This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 728030

Deliverable No. 2.1 – Report on results of training survey

Project acronym:
EURASTIP

Project title:
"Promoting Multi-Stakeholder Contributions to International Cooperation on Sustainable Solutions for Aquaculture Development in South-East Asia"

Grant agreement No: **782030**
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Author – WP leader	Marieke Reuver	AquaTT	20.09.2018	
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[1] Document will be a draft until it is approved by the coordinator/project manager
[2] The initials of the revising individual in capital letters

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Deliverable N° 2.1

Report on results of training survey

Date: September 2018

Summary

Within the framework of EURASTiP Task 2.1 of Work Package 2 (Innovative Education, Training and Capacity Building), a training survey was carried out to identify existing aquaculture education networks and their activities and, in particular, identify EU-Asia collaborations (characteristics, benefits, challenges) to gain a greater insight into past and current collaboration efforts and experiences.

EURASTiP partner AquaTT developed the survey on an online platform called eSurveyPro, distributed it widely and a total of 242 responses were received.

The Deliverable submission took place at first reporting stage, however the training survey activities themselves had been carried out earlier, namely summer – autumn 2017 (= M6-10). The survey was carried out in September as it was decided this was better timing than April in relation to university teaching schedules. The final results were written up in M21 due to other EURASTiP activities taking priority. The delay does not impact the final outcomes of WP2, nor of the EURASTiP project overall.

The results show that characteristics of collaborations appear in numerous ways, however the two most frequent type of collaborations were identified as receiving students and collaboration with research stakeholders. Important benefits of EU-Asia collaborations are considered as knowledge and skills sharing, along with the development of best practice and expertise across both regions. The major challenges were identified as lack of funding to support collaborations and cultural differences between actors from Europe and Asia.

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Introduction

Within the framework of EURASTiP, Task 2.1 of Work Package 2 (Innovative Education, Training and Capacity Building), focuses on aligning European and south-east Asian capacity building. A total of four workshops will be carried out, one Alignment Workshop and three Capacity Building Workshops, to consolidate EU-Asian education and training and consolidate efforts of existing networks, AQUA-TNET, EATiP and ASEAN-FEN. The workshops aim to bring together actors working in and between Europe and Asia to carry out exchange of best practice and foresight exercises in relation to aquaculture training provision to support a sustainable global market.

The aim of Deliverable 2.1, the training survey, was to identify existing activities of each of the existing networks. In particular, the training survey aimed to identify the characteristics, benefits and challenges in existing EU-Asia collaboration. The purpose of this is to help frame discussions at the WP2 workshops and acquire insight into past and current collaboration efforts and experiences. This report presents some key findings in relation to EU-Asia collaborations collected in the training survey.

Methodology

EURASTiP partner AquaTT developed the survey on an online platform called eSurveyPro, which facilitates wide distribution and analysis of the results.

The survey contained the following questions:

PERSONAL INFORMATION

1. Name (optional)
2. Country
3. Organisation (optional)
4. Email address (optional)
5. Are you, or have you been, a member of an aquaculture education network, such as Aqua-tnet, ASEAN-FEN or other?
    a. Yes, I was a member of the Aqua-tnet network
    b. Yes, I am a member of the ASEAN-FEN network
    c. Yes, I am a member of another aquaculture education network. Please specify
    d. No
6. Please indicate which stakeholder group you consider yourself to belong to?
    a. Education
    b. Science
    c. Industry
    d. Policy
    e. Other. Please specify

AQUACULTURE EDUCATION – MODELS OF COLLABORATION

7. Have you in the past collaborated, or do you currently collaborate, with actors from the other region (so if you are based in Europe, did you collaborate with actors based in Asia, and vice versa) in relation to aquaculture education?
    a. Yes

b. No

8. If you have answered no to the first question, can you indicate why not?
    a. Funding challenges
    b. Not aware of opportunities
    c. Lack of contacts
    d. Other. Please specify

