis, and aquaculture specialization. The increase of difficulty is also seen within each knowledge block where consecutive courses are more specialized and synthesized from preceding courses [Exh.2.1.Program specification; Exh.1.15.Skill matrix].

3.6. The program clearly shows the basic courses, intermediate courses, specialized courses and the final project, thesis or dissertation

Figure 3 and Table 4 indicate clearly basic courses, aquaculture fundamental courses, aquaculture specialized courses, and thesis.

The arrangement of courses within and between semesters is appropriate and integrated. This design helps students obtain knowledge systematically and on the increase of difficulty [Exh.2.1.Program specification; Exh.3.6.Regulation on course registration, on graduation thesis registration].

3.7. The program content is up-to-date

The program structure and contents are basically met the US standards for Aquaculture programs. However, some of the courses (which have been taken over by CTU lecturers from AU) such as AQ207, AQ209, AQ302, AQ303, AQ305 having modified or updated to meet the practical criteria of Vietnamese, especially Mekong Delta conditions [Exh.2.11.Modified Syllabi].

The program is required to be updated after 2 years based on the practical situations reflected by stakeholders and based on the results of annually review of the program by MOET [Exh.2.10.Minutes of annual meeting with MOET].

4. Teaching and Learning Strategy

CAF, Can Tho University has applied an appropriate teaching and learning strategy in order that students can absorb and apply the knowledge gained in school. Besides, students can have their own directions in studying for better results based on the vision of CTU and CAF.

4.1. The college has a clear teaching and learning strategy

Main contents of teaching and learning strategy are credit-based education, active learning such as student-oriented and problem-based approaches, theory incorporated with practice, close collaboration between the university and local organizations to meet the locals' demands, incorporating training with research and technology transfer, open and flexible teaching programs in order to provide more opportunities for students to select subjects and time for their study. Improvement of staff members' knowledge and capacity is focused along with upgrading equipment and facilities for teaching and learning. In addition, international collaboration in training, teaching, and learning is developed, including inviting foreigner lecturers, increasing student exchange activities, etc.

The AAP has been developed, creating opportunity for the college and university to catch up regional standards and international integration.

- In teaching and learning, teachers apply new teaching strategy and approaches; meanwhile, students actively participate in and interact with teachers. Applications of new teaching strategy in teaching and learning are exhibited in building and upgrading program curriculum (knowledge block structure including generic and specialized knowledge, structure of theory and practice at the college and field trips, conducting thesis research, …); in preparing detailed syllabi, and in active and attractive didactics (applying informatics, media, internet into teaching, field trip guidance, practice guidance, group exercises, problem-based homework, seminar, individual homework); in providing rich learning materials at the college library and website; and in the complete evaluation of students by teachers.

- Staff members and students are informed about the guidelines and regulations of the Government and ministries by different ways via website, seminars/workshops, training, etc. [Exh.4.1.Circular 09/2009/TT-BGDĐT; Exh.2.12.Seminar schedules].

- Teaching and learning strategy is mentioned in documents of the vision and mission of the university to the year 2022 [Exh.3.3.Vision and mission of CTU]; CAF annual reports and development plans for the coming years [Exh.4.2.CAF annual reports and plans]; and in meetings of CAF Committee [Exh.4.3.Minutes of meeting].

4.2. The teaching and learning strategy enables students to acquire and use knowledge academically

Students know and understand the teaching and learning strategy via annually orientation meetings with CAF at the beginning of the academic year [Exh.4.4.Contents and plans of the orientation meeting], and thanks to the advices from the Academic advisors. Therefore, they can acquire the strategy and apply it well in their learning.

During the theory sessions in classrooms, students actively interact with lecturers, actively solve problems proposed by lectures, and participate in all lectures. In addition to knowledge acquired from lecturers, students also enlarge their knowledge by self-study via referenced books and articles, electronic materials in internet and CAF website [Exh.4.5.Learning Resources Center website].

In practical sessions and field trips, students are active, hard-working, collaborative and discipline. Results of these practical sessions and field trips are then reported scientifically, adequately and professionally, proving that students are confident and well acquire knowledge and experience [Exh.4.6.Field trip reports from students; Exh.4.7.Confirmation from receiving agencies].

During the program, thanks to enthusiastic organization and supervision of CAF leaders and lecturers, the students participated actively in scientific research as well as national and international conferences [Exh.4.8.IFS 2012 student attendance list; Exh.4.9.IFS 2013 student attendance list], and obtained significant achievements. A prominent example is that Tran Thi Lam Khoa, a student of the second batch of AAP together with her team has been awarded the Second prize in 2013 for the title excellent science research student by Ministry of Educa-

tion and Training [Exh.4.10.Full paper; Exh.2.28.Awarded Certificate of students]. Moreover, students are also encouraged to actively write and publish scientific papers on peer-review national journals [Exh.4.11.Full papers].

Results of application of teaching and learning strategy in the training program are fully indicated through student thesis research, thesis defense, job employment (see Criteria 13) or continuing further study, Master degree, after graduation (see Criteria 14). Wide and deep knowledge and English proficiency are important foundations for students of AAP to do research, to read and formulate literature review, and discuss their research results. Students can write and defend confidently their thesis in English [Exh.4.12.List of theses and some specimens]. The students used proficiently information technology to accomplish their homework, seminars, presentations at scientific conferences or thesis defense and really manifested their confidence and skillfulness to the judge committee. The results of applying teaching and learning strategy are also shown by the capability of students in actively seeking for job, or scholarships for MSc study in Vietnam or abroad [Exh.2.24.List of students studying abroad].

4.3. The teaching and learning strategy is student oriented and stimulates quality learning

Student-oriented strategy of teaching and learning has stimulated students to learn more actively, dynamically with high quality.

- Changing from traditional teaching methods to active teaching methods (brainstorming, problem-based exercises, home references reading, quizzes, etc.) makes student become more dynamic and active interaction with lecturers and with other classmates.

Figure 5: Group study and discussion

- In addition to theoretical lectures, many courses were designed to increase more time/learning hours for practice, field trips (at companies, hatcheries, fish/shrimp farms, natural ecosystems, etc.), which helps students engage in science, learn more about nature and status of aquaculture production, consolidate the theory, and understand the situation, potential, opportunities, and challenges of their specialization.

Figure 6: Students on the field trips

- CAF has focused on providing opportunities and activities for students to do research and participate in national and international conferences. These help students engage in doing science, increase collaborative skills and train their confidence.

Figure 7: Lab and field training

- The enhancement in international collaborations in teaching and learning activities (e.g. inviting foreign lecturers, student exchanges, visits of AAP students to foreign universities) considered very useful and stimulates the learning motivation of the students. This also broadens their mind on specialization, knowledge and skills at national and international scales to get close relationship and more opportunities. Contacts are usually made between foreign experts or professors with the students through international conferences and as the results some students achieved scholarships for study abroad.

Figure 8: Foreign students joining with AAP students

Facilities supporting students' learning such as e-books and different literature resources via the Learning Resource Center, CAF websites, computer rooms, WIFI system, etc., also help increase learning quality of students.

4.4. The teaching and learning strategy stimulates action learning and facilitates learning to learn

Teachers not only instruct students' knowledge but also train them how to learn by themselves as indicated in the following:

(i) Students know how to develop their study plan based on their ability. At the beginning of each semester, all students establish their study plan with appropriate number of courses and credits. The Academic advisor reviews the study plan, discuss with each student to adjust their plan to obtain success in study.

(ii) Teachers show students how to search original and reliable literatures. All students can actively look for information from CAF website and other internet sources for their references and study.

(iii) With guidance from practical training and teaching assistants, students know how to improve their knowledge and creative skills via learning by doing, field trips, and research methodologies.

(iv) Through CAF introduction and encouragement, students make use of communication opportunities when taking part in national and international conferences.

Figure 9: Presentations of students at international workshop

5. Students Assessment

5.1 Student assessment covers student entrance, student progress and exit tests

CTU and CAF regularly evaluate students based on the Decision No 43/2007/MOET [Exh.1.7.Decision 43/2007/QĐ-BGDĐT] and the Academic Regulation Manual of CTU [Exh.2.21.Academic regulation]. The evaluation is implemented at different stages of the training process including the entrance, learning progress and at graduation:

(1) Entrance enrollment: the students after passing the university entrance examination are selected to study the AAP based on the results of English proficiency test [Exh.5.1.Announcement of student enrollment].

(2) Learning progress: evaluation is implemented via assignments, mid-term and final exams under strict supervision of lecturers, CAF and CTU [Exh.5.2.Regulations on assessing learning results of students].

(3) Final graduation: At the last semester, students conduct a graduation thesis which fit to their specialization for 10 credits. The thesis is evaluated and corrected with comments and recommendations by the Evaluation Committee for completion. Students must defend their graduation thesis in front of the Evaluation Committee with three members including their supervisors [Exh.5.3.Regulation on thesis defense].

5.2 The assessment is criterion-referenced.

During the training process, all courses are examined and evaluated based on the criteria specified in the course outline/syllabi [Exh.1.11.Course syllabi]. Evaluation results are ranked on a grading scale of A, B^+ , B, C^+, C, D^+, D and F (Table 4) [Exh.2.21.Academic regulation].

Table 4. Classification of learning results based on grading scale

Category	Reference 10-point scale	4-point scale (Official)	
		Value	Grade
Excellent	From 8.5 to 10.0	4.0	A

Very Good	From 8.0 to below 8.5	3.5	B+
Good	From 7.0 to below 8.0	3.0	B
Average	From 6.5 to below 7.0	2.5	C+
Fair	From 5.5 to below 6.5	2.0	C
Poor	From 5.0 to below 5.5	1.5	D+
Very poor	From 4.0 to below 5.0	1.0	D
Fail	Below 4.0	0.0	F

Corresponding to the different levels of evaluation, students are classified as following (Table 5).

Table 5. Classification of students according to the grading scale

Grade	Demonstrations
4.0	Completely understand knowledge from the courses. All requirements of courses are well implemented.
3.5	Basically understand knowledge from the courses. All requirements are implemented.
3.0	
2.5	Partially understand knowledge from the courses. Most of requirements of courses are implemented.
2.0	
1.5	Very little knowledge from the courses. Many requirements of courses are not implemented.
1.0	
0.0	Not obtain knowledge from the courses.

5.3 Student assessment uses a variety of methods

Lecturers are applying many evaluation forms through self-evaluation, peer-evaluation and lecturer-evaluation, based on:

- Mid-term exams: Group assignments, seminar, …

- Final exam: Written exam, multiple choice test, oral, thesis, ... [Exh.5.4.The exam questions]

Lectures use different evaluation methods for different purposes to help students completing their skills from each course on attendance, group assignment (team working skills), cognitive abilities through group discussion, seminar (social knowledge, presentation skills),

mid-term test, final exam (for completion of course knowledge…). CAF implements multiple methods for course evaluation (especially courses in the specialized knowledge block) to assess knowledge, skills as well as capabilities that students obtained.

Typically, a course is evaluated via four basic activities including class attendance, practical work participation, seminar participation and final exam. At the end of the program, students will conduct a graduation thesis. Through the thesis implementation process students become more active in doing research. Students select thesis topics and supervisors by themselves and then register for doing thesis at the involved Departments. Students proactively implement their thesis under guidance of their supervisors. [Exh.5.5.Plan for implementing of thesis].

5.4 Student assessment reflects the expected learning outcomes and the content of the program

The assessment is done to ensure students achieve the minimum knowledge of curriculum as general education knowledge, fundamental knowledge and specialized knowledge to afford students work after graduation. For each course of the program, there are appropriate assessment methods. For example, midterm and a final exam questions are compiled in order to ensure that students master the basic principles of course, and case-study questions help students solve practical problems through theoretical part in class [Exh.5.4.The exam questions].

5.5 The criteria for assessment are explicit and well-known

Student assessment is one of the most important factors in higher education. The assessment results will significantly affect the career of the students. Therefore, the assessment of students must be performed accurately and reflect the true capacity of student. The assessment criteria are publicized on websites, Teachers Handbook [Exh.5.6.Teachers Handbook], documents on Students Assistance, and some criteria defined in:

At the first lecture of each course, lecturers introduce to the students the detailed syllabus of the course, evaluation forms and the grading rates. Objectives of the course are also mentioned. Evaluation iss based on different components including practical work, field trips, seminars, attendance,... (for evaluation on learning progresss at different stages) and the final test (for the whole learning program). The grading rates for different components vary depending on courses, usually at a rate of 20-40% for practical work in lab, 20-40% for midterm exam and 35-60% final exam [Exh.1.11.Course syllabi].

5.6 The assessment methods cover the objectives of the curriculum

Exam questions are designed with the aim to evaluate whether students can obtain expected learning outcomes. The questions cover basic knowledge of the curriculum such as general knowledge, fundamental and specialized knowledge of aquaculture that can afford student to be able work after graduation. Each course of the training program has an appropriate evaluation form and method [Exh.1.11.Course syllabi].

5.7 The standards applied in the assessment are explicit and consistent

The criteria that applied in evaluation plans is transparent and consistent during the whole training program. All information about training in general, evaluation in particular are public and transparent [Exh.1.7.Decision 43/2007/QĐ-BGDĐT].

The University often applies procedures to ensure to the maximum extent that evaluation plans are valid, reliable, and fairly implemented. The evaluation is conducted with a legal procedure [Exh.5.7.Guidelines of the CTU] and monitored by the management system [Exh.5.10.Management system software, feedback from teachers, students, staff ,…]

Under regulation of CTU, after evaluating each course, lecturers publicize the exam scores and return the examination sheets to the students. Students have the right to send their complaints to the lecturers or even to the university when necessary about the results [Exh.2.21.Academic regulation]. Also under the academic regulation, students who have completed 138 credits, including compulsory credits and elective credits will be automatically notified by the computer system as eligible for graduation. A committee for checking and approving graduation is established including members of the Dean Board, Department leaders, academic advisors and academic training assistant. The committee is responsible for checking students whether they have been in tract of the training program and completing tasks as stipulated by the University. Eligible students are granted graduation certificate and decision [Exh.5.11.Report of graduation judge; Exh.5.12.List of graduation student; Exh.5.13.Graduation student decision].

Evaluation methods (exam, quiz, presentation, seminar, projects, ...) are designed by lecturers as follows:

1) Lecturers base the assessment on the expected learning outcomes of the course to design the evaluation criteria [Exh.1.15.Course syllabi].

2) Lecturers design exam questions, tests, ... with the aim to evaluate the outputs of students from the course evaluation criteria [Exh.5.14.Some samples of Midterm and Final tests].

3) For generic courses, examinations are held at the same time for all students to ensure fairness.

4) For specialized courses, the exams are organized by the lectures themselves. All the evaluation criteria have been clearly communicated to students at the first lecture, and via student's handbook and website.

5) After the exam, exam questions and answers are published on the website and in hard copy placed at the Library of CAF for reference and comparison [Exh.5.15.Code of the exam materials in Library].

The results of course evaluation are notified to the students, as reliable and legal, and recorded in the transcript for each course, semester and whole program [Exh.5.16.Students transcript of the semester].

6. Academic Staff Quality

Teaching staff of the AAP are qualified with PhD degree. Most of the teaching staff have been trained in high quality international universities. They are experienced in teaching and scientific research, and proficient in English [Exh.6.1.CV and degrees].

6.1. The staff are competent for their tasks

The first phase of the program was from 2008 to 2015. In this period, CAF had a strategy to enhance teaching capacity of teaching staff by exchanging teaching experiences and didactics with lecturers in Auburn University. Two activities therefore have been conducted:

i) Teaching staff who involve in teaching in AAP participate in a two months training at Auburn University where they learn and exchange teaching experiences and didactics from the courses they are responsible for. After finishing the training, they are provided a certificate from AU [Exh.6.2.Certificate on training at Auburn University, USA].

ii) At least in the first three batches of AAP, teaching staff of CAF are assigned as teaching assistant for visiting lecturers from the foreign counterparts for a relevant course. This activity not only provides the students opportunities to learn from much experienced foreign lecturers, but also facilitates CAF teaching staff to improve teaching competencies to meet the standards of the AAP.

