



Project Title
**Curriculum Development for Sustainable
Seafood and Nutrition Security**

Project Acronym
SSNS

Deliverable 3.1b: Report on Teachers training for Vietnam

December 2019

Funding details:

Education, Audiovisual and Culture Executive Agency
Erasmus+: Higher Education – International Capacity Building
KA2: Cooperation for innovation and the exchange of good practices – Capacity building in the field of Higher Education
Agreement Number: 2018 – 0028 / 001 - 001
Project Number: 585924-EPP-1-2017-1-TH-EPPKA2-CBHE-JP

Support:

Co-funded by the Erasmus+ programme of the European Union

Deliverable details:

Due date of Deliverable: 30-06-2019

Actual submission date: -15-12-2019

Start date of project: 15 - 10 - 2017

Duration: 3 years

Organisation name of lead contractor for this deliverable: NTNU

Dissemination level		
<input checked="" type="checkbox"/> Department / Faculty	<input type="checkbox"/> Local	<input type="checkbox"/> National
<input checked="" type="checkbox"/> Institution	<input type="checkbox"/> Regional	<input type="checkbox"/> International

Disclaimer:

The European Commission supports for the production of this publication does not constitute an endorsement of the contents, which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Curriculum Development for Sustainable Seafood and Nutrition Security (SSNS)

Report:
Teacher's Training
Vietnam
November 25-30, 2019

Day 1 (Nov 25, 2019):

Arrival of partners in Ho Chi Minh city.

Day 2 (Nov 26, 2019):

Report prepared by

Ioannis Karapanagiotidis, University of Thessaly (UTH)

The 1st day of the teacher's training programme was held in **Nong Lam University (NLU)**, Ho Chi Minh city.

Welcome by the Chair of NLU:

Dr. Nguyen Ngoc Thuy Chair of NLU warmly welcome the SSNS group and spoke briefly about the University (<https://en.hcmuaf.edu.vn/en-11772-1/en/about-us.html>). In 1955, the BLAO National College of Agriculture was established at Bao Loc, Lam Dong province which set up the milestones for developing present Nong Lam University (NLU). Throughout its 55 years' history, NLU has been playing an important role in education, extension, dissemination of scientific technologies in Vietnam with its pursuit of academic excellence and commitment to country innovation and creativity. In the long term, the 118-hectare main campus of NLU is fully used for academic, research and technical transfer purposes. The range of the research activities is immense and extends across all faculties and departments. NLU has strong relationship with other universities with exchange education programs and research projects, and has close relationships with universities in ASEAN countries. NLU focus on the training internationally qualified professionals and experts in different disciplines in creative friendly education space, strengthening the link universities/institutes - private entrepreneurs – communities and orienting research towards the economic improvement and sustainable natural resource conservation of Vietnam.

Specifically, the **Faculty of Fisheries** (fof.hcmuaf.edu.vn/) is a very active academic Department. Nong Lam University was officially established in 1974. Its predecessor was Fisheries Division of Animal Science Faculty, National Academy of Agriculture (initial and former name of Nong Lam University). In 1975, after the national reunification, its name was changed into the Faculty of Fisheries. The faculty comprises of 5 departments: Fish Biology and Aquatic Resources, Aquaculture Technology, Aquatic Products Processing Technology, Fish Pathology, and Fisheries Management and Development. It operates 4 laboratories, 2 experimental farms and the Novus-NLU Aquaculture Research Center. The Faculty also operates a programme in Master of Science in Aquaculture and PhD programs within research areas such as enhancing aquaculture production systems; water management for aquaculture development; ornamental fish; improving seed quality of indigenous and common aquatic animal species; aquatic animal nutrition and feedings; aquatic animal health management; aquatic product preservation and processing; utilization of by-products from fish processing factories; aquaculture development; management and conservation of aquatic resources; socio-economics and trade issues in aquaculture and fisheries etc.



Photo 1. Faculty of Fisheries, Ho Chi Minh University

Presentation of the progress of SSNS program by Project Coordinator

The project Coordinator Dr. Ram C. Bhujel presented to the meeting attendants the up to date progress of SSNS project giving also indicator metrics. Dr. Bhujel reminded the aims of the project and spoke about previous relevant projects in Asia and EU. It was a short remind of the project partners, objectives, WPs, VLE platform, Deliverables, SSNS centres, farm visits, presentation and discussions in study visits and in teacher's training visits etc. He explained the background of the framework of SSNS project highlighting the global seafood demand, world production trends, the needs of EU for more seafood, and the fact that the higher education faces many challenges. About the Deliverables of WP2, the teachers guidebook and teaching methodologies have been finalized by European partners and it will be translated to each of the three Asian languages (Thai, Vietnamese, Indonesian). The WP3 will be ending by February 2020. He also mentioned the procedures that must be followed for supplying/buying the lab equipment. He described also the activities and reports that need to be done in WP4 concerning the accreditation and delivery of courses, incorporation of MSc curricula, proof of offering, number of students attaining the courses, report on the impacts of the study programme. He also encouraged partners to enhance the visibility and dissemination of the SSNS project via SSNS webpage, developing brochures, facebook group. Furthermore, he spoke about the final event of SSNS project; the Conference-Symposium that could be held on October 2020.

