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Seafood and Nutrition Security**

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SSNS

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Curriculum Development for Sustainable Seafood and Nutrition Security (SSNS)

Report:
Teachers Training Thailand
Sept 16-20, 2019

Summary & Report provided
by Dr. Margaret Crumlish, UoS

Summary:

A productive and successful trip for the purpose of teacher's training took place in Thailand, where the purpose of the visit was an exchange of ideas and information related to the implementation of new teaching and delivery methods. Participants from the EU and Thai partners institutions attended the week-long visit and worked closely together to evaluate the strengths of the teaching materials and delivery within the new/updated courses developed. By identifying the strengths, the participants were able to highlight opportunities for further development or implementation, particularly of novel teaching delivery methods as showcased during study visits in Norway and Scotland. Several new or updated teaching courses have been developed by all of the 3 Thai partners, which were discussed in detail. The Thai partners were using a range of teaching methods within these courses and feedback for the new material showcased during the visit was positive. Future emphasis should now be placed on refining the new or updated courses and materials to ensure that they match with the learning outcomes.

A detailed daily report is provided below:

September 16th, 2019 (Day 1)

Daily Report Prepared by Jorgen Lerfall, NTNU Norway

All participants were welcomed to the meeting by Dr Ram C. Bhujel who introduced Prof Deepak Sharma, the Vice-President for Academic affairs at Asian Institute for Technology, Bangkok (AIT). Prof. Sharma warmly welcomed everyone and opened the meeting by introducing the project and the activities taking place at AIT. The “*Teachers Training*” program was thereafter presented by Dr. Bhujel.

Dr Amaya Albalat and Dr Margaret Crumlish from University of Stirling gave the first workshop which included a brief introduction to the topic “*how to be a good and effective teacher*” and introduced an on-line resource called Teaching Perspectives Inventory (TPI <http://www.teachingperspectives.com/tpi/>) to the group, respectively. A group activity then followed where all participants (teachers and students) completed the TPI questionnaire to learn about their teaching styles which was discussed openly. This was viewed positively by all as the tool can be used by teachers to help strengthen areas in their teaching styles. It can be used to evaluate teaching delivery and style over time. In this discussion the “*Teachers guidebook*”, one of the deliverables from WP2, was briefly discussed.

During the day, all participants observed teaching activities performed by Dr. Bhujel and Dr. Salin Krishna, both from AIT which were delivered using a traditional lecture style. Approximately ten students took part in each session, afterwards they were provided with an opportunity to give feedback on the teaching delivered and highlight strengths and opportunities for improvements. At this point the 2 teachers were not in the room to enable the students to speak more freely and information was collected and reported back anonymously.

Both AIT teachers had opted for a similar delivery style and so the common points raised are provided in Table 1. These include strengths and opportunities for improvement in teaching delivery and are a combination of the key points raised by all participants.

Table 1 Strengths and Opportunities for Improvement in Teaching (AIT)			
Strengths		Opportunities	
Clear Objectives were provided.	Treated students with respect during the lecture.	Use existing and novel ways to upload teaching material in advance e.g. use the existing AIT module as well as facebook.	Consider time management better as lectures could be too long for some students.
Encourage participation from students.	Examples from Teachers experience was very good.	Provide more time for students to respond to questions or discussions during the teaching.	Consider the amount of material per slide presented – might be easier for students if less was given per slide and higher number of slides.
Provided new information in a local and international context.	Use of images and key information was good.	Consider alternative teaching delivery methods for the varied course materials.	Provide opportunities for the students to do more self-learning around the subject area.
Use of a summary note at the end was good.		Ensure that all students receive feedback on their course assessments.*	Better participation in the course materials with the students, e.g. attending field trips with the students to help reinforce the key learning outcomes.

*it was appreciated by all that the assessments was not directly part of the actual teaching being assessed but of course, if the students receive feedback on their assessed work this assists with better student engagement as well as Teachers understanding where they may have to improve their delivery ensuring this is accessible for all students.

Further discussion took place with the Teachers only at this point on the overall new course structure, internships and field visits. These were opened more widely to the floor and internships from other Thai partner Universities were included as a compare and contrast activity. Overall the following items were raised in the afternoon discussions regarding internships:

- Currently the internships proposed were suitable for BSc and would need some refinement for MSc level.
- EU partners explained about the added benefits of providing Public+Private internships, which seemed a novel concept for the Thai Teachers.