Invited foreign lecturers should meet the requirements of AAP as highly qualified, experienced, enthusiastic and flexible in teaching. These lecturers are in charge of similar courses in partner university and be recommended by the partner university bureau.

The proportion of credits in the curriculum instructed by Auburn University staff is 42%, and 43% by visiting lecturers from other universities such as Asian Institute Technology (Thailand), Ghent University (Belgium), Arhus University (Denmark). The rest, 15% is instructed by CTU staff [Exh.6.3.Invitation letters; Exh.6.4.List of lecturers giving courses; Exh.6.5.Course schedules; Exh.6.6.Assessment report from MOET].

6.2. The staff are sufficient to deliver the curriculum adequately

CAF has a permanent team of teaching staff to take over all specialized courses of the AAP. Presently, there are 22 lecturers participating in teaching and assisting teaching (Table 6). These teaching staff are all qualified with PhD degree and graduated mostly from prestige universities in the world. In addition, CAF has also an assistant teaching team who are young and enthusiastic to assist in AAP (Table 11).

Table 6. List of permanent teaching staffs of CAF, CTU participating in AAP:

No.	Names	Specialized fields	Year of graduation	Training country
1	Prof. Nguyen Thanh Phuong	Aquaculture	1998	France
2	AProf. Nguyen Anh Tuan	Aquaculture	2001	USA
3	AProf. Truong Quoc Phu	Aquaculture	2001	Viet Nam
4	AProf. Nguyen Van Hoa	Aquaculture	2002	Belgium
5	AProf. Duong Nhut Long	Aquaculture	2002	Belgium
6	AProf. Vu Ngoc Ut	Applied Marine Biology	2003	UK
7	AProf. Tran Thi Thanh Hien	Aquaculture	2004	Viet Nam
8	AProf. Tran Ngoc Hai	Coastal management	2005	Thailand
9	AProf. Ngo Thi Thu Thao	Marine Biology	2005	Korea
10	AProf. Do Thi Thanh Huong	Aquaculture	2006	Japan
11	AProf. Dang Thi Hoang Oanh	Aquatic pathology	2006	Australia

12	AProf. Tran Dac Dinh	Aquatic resourses	2008	Malaysia
13	AProf. Tu Thanh Dung	Aquatic pathology	2011	Belgium
14	Dr. Lam My Lan	Aquaculture	2006	Belgium
15	Dr. Bui Minh Tam	Aquaculture	2007	Malaysia
16	Dr. Pham Minh Duc	Aquatic pathology	2009	Japan
17	Dr. Truong Hoang Minh	Coastal management	2009	Thailand
18	Dr. Ha Phuoc Hung	Aquaculture	2009	Thailand
19	Dr. Pham Thanh Liem	Aquaculture	2009	Malaysia
20	Dr. Nguyen Thi Ngoc Anh	Aquaculture	2009	Belgium
21	Dr. Duong Thuy Yen	Aquaculture	2010	USA
22	Dr. Vo Nam Son	Coastal management	2011	Thailand
23	Dr. Tran Thi Tuyet Hoa	Aquatic pathology	2012	Netherlands
24	Dr. Tran Van Viet	Aquaculture	2012	Japan
25	Dr. Bui Thi Bich Hang	Aquatic pathology	2013	Belgium

Importantly, CAF has invited 20 lecturers from the partner university, Auburn University and other universities such as Asian Institute Technology (Thailand), Ghent University (Belgium), Nagasaki University (Japan) and Arhus University (Denmark) to give different courses for AAP (Table 7).

Table 7. List of visiting lecturers from Auburn University and other universities participating in teaching at CAF.

No.	Names	Course instructing	University	Country
1	Prof. Claude Boyd	Water science	Auburn	USA
2	Prof. Atsushi Ishimatsu	General ichthyology	Nagasaki	Japan
3	Prof. Ronald Phelps	Finfish hatchery	Auburn	USA
4	Prof. Rex Dunham	Fish Genetic	Auburn	USA
5	Prof. Don Jackson	Fisheries Biology	Mississippi	USA
6	Prof. Curtis Jolly	Aquaculture economic	Auburn	USA
7	Prof. Kishio Hatai	Fish diseases	NVLS	Japan
8	AProf. Alan Wilson	Limnology	Auburn	USA
9	Aprof. Mark Bayley	Aqua. animal physiology	Aarhus	Denmark
10	AProf. Bill Daniels	Aquaculture production	Auburn	USA
11	AProf. Barry Clough	Publish speaking	Australia	Australia
12	AProf. James Stoeckel	Shellfish aquaculture	Auburn	USA
13	AProf. Jeffery Terhune	Diagnosis fish diseases	Auburn	USA
14	AProf. Yolanda Brady	Fish & shellfish diseases	Auburn	USA
15	AProf. Allen David	Aquatic animal Nutrition	Auburn	USA
16	AProf. Stephen Bullard	Physiology	Auburn	USA
17	AProf. Gilbert Van Stappen	Live food	Ghent	Belgium
18	Dr. Wenresti Gallardo	Aquaculture planning	AIT	Thailand
19	Dr. Ram C. Bhujel	Statistics & experimental design	AIT	Thailand
20	Dr. Amararatne Yakupitiyage	Science Research Methodology	AIT	Thailand

In addition, lecturers from other Colleges/Schools of CTU are invited for teaching English bridging program, general knowledge courses (Maths, Physic, Chemistry and Biology,) and supplementary courses (Information technology, Law, Political science and Physical) (Table 8).

Table 8. List of lecturers from other College/School participating in AAP:

No.	Name of lecturers	College/Department	Specialized field	Year of graduation	Training country
1.	Dr. Nguyen Trong Tuan	College of Natural Science	Chemistry	2012	Japan
2.	Dr. Le Thanh Phuoc	College of Natural Science	Chemistry	2003	Australia
3.	MSc. Nguyen Van Dat	College of Natural Science	Physical Chemistry	2003	Vietnam
4.	Dr. Ngo Thanh Phong	School of Education	Microbiology	2012	Vietnam
5.	Dr. Nguyen Huu Khanh	School of Education	Mathematics	2005	Netherlands
6.	MSc. Phan Thanh Chung	School of Education	Science Teaching	1997	Canada
7.	MSc. Bui Tan Anh	School of Education	Animal ecology	1999	Netherlands
8.	AProf. Vo Thanh Danh	School of Economics and Business Administration	Agricultural Economics	2004	Philippines
9.	Dr. Trinh Quoc Lap	School of Education	Education (Foreign Language Curriculum Studies)	2005	Netherlands
10.	MSc. Le Thi Huyen	School of Education	English Language Education	2007	Vietnam
11.	MSc. Vuong Le Thien Thanh	School of Education	English Teaching Methodology	1997	Australia
12.	Mr. Cao Ngoc Bau	Center for Military training	Education	2014	Vietnam
13.	MSc. Nguyen Van Hoa	Dept. of Physical fitness training	Physical Education	2004	Vietnam
14.	MSc. Tran Thi Xoan	Dept. of Physical fitness training	Physical Education	2006	Vietnam
15.	Dr. Le Ngoc Triet	School of Political Science	Maxele	2002	Vietnam
16.	Dr. Tran Van Hieu	School of Political Science	Political Economics	2004	Vietnam
17.	Dr. Ho Thi Quoc Hong	School of Political Science	Revolution line of Vietnam Communist Party and Ho Chi Minh's thought	1999	Vietnam
18.	Dr. Pham Van Bua	School of Political Science	History of Vietnam Communist Party	2011	Vietnam

Among lecturers participating in AAP (both invited and CTU staff) there are 8 professors and 16 Associate Professors, 100% of them are PhD. However, there only 20% are PhD among the teaching assistants (Table 9) who help instructing practical work in laboratories.

Table 9. Qualification of teaching staff and gender ratio

Lecturers	Male	Female	Total		Percentage of PhD (%)
			Quantity	(FTEs)*	
Professor	8	0	8		
Associate Professor	16	6	22		
Permanent teaching staff (1)	12	10	22	22	100
Permanent teaching assistance staff (2)	6	4	10	10	20
Visiting lecturers	19	1	20		100
Total permanent staff (1+2)	**18**	**14**	**32**	**32**	

(*)FTE stand for Full Time Equivalent

Moreover, CAF has a strong and young team of lecturers who has been or being trained in different countries. This team can potentially take over tasks of the current team when needed (Table 10).

Table 10. List of potentially preparatory teaching staffs of CAF

No.	Name of lecturers	Degree/specialized fields	Year of graduation	Training country
1	Chau Tai Tao	PhD/Aquaculture	2013	Viet Nam
2	Huynh Thanh Toi	PhD/Aquaculture	2014	Belgium
3	Nguyen Thi Hong Van	PhD/Aquaculture	2014	Belgium
4	Hua Thai Nhan	PhD/Aquaculture	2014	USA
5	Nguyen Van Trieu	PhD/Aquaculture	2014	Viet Nam
6	Tran Minh Phu	PhD/Aquaculture	2015	Denmark
7	Le Thi Minh Thuy	PhD/ Fisheries Processing	2016	Japan
8	Dang Thuy Mai Thy	PhD/Aquatic Pathology	2016	Viet Nam
9	Nguyen Thi Thu Hang	PhD/Aquatic Pathology	2016	Viet Nam
10	Tran Viet Tien	PhD/Aquatic Pathology	2016	Viet Nam
11	Nguyen Quoc Thinh	PhD/Microbiology	2016	Belgium
12	Tran Thi My Duyen	PhD/Aquatic Pathology	2017	Japan
13	Nguyen Minh Tri	PhD/Fisheries Processing	2017	Japan
14	Huynh Van Hien	PhD/Fisheries Economics	2018	Viet Nam
15	Truong Thi Mong Thu	MSc/Fisheries Processing	2013	Thailand
16	Nguyen Thi Nhu Ha	MSc/Fisheries Processing	2013	Thailand
17	Tran Nguyen Duy Khoa	MSc/Aquaculture	2014	Malaysia
18	Nguyen Ngoc Dung	MSc/Aquatic Pathology	2014	Japan
19	Truong Quynh Nhu	MSc/Aquatic Pathology	2014	Korea
20	Nguyen Thi Kim Quyen	MSc/Fisheries Economics	2014	Thailand
21	Tran Xuan Loi	MSc/Aquatic Resources	2015	Australia
22	Nguyen Hoang Nhat Uyen	MSc/Aquatic Pathology	2015	Taiwan
23	Dao Minh Hai	MSc/Aquaculture	2017	Japan

In the courses that contain practical parts, the lecturers are assisted with a teaching assistant who are PhD or PhD students and mostly graduated from oversea to support the lecturers in instructing students [Exh.6.7.Annex 1, list of courses and teaching assistant].

Table 11. List of teaching assistants

No.	Names	Specialized fields	Year of graduation	Training country
1	Dr. Ly Van Khanh	Aquaculture/reproduction	2013	Vietnam
3	Dr. Le Quoc Viet	Aquaculture/production	2013	Vietnam
4	Drs. Tran Le Cam Tu	Aquaculture/nutrition	2016	Netherlands
5	MSc. Huynh Truong Giang	Aquaculture/environment	2010	Taiwan
6	MSc. Tran Thi My Duyen	Aquaculture/biotechnology	2010	Japan
7	Drs. Nguyen Thi Thu Hang	Fish pathology	2016	Vietnam
9	Drs. Nguyen Thi Kim Lien	Aquaculture/Biomonitoring	2016	Vietnam
10	Dr. Nguyen Van Trieu	Aquaculture/reproduction	2014	Vietnam

The teaching quality of lecturers is evaluated by the students at the end of each semester when courses terminated. The evaluation is based on 11 criteria set by CTU with 4 levels of satisfaction including excellence, highly satisfied, satisfied and not satisfied. Results of evaluation showed that 75% of lecturers are evaluated as excellence, 20% as highly satisfied; 5% as satisfied and none as not satisfied [Exh.6.8.Course evaluation from students].

6.3. Recruitment and promotion are based on academic merit system

Recruitment and promotion are based on standards of capabilities and performance of staff in teaching, research and serve the university. Recruitment of lecturers is implemented based on the procedure stipulated by the University with the main steps of public announcement, job application documents receiving, and interviewing to employ those who meet requirements of a lecturer [Exh.6.9.Recruitment announcement]. The employed lecturers are required to keep striving in study to improve their overall professional qualifications and especially in scientific research [Exh.6.10.Recruitment regulation and roadmap for higher education of CTU staff]. Lecturers who meet the standards of the AAP (referred to Section 6.1) are assigned to teach in the program.

6.4. The roles and relationship of staff members are well defined and understood

Staff roles, relationships, and responsibilities are clearly defined in the job assignment table for each staff member [Exh.6.11.Job assignment for staff; Exh.6.12.Regulation on lecturer tasks by CTU]. Each staff member is assigned to teach and research with specialized fields in order to acquire experiences to provide more practical knowledge to students. Additionally, staffs cooperate closely to each other in teaching and research during the working period which makes the teaching team becomes stronger [Exh.6.13.List of collaboration staff in projects]. Lecturers are actively involving in research through writing research proposals to obtain provincial, ministry and international projects [Exh.6.14.List of research proposals and projects] and as the result many publications published on national and international journals [Exh.6.15.List of publications].

6.5. Duties allocated are appropriate to qualifications, experience and skill

Duties allocation is based on staff qualification and experience [Exh.6.1.CV and degrees] and their appropriate capability [Exh.6.16.Lecturers schedule]. Lecturers have had high quality scientific papers related to their specialization published on national and international peer reviewed journals [Exh.6.17.Scientific papers]. AAP staff are qualified with deep specialized knowledge and authors of many scientific papers closely relating to their teaching fields which helps teaching staff updating regularly knowledge to disseminate to the students. This is the most important criteria to be considered when allocating courses to teaching staff [Exh.6.16.Lecturers schedule].

6.6. Staff workload and incentive systems are designed to support the quality of teaching and learning.

Time management and rewards are defined to promote quality of teaching and learning. The staff are proactive in planning their annual workload [Exh.6.18.Planning annual workload] and also actively accomplish well the mission allocated by CAF and CTU [Exh.6.19.CTU regulation on personnel management] and [Exh.6.20.CTU regulation on staff workload]. Lecturers must complete the allocated workload and strive to achieve higher academic titles [Exh.6.21.Emulation title].

6.7. Accountability of the staff members is well regulated

CTU issued regulation on teaching staff workload management [Exh.6.20.CTU regulation on staff workload]. CTU also issued the academic regulation [Exh.2.21.Academic regulation]. Lecturers have rights and responsibilities in designing, distributing and evaluating lecture notes and syllabi. Lecturers are allocated appropriate schedules for both teaching and doing research in order to update their students with new knowledge during lecturing [Exh.6.17.Scientific papers].

6.8. There are provisions for review, consultation and redeployment

Short term and long term plans as well as annual working plans are undertaken strictly. All staffs are ensured to obtain all the rights under the labor laws [Exh.6.23.Rights of labors]. Staffs are nominated for a full time study abroad or taking a maternity period will be replaced by other staff to take over their work and will be redeployed when being back [Exh.6.24.Decision on study and redeployment].

The election processes for key positions in the College and University are implemented on a five year term basis. The elections are democratically and transparently undertaken by all staff of CAF or CTU to select the best candidates who are highly qualified in both moral quality and capability to be in the important positions of CAF or CTU [Exh.6.25.Election procedure for key position at CAF and CTU].

6.9. Termination and retirement are planned and well implemented

Decisions on personnel termination, retirement and pensions are planned in advance and seriously implemented [Exh.6.26.Decision on job termination]. The Department of Personnel of CTU is responsible for informing staff who are going to retire, 60 years old for men and 55 years old for women in advance. The University then will issue decisions based on the re-

tirement regulation [Exh.6.27.Decision on retirement]. However, for staff who are at retirement, but still wish to continue working and contributing to the College and University, a negotiation can be made with a labor contract signed for two years [Exh.6.28.Labor contract for retired staff].