Presentation of the M.Sc. Study Programme of NLU

Dr. Nam Kha Nguyen, teacher of NLU presented in detail the M.Sc. Study Programme of NLU (**Table 1**). The MSc Programme in NLU was reformed based on the Gap Analysis findings in WP1 and the challenges in the fisheries and aquaculture sector.

These were the main points of the MSc course in NLU:

- Curriculum: 45 credits (will be reformed to 60 credits)
- Required courses: 12 courses, 24 credits
- Elective courses: choose 6 courses, 12 credits among 11 courses, 23 credits (offer).
- Thesis: 9 credits
- Course: 2-3 credits
- Theory: 1 credit \approx 15h (3h/week, 10 weeks)

- Practice: 1 credit \approx 30h (5 weeks)
- ECTS = 30h std workload
- Plan: 60 credits: addition of new courses such as Seafood and Human Nutrition, English, improve course outlines of all courses, implement new teaching methods, use the VLE platform, implement Internship and VET courses amongst others.

Dr. Nam Kha Nguyen mentioned the existed courses, and which of these were updated and those that were new courses. E.g. the courses “**Environmental Impact Assessment in Aquaculture, AQUA6014**”, “**Fisheries Resources Management, AQUA6016**” and “**Biotechnology Applied in Aquaculture, AQUA6009**”, “**Advanced Fish Nutrition and Feed Formulation, AQUA6005**”, “**Statistics Applied in Aquaculture, AQUA6002**” were upgraded in Master program in Aquaculture, while courses such as “**Seafood and Human Nutrition, AQUA6020**” has been newly added into the MSc curriculum.

Several digital teaching methods were implemented such as “Kahoot”, Google classroom, Facebook group etc. that some of them were adopted based on the experience gained from the Study visits in University of Stirling (UK) and NTNU (Norway), offering interaction for students and teachers.

Dr. Nam Kha Nguyen explained in detail to the audience the accreditation process of academic study programmes in Vietnam, which is time-consuming and needs a lot of workload. The MSc Programme in NLU has been accredited by **07/2015/TT-BGDĐT** (Ministry of Education and Training, Vietnam).

Table 1. MSc curriculum in NLU

MASTER OF AQUACULTURE CURRICULUM

I. Curriculum (45 credits)

- Theories and practice: 36 credits (2 terms)
- Thesis: 9 credits (1 – 2 term(s))

No	Code	Name of subjects	Credits			Term
			Total	Theories	Practice	
A	Common subjects (5 credits, accounting for 11.1%)					
1	PHIL6000	Philosophy	3	3	0	1
2	AQUA6001	Research Methodology	2	2	0	1
B	General and specialized compulsory subjects (19 credits, accounting for 42.2%)					
3	AQUA6002	Applied Statistics in Aquaculture	3	2	1	1
4	AQUA6003	Aquaculture System	2	2	0	1
5	AQUA6004	Aquatic Seed Production	2	2	0	2
6	AQUA6005	Advanced Fish Nutrition and Feeding	2	2	0	1
7	AQUA6006	Diseases of Aquatic Organism	2	2	0	2
8	AQUA6007	Environmental Quality Management in Aquaculture	2	2	0	2
9	AQUA6008	Applied Genetics in Aquaculture	2	2	0	2
10	AQUA6019	Field Visit	2	0	2	2
11		Proposal defense	1	0	1	2
12		Internal thesis defense	1	0	1	3-4

C	Elective subjects (12 credits, accounting for 26.7%)					
13	AQUA6009	Applied Biotechnology in Aquaculture	2	2	0	1
14	AQUA6010	Applied Geographic Information System	3	2	1	1
15	AQUA6011	Economics and Marketing of Fisheries	2	2	0	2
16	AQUA6013	Aquatic Animal Ecophysiology	2	2	0	2
17	AQUA6014	Environmental Impact Assessment on Aquaculture	2	2	0	2
18	AQUA6012	Reproductive Endocrinology and Application in Aquaculture	2	2	0	1
19	AQUA6015	Aquaculture Planning and Development	2	2	0	1
20	AQUA6017	Aquaculture Wastewater Treatment	2	2	0	2
21	AQUA6018	Feed Additives in Aquaculture	2	2	0	2
22	AQUA6016	Aquatic Resource Management	2	2	0	1
23		Internship	2	2	0	2
D	Thesis (9 credits, accounting for 20.0%)					3-4

Visit on the facilities used for teaching/training (classrooms, ponds/tanks, laboratories etc.) of NLU

The SSNS group visited several teaching/training facilities in order to witness training. There is an “Experimental farm for aquaculture” within the campus of Ho Chi Minh University with fish ponds and many series of tanks within recirculation water system.



Photo 2. Experimental farm for aquaculture and training facilities in NLU.

Round table discussion with students about their experience on the course.

At the afternoon session, there was a brief discussion of the SSNS group with the students of LNU that attended the presentations. In total, there were 7 students, mainly MSc students and 1-2 undergraduate students on their last year of study. Students were very active and talkative giving a good feedback on the new courses and MSc study programme. Some students mentioned that there are some boring lectures; that is a good practice that some teachers are using facebook for communication. They mentioned that they need more interaction of the teacher with the students; a good practice is for the teacher to remember the names of the students; they need more practical knowledge of how to apply the gained knowledge; more IT tools etc; a more extended in time internship. There was a discussion of how teachers could engage students during the lectureship, to find other ways to attract etc. The SSNS group discuss in more detail the teaching methodologies of the D.4 Deliverable

Presentation of the VET courses and Internships of NLU.