9. If you have answered yes to the first question, can you indicate below which type(s) of collaboration (multiple answers possible)
    a. Sending students
    b. Receiving students
    c. I personally collaborate(d) with actors from the other region while being a student
    d. Sending staff
    e. Receiving staff
    f. I personally collaborate(d) with actors from the other region while being staff
    g. Organisation of joint education, such as guest lectures, summer school, a joint degree, etc.
    h. I collaborated with industry stakeholders, through e.g. industry placements / industry internships / industry guest lectureships etc.
    i. I collaborated with research stakeholders, through e.g. research placements / research internships, etc.
    j. Other. Please specify

10. If you have answered yes to the first question, please indicate which institution(s), including country/countries, you collaborate(d) with.

11. If you have answered yes to the first question, what do/did you find were benefits of collaborating with these actors of another region?

12. If you have answered yes to the first question, what do/did you find were challenges of collaborating with these actors of another region?

13. If you have answered yes to the first question, can you give us examples of what you find/found good examples of best practice in the type of collaboration you were/are involved in?

14. If you have answered yes to the first question, do you perhaps have suggestions on any collaboration aspects that could be improved?

AQUACULTURE EDUCATION – KEY THEMES

15. What do you consider are the key themes in aquaculture education collaboration between Asia and Europe?
    a. Ensuring education is responding to aquaculture industry needs
    b. Ensuring education is addressing future / projected aquaculture industry needs

c. Promoting innovation and quality in teaching methods and materials
d. Enhancing opportunities for mobility
e. Facilitating mutual recognition of prior learning / qualifications / certificates between Europe and Asia
f. Resolving administrative barriers such as collaboration templates/contracts
g. Ensuring dedicated funding for aquaculture education collaborative activities between Europe and Asia
h. Other. Please specify.

The survey was distributed to a wide network of educators to maximise response and cover all types of training providers. Activities included:

- Emails to Aqua-tnet, EATiP and ASEAN-FEN partner contact lists
- Email to the EURASTiP partnership with a request to all partners to further distribute through their networks
- Uploaded as a news item on the EURASTiP website
- Promotional article in AquaTT's Training News newsletter, which was sent to around 5,000 subscribers to this global aquaculture training newsletter
- The EuroMarine network published an item on their website and in their newsletter
- The Federation of European Aquaculture Producers (FEAP) sent an email with the training survey request to their members
- The European Aquaculture Society (EAS) sent an email to their members
- AquaTT sent emails to the full partnerships of each aquaculture (relevant) project in their portfolio at the time: AQUAEXCEL[2020], ParaFishControl, GENIALG, PerformFISH, ASSEMBLE+ and INvertebrateIT

Fieldwork was carried out in September 2017 and a total of 242 responses were received, of which 159 (65%) complete and 84 (35%) incomplete.

Results were analysed by AquaTT through software on the online platform eSurveyPro and in Microsoft Excel. A full outline of results is presented in Annex III, including responses to open ended questions, while the following section presents key results.

Results

The training survey results are as follows:

Respondents Profile

As seen in Figure 1, a large proportion of survey respondents were from the regions of interest Europe (60%) and Asia (30%). With 10 percent of respondents stating their region as other, including seven percent stating their region as within Africa.