- A seminar on “*how to work in an internship*” was then proposed and agreed by all to provide added value into maximising the outputs from **all** types of internships.

The wrap up of the day was provided by Dr. Bhujel who summarised issues and solutions regarding teaching performance, technique and methodology evaluated. All participants then attended a joint dinner to promote further networking.

September 17, 2019 (Day 2):

Daily Report prepared by Thanos Balafoutis, EUROTRAINING

On day 2, the group visited fish farms (Figures 1- 4) at Nong Sua which was en-route to Khon Kaen. This was a great opportunity for the group to visit the varied sites used by AIT teachers for their internships and field trips. The farms included catfish (*Clarias* and *Pangasius* species) and tilapia systems in cages and tanks. The personnel of the fish farms showed the group the production systems, from broodstock until mature fish to be sent to the market. Information was provided on the methods required and issued affecting a reliable and sufficient supply of good quality brood stock to provide high quality fish eggs. It was clear that students would benefit from visiting these types of aquaculture sites to gain knowledge and “hands on” experience of the issues and solutions to promote sustainable aquaculture practises in Thailand. Aspects of nutrition, biosecurity, disease prevention, as well as routine husbandry were discussed.

The general conclusion from this day visit was that Thai farmers use breeding methods that are result of the scientific work and extension services of the Thai Universities and especially AIT with good results in terms of productivity. Scope on including more technology to support the production was discussed in detail with the partners as in these types of systems personnel are more involved in all aspects of production.

Figure 1: Fish larvae

Figure 2: fish eggs

Figure 3: breeding hapa

Figure 4: breeding hapas in a row

September 18th 2019, (Day 3)

Daily Report prepared by Ioannis Karapanagiotidis, University of Thessaly (UTH)

The 3rd day of the teacher's training programme was held in **Khon Kaen University (KKU)** Fisheries Department.

Summary of KKU:

KKU was established at the major university in the Northeastern part of Thailand in 1964 and has developed itself to become one of the top Thai universities. KKU has recently become one of the national research universities in Thailand and an educational center in the Mekong sub-region. KKU currently has more than 40,000 students, 17 faculties, 1 satellite campus and 43 international programmes which cover a wide range of disciplines. The Fisheries Department is organized in the Faculty of Agriculture and was established in 1992. The Department has more than 1,200 BSc graduate students that work in governmental, private sector and NGOs both in Thailand and other countries of Southeast Asia. Moreover, the Department has more than 200 MSc and PhD graduate students. The Department offers several academic disciplinary including aquaculture, farm management, aquatic animal health, aquatic animal feed and nutrition, aquatic animal processing and fish biology. It also provides both internal and external training for international participants. The training programmes are sponsored by KKU and partners such as Thailand International Cooperation Agency (TICA) and FAO.

Welcome by the Dean:

Dr. Darunee Chohyankul, Dean of the Faculty of Agriculture of the Khon Kaen University introduce the Department of Fisheries and welcomed the SSNS group to the university. Dr. Darunee Chohyankul believes that SSNS project will help the School to improve its Study Programmes and its academic standards.

The project Coordinator Dr Ram C Bhujel explained to KKU academic staff about the SSNS project and its goals.

Presentation 1 - Teaching observation:

At the morning session, **Dr. Pattama Wiriypattanasub**, Lecturer of the KKU presented a lecture entitled “Fish disease diagnosis”, which is included in the developed (new) course entitled “Fish disease and water quality control” offered for the SSNS MSc programme at KKU. This presentation was given to the current MSc and undergraduate students and was in the framework of “Teaching observation” by all SSNS participants. The lecture was delivered using a traditional presentation. The same format for evaluation and feedback as described for AIT was followed at the other Thai Universities.

After the presentation, there was a reviewing of the teaching method and discussion/comments/suggestions. Some “best practices” that were pointed out included:

- the use of worldwide examples of fish disease incidences
- showing indicative photos
- directing students to find information and gain their own experience.
- Some “point that could be improved” included the absence of interaction with students, absence of literature used etc.

Workshop organized by UTH:

Dr. Ioannis Karapanagiotidis, Assistant Professor of the UTH held a role-playing workshop with all SSNS participants in order to promote uptake of different teaching methods. Dr. Ioannis Karapanagiotidis presented briefly the various teaching methodologies that are actually described in detail in Deliverable 2.4 “*Training Methodologies and Tools*”. Then all participants were divided into four stakeholder groups and then to role play being a member of this group to address the challenge:

- 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 challenge set was “Sustainable feeds for Thai aquaculture are important” where all four groups were asked to work together and find solution to the challenge. Table 2 contains information highlighted from the stakeholder discussions.