Dr. Nam Kha Nguyen, teacher of NLU presented the VET courses and Internships of NLU.

About the Internship, this aims to provide quality training that will offer students to subject to a future academic working environment and to gain work experience. After completion of the internship the student is expected to be able to apply knowledge and skills acquired during the course of study, execute certain professional skills, work independently, understand seed production and culture techniques for freshwater, brackish and marine

aquatic animals, manipulate all major steps in aquaculture techniques and participate in operating the hatchery and grow-out farms, and to be able to conduct research related to aquaculture and production, to be diligent, interested in and passionate about the profession, with a serious attitude in learning, practicing.

Internship duration will be 2 months with one Supervisor (Faculty) plus one Instructor (in place). Students are discussing with supervisors and instructors for the content and learning outcomes, work in place etc. The supervisor will also visit the work in place to witness learning outcomes. Usually there will be 1-3 students in each work place. Instructors will give a feedback to the University at the end of the internship. Each student will prepare a report and a presentation during which the instructors will be invited to attend.

Dr. Nam Kha Nguyen presented some examples of internships and work in places such as in the “Can Gio Mangrove Forest Management Board” where students are working in the management of the Mangrove forest ecosystem, and in the “High-tech Agriculture Park” where student are conducting applied research.

Considering the VET courses that will be offered in NLU these are :

- Techniques for seed production of freshwater fish
- Aquatic Animal Nutrition
- Water quality analysis for aquaculture
- Aquatic animal (shrimp and fish) diseases diagnosis
- Environmental Risk Assessment

There will be an official agreement with entrepreneurs, and VET courses will be built to their training demands.

After the presentation of MSc curriculum, there was an extensive discussion and feedback within the partners. Many questions have emerged for clarification (e.g. what was updated in each course, what were the new teaching methods etc.). Discussion also included if the MSc curriculum implement the Gap Analysis of WP1, fulfill the Erasmus+ requirements for Curriculum Development, improvements/impacts in teaching methods/material use etc. they have implemented to make more effective delivery, accreditation: if it could be a unified accreditation for all proposed MSc in all SSNS Centres etc. The SSNS group also discussed the aims of internship, the learning outcomes etc. Sometimes there is a mismatch of the interest of students and of the interest of the host company; most internships are not well organised; students want to go to other countries; it is easier for students to move from Europe to Asia for internship but its too expensive for an Asian student to move to Europe. Can Tho University has an exchange programme to Thailand, Malaysia, Indonesia and other countries. The group discuss how the SSNS group can help EU students to come to Asia for internships.

In general, the whole structure was considered at a high academic standard and some improvements were suggested.

At the end of the day, there was a wrap up of the daily activities.

Day 3 (Nov 27, 2019):

Report prepared by

Ioannis Boziaris, University of Thessaly (UTH)

The project Coordinator Dr. Ram C. Bhujel initiate the today programme.

Presentation of the PhD/M.Sc. and Internship Programmes of RIA1

Dr Dang Thi Lua of RIA1 presented in detail the partner RIA1 and their activities related to PhD/M.Sc. and Internship Programmes.



Photo 3. Presentation of the PhD/M.Sc. and Internship Programmes of RIA1

The presentation was also consisted by 4 part (1.RIA1's Education and Training, 2. Internship program, 3.VET courses, 4. Plan and Discussion). It was explained the RIA1's structure and main functions and subsequently the education (BSc, MSc courses since 1994 and 1997 respectively) and various training activities (Table 2) were presented.

From 2019 RIA1 has been also offering PhD studies (Table 3). The training courses and internship is also an important activity for RIA1 with participants from all over the world. There are 6 internships placements and 8 training course. At the moment there are developing an new master course (Table 4)

Table 2. Training courses provided by RIA1

No	Training course	No. of Pax	Duration	Participants
1	Feed formulas for aquatics species; reproduction of tilapia	8	One month	Namibia
2	Molusk seed production and culture	7	one month	Namibia
3	Extension methods and modern technology of marine fish culture at commercial scale	30	3 days	Vietnam
4	Extension methods and marine fish health mangament	30	3 days	Vietnam
5	Aquaculture and fisheries management	16	14 days	India
6	Coastal aquaculture and fisheries management	6	7 days	India
7	Marine Aquaculture	6	10 days	Myanmar
8	Coastal and marine aquaculture	6	10 days	Madagascar

Table 3. Subjects and credits of the of the PhD programme

No	Code	Name of subject	Credits
I	Compulsory subjects		6
1	TSCN 601	Biotechnology in aquaculture	2
2	TSCG 602	Selection and Genetics in aquaculture	2
3	TSDT 603	Epidemiology in Aquaculture	2
II	Elective subjects (choose 2 of 8)		4
1	TSNB 604	Marine fish seed production and grow-out aquaculture system	2
2	TSNN 605	Cold-water and freshwater fish seed production and grow-out aquaculture system	2
3	TSMT 606	Water Quality Management in Aquaculture	2
4	TSDD 607	Feed and nutrition in aquaculture	2
5	TSTN 608	Infectious diseases on aquatic animals and pathogenic mechanisms	2
6	TSTK 609	Experimental Design and Advanced Statistics in Aquaculture	2
7	TSMD 610	Immunology and vaccination	2
8	TSNG 611	Crustacean seed production and grow-out aquaculture system	2
III	Term paper		2
IV	Special Topics (choose 2)		4
1	Aquatic animal health management		2
2	Use of chemical, medicines and probiotics in aquaculture		2
3	Aquaculture technology		2
4	Environment Management in Aquaculture		2
5	Genetics and Selection		2
V	Thesis		70