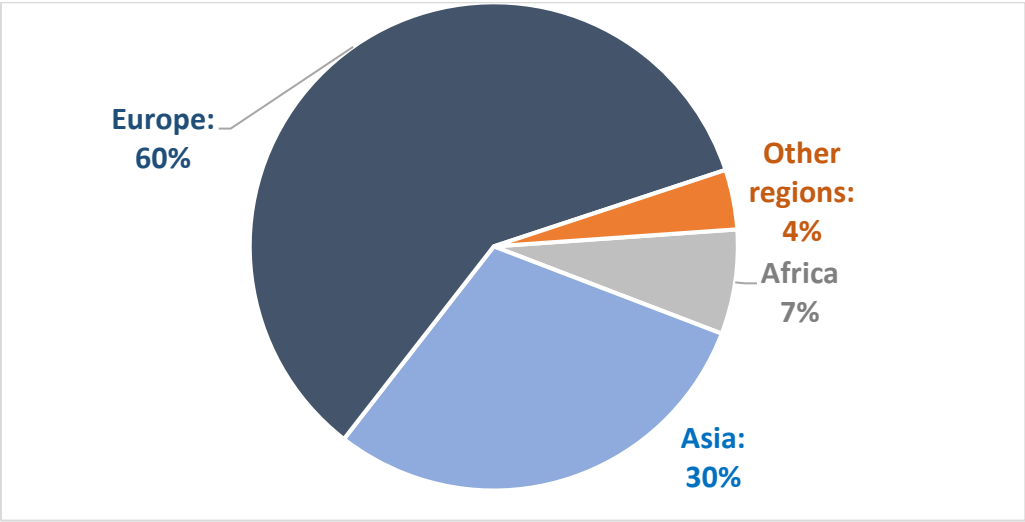


Figure 1: Respondents profile by region

Figure 2 identifies the stakeholder profile of stakeholders. It shows that the highest percentage of survey respondents are from an educational background (69%). The second largest stakeholder group is from a science background (67%). 29 percent of respondents were from industry and nine percent from policy. Six percent of respondents stated other as their stakeholder group, this includes participants from consulting, entrepreneurial, knowledge transfer and veterinary medicine actor groups.

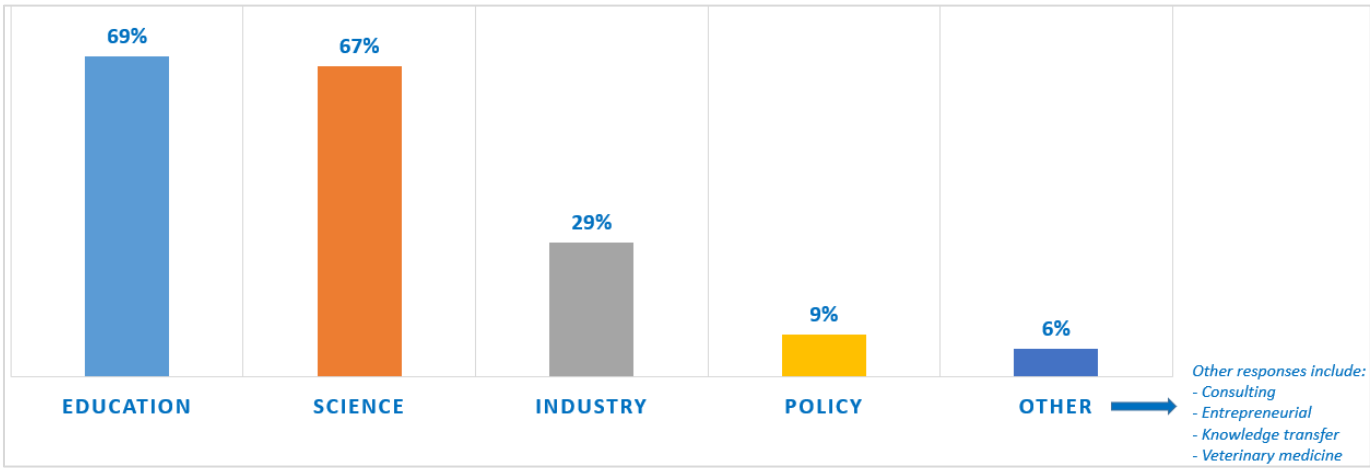


Figure 2: Respondents profile by stakeholder group

Table 1: Collaboration per stakeholder group

	Collaboration	
	Yes	No
Education	45%	42%
Science	48%	46%
Policy	41%	53%
Industry	35%	52%
Other	42%	42%

Within each stakeholder groups, the reported rates of collaboration were explored. The findings show that 45 percent of those from the educational sector report engaging in collaboration across Europe-Asia, while 48 percent of science stakeholders report having engaged in cross region collaboration. Stakeholders from policy and industry reported the lowest engagement in collaboration. The results show that 53 percent of policy stakeholders and 52 percent of industry stakeholder report having never engaged in a Europe-Asia collaboration.