In addition, the Unions of the CAF and CTU undertake well the policies concerning the material and spiritual life of staff. The Unions regularly visit, encourage, and assist staffs who face illness or other difficulty situations [Exh.6.29.Visiting patient and poor staff]. Retired staffs are entitled to pensions, and insurance in accordance with labor laws. In addition, the CAF and CTU also visit and support retired staff in important festive occasions such as Vietnam Teachers' Day – November 20 and Lunar New Year [Exh.6.30.List of retired staff gifted]. Annual summer vacations for staff are organized by CAF to relaxing and refreshment after an intensive working period [Exh.6.31.List of staff joining summer vacations].

6.10. There is an efficient appraisal system

CTU considers evaluating and rewarding staff are the crucial activities that need to be implemented annually to encourage and promote staff performance [Exh.6.32.Documents on annual evaluation]. The University issued a Decision on management of staff workload [Exh.6.20.CTU regulation on staff workload], and a Decision on management of CTU staff training for higher professional levels [Exh.6.33.Decision on staff training for higher levels]; these are important basis for systematic evaluation and appropriate rewarding. Regulations relating to policy, rewards, and discipline are posted on CTU website [Exh.6.34.Regulations on reward and discipline]. At the beginning of the academic year, staff are required to make an individual work plan and emulation form [Exh.6.35.Individual work plan; Exh.6.36.Emulation form]. At the end of each semester where courses are terminated, teaching staff are requested to submit the course evaluation form [Exh.6.37.Course evaluation form]. These are considered obvious evidences to evaluate staff's task accomplishment at the end of each academic year. The Council for Emulation and Rewards of CAF evaluates based on degree of task accomplishment, creativity and contribution efficiency to make recommendations to CTU's Council for final awarding. There are different levels of titles for recognizing and rewarding staff based on the regulations such as good lecturer, excellent lecturer and so on [Exh.6.38.Laws for emulation and reward; Exh.6.3.CTU regulations on emulation and reward].

7. Support Staff Quality

The Administrative Office is an advisory and assistant department for the Dean Board in management and operation of the College. The proportion of teaching staff to support staff is 10: 1 and students to support staff is 230:1.

Table 12. Task assignment of support staff

No.	Task	Quantity	Degree	Years of service (year)
1	Undergraduate training and quality assurance assistant	1	MSc in Aquaculture	22

2	Accounting and organizing Assistant	1	MSc in Aquaculture	14
3	Graduate training assistant	1	Bachelor in Agro-Economics	10
4	Secretary and international cooperation assistant	1	MSc in English	14
5	Scientific research and student management assistant	1	BSc in Veterinary	20
6	Facilities, equipment and labor safety assistant	1	Pedagogical College level	18
7	Librarian	1	Intermediate level in Aquaculture	17
8	Documentary assistant	1	Pedagogical College level	14

7.1. The library staff is competent and adequate in providing a satisfactory level of service

The librarian has intermediate level in Aquaculture and over 17 years experienced in library work. During the period of library management, she has been attending training course on library management [Exh.7.3.Curriculum vitae of library manager], therefore, library management has been done well and appreciated by users [Exh.7.4.Survey result on teachers, student about library service].

7.2. The laboratory staff are competent and adequate in providing a satisfactory level of service

Each department of CAF has several laboratories in various fields related to aquaculture serving the staffs and students to conduct research and are managed by assigned staff [Exh.7.5.Decision of laboratory managers and laboratory diploma]. These staffs have university and postgraduate degrees in the fields that link with the laboratories where they manage. This condition facilitates students and staff to deploy experiments and study in the laboratories.

7.3. The computer facility staff is competent and adequate in providing a satisfactory level of service

Currently, CAF have no IT staff in charge. The CAF website is taken care by some CAF administrative staff. There are 2 computer labs with responsible students from Young Union. All of the computers are connected to the network, which could be used by our students. CAF are responsible for providing and maintaining information technology systems to ensure stable network operation to create all favorable conditions for student learning and information extraction research on the internet [Exh.7.6.Computer room diagram].

7.4. The student services staff is competent and adequate in providing a satisfactory level of service

The student support staff is sufficient and competent for their job. These staff are in charge of helping students fulfill the admission documents, compose a study plan, and monitor the studying process and so forth.

In recent years, all the support staff have been evaluated by the CAF Dean Board and students as well completing their assigned tasks [Exh.7.1.Results of the emulation in 2013 of CAF's assistants, supporting activity evaluation form]. The assistants are annually fostered with expertise training, knowledge of management, foreign languages and informatics for completing well their assigned tasks [Exh.7.2.The degrees and certificates fostering of assistants].

8. Student Quality

The Advanced Program in Aquaculture at Can Tho University was approved according to the Decision No.8645/QD-BGDDT of Ministry of Education and Training (MOET), on December 24th 2008 and performed from the academic year 2008-2009.

8.1. There is a clear student intake policy

Students recruited by AAP are from those who have passed the national entrance exam at CTU with the knowledge block A (Mathematics, Physics, Chemistry); B (Mathematics, Chemistry, Biology) and A1 (Mathematics, Physics and English) and wishes to study AAP. The admission benchmark of AAP is equal to or higher than that of the Aquaculture field. The passing students are then obligated to take an English test which is equivalent to TOEIC 450.

According to the regulations of the Ministry of Education and Training, CAF produced documents to provide information related to issues of recruitment specifically, clearly and transparently. This information is also disseminated in the website to provide the candidates the most accurate information [Exh.8.1.Documents of the catalog of admission branch]. List of eligible candidates for attendance will be announced on websites, newspapers and sent directly to candidate home address [Exh.8.2.CTU website].

Table 13. Numbers of students enrolled at the first years of different batches

Academic year	Male	Female	Total
2013-2014	18	14	32
2012-2013	07	06	13
2011-2012	17	15	32
2010-2011	07	09	16
2009-2010	08	12	20

8.2 The student admission process is adequate

The national entrance exam is taken placed annually and organized very seriously by CTU. The enrollment scores reflect clearly the actual level of the learners.

Although the needs for qualified human resources in aquaculture and fishery of the Mekong Delta are high and increasing, the numbers of students enrolled by CAF are not stable over the years. This is due to the bias of social trends which recently focus more on economics,

business management, but only little interest in agriculture, engineering. This problem produces difficulty for CAF in stabilizing the enrolled student number each year.

The selection process of students is implemented objectively and strictly by CAF and University level providing students opportunity to participate in fairly. The University has to inform the selected students the results no later than the beginning of September so that the students are able to complete the enrollment procedures at early September and their schooling year is able to start in September. Students are provided required documents for the enrollment of the first year during the admission period [Exh.8.5.Announcement of admission form Department of Student Assistance; Exh.8.6.Student handbook; Exh.2.21.Academic regulations].

8.3 The actual study load is in line with the prescribed load

Number of credits and learning hours are specified in the curriculum that is designed and relevant to specialization [Exh.8.8.Curriculum of AAP]. The whole study plan is set under guidance of the academic advisors. This study plan is expected to be completed in 4.5 years. Students are allowed to register 20 credits as maximum for a semester, that equivalents to 6-7 courses for main semester. Each course consists of 1-3 credits. Each credit consists of 15 in-class hours and 30 self-study hours. The University also offers the third semester in the summer time for students who would like to shorten their studying time or complete the courses that are not cumulative [Exh.8.9.Schedule of third semester].

Results from the two graduated batches showed that the duration and number of credits of the training program is appropriate, exhibited by 48/50 students, accounting for 96% graduated on time. The study duration is deployed in accordance with the designed training program, consistent with student capacity, CAF's facilities and reflected with high satisfaction from teachers and students.

The transition ability of the program is shown quite clearly. This is manifested by 6 students continue with graduate level [Exh.8.10.Matriculation decision]; 2 of them have received scholarships for MSc programs in Auburn University (U.S.) and Gent University (Belgium) [Exh.8.11.Letter of Acceptance].

9. Student Advice and Support

At CTU and CAF students receive adequate advice and support. This is done through the student progress monitoring system, academic advice and environment for students' life and study.

9.1. There is an adequate student progress monitoring system

Student learning progress is scientifically and systematically monitored by using the learning plan management system of the university.

- Academic advisor system: CTU established the Academic advisor system to monitor, feedback and adjust learning process of students [Exh.9.1.Decision No.2067/QD-DHCT in 2007]. The Academic advisors have at least 3 meetings with their students in the class that they are assigned to be responsible for at the beginning, middle and the end of every semester to provide information, advice, and any support when they have any problems with their study [Exh.9.2.Class meeting report]. Academic advisors send monthly a report on the learning sta-

tus of students to the Academic Assistant via email [Exh.9.3.Report on attendance number, learning status, related problems,….].

- CTU has fully computerized the entire study plan management system to ensure automation of the systems and better access for all the stakeholders [Exh.9.4.Training management website]. With this system, students can access easily and quickly the necessary information for their own learning process (*online*); can actively make study plan for each semester or the entire program and adjust the plan to meet their learning capacity. Using this system, the University, CAF leaders and academic advisors monitor closely the training process to propose appropriate adjustments or detect and warn students and parents timely any problem (e.g. poor study result, insufficient registration of required credit number, slow learning progress as expected,...) to adopt appropriate prevention and treatment measures (academic warning, notification of student study results to parents, termination,…) [Exh.9.5.Announcement of academic warning for students having below 0.8 point; Exh.9.6.Notification of study results to parents].

9.2. Students get adequate academic advice, support and feedback on their performance

Students receive directly and adequately academic advices, support and feedbacks from their academic advisors, Department of Student Assistance, and other supporting systems [Exh.9.7.Announcements on website of Department of Student Assistance]. The enthusiastic support from lecturers and all other advisors in the system has guaranteed providing students the best conditions when following the training programs at CTU. In particular, students receive the following support during their studying period:

1). Academic support: Each student is supervised by an academic advisor who frequently keeps track on students' progress. The academic advisor is responsible for advising students on learning, helping them with setting up learning plans for the whole program, choosing appropriate courses for each semester, using available facilities, and getting to know the learning regulations [Exh.9.8.Academic advisor handbook].

2). Financial support and scholarships: In order to encourage students to do the best, the University grants scholarships to excellent and very good students which is accounted for 8% of total number of each class based on the study results at each semester. In addition to University scholarships, CAF also encouraged students with its own scholarships [Exh.9.9.Scholarship from Study Promotion Fund; Exh.9.10.Scholarship from UV Company; Exh.9.11.Scholarship from Vĩnh Hoàn Company,…..]. Moreover, the University also frequently calls for financial support from enterprises located in the Mekong Delta to offer extra scholarships for outstanding and poor students [Exh.9.12.Scholarship from Wilmar Agro Viet Nam; Exh.9.13.Lotus Scholarship; Exh.9.14.AgriBank Can Tho Scholarship, Southwest Scholarships, Teammate Bracelets Scholarship,…].

3). Career orientation & Employment: For the final year students, CAF finds and chooses appropriate organizations or enterprises for their internship which are partly supported for the expenses including mobility, thesis preparation and other service fee for their defense [Exh.9.15.Decision of students practice,….]. Students are supervised by a lecturer during the period of doing internship and thesis writing. In addition, the University also regularly organ-

izes job fairs in cooperating with local organizations or enterprises to provide a linkage between students and firms and helps students access to the labor market [Exh.9.16.Annual fair announcement or brochure]

4). Student Services: Beside supports from the University and academic advisors for academic issues, students are mainly supported by the Department of Student Assistance for their study life. The Department of Student Assistance is the unit which is responsible for providing recommendations on student policy implementation to the Rector (e.g. social issues, scholarship and tuition fee, reward and discipline, consultation on study, life, accommodation, job, health care, and management of on- and off-campus students) [Exh.9.17.Students reward; Exh.9.18.Students discipline; Exh.9.19.Announcement on health care; Exh.9.20.Announcement about payment of off-campus management notebooks ,….].

5). Accommodation support: The University's dormitories can offer accommodation for about 4,000 students. This number has increased in 2013 when a newly constructed dormitory inaugurated to ensure enough accommodation for students [Exh.9.21.Announcement on dormitory….]. In addition, the Department of Student Assistance also negotiated with hostels surrounding to offer cheap rated accommodation for students who are not able to obtain a place in the dormitories due to the limited capacity [Exh.9.22.Evidence from the Department of Student Assistance].

6). Medical Care: All first-year students are offered a general medical check-up at the beginning of the school year. The check-up is to provide information on the health status of the students and recommendations to take care of themselves to be in good condition to follow training at the university (Exh.9.23.Announcement on health care examination for first-year students). All students are requested to purchase medical insurance to guarantee for their health care in case of illness (Exh.9.24.Announcement on requesting to purchase health care insurance). In addition, the Department of Student Assistance often provides information on epidemic diseases and consults on protection methods (Exh.9.25.Announcement on Rubella disease warning).

9.3. Mentoring for students is adequate

Students get adequate mentoring support from the university. At the beginning of the first year, students are organized in class basis based on their field of study. Each class is managed by a academic advisor who is in charge of advising students on learning, helping them in (i) setting up study plans for the whole program, (ii) selecting appropriate courses for each semester, (iii) using the university's facilities, and (iv) getting to know the learning regulations so that they can accustom to the new learning environment [Exh.9.26.Students list; Exh.9.27.Decision & list of learning advisor]. At the beginning of the school year, a meeting between the academic advisor and the class is always organized. In that meeting, academic advisor provides students information and consultancy on learning activities and help establish the class Monitor Board. Members of this Board contact regularly the academic advisor to convey queries from the class to ensure every problem in learning activities is solved adequately and timely [Exh.9.28.Class meeting minutes; Exh.9.29.List of Board of Monitors]. The Youth Union also plays a key role in mentoring and counseling students. Most of the students are members of the Youth Union and thus mutually benefit from activities of the Un-

ion. The University and CAF have a policy to enhance the role of the Youth Union in mentoring the students [Exh.9.30.Plan for beginning school year meeting; Exh.9.30.Plan for organizing to welcome new students].

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9.4. The physical, social and psychological environment for the student is satisfactory

CTU has 4 campuses located on the suburb of Can Tho City and Hau Giang province. Campus 1 is situated on the 30/4 Street with an area of more than 2 ha. This campus is used for residence of more than 1000 CTU staff and it used to be the Headquarter of CTU more than 15 years ago. In addition, the College of Economics and Business Administration was also located at this campus before but has been recently moved to the campus 2 and replaced by the Center for Foreign language. Campus 2 is the main CTU campuses where the Headquarter is based and most of academic activities are taken place. It is the second biggest campus with approximately 80 ha consisting of most of colleges and support units of CTU. Two dormitory zones are also located in this campus that can provide accommodation for more than 10,000 students. The third campus is seated on the center of Can Tho City where it is the working area of the College of ICT with more than 2,400 ICT students. The last campus is located in Hau Giang province, approximately 30 km far from Can Tho. This is the biggest campus (more than 150 ha) and newly established to support 2 academic units including College of Rural Development and Center of National Defense Education.

CAF is located in Campus 2 where has many trees, and in harmony with nature that provides students a clean and green environment which is favorable for learning and exercising.

The University has the waste treatment system, fire prevention task is considered important, staff and students are regularly communicated and trained on fire prevention [Exh.9.32.Announcement of fire prevention]. CAF also assigned personnel to do the cleaning and security tasks.

Annually, CAF creates an entertaining environment for the students by organizing musical festivals, sporting competitions, and camping. At the same time, every class is also offered favorable conditions to organize their own musical, sporting activities for exchanging among classes. Those students who participate in the events are complimented and awarded [Exh.9.33.Plan for arts and sport festival; Exh.9.34.Plan and program for camping on the occasion of 26/3; Exh.9.35.Reward student list].

Especially, at each semester, CAF organizes a meeting for the leaders of CAF and the students. Through the meeting, in addition to answers given to questions that has been requested from the students, CAF leaders also provides prompt solutions to solved problems raised by the students to create the best study environment for the students [Exh.9.36.Meeting minutes between Dean Board and students]. Besides the official meetings, students can send their requirements to the Board of Dean through email, or direct contact to the Administrative Office [Exh.9.37.Email from student on scholarship, learning plan,….].

10. Facilities and Infrastructure

As a part of CTU, the CAF is able to share most of the facilities of the university such as classrooms, lecture halls, seminar rooms, projectors, computers, the LRC and so forth. CTU is a long-standing and well-established university in the region and hence it is well-equipped with all necessary facilities for supporting of learning and researching activities. CTU and CAF pay attention to the quality of training, so CTU and CAF try to invest in modern resources and upgrade them. Facilities and infrastructure strongly and appropriately meet the needs of teaching and learning. Every year, they are also updated, cared and regular repaired. There are enough rooms for teaching and learning and the room size is suitable for large and small classes or study groups.