Table 4. Subjects and credits of the of the new master programme

No	Code	Name of subject	Credits
I	Compulsory subjects		6
1	TSCN 601	Biotechnology in aquaculture	2
2	TSCG 602	Selection and Genetics in aquaculture	2
3	TSDT 603	Epidemiology in Aquaculture	2
II	Elective subjects (choose 2 of 8)		4
1	TSNB 604	Marine fish seed production and grow-out aquaculture system	2
2	TSNN 605	Cold-water and freshwater fish seed production and grow-out aquaculture system	2
3	TSMT 606	Water Quality Management in Aquaculture	2
4	TSDD 607	Feed and nutrition in aquaculture	2
5	TSTN 608	Infectious diseases on aquatic animals and pathogenic mechanisms	2
6	TSTK 609	Experimental Design and Advanced Statistics in Aquaculture	2
7	TSMD 610	Immunology and vaccination	2
8	TSNG 611	Crustacean seed production and grow-out aquaculture system	2

Lab walk in the department

Visit is various laboratories, Fish pathology, environmental monitoring of water and soil, microbiology, physics etc., while the students practicals were under process.



Photo 4. Students laboratory practical in Physics



Photo 5. Laboratory of Fish pathology

Workshop/Developing course syllabus

After the Lunch break, Dr Bostoc from Stirling talked about the development of courses syllabus. The aspects that presented were how to develop syllabus, the learning outcomes, the methodology to assess students' performance and outcomes, getting and interpreting the students' feedback and also various grading scheme were discussed.

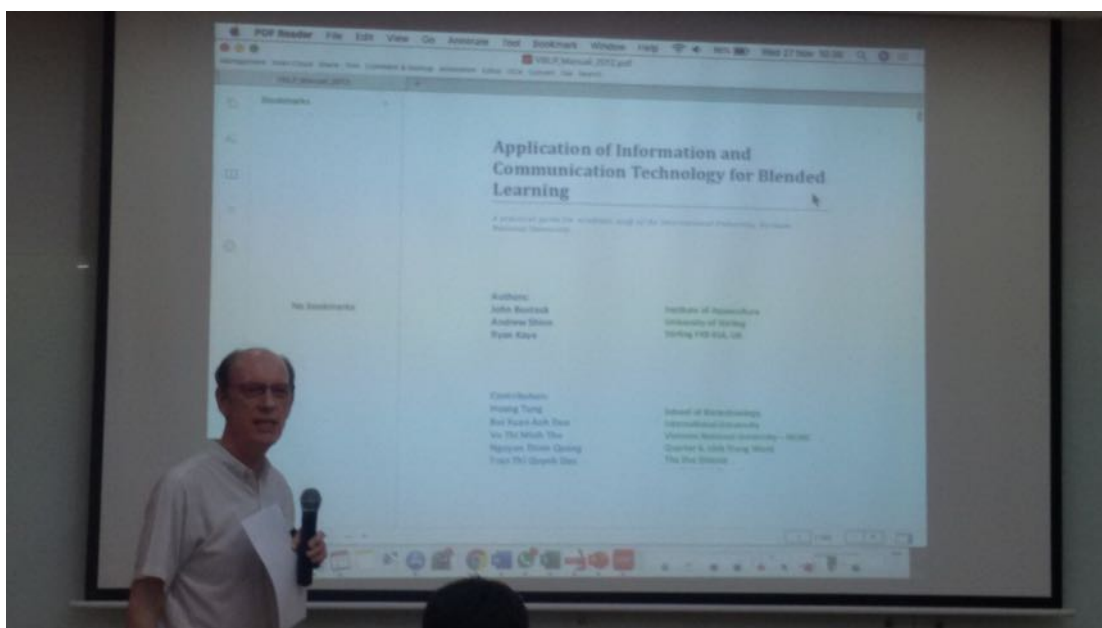


Photo 6. Dr J. Bostock from Stirling University during his presentation.

After the presentation a workshop took place. The subject included discussion of various methods applied in NLU, the use of software for preventing plagiarism (which is essential and it was suggested to NLU), the assessment methods, and the importance of the feedback from the students. Subsequently, courses outlines of NLU (Seafood Safety and Quality control, Seafood and Human Nutrition, Fisheries Resources Management, Genetic and genomic of diseases resistance in aquaculture) and were studied and criticised in groups. Each group commented on aspects such as subject description, content and reading

references, learning outcomes, teaching methods and assessment. The discussion followed revealed the good potential of the courses and the quality of teaching provided, while new aspects for improvement were highlighted.

VLE Platform

The Euro-training SA partner presented the VLE platform. The presentation was conducted by Nikolaos Michailidis. He explained and demonstrated the main option of the platform giving various examples.