Survey respondents were asked about their membership in any aquaculture education network, these results are outlined in Figure 3. The findings show that 21 percent of participants were members of Aqua-tnet, the European Thematic Network in the field of aquaculture, fisheries and aquatic resource management. Four percent of participants were members of ASEAN-FEN, the Southeast Asian fisheries education network. 21 percent of participants stated that they were a member of another aquaculture education. These included networks such as AquaTT, AquaED Australia, ViFiNet (Vietnamese Fisheries and Aquaculture Institution Network), INGA (International Network of Genetics in Aquaculture) and the Spanish Aquaculture Association (A full list of other reported aquaculture education networks are listed under Q5 in Annex III). The majority of respondents (63%) stated that they were not a member of any aquaculture educational network. Of those who listed a membership of Aqua-tnet, 23 percent stated that they have in the past or are currently engaging in collaboration. While seven percent stated indicated undergoing collaboration were members of the ASEAN-FEN network and 16 percent of participants engaged in past or current collaboration were members of other aquaculture networks.

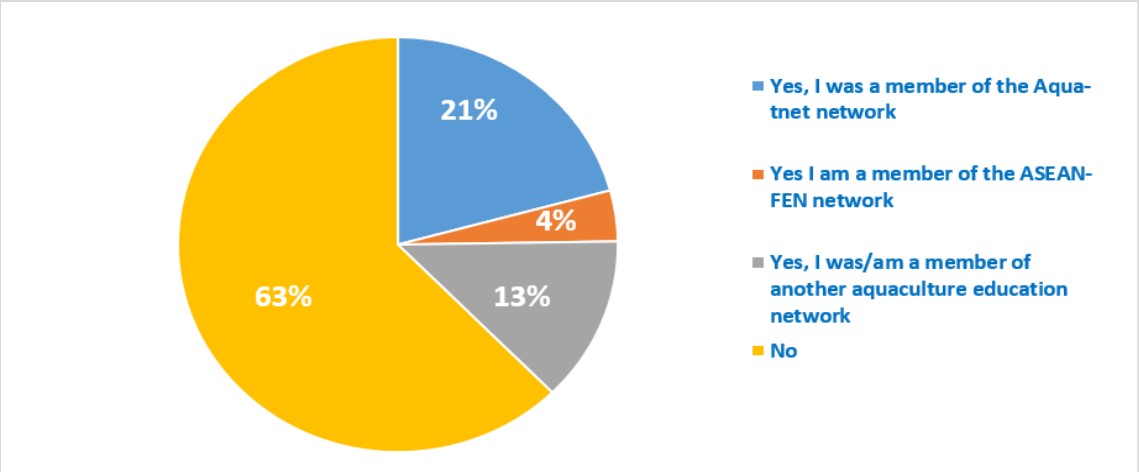


Figure 3: Aquaculture education network membership of respondents

Models of Collaboration

Over half of respondents had never collaborated with actors from other regions, the breakdown of reasoning for this is outlined in Figure 4. A lack of contacts (67%), a limited awareness of existing opportunities (64%) and funding challenges (36%) appear to be the most significant barriers. Other reasons given to justify no collaboration across regions were outlined by eight percent of participants.

These reasons include: rejection of proposal funding and limited opportunities for early career scientists.