10.1. The lecture facilities (lecture halls, small course rooms) are adequate

In early 2010, the main building of CAF was officially utilized with total area of 7,190 m^2 and total investment was VND 28.8 billion, funded by Ministry of Education and Training and CTU corresponding budget [Exh.10.1.The Ministry's decision on investment for CAF main building]. This building consists of 21 classrooms with the total area of 1,504 m^2 and its seating capacity is about 1,260 students. This infrastructure provides more favorable conditions for both training and learning activities in the college.

The classrooms are equipped with LCD projectors and light curtains. For classrooms of the AAP, the rooms are additionally equipped with air-conditioner [Exh.10.2.The classroom diagrams of the college and APP]. In addition, CAF has a ninety-seat hall equipped with a variety of facilities such as cushion chair, sound system, air-conditioner, LCD projector to serve attendants who join seminars and workshops [Exh.10.3.Installment cost of chairs in the hall 1, photo].

In the year 2010, CAF was equipped with an audiovisual room that can serve 25 students each time. Total cost for this room was 470 million VND and paid by the AAP budget. [Exh.10.4.Decision on choosing contract for providing the language laboratory equipment]. This room provides favorable conditions for AAP students to upgrade their English before

taking main courses. Besides, a room is also reserved as administrative office for staffs and foreign instructors come and work in.

CAF always give priority with most favorable conditions to teaching and learning activities, especially to the AAP. The CAF leaders often wish to receive any comments to adjust timely any problem [Exh.10.5.Survey results and comments from staff and students on facilities].

10.2. The library is adequate and up-to-date

CAF library is located on the second floor of the main building with an area of 96 m^2 which equipped with a reading room and thousands of specialized books. The library archives 4,152 specialized books in Vietnamese and 1,781 in English (in late 2013) [Exh.10.6.A list of books and documents in the library may be accessed by the website of CAF]. In 2009, the World Bank supported to buy 248 new specialized books in English for the library, worth over USD 7,000 [Exh.10.7.Cost for buying 248 special books, worth over USD 7,000]. In addition, the library has 790 journals, in which there were about 200 journals received during 2009-2010. In particularly, with the fund of AAP in 2009, CAF bought 64 more specialized English books with the cost of VND 20,700,000 [Exh.10.8: the cost for buying more 64 English special books (VND 20,700,000)]. In 2013, the library was supplemented with 143 specialized books in Vietnamese and 19 specialized books in English.

CAF library ensures to supply enough information on aquaculture as well as related fields in fisheries in order to provide students best conditions for their study and research activities. The library also opens all its capacity for student study activities and searching for learning materials. The operation of the library is under CTU and CAF regulations and control readers accordingly. The library operates 8 hours per day and 5 days per week, except Wednesday and Friday afternoon which reserved for re-locating and re-arranging books with the helps of students [Exh.10.9.The library's regulation signed by the Dean].

Students can also utilize the Learning Resource Center located in Campus 2 with an total area of 7,560 m^2 where there plenty of literature of aquaculture and fisheries and related fields can be found. The number of books in this Center is 160,662 copies [Exh.10.10.Number of books in the learning resource center and its website]. Especially, at this Center, students can access and read full text documents from websites of the Centre or foreign sites with 24 hours access.

In addition, CAF library has also linked with other organizations outside the university such as Computing and Statistical Centre - Ministry of Agriculture and Rural Development, Vietnam Association of Seafood Exporters and Producers- VASEP, Center for Training and Commercial Promotion, National Agency for Science and Technology, Hau Giang Information and Applied Technology Center, Center for Fisheries Information - Directories of Fisheries to update and supplement information.

10.3. The laboratories are adequate and up-to-date

CAF has 7 laboratories and practical training units with area of 1,446 m^2. The laboratories are arranged with facilities for research and practical teaching in the areas of aquaculture environment, aquatic animals, aquatic resources, biology, aquatic pathology, nutrition, aquaculture, aquatic product processing and fisheries. These laboratories serve for teaching, learning,

and research within requirements of different training specialization. The quantity of labs also adequately meet the demand of practical training of CAF [Exh.10.11.List of area of laboratory and experimental stations].

In addition, due to the specific requirement of specialized training subjects, CAF also built 3 more wet labs for conducting research in breeding and culture of aquaculture species. These wet labs also serve teaching staffs and students to conduct national and international cooperative research projects and programs. Total area of these wet labs is 4,332 m^2 which can be installed composite tank systems of various sizes for different requirements of experiment designs [Exh.10.12.List of the area of laboratories and wet labs].

Table 14. List of laboratories and wet labs

No.	Name of laboratory and wet labs	Area (m^2)	Functions	Capacity (Number of students per time)
1	Water quality analysis	104	Used for teaching and doing research on water quality (more than 30 water and sediment parameters can be analyzed and measured)	20
2	Aquatic resources	753	Used for teaching and doing research on fish taxonomy and population dynamics	50
3	Aquatic pathology	577	Used for teaching and doing research on diseases of fish and shrimp (bacteria, virus, parasitic diseases), histology and immunology of fish/shrimp	50
4	Aquatic physiology and nutrition	217	For teaching and doing research on fish and shrimp physiological characteristics (oxygen demand, tolerance of temperature, pH, salinity…) and nutrition (fish/shrimp nutritional requirement, feed formulation…)	25
5	Aquatic product processing	454	For teaching and doing research on testing fish/shrimp product quality, processing new fisheries products…	50
6	Fishing gears and marine equipments	104	For teaching and training students on fishing gears usage and preparation	25
7	Laboratory at Vinh Chau experimental Station	237	For doing research and practical training of students on marine and brackish water species production	25
	Total	*2.446*		
8	Freshwater fish hatchery	1781	For teaching, doing research	50

			and training students on freshwater fish reproduction and larval rearing	
9	Brackish water fish and shrimp hatchery	1551	For teaching, doing research and training students on brackish water fish and shrimp reproduction and larval rearing	50
10	Wet lab	1000	For doing research and conducting student theses and testing	100
	Total	*4.332*		
11	Vinh Chau experimental station	170.000	For doing field research and experiments on marine and brackish water species, especially on Artemia, mud crabs, tiger shrimp….	50
	Total	*170.000*		

Besides, CAF also owns a Brackish water Experimental Station located in Vinh Chau district, Soc Trang province with 17 ha using for research and practical training purposes [Exh.10.13.List of the area of laboratory and experimental station].

Laboratories are annually kept maintenance and upgraded by the University budget [Exh.10.14.Annual estimated budget of the University and AAP in 2013] and other research programs and projects.

In 2013, CAF built new wet laboratories where the AAP students can carry out their practical trainings and experiments in the fields of freshwater and brackish water culture as well as aquatic environment. These labs have the total area of 1,000 m^2 and costs about VND 1.1 billion which was covered by AAP budget [Exh.10.15.Decision of selected contract to construct wet lab and electricity].

CAF is always searching for funding sources to construct more laboratories to serve better teaching and learning activities at CAF.

10.4. The computer facilities are adequate and up-to-date

CAF invested 2 computer rooms with the areas of 96 m^2 and 64 m^2, respectively. The 96 m^2 room is equipped with 49 computers and opens from Monday to Saturday with 8 hours per day for students to search for learning materials and self-study. The rest with 32 computers is used for practical teaching for courses that require computer use. This room is also opened for the above purposes when the large room is full. Every day, there are about 100 students entering and using computers for their study purposes.

In addition, WIFI system is also installed in the University and CAF campus to facilitate teachers and students assess easily to internet with personal computer [Exh.10.11.The diagram of WIFI system in the whole university and college].

The computer rooms and WIFI system at CAF are managed by technical staffs from the Information and Network Management Center of the University, thus operation and mainte-

nance of these facilities are frequently implemented. The disable computers are therefore timely repaired and guarantee enough number to serve students. The WIFI system is also ensured to operate well for serving the teaching and learning activities. That is the reason why CAF doesn't need its own technicians for managing these facilities but they are still in good operation conditions for learning and research activities without a technician.

10.5. Environmental health and safety standards meet the local requirements in all aspects

The equipments are diverse and supporting many different research and teaching fields related to aquaculture. They are optimally utilized for teaching and learning to meet specific requirements of different training programs. Beside the college's yearly budget received from the university, CAF has also been seeking various donors through national and international cooperative projects to invest more laboratory's equipments.

Equipments used for teaching and learning activities are invested from various project budgets like WES, C1, TRIG, VLIR, World Bank project [Exh.10.16.Decision and the budget of projects: WES, C1, TRIG, VLIR, World Bank]. Thanks to these project funds, equipments in laboratories of Water quality analysis, Aquatic animal pathology, Coastal and freshwater aquaculture and seed production have been upgraded to serve better teaching and learning, especially for the AAP.

11. Quality Assurance of Teaching and Learning Process

In 2005, three staffs were trained on quality assurance system and MOET criteria organised in 2008, 2009 and 2010. After the training courses on AUN criteria at CTU, CAF established a group for quality assessment for self-assessment on bachelor program in Aquaculture and Aquatic Pathology complying with AUN criteria.

Since 2008, CAF has started collecting feedbacks from the alumni, industry, employers, current and graduated students through the meetings or visiting trips at local organizations where these targets are working at to improve the curriculum in order to serve better the demands of learners as well as labor market in the area [Exh.11.1.Alumni survey form; Exh.11.2.Industry survey form; Exh.11.3.Student survey form; Exh.11.4.Graduated student survey form; Exh.11.5.Analysis table of survey result].

Changing the training program and application of advanced teaching method at CAF have become common and multiplied largely (using multimedia facilities, online,…) [Exh.11.6.Yearly advanced program assessment meeting minutes]. Active teaching methods are applied depending on specification of training program with preliminary and final evaluation [Exh.11.7.Annual evaluation minutes on AAP]. Additionally, AAP students have opportunities to access appropriate and valuable learning material resources, especially those provided by visiting instructors who come from partner universities [Exh.11.8.List of books/materials for AAP students at CAF library].

11.1 The curriculum is developed by all teaching staff members

The AAP was developed based on benchmarking with the program of Auburn University (USA); right at the beginning, therefore, CAF and CTU had policy to develop the program to be appropriate to Vietnam's conditions. Thus, during the development of the curriculum,

CAF organized several meetings with many lecturers from CAF and other colleges to give comments on curriculum design [Exh.11.9.Announcement (email)/invitation letter for participating in AAP development and meeting minutes; Exh.11.10.Underdeveloped AAP curriculum].

CAF together with CTU and MOET conduct annual checking and evaluating AAP; at the same time receive feedbacks on the curriculum from lecturers and make proper adjustment and improvement [Exh.11.6.Annual meeting minutes; Exh.11.11.Announcement/invitation letter for annual meeting between students, lecturers, CAF, CTU and MOET].

Based on recommendations from lecturers, contents of some specific courses have been modified [Exh.11.12.Modified course syllabi].

The lecturers taking part in CAF's Science and Training Council are responsible for modifying the curriculum of all relevant training programs in general and AAP in specific [Exh.11.13.Decision on establishing the college's science and training council].

11.2 The curriculum development involves graduates and students

Students also participate in the development of curriculum to address demand of learners. The learners actively engage in giving feedbacks on teaching activities and curriculum every semester. CAF organizes annual meeting with current students, graduates and alumni to get feedbacks on the curriculum and training program for further improvement. [Exh.11.1.Alumni survey form; Exh.11.3.Student survey form; Exh.11.4.Graduated student survey form; Exh.11.5.Analysis table of survey results].

Based on the student survey forms, CAF makes a comprehensive analysis in order to improve the curriculum properly [Exh.11.5.Analysis table of survey results].

11.3 The curriculum development involves the labor market

The curriculum development involves participation of the industry or employers via provided survey forms and periodically scientific workshops or conferences at CAF [Exh.11.2.Recruiter survey forms; Exh.11.12.Working calendar of the college's scientific workshops or conferences].

Feedbacks from the employers via companies who recruit CAF students, alumni and local organizations involving in sector management are used to improve the curriculum [Exh.11.5.Analysis table of survey results; Exh.11.6.AAP annual evaluation meeting minutes].

Courses have been changed to meet the requirement of labor market [Exh.11.11.Modified syllabi].

11.4. The curriculum is regularly evaluated at reasonable time periods

The curriculum is evaluated from implementation process to contents by MOET, CTU, CAF, lecturers and students [Exh.11.8.Announcement (email)/invitation letter for participating in curriculum development and meeting minutes; Exh.11.6.AAP annual evaluation meeting minutes].

The evaluation meetings have been organized yearly since 2011 [Exh.11.8.Announcement (email)/invitation letter for participating in curriculum development and meeting minutes; Exh.11.6.AAP annual evaluation meeting minutes].

11.5 Courses and curriculum are subjects to structured student evaluation

Students are also requested to take part in giving feedbacks on course contents, teaching activities, and curriculum through course evaluation forms, annual meetings, open discussion meetings between students and the CAF leaders, students and CTU leaders [Exh.11.14.Course evaluation form; Exh.11.15.Announcement of orientation meeting; Exh.11.16.Announcement/Decision on organizing a talk between students and rector; Exh.11.17.List of student's mail box].

Courses have been modified accordingly based on student's feedbacks [Exh.11.11.Modified course syllabi].

11.6 Feedback from various stakeholders is used for improvement

Upgrading teaching quality is an important policy of CTU. CAF is accordingly focusing more on facilitating practical opportunity for students; therefore, collecting feedbacks from lecturers, students and employers is a frequent activity of CTU and CAF. CAF collects feedbacks from the lecturers once a year. Similarly, feedbacks from the students are collected during the orientation meeting at the beginning of the school year [Exh.11.18.CTU and CAF's operation plan in recent years; Exh.11.19.CAF's weekly meeting minutes; Exh.11.20.Meeting minutes of CAF council; Exh.11.2.Employer survey forms].

Members of CTU Scientific and Training Committee are not only teaching staff from CTU but also staff from outside the University, such as research institutes, partner universities [Exh.11.21.Decision on establishment of CTU's scientific and training council]. At CAF level, members of the Scientific and Training Council include teaching staff from Biology Biotechnology Research and Development Institute and Department of Scientific Affairs [Exh.11.12.Decision on establishment of CAF's scientific and training council].

With feedbacks from stakeholders, the contents of some courses were modified [Exh.11.11.Modified course syllabi].

11.7 The teaching and learning process, assessment schemes, the assessment methods and the assessment itself are always subject to quality assurance and continuous improvement.

CTU Party Committee and Rectorate determined the improvement of teaching method and upgrading of teaching quality are the most important mission; the Quality Assurance and Testing Center was therefore established in 2011 with a professional team for quality assurance affairs; and a financial regulation prioritized for AAP was approved [Exh.11.23.Resolutions of CTU Party committees and Rectorate; Exh.11.24.Decision on establishment of Quality Assurance and Testing Center; Exh.11.22.Specific management and internal expenses regulations 2013].

CAF appointed a member of Dean Board to be responsible for the AAP operation and quality assurance affairs. In addition, one PhD teaching staff is assisting in supervising, receiving feedbacks, and advising lecturers and students on teaching and learning quality. Besides, the

academic advisors are also assigned to help students during the learning process [Exh.11.25.Task assignments for Dean Board; Exh.11.26.Decision on academic advisor assignment].

The evaluation feedbacks of each course are collected and analyzed by CTU and CAF and ultimately sent to the lecturers for improving teaching methods [Exh.11.14.Course evaluation forms]. Feedbacks of stakeholders are discussed during the seminars organized at CAF to improve teaching contents and methods at each semester [Exh.11.6.Annual AAP evaluation meeting minutes]. Moreover, CAF teaching staff are frequently provided opportunities to be professionally upgraded and exchanging teaching experiences when attending national workshops and international training courses [Exh.11.27.Decisions and certificates of staff exchange in USA].