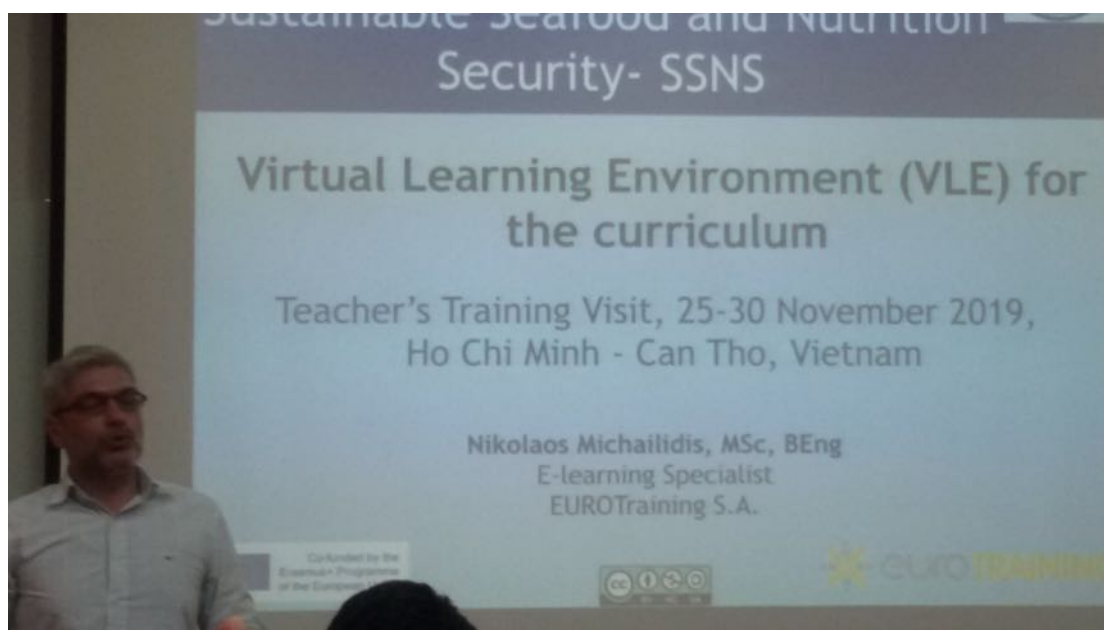


Photo 7. VLE presentation and demonstration by Mr. Nikolaos Michailidis.

Main objective was the presentation of the SSNS VLE platform and practice for a course creation by each Asian teacher and students of NLU and CTU.

The main purpose of the SSNS VLE platform was to serve as a networking hub, as well as for a training e-class for the teachers and students participating in the SSNS project, enriching their learning experience with a variety of resources and activities.

More specifically the following topics were covered:

Course Settings and Resources

- Course Page: Course set-up and layout options
- Resources: Add and configure the Label, Book, File and Folder resources
- SCORM Activity: Add and configure the SCORM activity in your course

Collaboration

- Choice Activity: Add and configure polls to stimulate thinking or collect a class vote on a single question
- Forum Activity: Provide an area for discussion for your students and a place to share ideas

- Glossary Activity: Create and populate a course glossary with keywords related to your course topics.

Assessment

- Quiz Activity: Add and configure the Quiz (using a range of popular question types)
- Assignment Activity: Enable submissions from students and manage feedback and grades

Course Management

- Feedback Activity: Add evaluations to your course
- Reporting: Monitor learner activity logs, and access course-based reports
- Completion Tracking: Track and report on the progress of your students across activities and the course as a whole
- Badges: Reward learners and allow them to share progress and achievement with others
- Groups: Manage user participation and segmentation within courses
- Conditional Access: Define criteria within resources and activities to restrict access to specific course content

Wrap-up of the day

At the closing a review of the day activities, highlights and conclusions took place, while the activities of the following day were presented.

Day 4 (Nov 28, 2019):

Report prepared by

On 28th of November the SSNS group travelled from Ho Chi Minh city to Can Tho University (CTU, Can Tho city), which is located at the Mekong delta area. On the way to CTU the SSNS group visited a pangasius farm which consists a place of internships for CTU students.



Photo 8. Pangasius farm in Mekong delta, used for internships of the CTU students.

Day 5 (Nov 29, 2019):

Report prepared by

Jørgen Lerfall and Anita Nordeng Jakobsen (NTNU)

08:30: Welcome to CTU by prof. and vice-dean Pho Trung Khoa

- Seafood security and safety is important
- Project help developing teaching capacity and to improve human resource. Pangasius breeding was started at CTU

08:45: Presentation of MSc program in aquaculture of CTU

- One of 13 core Universities in Vietnam, MSC: 48 programs, PhD 19, BSc 98
- College of Aquaculture and fisheries: established 1976
- Located at the center of the Mekong-delta. More than 70% of the Vietnam aquaculture and 45-50 % of the rice production
- Established in 1966, multidisciplinary university, employees 1855, BSc: 45800, MSc and PhD 2863
- Aquaculture program was established in 1976
- College of Aquaculture and Fisheries established in 2002
- More than 70% of the staff hold a PhD degree
- New laboratory complex and wet labs will be built in 2020
- 5 BSc programs; Aquaculture, Advanced prog in aquaculture (taught in cooperation with Auburn University (USA). Aquatic product processing technology
- 3 MSc programs (MSc in aquaculture started in 2003, and so far approx. 400 students have graduated
- PhD program in Aquaculture

MSc in Aquaculture (60 credit). International MSc program in Aquaculture in cooperation with several universities in Vietnam and Europe (this program was launched in 2016). English is mandatory for all students. Vietnamese students can also take the international MSc. Yearly increase in number of students, from 6 in 2016 to 20 in 2019. MSc student have a practice at RIA2. Credit exchange between CTU and University of Gent. Courses of 2 credits is taught intensive for one week whereas those of 3 credits have a duration of 2 weeks. One teaching hour is 50 min.