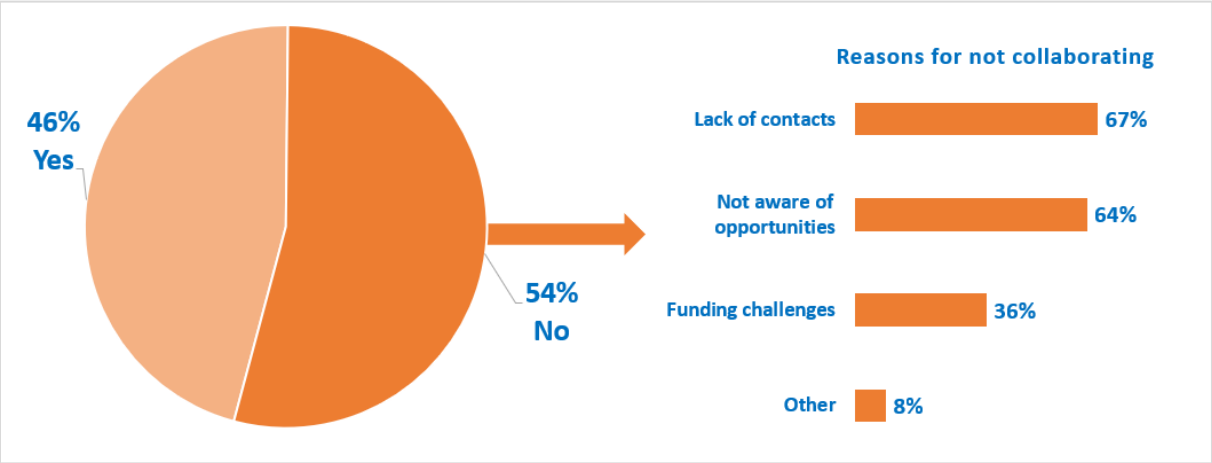


Figure 4: Past collaboration with aquaculture actors from other regions

An overview of the types of collaboration between actors from different regions is outlined in Figure 5. Among those who have collaborated in the past, reported activities range from engaging with research and industry stakeholders, sending/receiving students and staff, etc. Most notably, receiving students (52%) and collaboration with research stakeholders (52%) are the most frequently cited modes of collaboration. Followed by other commonly cited modes of collaboration are personal contacts (49%), guest lectures (49%), and collaboration with industry professionals (39%). Sending students (37%) and staff (33%) are noted less frequently. 17 percent of participates noted other modes of collaboration across the regions, which include: Churchill Fellowship, Honorary lectureship, PhD supervision across regions and EU Erasmus Mundus scholarship.

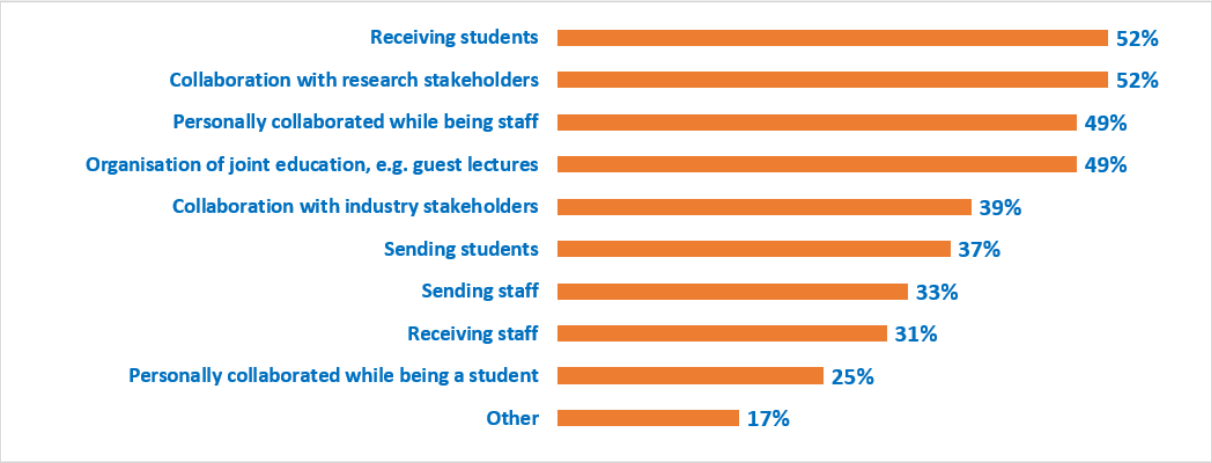


Figure 5: Overview of type of collaborations between actors from different regions