12. Staff Development Activities

Staff development activities are one of the strongest activities in CAF. It helps CAF to maintain and enlarge the quality of its program at the present and also in the future. The staff development activities identify the number of recruitment every year, upgrade the quality of academic and support staff and how to allocate and use them efficiently.

12.1 There is a clear plan on the needs for training and development of both academic and support staff

In order to develop the teaching team and support staff for current and future training mission, CAF has built a medium term plan (5 years period) in which the requirement for number of staff developed are allocated for each year [Exh.12.1.Development plan for 2012-2017, Plan oriented to 2020].

Development plan for teams of teaching and support staff was made based on the training demand for qualified human resource to support the "Strategy for aquaculture development of Vietnam to 2020" and "Master plan for aquaculture development to 2020, vision to 2030". Aquaculture economics contributes, accordingly 30-35% GDP within Agriculture-Forestry-Fisheries sector in 2020 and produces 5 millions jobs for local people [Exh.12.2.Decision 1690/QĐ-TTg 26/9/2010], 50% labors are well trained [Exh.12.3.Decision 1445/QĐ-TTg 16/8/2013].

In addition, the formulation of staff development plan of CAF is to meet the Item 3, Article 54, Chapter VIII of the Education Law. That is teaching staff has to have academic standard level of at least Master degree [Exh.12.4.Law No. 08/2012/QH13 18/06/2012].

Moreover, CAF's staff development plan formulation is to contribute to implementation of striving objective of CTU in which from 2015 onward, CTU will become one of the universities which has high qualification that is equal to advanced universities in the South-East Asia and to be a strong training center for Mekong riparian countries; striving for level of training, research capacity and technology transfer to reach common level of other universities in the region and world for some strong fields in 2022 [Exh.12.5.Decision 6004/QĐ-BGDĐT, dated on 21 September, 2007].

Based on the present and future demand of human resource for aquaculture in the MD and Vietnam, CAF formulates the development plan of training curriculum and scales for each training level (number of students) for each year within the period from 2012 to 2017 and 2020 [Exh.12.1.Development plan for 2012-2017, Plan oriented to 2020]. Subsequently, based on the training scales of each level, demand for teaching staff and support staff development is determined [Exh.12.5.Decision 6004/QĐ-BGDĐT, dated on 21 September, 2007]. Determination of staff development demand is based on the student/teaching staff ratio following the regulation of Ministry of Education and Training [Exh.12.6.TT 57/2011/TT-BGDĐT dated on 02 December, 2011], at present, this ratio is 25/1.

In order to ensure the progress and efficiency of staff development plan implementation, CTU issued the Decision 1636/QĐ-ĐHCT dated on 16/10/2009 on employment regulation and requirement for striving process and standard enhancement of teaching staff [Exh.12.7.QĐ 1636/QĐ-ĐHCT 16/10/2009], newly-employed staff have to improve their level as stipulated in the above Regulation.

Development of teaching staff team

Staff development is one of the strongest and regular activities of CAF. CAF currently possesses a very strong and qualified teaching team. All of them have graduate level (100%) in which 56.14% are holding PhD degree. The percentage of teaching staff graduated from the international and Asian well-known Universities is 66.7% and these staffs are very strong both in teaching and research [Exh.12.8.CV of all teaching staff]. All teaching staffs participating in AAP have graduated from international Universities [Exh.12.9.Annual teaching assignment]. Having such a strong teaching team, CAF has always paid attention in developing an apparent and appropriate staff training strategy based on labor market demand and development objective of CTU, advantages from international collaboration programs (VLIR-Belgium, MHO- Netherland, WES- Netherland,…), and CTU projects as well as national programs (322, 911, QIG-TRIG programs) [Exh.12.10.List of staff studying abroad within these programs, Decisions of sending staff].

Budget for staff training abroad mostly comes from international projects, whereas internal budget is used for professional short training or for MSc and PhD degree at institutions in Vietnam. Budget for staff development accounts for 14.75% of total budget used for all activities at CAF (excluding the basic construction budget) [Exh.12.1.Development plan for 2012-2017, Plan oriented to 2020].

Development of support staff team

There are currently 8 support staff working at CAF, in which 3 holding MSc level, 02 with university level, 1 college level and 02 with intermediate level (see Table 7.1).

Plan for fostering and developing the support staff team is specified in the "Development plan for period of 2012-2017". Annually, CAF is sending staff to be trained and fostered on their expertise, state management, education management,…

The training and fostering demand of support staff is surveyed annually (12.10 Support staff training survey form). The survey results are subsequently synthesized and submitted to CTU to prepare the training programs for the support staff in the coming year

[Exh.12.11.CTU fostering plans]. This plan is then implemented strictly with significant efficiency [Exh.12.12.Certificates of support staff].

12.2 The training and development activities for both academic and support staff are adequate to the identified needs

The current proportion between lecturers and students at CAF is 1/25. Based on the annual prepared plan, CAF start to recruit and train staff with the planned numbers. For the teaching staff who are at BSc and MSc levels, CAF seeks for scholarships from national and international projects to train these staff to PhD level [Exh.12.13.List of programs and projects]. At the same time, some researchers are also trained to MSc or PhD levels to prepare as a resource for recruiting in permanently teaching staff position [Exh.12.13.List of programs and projects]. For the support staff, CTU has also annual plan for training on expertise, education management, foreign language, information technology,… from its own budget [Exh.12.11.CTU fostering plan for training].

Especially, during the development of AAP curriculum, CTU and AU signed a MOU [Exh.12.14.MOU, MOA], based on that AU organizes short training course to help CTU staff upgrading professional knowledge and didactics.

Since 2008, there 20 teaching staffs have been trained for PhD level, 10 of them are trained abroad (Belgium, Thailand, USA, Japan, Netherlands, and Malaysia). In addition, 9 teaching assistants also completed their MSc program mostly in Belgium, Norway, Netherlands, Taiwan, Thailand, and China. Presently, CAF has sent another 13 staff to follow PhD and MSc programs at national and international universities [Exh.12.15.Decisions for training and diploma]. CAF has also paid special attention in training the researchers for taking over positions of teaching staffs when they retire. Since 2008 up to now, there have been 10 researchers accomplished their MSc training, another three are following the PhD program and 12 are following MSc program. These staff will replace the retired staffs or participate in teaching when CAF offers more training programs in the future.

Besides the long term training activity, CAF also sends the teaching staff to participate in some professional training courses every year. Since 2008, CAF has sent 21 teaching staff to take part in short training courses abroad (USA, Japan, and Netherlands), especially within the collaboration framework between CTU and AU to promote the AAP development, CAF sent 14 staff to AU for training on teaching didactics [Exh.12.15.Decisions for training and diploma]. Number of staff nominated to study abroad annually is usually exceeding the planned number.

13. Stakeholders Feedback

CAF had made a survey form system to collect feedback from stakeholders [Exh.13.1.Survey form] including:

(i) Survey form for employer feedback on quality of graduated students and the training program

(ii) Survey form for alumni feedback

(iii) Survey form for newly graduated student feedback

(iv) Course evaluation form (from the common system of CTU)

(v) Survey form for lectures on training curriculum

(vi) Survey form on quality of support service for lecturers and teaching assistants

Survey process for stakeholder feedback:

(i) Sending survey forms via email or post mail to collect the feedbacks [Exh.13.2.List of stakeholders involving in evaluation].

(ii) Collecting results to send to the responsible staffs of CAF [Exh.13.3.Written document, list of survey results, Archive files].

(iii) Discussing feedback with AAP teaching staffs for further improvement [Exh.13.4.Meeting minutes]

13.1 There is adequate structured feedback from the labor market

The survey forms were sent to employers, an important stakeholder for evaluating the capacity of graduated students in practical applications and fulfillment of requirement of society. Those stakeholders include private, foreign and governmental companies. There are also 5 evaluation levels designed in the forms including (1) not satisfied at all, (2) not satisfied, (3) satisfied, (4) very satisfied and (5) excellent.

13.2 There is adequate structured feedback from the students, graduates and alumni

Right after the first batch with 28 students graduated in April 2013, the AAP conducted a survey and received the feedbacks from all of students (Table 13.1). The results showed that among 28 graduated students, 11 are following MSc progam (39%), in which 4 are studying in abroad (3 in Thailand and 1 in Malaysia). CAF also sent the survey form to these student's teachers and supervisors for their feedbacks [Exh.13.1.Survey forms].

CAF has organized annual event of alumni meeting for the Aquaculture program to gather the alumni who are now working over the Mekong Delta to share information and experiences on all aspects of aquaculture as well as orientate and propose research and training plans which can be appropriate and meet the demand of society in practical situation [Exh.13.5.Alumni association]. However, for the AAP, only the two first batches just graduated in a short time by now, number of alumni attending the event therefore is still not significant.

Another way to convey the survey to the alumni is via the Alumni association in which every batch as representative and linked together through a website where frequent discussion and survey can be implemented [Exh.13.5.Alumni association].

Moreover, meeting during the workshops or conferences organized at CAF or CTU are also opportunities for discussions between alumni and CAF/CTU on specialization and aquaculture issues which are getting more attention by society [Exh.13.5.Alumni association].

13.3 There is adequate structured feedback from the (teaching and support) staff

For Vietnamese lecturers and assistant lecturers, four different levels of evaluation (%) was designed including (1) strongly disagree, (2) disagree, (3) agree and (4) strongly agree.

In addition, the foreign lecturers are very important stakeholder as they are the main responsible for teaching, therefore their feedback on training curriculum, teaching schedule, issues related to academic activities as well as English capacity and skills of students were also collected through the survey [Exh.13.1.Survey form; Exh.13.3.List of survey results, Archive files].

14. Output

On completion of the program, students who have met all academic progression requirements prescribed by CTU can expedite to prepare and submit their graduation profile to CAF. The graduation profile must contain all documents exhibiting student has completed all requirements of the academic program. CAF establishes a Committee to review the graduation profiles and send the lists of approval to the university. At CTU level, Department of Academic Affairs and Department of Student Assistance re-examine the evaluation results and issue Decisions of graduation. The process of graduation review and approval is implemented three times a year [Exh14.1.Graduation examining process; Exh.14.2.Graduation examining plan].

The Department of Academic Affairs and CAF instruct the students the process of graduation review. All necessary templates, forms and steps for this process are posted on the website of CAF (http://caf.ctu.edu.vn/caf/index2.php?op=submenu&idmenu=9&id_pa=9). Since 2102, students can register online for the graduation review if they have met all the academic progression requirements. The process of graduation review is delegated to responsibly relevant individuals and institutions to implement [Exh.14.3.Announcement of launching graduation profile].

14.1 The pass rate is satisfactory and dropout rate is of acceptable level

To be accepted for graduation, AAP students must obtain 138 credits of the training curriculum, GPA of at least 2.00 and other requirements stipulated in Article 31 on Graduation conditions and approval of the Academic Affair Regulation issued by CTU.

Table 15. Graduation rate and dropout rate of AAP students

Entrance year	Total students	**G**raduation rate (%)			Dropout rate (%)		
		Early graduation (<4.5 years)	On-time graduation of 4.5 years	Late graduation >4.5 years	First year students	Second year students	Students ≥ 3 years
2008	30	0	28/30 * (93.3%)	2/30 (6.7%)	0	0	0
2009	20	0	20/20 (100%)	0	0	0	0

Note: * 02 students have not graduated up to now.

A total of 48 students has graduated. Most of them are currently working at five different organizations, some studying abroad for Master degree (Malaysia and Thailand) and some

studying PhD degree at CAF. Results from the survey on employer satisfaction showed that 20 of 25 criteria were evaluated as satisfied, 4 of 25 criteria were rated as very satisfied Results from the survey on foreign lecturers who directly supervise the graduated students showed that 15 of 19 criteria were rated as above average and 4 of 19 criteria as average. At CTU, the lecturers also participated in the survey to evaluate those students who are following graduate program at CAF. The results revealed that 9 of 19 criteria were rated as excellent and 10 of 19 criteria as above average [Exh.14.4.Employer survey forms].

The employers confirmed that knowledge and skills on specialization of the graduates are proficient, especially, their English proficiency can facilitate them to work efficiently in a global integration environment. As a result, 4 of them are following Master program abroad and the other 7 are working at joint-venture foreign companies. No dropout student was recorded but two have not graduated due to failing the Analytical Chemistry course which is the fundamental course of the curriculum.

14.2 Average time to graduate is satisfactory

The majority of graduates were employed within 6 months after graduation as result of (i) high demand for AAP graduates from companies and (ii) CAF has good relationship with many aquaculture companies and provided them qualified graduates based on their requirements (Table 16).

Table 16. Number of graduates studying graduation programs or working after graduation

Graduation year	Number of graduates	Employed within six months after graduation (%)	Studying (%)	Working (%)
2012	28	14 (50 %)	12 (42.8%)	2 (7.1%)
2013	20	3 (15%)	12 (60%)	5 (25%)

14.3 Employability of graduates is satisfactory

The result from the survey of studying and employment of graduates from Advanced Program in Aquaculture shows that employability of graduates is satisfactory.

Most alumni have a job after 6 months after graduation, the maximum time a job after graduation is 1 year. Of which 45.5% have a job in 6 months after graduation, 36.4% have a job within 12 months after graduation.

14.4 The level of research activities by academic staff and students is satisfactory

The AAP students were able to conduct research by themselves under support and advices of their supervisors. Specifically, the students registered as a team for research topics in the framework of "student scientific research program" funded by CTU. The approved research project is supervised by a faculty member as advisor for specialization and budgeting aspects.

This is one of the research activities that is implemented by the students themselves and increasing annually in number (Table 17).

Table 17. List of research projects conducted by AAP students

No	Title of project	Management level	Implementation place	Name of students	School year	Main results
1	Study on super-intensive culture of white leg shrimp (*L. vannamei*) in closed recirculation system	CTU	CAF	Nguyen Vinh Tien, Nguyen Chi, Le Hoang Phuong Vo Le Thanh Truc	2009-2014	Super intensive culture procedure for white leg shrimp established
2	Study on possibility of using aquatic plants in wastewater treatment from intensive striped catfish ponds	CTU	CAF	Tran Thi Lam Khoa, Nguyen Tan Duy, Le Phuoc Đai, Tran Thi Be Gam	2009-2014	Giant duckweed appeared to be the most effective plant in wastewater treatment among the other plants like duckweed mouse ears, ruffles strawberry, hyacinth. The area used is 25% surface area
3	Study on the effects of food and different stocking densities on growth and survival of louch *Mastacembelus favus* Hora cultured in composite tanks	CTU	CAF	Phạm Thanh Nhan, Phuong Hong Khanh, Pham Van Lau, Chau Ngoc Son, Ho Minh Trung	2010-2015	Determining the effect of foods and different stocking densities on the growth and survival of *Mastacembelus armatus* cultured on composite tanks

In addition, the research capacity of AAP students was manifested by their completion of graduation research projects which were also conducted by themselves. AAP students have

outstanding points above to their peers in the same discipline (i) their dissertation was written exclusively in English (Exh.14.05 List of graduation thesis by Batch 1 and 2), and (ii) their thesis results could be easily revised into research papers for publishing (Table 18).

Table 18. Publications of AAP graduates

No	Publications	Authors	School year	Journal, Proceeding of conferences /workshop
1	The efficacy of vitamin con stress reduction of striped catfish (*Pangasianodon hypophthalmus*) fingerling under transport conditions	Do Thi Thanh Huong, N.T. Dat, **L.T. Mai,** N.Q. Thinh, N.T.K.Ha, P. Kestemont and N.T. Phuong	2008-2013	Proceeding of International Fisheries Symposium 2012
2	Isolation, identification and determination of antibiotic susceptibility of *streptococcus iniae* in Asian sea bass (*Lates calcarifer*)	**Tran Huu Tinh,** Nguyen Bao Trung, Tran Thi Tuyet Hoa, and Tu Thanh Dung	2008-2013	Proceeding of International Fisheries Symposium 2012
3	Identification and pathogenicity of *Aeromonas hydrophila* on clown knifefish (*Chitala chitala*) in the Mekong Delta, Vietnam	**Nguyen Minh Tri,** Tran Thi My Han and Tu Thanh Dung	2008-2013	Proceeding of International Fisheries Symposium 2012
4	Technical-financial comparison of giant freshwater prawn farming systems in the flooding areas of the Mekong Delta	**Truong Thanh Lam** & Le Xuan Sinh	2008-2013	Proceeding of International Fisheries Symposium 2012
5	Nutrient removal from wastewater of intensive catfish ponds by using floating aquatic plants	**Tran Thi Lam Khoa, T.T.B. Gam, N.T. Duy, L.P.Dai,** H.T. Giang and V.N. Ut	2008-2013	Proceeding of International Fisheries Symposium 2012

Furthermore, with their research results, many of APP students participated with oral presentation in national and international conferences [Exh.14.6.List of presentation in national and international conference by AAP batch 1 and 2].