Discussion about implementation of internships and new SSNS courses.

New training- and SSNS courses at CTU will be located at the SSNS center. Implementation of new SSNS MSc master program at CTU was also discussed. The main challenge is that a new program needs to be externally accredited. That will take approx. two years. An option is to include seafood security as a sub-program under one of the existing MSc programs at CTU.

11:00 Guided tour at campus to see laboratories and wet-labs

12:00 Lunch at the campus

13:00 Discussion about what teachers have learned and implemented from the study visits to NTNU, Norway and Stirling, UK

- CTU teachers have started to ask the industry to fund MSc thesis. As a result, this have resulted to a better cooperation with the industry. So far three-four students have been enrolled in such cooperation.
- Internships: only a few students have done an internship so far
- Phu: Have done some improvements in the use of active learning methods. Has tried to use more questions and discussions in the way he teaches. One of the courses has also been improved by adding “case-studies”. Use seminars/workshops to encourage other lecturer to improve their way of teaching. One example is seminar on e-learning (VLE)
- If center is established: Name of university, Logo, Name of Center
- MSc programs have 1-month practical work in the field
- BSc has already 3-month internship that can be reported as a spin off (or not??)

Internships are a part of teaching and should not be confused with thesis work that is research

CTU does already have a center (have been running for three year):

- Center for advanced aquaculture applications
- 2.4 hect
- Several students
- one office
- two employees

Collaboration with industry:

Established contact with industry before visit to Europa. Collaborate with 120 companies; sees, farming and processing companies, chemical equipment, feed additives and feed.

Different collaboration:

- Education: 234-334 bachelor students to 60 companies per year
- Research projects at different companies
- Technology Transfer
- Workshop and conferences
- Arrange meeting with industry and students: industry interview students

Students on the international MSc program - thoughts about the program

There was an extensive discussion with the present MSc students. One French student came to CTU to take the international MSc in Aquaculture. The reason is that he was really interested in tropical aquaculture. During his stay he has visited several pangasius, snakehead etc. farms. He has also been on a two-month internship. Students are of their second-year finishing Sept 2020. One Chinese student chose this MSc program in Aquaculture since it was offered in English. In general, interested in aquaculture business. He thinks the program is missing an international seafood business course. One African student came here to learn and build network to increase the knowledge in Malawian aquaculture. He points that international cooperation is important to improve African aquaculture. Student from Laos. Have been visiting pangasius, tilapia and shrimp farming. He has an history as an employee at the forestry and aquaculture department. Frida from Kenya; mostly interested in tilapia and catfish farming. It feels nice to be in a multinational environment. Student from Uganda. Pleased to be here in Vietnam. Is really satisfied to be here and it is interesting to follow the whole production value-chain. It is important to learn how to manage a production farm. It is also important that the level of the program is like

those offered at other universities, eg in Europe or US. Student from Nepal. It is possible to improve the program by increased attention to laboratory work and language skills. One example is that none of the students have done any proximate analyses that is important when studying fish nutrition. A 1st year student from Nepal: The program seems much better than those offered in my home country. A 2nd year student from Nepal: My aim to take the program was to learn and improve skills in aquaculture. The program is too broad. It should be more specialized into a more specific topic. Tropical aquaculture is a huge topic. One student told that he is satisfied with the facilities and the equipment offered at CTU. A student from Myanmar mentioned that the Vietnamese are very friendly. They help us with our studies. Student from Tanzania wants to transfer knowledge from CTU to her country. Missing a Vietnamese language course to learn to communicate with locals. A student from the Philippines said that there is a language barrier and she wants a more practical than theoretical focus. A student from Vietnam mentioned that it is easier for us since we are “the locals” and can focus on studying. Another Vietnamese student: Want more international professors to teach. A third Vietnamese student said that he has learned 70% of what he expected. A student from Kenya, wants to go back to his country to improve aquaculture in Kenya. He is missing more practicals to improve hands on skills. Two months are considered to be too less. Probably searching other skills than what can be offered in a MSc level

Workshop – role playing of aquaculture stakeholders

Roleplay: “Environmental concerns for pangasius farming”

Dr. Ioannis Karapanagiotidis, Assistant Professor of the UTH organized a workshop for the MSc students of CTU and SSNS participants in order to train them how to use different teaching methods. Initially, Dr. Ioannis Karapanagiotidis presented briefly the various teaching methodologies that are actually described in detail in Deliverable 2.4 “Training Methodologies and Tools”. Then people in the classroom were divided into small groups in order to start the Workshop, which was a role playing teaching method. Each group of people had to think of as being an aquaculture stakeholder. The four groups represented one the following aquaculture stakeholders:

- 1) The Government (e.g. Thai Department of Fisheries)
- 2) The private sector (Farmers & feed producers)
- 3) Research Institutes – Universities
- 4) Aquaculture Policy makers (e.g. FAO, NACA)

The four aquaculture stakeholders had to work together and find solutions in a very important issue that challenges Vietnamese aquaculture sector: “Environmental concerns for pangasius farming”

Ioannis presented the facts about Vietnamese pangasius farming:

- Pangasius production is booming contributing to the Seafood Security globally - more than 1 MT of pangasius is produced annually, exports to over 145 countries, (Europe, USA, Japan etc.)