Table 2 Facts about Thai Aquaculture related to the Challenge set
Seafood demand is increasing (domestically & worldwide)
Thai seafood production is increasing and intensifies..... Demanding more commercial feeds
Feed costs account for 60-70% of total production cost
Commercial feeds are highly dependent on fishmeal as primary protein source
Fishmeal is a natural resource that has a limited supply & an increasing cost
This practice is non - sustainable
Thai aquaculture needs a more sustainable utilization of feed and feed ingredients

Each stakeholder groups discussed a) *what was their role in the aquaculture sector?* b) *what actions they could take?* c) *What synergies do they need to address the challenge?*

This activity was viewed very favorably by all participants, particularly the Thai Teachers who did not have much experience of using role playing in teaching delivery. It was a great opportunity for everyone to participate and work together, allowing the Teachers to see themselves as “students”. 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.

Presentation 2 – Teaching observation:


Dr. Somsamorn Gawborisut, Professor of the KKU presented a lecture entitled “Introduction to fish processing”, which is included in the developed (new) course entitled “Fish processing and fish by-product utilization” offered for the SSNS MSc programme at KKU. This presentation was given in the framework of “Teaching observation” by all SSNS participants. After the presentation, there was a reviewing of the teaching method and discussion/comments/suggestions.

Discussion with students:

At the afternoon session, there was a brief discussion of the SSNS group with the students that attended the presentations. Students felt quite happy with the teaching

presentations and the quality of the teaching, so did not provide much feedback for this session.

ANNEX 1. Names of the participants who attended or presented during the KKU Study Visit[MC1].

<div>  </div>				
<div> <p>List of teachers involved in Teacher's training programme - Thailand</p> <p>Date: 16-09-2019</p> <p>September 15-21, 2019</p> </div>				
Partner	Name of teachers/staff	Main expertise	Contact email	Signature
AIT	1. Dr Ram C. Bhujel	Aquaculture Nutrition	bhujel@ait.ac.th	B. Bhujel
	2. Dr Salin Krishna	Water Agriculture	salin.k@ait.ac.th	Salin K.
	3. Anawat Boonyapakdee	Water Agriculture	anawat@agmilk.com	Anawat
MJU	4. Dr Chanagun Chitmanat	C. Chitmanat	chanagun@chitmanat.com	Chanagun C.
	5. Dr. Sudaporn Tongsir	Fish Feed	SUDAP2515@gmail.com	Sudaporn T.
	6. Dr Daracha Thiammueang	Fishery Management, Business	daracha.t@gmail.com	Daracha T.
	7. Mr. Karn Tipayakraisri	Fishing Management	karn.tipayakraisri@gmail.com	Karn T.
	8. Dr. Watinee Intharapongnuwat			
KKU	9. Aruneepong Srisathaporn	Aruneepong Srisathaporn	arunee1@kku.ac.th	Aruneepong
	10. Somsamorn Gawborisut	Fish Production	somsamorn@gawborisut.com	Somsamorn
	11. Parichard Sangkumchaliang	Agricultural Marketing	parichard@kku.ac.th	Parichard
	12. Pornthep Niampitak	Pornthep Niampitak	npornthep@kku.ac.th	Pornthep
	13. Wassana Prisingkorn	Wassana Prisingkorn	wassana@kku.ac.th	Wassana
University of Stirling	14. Amaya Albalat	Animal physiology/health	amaya.albalat@stirling.ac.uk	Amaya
	15. Margaret Crumlish	Aquatic Diseases	mc50@stirling.ac.uk	Margaret
NTNU	16. Jorgen Lerfall	Seafood Processing	jorgen.lerfall@ntnu.no	Jorgen
	17. Anita Jacobsen	Seafood microbiology	anita.jacobsen@ntnu.no	Anita
University of Thessaly	18. Ioannis Karapanagiotidis	Fish Nutrition	karapanagiotidis@uth.gr	Ioannis
	19. Ioannis Boziaris	Seafood microbiology	boziaris@uth.gr	Ioannis
EuroTraining	20. Mr Balafoutis Athanasios	Research & Dev	a.balafoutis@cefh.gr	Athanasios

September 18th , 2019 (Day 3):

Daily Report prepared by Ioannis Boziaris, University of Thessaly (UTH)

The group were given the opportunity to visit a Cage Culture of tilapia cage culture system near Khan Kaen in the afternoon of the 18th September (Figure 5). This was a

slight modification from the original timetable. The site visited is one of the sites used by KKU teachers for internships and field visits.