Research is one of the most important academic activities of both lecturers and students as it is a bridge connecting the university-based theoretical knowledge with practical requirements of local labor markets. Research and technology transfer activities are therefore proactively implemented by all CAF staff member (Table 19 and Appendices 3) [Exh.14.7.Number of scientific research projects and publications conducted by lecturers]

Table 19. List of research projects of CAF staff in the period of 2008-2013

No	Title of projects	Name of staff	Management level	Implementation period
1.	Development of alternatives to the use of freshwater low value fish for aquaculture (trash fish)	Tran Thị Thanh Hien, Tran Minh Phu, Tran Le Cam Tu	International (Cambodia)	2008 - 2012
2.	Assessment of shellfish biodiversity in the mangrove ecosystem impacted by shrimp intensive culture in the Mekong Delta, Vietnam	Vu Ngoc Ut	International (Rufford Small Grant)	2008
3.	Study on development of mantis shrimp rearing procedure in Kien Giang	Tran Ngoc Hai	Province (Kien Giang)	2008-2011
4.	Study on the effects of different types of feed and sources of shrimp on maturation and reproduction of tiger shrimp (*Penaeus monodon*) broodstock in recirculation system	Chau Tai Tao	Ministry	2008-2009
5.	Study on artificial breeding and rearing grey mullet (*Liza subviridis*)	Tran Quoc Viet	Ministry	2008-2009
6.	Study on anti-antibiotics of two groups of *Edwardsiella* in the intensive catfish culture (on fish, water and sediments)	Tu Thanh Dung	Ministry	2008-2009
7.	Investigation on the efficiency of some vaccines used for prevention from disease caused by *Edwardsiella ictaluri* on striped catfish (*Pangasius hypophthalmus*).	Pham Thanh Liem	Ministry	2008-2009
8.	Study on migratory behavior of mud skipper (*Pseudatocryptes elongatus*) and proposing measures for efficient harvest of fish in ponds	Tran Dac Dinh	Ministry	2008-2009
9.	Study on seed production of grey-ell cat fish (*Plotosus canius*)	Tran Ngoc Hai	Ministry	2008-2010
10.	Study on the requirement of Methionine and Lysine on the diet of Tra catfish (Pangasianodon hypophthalamus)	Tran Thi Thanh Hien	Ministry	2009-2010
11.	Assessment of impacts of shrimp culture systems on zooplankton and benthos in the Mekong Delta	Vu Ngoc Ut	Ministry	2009-2011

No	Title of projects	Name of staff	Management level	Implementation period
12.	Feasibility of integrating oyster into the aquaculture systems	Ngo Thi Thu Thao	University	2009-2010
13.	Formulation of recombination DNA of gen 28 to develop multiple antibodies in diagnosing white spot disease on tiger shrimp	Bui Thi Bich Hang	Ministry	2009-2011
14.	Study on Methionine and Lysine requirment in striped catfish (*Pangasius hypophthalmus*) feed.	Tran Thi Thanh Hien	Ministry	2009-2010
15.	Study on rearing flathead lobster (*Thenus orientalis*) larvae	Tran Ngoc Hai	Ministry	2009-2011
16.	Study on the effect of climate change on catfish and shrimp culture in the Mekong Delta	Truong Hoang Minh	International	2009-2010
17.	Strengthening the impact of the ASEM Aquaculture platform – the bridge between Asian and European aquaculture	Nguyen Anh Tuan	International (EU)	2010-2013
18.	The effects of substrates and stocking density on the growth and survival rates of swamp eel (Monopterus albus)	Do Thi Thanh Huong	University	2010
19.	Biodiversity of Rotifers in freshwater ecosystem in Can Tho and Hau Giang provinces	Nguyen Thi Kim Lien	University	2010
20.	Assessment of seahorse resources (*Hippocampus* spp.) in Phu Quoc Island	Vu Ngoc Ut	International (Rufford Small Grant)	2010
21.	Research on fungi parasitic on striped catfish (*Pangasianodon hypophthalmus*) and cukture environment	Pham Minh Duc	Ministry	2010-2011
22.	Study on creating clonined *Edwardsiella ictaluri* attenuated vaccines used for *Pangasianodon hypophthalmus*) by knock-out gene technique	Dang Thi Hoang Oanh	Ministry	2010-2011
23.	Shrimp defense against white spot syndrome virus	Nguyen Thanh Phuong	Ministry	2010-2011
24.	Improving management practices and food safety related to the use of chemicals for a sustainable freshwater aquaculture in the Mekong delta	Nguyen Thanh Phuong, Do Thi Thanh Huong	International (Belgium)	2010 - 2014

No	Title of projects	Name of staff	Management level	Implementation period
	(CUD)			
25.	Rebuilding resilience of coastal populations and aquatic resources: habitats, biodiversity and sustainable use options (RESCOPAR)	Nguyen Anh Tuan	International (Netherlands)	2010-2018
26.	Basic study on the aquatic fauna and flora, and conservation activities participated in by local residents	Tran Dac Dinh	International (Japan)	2010-2013
27.	Building striped catfish cooperative cluster in the Mekong Delta, Viet Nam	Nguyen Thanh Phuong	International (NACA)	2010-2012
28.	Upgrading training capacity, management and development of recirculating aquaculture system in Viet Nam	Nguyen Thanh Phuong	International (Netherlands)	2010-2012
29.	Experimental research on tiger shrimp and giant prawn cum rice system following GAP standard in Hong Dan dist., Bac Lieu province	Duong Nhut Long	Province (Bac Lieu)	2010-2013
30.	Building technologies for seed production and grow-out of discus (*Symphysodon aequifaciata*) and Neon (*Paracheirodon nnnesi*)	Bui Minh Tam	Province (Khanh Hoa)	2010-2013
31.	Training and applying seed production-culture of snakehead in nylon covered tank in An Giang province	Duong Nhut Long	Province (An Giang)	2010-2012
32.	Study on seed production of loach (*Botia modesta* Bleeker, 1865) in An Giang province	Duong Nhut Long	Province (An Giang)	2010-2013
33.	Study on development of Hungarian carp culture technology in earthen pond in Can Tho city	Duong Nhut Long	Province (Can Tho)	2010-2013
34.	Study on domestication, seed production and application of Hungarian carps in rice cum fish in Hau Giang province	Duong Nhut Long	Province (Hau Giang)	2010-2012
35.	Study and technology development for intensive culture of eel (*Anguilla mamorata*) with high productivity and economic effciency in Can Tho	Tran Ngoc Hai	Province (Can Tho)	2010 - 2012

No	Title of projects	Name of staff	Management level	Implementation period
36.	Study on distribution and culture of *Enteromorpha* in the Mekong Delta, Vietnam – Phase 1	Tran Ngoc Hai	International (USA)	2010-2012
37.	Development of Intensive culture of Artemia in salt production field in Vinh Chau, Soc Trang	Nguyen Van Hoa	Province (Soc Trang)	2010-2012
38.	Study on technology of seed production cobia (*Rachycentron canadum*, Linnaeus 1766) in Kien Hai district, Kien Giang provine	Tran Ngoc Hai	Province (Kien Giang)	2010-2012
39.	Trial cultivation of otter clam *Lutraria rhynchaena* in Kien Giang province	Ngo Thi Thu Thao	Province (Kien Giang)	2010-2012
40.	Effect of different sources of spotted scat (*Scatophagus argus*) broodstock on spawning performance	Ly Van Khanh	Ministry	2010- 2012
41.	Study on effect of different factors on diameter of Artemia cyst (*Artemia franciscana* VC) through generations.	Nguyen Thi Hong Van	Ministry	2010-2012
42.	Reproductive cycle & artificial seed production of mangrove oyster *Crassostrea* sp	Ngo Thi Thu Thao	Ministry	2010- 2012
43.	Study on nursing larvae of stone crab (*Myomenippe hardwickii*)	Chau Tai Tao	University	2010
44.	Effect of spawning times on quality of larvae and postlarvae of tiger shrimp (*Penaeus monodon*)	Chau Tai Tao	University	2010
45.	Study on some reproductive physiology of spotted scat (*Scatophagus argus*)	Ly Van Khanh	University	2010
46.	Study on some reproductive physiology of mullet (*Liza subviridis*)	Le Quoc Viet	University	2010
47.	Sudy on the method for analysis Trifluralin resisdue in the tra catfish fillet by chromatography method (GC,HPLC-UV,LCMSMS)	Tran Minh Phu	University	2011
48.	Waste management for *Pangasius* culture in the Mekong Delta of Vietnam (SU PA)	Nguyen Thanh Phuong	International (Netherlands)	2011 - 2013

No	Title of projects	Name of staff	Management level	Implementation period
49.	Evaluation of nutritional compostion of gut weed (*Enteromorpha intestinalis*) and its use as feed for aquaculture species in the Mekong delta	Nguyen Thi Ngoc Anh	Ministry	2011-2012
50.	Domestication and selection of freshwater prawn broodstock for seed production in Dong Thap province	Tran Ngoc Hai	Province (Dong Thap)	2011-2013
51.	Researching on the utilization of formulated feeds for grow out of featherback fish (Chitala chitala Hamilton,1822)	Lam My Lan	Province (Hau Giang)	2011-2012
52.	Study on bicological characteristics and seed production of spotted snakehead (Channa lucius)	Bui Minh Tam	Province (Hau Giang)	2011-2013
53.	Experimental research giant prawn grow out model in earthen pond in An Giang province.	Duong Nhut Long	Province (An Giang)	2011-2023
54.	Biodiversity of fish in Hau river	Vu Ngoc Ut	International (USGS-USA)	2011-2012
55.	Study on the methods for controlling the invasion of Golden mussel (*Limnoperna fortunei*) on snail *Cipangopaludina lecithoides* contributing in Cho Lach, Ben Tre.	Vu Ngoc Ut	Province (Ben Tre)	2011-2012
56.	Sudy on the effects of transportation on the stress levels of Tra catfish (Pangasianodon hypophthalmus) and reduce method	Nguyen Quoc Thinh	University	2012
57.	Study on feed formulation for commercial stage of knife fish (*Chitala chitala*).	Tran Thi Thanh Hien	Ministry	2012-2013
58.	Formation and role of Bioflocs in Artemia farming systerm	Nguyen Van Hoa	Ministry	2012-2013
59.	Advanced studies in pond culture- keys to success for sustainable Artemia farming	Nguyen Van Hoa	International (Belgium)	2012-2016
60.	Study on biological characteristics and genetic polymorphism indices of climbing perch strains in the Mekong Delta	Duong Thuy Yen	Ministry	2012-2013

No	Title of projects	Name of staff	Management level	Implementation period
61.	Preservation of square head climbing perch in Hau Giang province	Duong Thuy Yen	Province (Hau Giang)	2012-2013
62.	Contracting seed production and grow out model in earthen pond and integrated rice fish in Chau Hung A, Vinh Loi, Bac Lieu	Duong Nhut Long	Province (Bac Lieu)	2012-2013
63.	Determination of the cause of Acute hepatopancreatic necrosis syndrome on shrimp culture in Bac Lieu, Ca Mau and Ben Tre provinces	Dang Thi Hoang Oanh	Ministry	2012
64.	Research on black body disease in clibing perch (*Anabas testudineus*), preventions and treatments	Tu Thanh Dung	Ministry	2012-2013
65.	Research on hemorrhagic disease in *Pseudapocryptes lanceolatus*) and propose solutions to prevention and treatment	Dang Thi Hoang Oanh	Ministry	2012-2013
66.	Research on disease in knife fish, prevention and treatment	Tu Thanh Dung	Province (Hau Giang)	2012-2013
67.	Study on common diseases in reice eel and preventions and treatments	Nguyen Thi Thu Hang	University	2012
68.	Interdisciplinary Project on Climate Change in Tropical Aqauculture (iAQUA)	Nguyen Thanh Phuong, Do Thi Thanh Huong	International (Denmark)	2013 - 2017
69.	Digestible methionine requirement for maintenance and efficiency of utilization for growth of Tra catfish (Pangasianodon hypothalamus) juveniles determined using increasing ration levels" (EVONIK)	Tran Thi Thanh Hien	International (Germany)	2013-2014
70.	Study on maturity characteristics and breeding stimulation of Phu Quoc Catfish (Clarias gracilentus Ng,Hong & Tu,2011) in capture condition	Phạm Thanh Liem	University	2013
71.	Experimental building additive crop of Giant prawn based on rice filed in Thoai Son, An Giang	Duong Nhut Long	Province (An Giang)	2013-2014
72.	Developing giant prawn mod-	Duong Nhut Long	Province	2013-2014

No	Title of projects	Name of staff	Management level	Implementation period
	el in intensive earthen pond and alternative rice field in hau Giang province		(Hau Giang)	
73.	Building integrated rice - prawn system in closed dike in Gia Rai, Bac Lieu	Duong Nhut Long	Province (Bac Lieu)	2013-2014
74.	Study on the effect of Pterygoplichthys disjunctivus on the fish diversity in the Mekong Delta	Tran Dac Dinh	Ministry	2013-2014
75.	Experimental studies related to the fao tcp/vie/3304 emergency assistance to control the spread of an unknown disease affecting shrimps	Truong Quoc Phu	International (FAO)	2013
76.	Optimization RT-PCR procedure to detect Infectious myonecrosis virus disease on white shrimp (*Penaeus vannamei*) in the Mekong Delta)	Tran Thi Tuyet Hoa	University	2013
77.	Research on creating a probiotic product containing recombination *Bacillus subtilis* spores to prevent white spot syndrome virus in shrimp	Tran Thi Tuyet Hoa	Ministry	2013
78.	Study on the effect of chemical pollutions to the mass mortality in shrimp farms in the Mekong River Delta	Dang Thi Hoang Oanh	Ministry	2013
79.	Research on monitoring on shrimp disease prevention	Dang Thi Hoang Oanh	Ministry	2013
80.	Trials on mass culture of Copepods *Schmackeria dubia* and *Oithona simplex*	Vu Ngoc Ut	Ministry	2013-2014
81.	Research on use of polysaccharide extracts from brown seaweed (Phaeophyta) as additive nutrients for aquatic animal growth and their protective effect against pathogens in the tiger shrimp (*Penaeus monodon*), white shrimp (*Litopenaeus vannamei*), and catfish (*Pangasianodon hypophthalmus*) in Mekong Delta	Huynh Truong Giang	Ministry	2013-2014
82.	Chemical composition and antioxidant activity of poly-	Huynh Truong Giang	University	2013

No	Title of projects	Name of staff	Management level	Implementation period
	saccharides extracted from brown seaweed Sargassum (Phaeophyta)			
83.	Research on biodiversity of invertebrates to develop bio-indicator collection for water quality assessment in Hau river in Can Tho city.	Nguyen Thi Kim Lien	University	2013
84.	Joint graduate programmes and Research based education in Aquaculture	Vu Ngoc Ut	International (Belgium)	2013-2019

CAF teaching staffs are continuously seeking for funds to support and promote scientific research activity of students to foster the bridge.

Besides the strong points mentioned above, results from employer survey showed that 1/5 employers did not satisfy with the quick responses and adaptation of the graduates to the changing working environment.

15. Stakeholders Satisfaction

Survey system to collect feedbacks from stakeholders:

- Two batches (cohorts) graduated in 2012 and 2013. The stakeholder feedback survey was conducted on on-studying students, graduates, alumni, employers, Vietnamese and foreign experts.

- Domestic employers include governmental organizations, joint stock companies, and private companies. Foreign employers include supervisors of graduates who are following graduate programs or personnel managers of graduates who are working at their companies.