- Pangasius farming in Vietnam has been described as the most intensive and productive food production system on earth
- Hyper-intensive pangasius production generates a large amount of soluble and particulate wastes (daily exchange of pond water, the disposal of concentrated pond sludge)
- many farms (potentially the majority of small farms) continue to illegally dump sludge wastes directly into rivers or canals adjoining the farms
- the illegal sludge dumping at the local level contributes to the cumulative pollution and deteriorating water quality in the tributaries and canals of the Mekong delta
- The use of antibiotics in Vietnamese pangasius culture is high
- Some antibiotics have been characterized as hazardous to human health (WHO)
- Shipments of pangasius fillets to Europe continue to be rejected due to the presence of nitrofurans (antibiotic) residues (17 rejections in Europe in 2014)
- the disposal of concentrated pond sludge and the high use of antibiotics in Pangasius farming are not contributing to the Sustainable Seafood Nutrition Security
- Although the pangasius industry is actively working on improving practices there is a need for more sustainable practices
- Each stakeholder had to discuss within group and within the classroom a) what was their role in the aquaculture sector? b) what actions they could take? c) What synergies do they need?

It was a nice opportunity to make all people work together. One of the main learning outcomes of such a teaching methodology is the realization of the complexity of the solutions that are required in order to have sustainable aquaculture.

Day 6 (Nov 30, 2019):

Report prepared by

John Bostock (University of Stirling)

Session introduction

The Project Coordinator noted the purpose of the session to review project progress and to discuss and make clear EU requirements in the following areas:

- **QUALITY ASSURANCE.** e.g. how to assure that the SSNS is of high quality, what are our indicators/standards
- **SUSTAINABILITY** – e.g. demonstrate that SSNS project is sustainable in human resources, at institutional level, financial viability etc.
- **IMPACT** – monitoring of SSNS impact, links of SSNS with society
- **Accreditation:** Could it be a unified accreditation for all SSNS Centres?
- **SSNS Centre** - where/office and how this will be established/operate in each Asian partner

Attention was also drawn to the question of whether the project objectives been delivered, especially:

- **WP3** – teacher training and preparation for delivery at Asian partner universities + lab equipment purchase
- **WP4** – Accreditation and delivery of courses (New training and MSc courses should be developed and in delivery by October 2020)
- **WP5** – Quality control

The review was carried out with reference to the Workpackage tasks (3 to 6) and associated deliverables.

Task 3.1 Academic staff training

Deliverable 3.1 – Training Materials

- UoS to collate and work with EUROTraining for presentation through the SSNS VLE.

Deliverable 3.2 Study visits to Asia for academic staff training

- At staff training events there should be training of at least 4 administration staff. The next course is scheduled for February 10-14 or 17-21 (proposed) in Indonesia. For the Greek partners – either date is suitable. For the Norwegian partners – first week better. For Stirling the second option would be better for JB, but expect participation from AA and/or MC (date preference to be confirmed).

Deliverable 3.3 Online training of academic personnel in SSNS VLE

- This was carried out at the current meeting and will continue remotely and at the next meeting.

Task 3.2 Setup of equipment and establishment of “Sustainable Seafood Centres” in partner countries

Deliverable 3.4 – Common framework report for the establishment of “Sustainable Seafood Centres”

- The Coordinator clarified that equipment are linked to the SSNS Centre to be established but they should be used for mainly teaching and learning purpose. Each of the 9 Asian partner institutions should have a “Centre” to reflect to Sustainable Seafood and Nutrition Security. The Coordinator also reported on correspondence with the EU Project officer which clarified that equipment purchase within the project is not approved unless SSNS Centre establishment is assured. They should be purchased as soon as possible as the new courses are already developed and are being tested. Delay in equipment purchase occur as equipment are mainly for the new courses developed.
- To establish a “Centre” normally it requires a proposal containing mission, vision, and short-term objectives to submit to authorities and need a formal approval by institutional and often national authorities (e.g. Government departments).
- The Centre requires an allocation of room(s) and installation of facilities including logo/signboard.
- The Centres should be self-sustaining in terms of income and expenditure. VET should be the major sources of income so that it can sustain for long. The centre need to be dynamic i.e. developing over time.
- Centre requires staffing such as Director, Secretary and may be more. It was assumed that the Local SSNS Project Coordinator to be the Director; however, depending upon the situation partner institution can choose others. In some cases, the Director is already decided; whereas in other cases, each partner needs to select.
- Some problems were also pointed out about the names. Naming is solved through assigning consistent sub-title to each centre so as to create SSNS Brand/network.
- Some partner institutions have some centres but not exactly as SSNS in terms of the name. Therefore, it was suggested to add objectives to the remit of a centre to fit the requirements of the SSNS project. The name of the Centre may be slightly different to represent the differing focus of partners.
- It has been agreed to simplify name to general name e.g. “Seafood Centre” and then not specifically research or education etc which can be specified in objectives/activities
- RIA1 is Coordinating the activities related to the establishment of Centres. A progress report on this was presented by Đặng Thị Lua. The followings are the progresses:
 1. **AIT, Thailand** has “Aqua-Centre” recently established (May 2014). It has its own facility, and such as staff as Director, Secretary, and where the SSNS project signboard has been hanging on the door.
 2. **Maejo University, Thailand** has established the “CEFAR – Centre of Excellence for Fisheries and Aquaculture Research” opened in 18th June 2019 coordinating with another EU project.
 3. **Khon Kaen University, Thailand** – has established the “Coordinating Centre for Sustainable Seafood and Nutrition Security (CCSSNS)”
 4. **UGM, Indonesia** - has established the “Centre for Seafood Security and Sustainability (CS3)”, April 25, 2019
 5. **JFU, Indonesia** - has established the “Institute of Productivity, Research, Innovation and Development for Fisheries (iPRIDE4Fish)”