Figure 5 the SNSS participants visiting the tilapia farm near KKU

At the farm the group interviewed the owner and the personnel of the farm, who provided a description of the production system and cycle for their fish. The owner was very willing to share a lot of information regarding the costs and other aspects of the business. The farm has 350 cages and 25 ponds for nursing. The larvae are purchased and the nursing is carried out in (freshwater) ponds (Figure 6). The size of fish that placed in the ponds is around 5g. When they reach 70-100g, they are removed from the ponds by means of nets and are transported in plastic tanks and placed in the

cages (Figure 7). Almost all fish are distributed alive to the local market.

Figure 6 Image of nursing pond at tilapia farm near KKU

Figure 7 Image of the tilapia cages for the farm near KKU, these are for growout of the tilapia

After the tilapia farm there was an opportunity to visit another site, which can be used for internships and field visits associated with the teaching from KKU. This farm was in contrast to the monoculture system visited and was a poly culture with several species (Figure 8) of fish on site, some of which were mixed together in the same tanks. This site was producing for a different purpose as these fish were mostly for restocking and

not sold on the domestic market for food. Again, the project participants were able to ask questions to get an understanding of how these sites can be beneficial to the teaching and research practices associated with the teaching programmes at KKU.

Figure 8 Image of the polyculture farm visited near KKU

September 19th 2019 (Day 4):

Travel to Chiang Mai**Daily Report prepared** by Ioannis Boziaris , UTH

It had become clear from the first 2 days discussions that there was confusion regarding the terminology being used between the EU and Asian partners. To help clarify and address any confusion an informal meeting took place between all SNSS participants traveling to Chiang Mai from KKU. These discussions were excellent in terms of promoting better understanding of the limitation encountered by the Thai partners when developing new programmes and provided the EU partners with an opportunity to learn which teaching methods were being applied and how these matched with the proposed learning outcomes. Although the teaching showcased so far was more traditional, it became clear that all of the Thai teachers had taken on board the varied teaching methods and subject areas introduced to them during the study

tours to Norway (Seafood Safety) and Scotland (Aquaculture). This enabled excellent progress to be made in terms of refining the deliverables of the project, particularly giving clarity on what is required for a MSc programme as well as the importance of matching learning outcomes with the course materials and module.

By using the previous 2-days lectures shared at AIT and KKU, both European and Asians partners were able to express their opinion on the current practices that have been employed in the lectures. This involved a deeper understanding of the benefits for the Teachers and students when considering the use of varied electronic teaching platforms, more interaction with the students by asking questions or organizing role playing workshops. Additionally, better conjunction of theoretical lectures with laboratory practical and field visits were also discussed.

Aspects of teaching evaluation were also discussed in detail, thus promoting a better interaction between the EU and Asian Teachers. Information on student feedback had already been discussed in Day 1 but there was an opportunity for the Asian teachers to provide information on the various means of evaluation that they were already using and to identify strengths and weaknesses. The importance of Students' feedback by using a scoring system or Teachers providing written comments was discussed in detail and was highlighted as a difference in requirements between the Asian and EU Teaching programmes. Further examples of evaluation e.g. blind questions, peer evaluation by the teachers and best teacher award was linked to improving teachers' performance and motivation to deliver high quality teaching.

September 20th 2019 (Day 5)

Daily Report prepared by Amaya Albalat, UoS

On Friday 20th September, the group visited the Faculty of Fisheries Technology and Aquatic Resources, Maejo University, Chiang Mai, Thailand (Figure 9).