- Vietnamese experts include lecturers and teaching assistants who are experienced in teaching and from either CTU or universities that has been collaborating with CTU on scientific research and training. Foreign experts are scientists, scholars, lectures from reputation universities on the world such as Auburn University (USA), Songkla University (Thailand), Putra University (Malaysia). All stakeholders are illustrated in Figure 4.

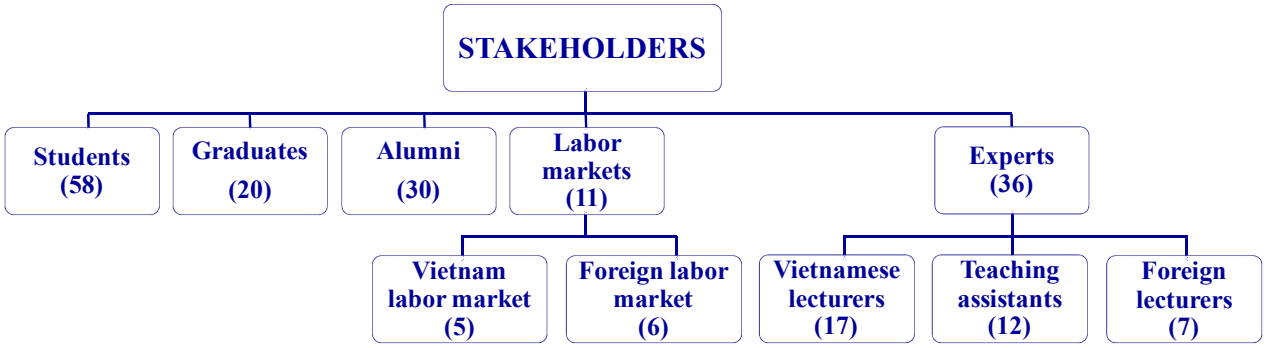

Figure 4. Stakeholder involved in AAP surveys

System for collecting and evaluating the satisfaction of stakeholders has been conducted continuously and frequently through the survey forms during the study period of students at the university [Exh.15.1.Course evaluation form + Analysis results from Quality Assurance and Testing Center] and after graduation [Exh.15.4.Survey forms for the alumni feedbacks on training curriculum + Analysis results]. Beside that, CTU always maintain the close relationship with the employers to collect the feedbacks [Exh.15.5.Survey forms for the domestic and foreign employers feedbacks on training curriculum + Analysis results] to improve the training curriculum [Exh.15.16.Different versions of AAP curriculum], and to improve the quality implementation and assurance system [Exh.15.17.Survey forms; Exh.15.18.Decision on establishment of quality assurance group; Exh.15.19.Decision on AUN assessment].

The process of stakeholder satisfaction collection was conducted through direct interview, scientific workshops where many experts and employers attended and also through email, telephone, etc… following the procedures in Figure 5.

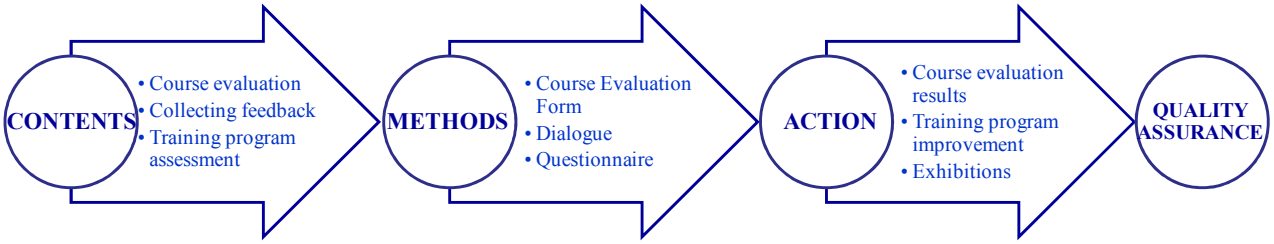

Figure 5. Process to collect stakeholder satisfaction and CTU/CAF analysis

15.1. Satisfaction of student

Survey on students:

- Course evaluation: After completing each course, each student received the evaluation form to appraisal the satisfaction levels on teaching methods, learning materials, course contents and gave comments [Exh.15.1.Course evaluation form + Analysis results from Quality Assurance and Testing Center; Exh.15.20.Statistical results on course evaluation over years].

- The evaluation results were analyzed and sent back to the lecturers to help them adjust and improve their teaching timely. In addition, satisfaction feedback from on-studying students was also collected specifically on courses, curriculum, teaching didactics and examination process. All of results were collected by courses, by Department that manage the training program and by CAF. CAF/Department always follows up the evaluation feedbacks from students to manage [Exh.15.1.Course evaluation form + Analysis results from Quality Assurance and Testing Center; Exh.15.20.Statistical results on course evaluation over years], to adjust the program appropriately [Exh.15.21.Meeting minutes of specialized groups on discussing feedbacks of course evaluation and modifying curriculum, training quality]. The direct feedbacks from students on quality of support services was collected through different channels such as Union meetings [Exh.15.22.Meeting minutes of youth association on AAP;

Exh.15.23.Meeting minutes of academic advisors on AAP] and annual dialogue between students and Rector/Dean [Exh.15.7.Meeting minutes between Rector/Dean and students].

Student's satisfaction:

There are currently 58 students following AAP. The survey results showed that 100% of them satisfied with the lecturer quality and training program which met the learning expected outcomes.

+ Last year students:

- Students required providing more practical knowledge (100% opinions). CAF already organized serial of seminars on practical issues of aquaculture for students [Exh.15.24.Seminar schedule + List of attendants].

- Around 26.7% of students recommended to strengthen them with soft skills for them (Appendix 15.1). CAF already provided extracurricular courses and seminars on soft skills instructed by personnel managers of aquaculture enterprises [Exh.15.10.The invitation letter for extracurricular courses].

- Students also suggested reducing number of generic courses that are not much linked with their major (60% opinions). This suggestion is being considered by consulting the Regulations of MOET.

- Regarding to learning materials, students suggested having more specialized references closely related to the courses and should be also closely linked to the Mekong Delta area situation. This suggestion was already considered by adding more the literature/references in CAF library [Exh.15.11.List of annual updated literatures of CAF library and learning resource center], as well as increased more learning materials and facilities for AAP students [Exh.15.12.List of annually additional equipments for laboratories/wetlab], assigned teaching assistants to give overview on contents of the course which are instructed by foreign lecturers beforehand [Exh.15.13.Lecture notes of teaching assistant].

+ Third year students:

Around 56.7% of third year students proposed that they need to be strengthened more on scientific research skills and practices. They also suggested reducing the number of generic courses which are not relevant to aquaculture area. CAF was aware of that situation and implemented some steps to improve the quality of AAP by modifying the curriculum [Exh.15.8.Meeting minutes on curriculum modification], strengthening teaching assistance [Exh.15.13.Lecture notes of teaching assistant] and encouraging students doing researches within the frame work of student scientific research program or joining research projects with lecturers [Exh.15.14.List of approved student research projects; Exh.15.15.Certificate for research project participation]. In the other hand, 25.7% (4 of 13 students) mentioned on their limitation in English capacity at entrance and required an extra English course to foster this capacity. In the AAP curriculum, there is a free English course of 20 credits taught by experienced English teachers at the first semester to foster and strengthen English skills for the students [Exh.15.16.Different versions of AAP curriculum]. Those students whose English ca-

pacity was still low compared to their peers were recommended by their academic advisor to take extra courses at CTU Foreign Language Center.

+ Second year students:

As these students are just taking fundamental courses, their concerns, therefore, focused mainly on reducing number of generic courses that are not much related to aquaculture, strengthening soft skills, English skills and specialized practical view. CAF also reviewed the curriculum [Exh.15.8.Meeting minutes on curriculum modification] and encouraged students to join research activities to enhance their specialized practical view [Exh.15.15.Certificate for research project participation].

In general, the survey results from all AAP students (58 students) showed that 100% of them concluded the expected learning outcomes and curriculum are appropriate [Exh.15.2.Survery forms for on-studying students on curriculum + Analysis results]. There were 62.1% (36/58) of students satisfied with the balance in knowledge blocks of the curriculum and 86.2% (50/58) confirmed that they can achieve the expected learning outcomes from the training program (Figure 6; Appendix 1).

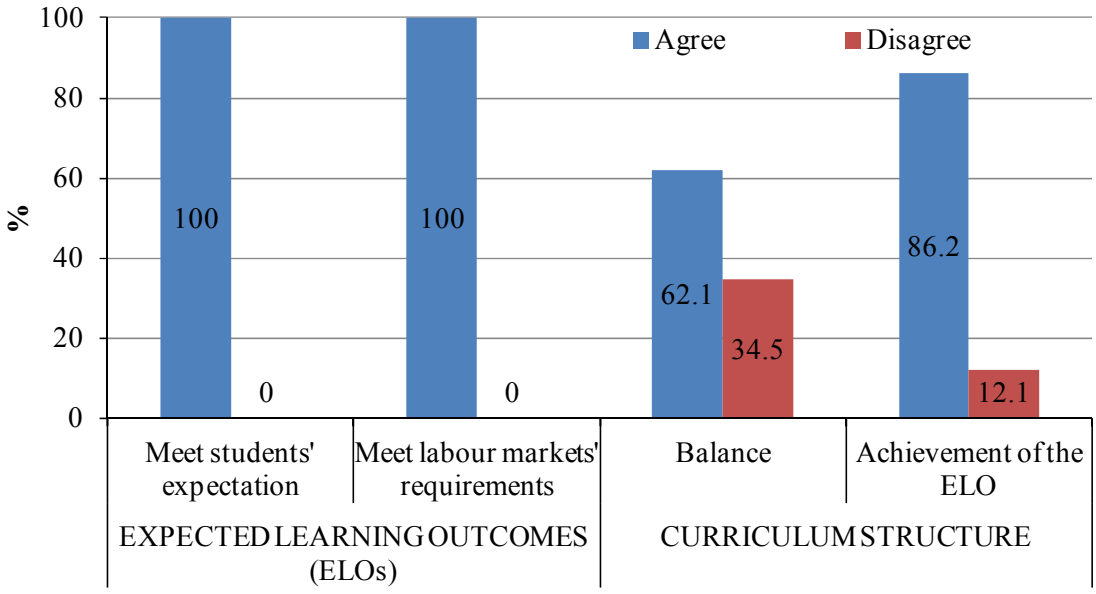

Figure 6: Survey results on students' satisfaction for training program (58 students)

15.2 Satisfaction of graduate

In 2013, there were 20 students graduated and a survey was performed to collect their feedbacks at the moment of graduation [Exh.15.3.Survey forms for newly graduated students + Analysis results] to evaluate their satisfaction on curriculum, teaching methods, support/consultant assistance, satisfaction on course evaluation [Exh.15.1.Course evaluation form + Analysis results from Quality Assurance and Testing Center], learning facilities, contribution of students in curriculum formulation [Exh.15.9.Meeting minutes on curriculum formulation with student representative] and general satisfaction of students on the whole training program [Exh.15.3.Survey forms for newly graduated students + Analysis results].

The followings are analytical results from 29 questions on satisfaction of the 20 newly graduated students:

- 100% (20/20) students satisfied with the curriculum, in which 75% students (15/20) admitted that the curriculum was in balance between the fundamental and specialized knowledge and 65 % (13/20) opinions consented that all the courses had a harmonious linkage to each others in the curriculum.

- 80% (16/20) students confirmed that the curriculum could help them attain the ELO; 70% (14/20) students agreed that the curriculum fulfilled their occupation requirements.

- 58.8% (10/17) students revealed that they had already received invitation/confirmation for jobs after graduation; 29.4% (5/17) of them will certainly work in the area of training major; 89.5% students agreed that they wish to study further for higher level.

The survey results of student's satisfaction are illustrated in Appendix 15.2.

15.3 Satisfaction of alumni

At the surveyed time, there were 28 AAP alumni. CTU and CAF had a good contact with the alumni, the survey results on 22/28 alumni are presented in Appendix 15.3 [Exh.15.04.Survey forms for alumni + Analysis results]. Below are the results of the survey:

- 100% alumni (22/22) satisfied with all questions related to curriculum (Satisfaction levels varied from 2.9 to 3.7). 100% alumni highly evaluated their capacity in research and study at higher levels.

- 81.8% (18/22) alumni consented that there was a balance between the fundamental and specialized knowledge. 72.7% (16/22) students confirmed that quality of the training program met all requirements of their working organizations.

- Most of the alumni were employed within 6 months (45.5% (10/22)) and maximum 1 year (45.5% (10/22)) after graduation.

- 21.1% (4/19) students thought that the reason they had been employed was due to their academic quality results; 10.5% referred to the reputation of CTU and 26.3% reckoned as their ability of adaptation.

- 52.4% (11/20) alumni are working within their training area (aquaculture); 9.5% (2/21) are working in the fields related to their training area and 36.4% (8/22) are studying MSc programs in national and international universities.

- One alumni is working at the Import-Export Agriculture Products Company (including aquaculture products) at Dubai, the United Arab Emirates (UAE).

Feedbacks and satisfaction levels of alumni were collected, analyzed and sent to the Dean and Department that administers the training program to evaluate and proposed solutions in order to improve training quality [Exh.15.21.Meeting minutes on discussion on course evaluation, curriculum modification and training quality among specialized groups; Exh.15.9.Meeting minutes on curriculum formulation with student representative].

15.4 Satisfaction of labor markets

The labor market includes domestic and foreign employers. The domestic employers include governmental organizations and private companies. The foreign employers are considered lecturers who are directly supervising students following MSc programs at foreign countries (4 students).

Domestic employer satisfaction

At present, there are 19 AAP alumni working for 8 domestic employers. Results from 5 of 8 employers (62.5%) showed that the graduates are highly evaluated by the employers on capacity of applying knowledge into practice, good English skills, well managing the assigned work [Exh.15.5.Survey forms for domestic employers + Analysis results]. About 80% employers revealed that the training quality of graduates met their requirements. And 80% of employers confirmed that the alumni had been well oriented to occupation and possessed solid theoretical knowledge.

Domestic employers (4/5) evaluated their employees (the alumni) with satisfaction and high satisfaction levels on their career ethnics, life style, specialization progressive, linkage between CTU and companies/enterprises (with the ranking scale of 5, satisfaction was ranked between 4.0 to 4.2). However, the mean satisfaction level on the working ability, English skills, IT skills, working style, quick adaptation to varied working environment was ranked in a range of 2.2-2.8 [Exh.15.5.Survey forms for domestic employers + Analysis results]. The survey results on satisfaction on AAP and student evaluation by domestic employers are presented in Appendix 15.4.

+ Foreign employer satisfaction

Foreign employer included lecturers offered scholarships and supervising the AAP alumni who are following Mater programs in Thailand and Malaysia. There were 6 of 7 foreign employers joining the survey. The results are summarized as follow:

- 100% employers highly evaluated the study behavior and spirit of the students (AAP alumni) and confirmed that they showed high responsibility, active and well adapted to high working pressure.
- 100% employers agreed that analysis, research and creative capacity of the alumni met requirements of an efficient research program.
- Their English capacity, working adaptation ability, and specialized knowledge met the graduate study requirements. Communication skills were ranked as average to above average (by the ranking scale of 6, the satisfaction was in between 4.7 to 5.7) [Exh.15.6.Survey forms for foreign employers + Analysis results].

The survey results on satisfaction on AAP and student evaluation by foreign employers are presented in Appendix 15.5.

15.5 Satisfaction of teaching and support staff

15.5.1 Teaching and support staff satisfaction

+ Teaching staff satisfaction

A total of 17 Vietnamese lecturers participated in the survey [Exh.15.25.Survey form for domestic lecturers + Analysis results], the results are as follow:

- 100% lecturers agreed that all courses helped students attaining ELO (with the ranking scale of 4, the mean satisfaction level was 3.3). 100% lecturers took part in giving opinions on decisions that related to the contents and teaching didactics (58.8% satisfied and 41.2% very satisfied).
- 94.1% (16/17) lecturers satisfied with the balance between theory and practice in the courses in which 50% lecturers chose satisfied level and 50% chose very satisfied level. There was 1 of 17 (5.9%) lecturer had no answer about this question.
- Regarding to English skills, 87.5% (14/16) lectures admitted that students had enough ability to follow the advanced program, while 12.5% (2/16) lecturers reported that the students were in trouble to follow their lectures. One lecturer did not answer this question.
- 100% (17/17) lecturers satisfied about the training program and support activities during their teaching process.