6. **IPB, Indonesia** - has established the “Special Research Center of Excellence Sustainable Seafood and Nutrition Security (RCoE-SSNS)”, 5 December 2019.
7. **RIA1, Vietnam** – has established the “Sustainable Aquaculture and Seafood Security (SASS)”, December 16, 2019
8. **Nong Lam University, Vietnam** - has established the “Sustainable Aquaculture/Fisheries and Seafood Security (SAFSS)”
9. **Can Tho University, Vietnam** - has established the “Centre for Advanced Aquaculture and Seafood Research & Technology Transfer (CASRT)”

Task 3.3 Planning of internship programme in partner countries

Deliverable 3.5 SSNS Info days in partner countries (to attract sector SMEs and prospective students)

- SSNS Info Days – each institution to organise one, inviting SMEs who are going to host interns and other potential stakeholders who might be interested to join training and also SSNS MSc program. Open day can be same as info day?

Deliverable 3.6 Report on internship programme

- Plan for internships – Needs to be implemented
- Report on internship program to be prepared by JFU

Task 4.1 Accreditation of developed curricula

Deliverable 4.1 Accreditation report of developed curricula in partner countries

- What is meant by “Accreditation” in the WP4 – accreditation and delivery of courses: Just internal recognition? Incorporation into curricula? Proof of offering (MSc, VET and Internships), number of students taking courses

Deliverable 4.2 Toolkit for the evaluation of the SSNS programme

Task 4.2 Delivery of the programme

Deliverable 4.3 Delivery of the SSNS programme in partner countries

- This needs to be applied

Task 4.3 Evaluation and improvement of the programme

Deliverable 4.4 Interim SSNS programme delivery evaluation report

Deliverable 4.5 Final SSNS programme delivery evaluation report

Task 5.1 Quality assurance plan and continuous quality control

Deliverable 5.1 Quality Board

- QC board established & EuroTraining is doing the work

Quality – especially MSc and PhD training course - Suggest establishing a committee or groups – 4 or 5 on different topics, e.g. 3-5 people per group to review curriculums etc. Thematic groups? – Could be done at institutional level in the first instance. Are meetings between partners possible? Or do by email – Can people at the meeting volunteer to do expert reviews? Three people should be enough. Submit centrally (to Ram). Ask individual course proposer to improve and submit for review. Assign leader for each thematic group? Best to have one member from each country. Could involve external experts providing cost issue could be addressed. E.g.

- Processing and quality (Jorgen, Anita, Ioannis Boziaris)
- Diseases & health management (Stirling + others)
- Nutrition & Feeds (Ioannis Karapanagiotidis and others)
- Systems and research management

Similar categories for training courses – delivered locally, although the main focus should be on regular degree courses.

Deliverable 5.2 Quality Assurance Plan

Task 5.2 Evaluation methodology and reporting

Deliverable 5.3 Periodic quality and evaluation reports

Deliverable 5.4 Final impact and evaluation report

Task 6.1 Dissemination Plan

Deliverable 6.1 Dissemination plan

The project is behind on dissemination – try to add presentation to other meetings /events. Can only charge budget for presentations in the target countries (e.g. not Malaysia), but can report activity elsewhere.

Deliverable 6.3 Stakeholder analysis

Task 6.2 SSNS Website

Deliverable 6.2 SSNS Website

- This has been designed and implemented by AIT

Task 6.3 SSNS Final Conference

Deliverable 6.5 SSNS Final Conference

Final conference expected in September-October 2020 (4 days?). Bangkok or Phuket? Should be a good high-profile event. A 2-page abstract submission is envisaged for distribution as PDF on flash drive. Format to be provided. Paper submission deadline around the end of June?

Proposed dates: 12-14 October 2020.

Can charge fee? Need to check rules on financial contributions.

Need local organising committee and scientific committee (can be international). Aim at first announcement in 2nd week of January and second in March? Need at least two months for paper submission. Registration to start as soon as possible – early rate to June 2020? Then late registration until September, then on-desk only.

Plan for 100 presentations + posters?

Keep costs as low as possible, new conference – need to attract more people.

Consider format – broaden range of activities to help with dissemination and means of attracting people including other stakeholders. Roundtables, keynotes, Audience engagement activities, demo taught sessions. Engagement with industry should be better – how do they see the outputs from the project? Symposium format. Need to keep in mind that participants may need to present to be funded – otherwise will not attend etc.

Task 6.4 Exploitation and Sustainability Activities

Deliverable 6.4 Portfolio of dissemination material

Deliverable 6.6 SSNS Exploitation and sustainability plan