Figure 9 Entrance to Faculty of Fisheries Technology and Aquatic resources, Maejo University

The Faculty of Fisheries Technology and Aquatic Resources started as a division under the Department of Animal Science, Faculty of Agricultural Production. However, in March 2005, it was approved by the University Council that this division should become a Faculty. The vision of the Faculty of Fisheries Technology and Aquatic Resources is to be an internationally recognised leading organisation in fisheries and aquatic resources. From a teaching perspective, the Faculty is committed to provide quality education through effective educational administration to equip graduates with advance knowledge, critical-thinking and practical skills based on ethical, environmental and social standards. The Faculty currently offers the following programmes:

- Doctor of Philosophy in Fisheries Technology and Aquatic Resources
- Master of Science in Fisheries Technology and Aquatic Resources
- Bachelor of Science in Fisheries

The SNSS group was welcomed by the Dean of Faculty of Fisheries Technology and Aquatic Resources Assistant Professor Dr Jongkon Promya. After the welcome, the group attended a lecture given by Assistant Professor Dr Chanagun Chitmanat on fish health management. Again, a similar format to the previous student feedback session was adopted and students were positive to the new course and were confident on their learning.

After the lecture, the group had a fruitful meeting to discuss the courses developed by this partner. In total, six new courses have been developed. The outline of one of the courses was shown as an example and the European partners asked what has been changed/improved in this particular course. The discussion was centered on the course '**FT511 Fisheries Technology and Development**'. We discussed for example that the actual course objective is really a course description. Then some detail on the practical work should be added in course description. We also have an extensive discussion on the learning outcomes and the actual content of the module and how that is linked to the practical work.

It was important to clarify that although this course is called '**Fisheries Technology and Development**', they want to cover both fishery and aquaculture technologies. To enable them to do this, several changes were proposed by all partners and Maejo staff will be responsible for revising and re-submitting the course information.

At this point, it was considered that similar exercise could be used in subsequent Teachers Training visits to Vietnam and Indonesia. It was considered worthwhile by the project participants that this exercise could be used as a working example on course development and refinement, followed by a practical session. This opened the floor for discussions on the planning for the next Teachers Training sessions in the project.

Below is the outline of the discussion point which are being implemented for the training visit in Vietnam and should provide a template for the Indonesia visit:

- Teacher's training visits are proposed for Vietnam (locations: Can Tho and Nong Lam University) in November 2019 and Indonesia (locations: JFU and IPB) in February 2020.

- The duration of each training workshop is 5 days + travel.
- Programme: It is suggested that EU partners could demonstrate different teaching methods through a range of exercises, similar to the role-playing workshop in the Thai visit. It will also be useful to see how some of teaching methods proposed have been adopted by Asian partners. In Vietnam and Indonesia.
- Eurotraining could evaluate the impact of the study visits on the teaching proposed. This would provide important evidence that the Asian partners have implemented new teaching methods or reflected in how new teaching methods could be implemented in the new courses. To promote this, it was requested that Eurotraining produce a questionnaire survey to the Asian teachers that attended at least one study visit to Norway and/or Scotland. The results of the teaching delivery methods questionnaire will help the EU partners to plan how to showcase some of the methods.
- The use of the VLE needs to be now prioritized. To this end, a VLE-Demonstration is now a priority for the partners and demonstrations of the analytics into how VLE was implement and used from previous projects is required. Furthermore, a “troubleshooting” session is required for the VLE platform being proposed by Eurotraining. Partners from all countries can join in by webinar and if necessary, a follow up study can be performed in Indonesia. It is important that all Asian partners upload at least a couple of their course material so that these can be viewed by all partners especially before the Teachers Training visits. we can all see.
- The discussion session at Maejo University on the proposed course outline was considered more useful by all attendees, compared with giving a bespoke feedback session to each teacher on their teaching. The feedback is important but it was not the objective of the project and so a session on at least one course module outline per University should be planned per visit.
- To ensure that we have a relevant exchange of information and ideas between the EU and Asian partners, it would be very informative if each University provided details on the gap analysis linked with the courses that they have developed. This should include data on the post-graduate structure and clearly identify how new courses or revised material is linked to the gap analysis.
- As revising each module outline takes time it is not possible for EU partners to critically comment on all of them during the Teacher’s training workshop. Therefore, it was proposed to create thematic groups to review course outlines in advance and remotely. These can then be discussed during the study visit.
- Allocation of more time for discussion on project progress and also update on project progress.
- A tour of the teaching facilities that partners have would be most welcome and if this was not possible at the time of the visit, then it was proposed Asian partners record some videos or provide short summary videos of the teaching facilities so the EU partners can understand opportunities and limitations of using these spaces, particularly in development of novel teaching delivery methods.
- Providing student feedback was discussed in a lot of detail during the Thai visit and including this as a session in future visits would be useful. EU partners offered to show their feedback process for students and teaching peers in the next Teacher’s training workshop/visit.