The survey results on Vietnamese lecturer's satisfaction are presented in Appendix 15.6.

+ **Teaching assistant satisfaction**

Total of 12 teaching assistants were surveyed. The results showed that 100% (12/12) satisfied with their assistance in the AAP; 91.7% (11/12) said that they contributed well to activities related to their assistance; 16.7% (2/12) revealed that they had some problems in doing assistant work [Exh.15.26.Survey forms for teaching assistants + Analysis results].

15.5.2 Foreign expert and lecturer satisfaction

The experts included scientists, scholars, and lecturers from several universities with high reputation in the world coming to give lectures or collaborate on different fields with CTU. There were 7 foreign experts participated in the survey. The results are illustrated in Appendix 15.8 [Exh.15.27.Survey forms for foreign lecturers + Analysis results].

- 100% foreign experts satisfied with very high level on the training objectives and ELO of AAP. Regarding to the contents and specification of curriculum, 100% opinions showed satisfaction to high satisfaction on the balance between theory and practice, and the courses in the curriculum could help students obtain ELO.
- 100% lecturers satisfied and highly satisfied with teaching support activities and students' English ability fulfilled their course requirements.
- Only 14.3% (1/7) expert did not satisfy with getting the subject evaluation and using this evaluation to improve their teaching activities.

III. STRENGTHS AND WEAKNESSES ANALYSIS

1. Strengths

1.1. Expected Learning Outcomes (ELO)

- The ELO of the program are clearly formulated and reflecting the needs of stakeholders.
- The ELO of the program are disseminated to all stakeholders.
- The ELO are translated into the program courses and are transmitted to the students thanks to active learning methods, scientific research activities, and the nurture for life-long learning.
- The program is benchmarked against the qualified national and international programs.

1.2. Program Specification

- The program specification shows the ELO & useful information about the program.
- The program specification was communicated to stakeholder.

1.3. Program structure and content

- The program reflects the vision and mission of the university.
- The contribution made by each course to achieve the learning outcomes is clear.

1.4. Teaching and Learning Strategy

- Teaching and learning strategies stimulate action and facilitates learning process
- The enhancement in international collaborations in teaching and learning activities considered very useful and stimulates the learning motivation of the students.

1.5. Student Assessment

- Using a variety of evaluation form
- The procedure for exam question preparation is ascertained in covering course contents and based on the evaluation criteria to ensure fairness and objectivity for students
- Course evaluation criteria, exam questions and answers are notified to students for reference and comparison

1.6. Academic Staff Quality

- Most of lecturers were trained abroad
- Lecturers apply several modern teaching methods to improve the quality of the lectures

1.7. Support Staff Quality

- The support staffs have appropriate and good professional skills, 50% of them possessing Master degree. They are experienced, senior so that supporting activities are efficient and satisfied teachers and students

1.8. Student Quality

- The entrance exam for student enrollment is strictly organized, so that eligible and high quality students are recruited appropriately
- The training program is implemented efficiently, suitable to learning capacity of students and satisfied by teachers and students.

1.9. Student Advice and Support

- Through the computerized management system, study plans, results, and progress of students are fully and closely monitored. The system helps academic advisors and student support services to provide timely consultancy to the students when needed.
- The academic warning system helps the students' families and the university paying more attention to the poor performing students to act with timely appropriate solutions or measures in order to help them recover better in the subsequent semesters.
- Learning materials is abundant. Students can access a large number of reference books and scientific journals from the Learning Resources Center of the University and CAF library.
- CTU and CAF take advantages from the relationship with enterprises in the region to get and offer a great number of scholarships to poor and outstanding students. This generates a strong motivation for students to accomplish the training programs.

1.10. Facilities and Infrastructure

- Modern and synchronized equipments have met the study and research demand of students and staffs.
- Diverse and abundant sponsors for equipment investment

1.11. Quality Assurance of Teaching and Learning Process

- Aquaculture program is the traditionally well-established training field of CAF that resulted in a well experienced teaching staff team that trained at different institutions, especially at well-known international Institutes/Universities.
- Many research projects and many scientific papers published on both national and international peer review journals.
- Collaboration with many international organizations has created a great contribution to teaching quality improvement of the AAP.

1.12. Staff Development Activities

- CAF has strategic plan for human resource development for specific period of intermediate term, long term with high efficiency.
- Recruitment of staff based on the key criteria of capacity and ethics has resulted in high quality and stable human resources. Young staff for future replacement is also well prepared.
- CAF is able to find various financial supports for staff development activities.
- All teaching staff involved in AAP have been trained long or short term abroad with high quality and closely cooperate with CAF. A total 100% of staff went back to work at CAF after being trained abroad.

1.13. Stakeholders Feedback

- Feedback from stakeholders are gradually and systematically collected as part of quality assurance at CTU and CAF.
- Good collaboration between CTU, CAF and stakeholders has strengthened the process of feedback collection, especially alumni and labor market.

1.14. Output

- High rate of graduates completing their training program on time. High employability rate right after graduation with the offered jobs relevant to aquaculture.
- No dropout, but only 2 of 30 students in the first batch did not graduate on time due to failure in one course.
- Students have strong capacity in doing research and reporting their research work.
- Being employed to work in international working environment (7/48 graduates) and studied graduate level in abroad and Vietnam (4+9/48 graduates) immediately after graduation.

1.15. Stakeholders Satisfaction

- A majority of students and alumni are satisfied with the training program, teaching methods, supporting services and facilities of CTU and CAF.
- Employers are satisfied with the quality of students studying the AAP and express their recruitment demand in the future.

❖

2. Weaknesses

2.1. Expected Learning Outcome

- The number of graduates is small and the amount of feedbacks from stakeholders on program ELO is limited.

2.2. Program Specification

- The communication of program specification to employers is limited.

2.3. Program structure and content

- The number of courses that help students to improve their skills is limited.

2.4. Teaching and Learning Strategy

- Mekong Delta has less opportunities for international interaction, so English proficiency of some students is not good enough when they first enter the program and they are upgraded continuously during their program.

2.5. Student Assessment

- The bank of exam questionnaire is presently still not complete and not widespread yet.

2.6. Academic Staff Quality

- Some staff are under overloaded work condition that may also affect their investment in teaching.

2.7. Support Staff Quality

- Due to the stipulated allocation on number of support staff from CTU, the number of support staff is limited compared to the actual needs, some of them must concurrently do different tasks.
- Currently, CAF have no IT staff in charge. Update work unit is assigned to the staff of the CAF administrative staff carried out concurrently, some information is conveyed sometimes not timely.

2.8. Student Quality

- Due to the bias in tendency of society that interested more in economic fields, CAF faces problems in stabilizing number of students enrolled each year.
- English level of students in the Mekong Delta is generally low, some students are not confident enough to take part in training program instructed in English.

2.9. Student Advice and Support

- Some students have not made full use of the opportunities and support services, when facing difficulties, they are less actively seeking for timely support.

2.10. Facilities and Infrastructure

- Lack of technicians who can do maintenance of equipment.

2.11. Quality Assurance of Teaching and Learning Process

- CTU has just approached the AUN internal quality assurance system since 2012. Therefore, CTU as well as CAF has not achieved professional level from the new system.

2.12. Staff Development Activities

- Number of support staff is still limited compared to the actual needs due to the stipulated allocation issued by MOET and CTU, some of them must concurrently do different tasks.

2.13. Stakeholders Feedback

- Many students lack confidence to share their own thought or even do not care about the learning process.
- The process of collecting feedback from stakeholders is facing many difficulties as they do not pay much attention on the feedback due to lack of time.
- The feedback is still limited in quantity due to small number of graduates.

2.14. Output

- Some graduates have slow adaptation to changes in the real-world working environment.

2.15. Stakeholders Satisfaction

- A few employers not satisfy and suggest improving the linkage between the training program and the practical work.

❖

Opportunities

- Qualified students have more opportunities to study and work abroad.
- The increased international integration and cooperation facilitate CTU as well as CAF to expand relationships with international organizations. The increased relationships help CAF offer more training programs, conduct researches with international quality, and upgrade facilities and staff …

Threats

- Difficulties in enrollment
- English level of inputs is generally low

❖

3. Self-assessment at Program level

1	**Expected Learning Outcomes**	1	2	3	4	5	6	7
1.1	The expected learning outcomes have been clearly formulated and translated into the program						X	
1.2	The program promotes life-long learning						X	
1.3	The expected learning outcomes cover both generic and specialized skills and knowledge						X	
1.4	The expected learning outcomes clearly reflect the requirements of the stakeholders					X		
	Overall opinion						X	
2	**Program Specification**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2.1	The university uses program specification						X	
2.2	The program specification shows the expected learning outcomes and how these can be achieved					X		
2.3	The program specification is informative, communicated, and made available to the stakeholders					X		
	Overall opinion					X		
3	**Program Structure and Content**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
3.1	The program content shows a good balance between generic and specialized skills and knowledge						X	
3.2	The program reflects the vision and mission of the university						X	
3.3	The contribution made by each course to achieving the learning outcomes is clear					X		
3.4	The program is coherent and all subjects and courses have been in-					X		

	tegrated							
3.5	The program shows breadth and depth					X		
3.6	The program clearly shows the basic courses, intermediate courses, specialized courses and the final project, thesis or dissertation						X	
3.7	The program content is up-to-date						X	
	Overall opinion						X	
4	**Teaching and Learning Strategy**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
4.1	The faculty or department has a clear teaching and learning strategy						X	
4.2	The teaching and learning strategy enables students to acquire and use knowledge academically						X	
4.3	The teaching and learning strategy is student oriented and stimulates quality learning						X	
4.4	The teaching and learning strategy stimulates action learning and facilitates learning to learn						X	
	Overall opinion						X	
5	**Student Assessment**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
5.1	Student assessment covers student entrance, student progress and exit tests						X	
5.2	The assessment is criterion-referenced						X	
5.3	Student assessment uses a variety of methods						X	
5.4	Student assessment reflects the expected learning outcomes and the content of the program					X		
5.5	The criteria for assessment are explicit and well-known						X	
5.6	The assessment methods cover the objectives of the curriculum						X	
5.7	The standards applied in the assessment are explicit and consistent						X	
	Overall opinion						X	
6	**Academic Staff Quality**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
6.1	The staff are competent for their tasks							X
6.2	The staff are sufficient to deliver the curriculum adequately							X
6.3	Recruitment and promotion are based on academic merits						X	
6.4	The roles and relationship of staff members are well defined and understood						X	
6.5	Duties allocated are appropriate to qualifications, experience and skills						X	
6.6	Staff workload and incentive systems are designed to support the quality of teaching and learning						X	
6.7	Accountability of the staff members is well regulated						X	
6.8	There are provisions for review, consultation and redeployment						X	
6.9	Termination and retirement are planned and well implemented						X	

6.10	There is an efficient appraisal system						X	
	Overall opinion						X	
7	**Support Staff Quality**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
7.1	The library staff are competent and adequate in providing a satisfactory level of service						X	
7.2	The laboratory staff are competent and adequate in providing a satisfactory level of service						X	
7.3	The computer facility staff are competent and adequate in providing a satisfactory level of service						X	
7.4	The student services staff are competent and adequate in providing a satisfactory level of service						X	
	Overall opinion						X	
8	**Student Quality**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
8.1	There is a clear student intake policy					X		
8.2	The student admission process is adequate							X
8.3	The actual study load is in line with the prescribed load						X	
	Overall opinion						X	
9	**Student Advice and Support**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
9.1	There is an adequate student progress monitoring system						X	
9.2	Students get adequate academic advice, support and feedback on their performance						X	
9.3	Mentoring for students is adequate						X	
9.4	The physical, social and psychological environment for the student is satisfactory						X	
	Overall opinion						X	
10	**Facilities and Infrastructure**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
10.1	The lecture facilities (lecture halls, small course rooms) are adequate							X
10.2	The library is adequate and up-to-date							X
10.3	The laboratories are adequate and up-to-date						X	
10.4	The computer facilities are adequate and up-to-date						X	
10.5	Environmental health and safety standards meet requirements in all aspects						X	
	Overall opinion						X	
11	**Quality Assurance of Teaching and Learning Process**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
11.1	The curriculum is developed by all teaching staff members					X		
11.2	The curriculum development involves students					X		
11.3	The curriculum development involves the labor market					X		
11.4	The curriculum is regularly evaluated at reasonable time periods						X	

11.5	Courses and curriculum are subject to structured student evaluation						X	
11.6	Feedback from various stakeholders is used for improvement					X		
11.7	The teaching and learning process, assessment schemes, the assessment methods and the assessment itself are always subject to quality assurance and continuous improvement						X	
	Overall opinion						X	
12	**Staff Development Activities**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
12.1	There is a clear plan on the needs for training and development of both academic and support staff						X	
12.2	The training and development activities for both academic and support staff are adequate to the identified needs						X	
	Overall opinion						X	
13	**Stakeholders Feedback**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
13.1	There is adequate structured feedback from the labor market					X		
13.2	There is adequate structured feedback from the students and alumni					X		
13.3	There is adequate structured feedback from the staff					X		
	Overall opinion					X		
14	**Output**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
14.1	The pass rate is satisfactory and dropout rate is of acceptable level					X		
14.2	Average time to graduate is satisfactory						X	
14.3	Employability of graduates is satisfactory						X	
14.4	The level of research activities by academic staff and students is satisfactory							X
	Overall opinion						X	
15	**Stakeholders Satisfaction**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
15.1	The feedback from stakeholders is satisfactory						X	
	Overall opinion						X	
Overall verdict							X	

4. Plans for Improvement

4.1. Expected Learning Outcome (ELOs)

- The program will continue to be assessed every year and to be improved periodically.
- Strengthening relationship with stakeholders and applying a set of online tools to get more feedbacks from alumni and employers on the output standards and the training program-related activities.

4.2. Program Specification (PS)

- Evaluating the relation between the ELO and program specification, the communication of program specification will be applied to all stakeholders.

4.3. Program Structure and Content

- CAF will add some elective courses such as Critical Thinking, Public Relation, General Management, and so on into the curriculum that help students learn and attain more soft-skills.

4.4. Teaching and Learning Strategy

- More attention will be paid to students, especially in enhancing their English proficiency at the beginning of the program. Facilitating more opportunities for students to participate in more research activities and access more practical situations.

4.5. Student Assessment (SA)

- Continue to develop the bank of exam questionnaires for all courses

4.6. Academic Staff Quality

- Arranging appropriately work to avoid overloading and making good strategy for training the next generation of teaching staff

4.7. Support Staff Quality

- Proposing plan to CTU for employing 2 more support staff

4.8. Student Quality

- Promoting and enhancing activities on career consultancy at high schools to introduce the Aquaculture field to attract more students.
- Enhancing and improving English proficiency for students at the beginning and during the learning process.

4.9. Student Advice and Support

- Enhancing students' awareness of the features of the support services.
- Increasing more accessible opportunities to reach students with different forms by the support units.

4.10. Facilities and Infrastructure

- Proposing to CTU for more technicians

4.11. Quality Assurance of Teaching and Learning Process

- Continue to study and enhance the internal quality assurance system of CAF

4.12. Staff Development Activities

- CAF will propose to MOET/CTU on increase number of permanent support staff for the universities

4.13. Stakeholders Feedback

- Through the Youth Union and the Department of Student Association, graduates are kept in touch to record the satisfaction level with all activities in class, institute and university.
- Maintaining and consolidating relationship between CAF and companies through regular contact

4.14. Output

- Training more soft skills and increasing more opportunity to access the practical situations for students

4.15. Stakeholders Satisfaction

- Maintain and develop the survey system to receive feedbacks from the stakeholders about the training program and the educational quality for persistent improvement.

IV. APPENDICES

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69.	Seminar schedule on CAF website: http://caf.ctu.edu.vn/caf/index2.php?id_news=693%20&id_pa=23	Exh.4.2.	
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