Benefits of Collaboration

An overview of the benefits of Europe-Asia collaboration are outlined in Figure 6. It shows that knowledge and skills sharing/enhancement is considered to be the most significant benefit of collaborating with actors from other regions (70%). This is followed by sharing of best practice and expertise (26%). Networking opportunities, including those for student exchanges (20%) and improved

collaborative research (20%) were also considered a benefit of Europe-Asia collaborations. Figure 6 shows that 14 percent of respondents considered other key benefits. These included identifying new sources of funding, opportunities for joint publications, updating teaching, and boosting capacity of host organisations. Figure 6 also highlights some direct quotes from survey participants on the key benefits outlined by survey participants.

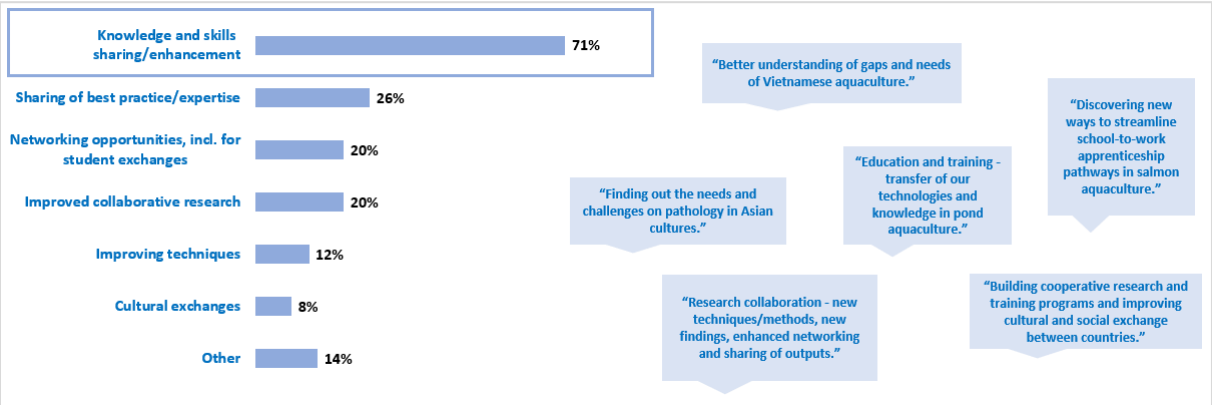


Figure 6: Benefits of collaborating with actors of another region

Best practice in collaborations

The respondents who are currently collaborating, or who have collaborated in the past, were asked to identify some examples of best practices experienced. The responses were diverse, however some commonality was found, for example: the suggestion of joint supervision of PhD students across the regions was considered a best practice by some. Similarly, contributing to joint publications was also considered a best practice. In addition, it was found that knowledge sharing, especially in new approaches, methodologies and technologies, was also cited as best practice within collaboration. Some specific examples of best practice in the type of collaboration stakeholders have been involved in are:

- International Aquatic Veterinary Biosecurity Consortium (IAVBC) Aquaculture Biosecurity Workshops - e.g. http://www.fisch.vetmed.uni-muenchen.de/biosecurity/index.html.
- Sandwich programs for Master and PhD students.
- Staff training.
- Continuous education
- The provision of new equipment, as seen in this quote:
  "I did my research in antibiotic resistant commensal bacteria in aquatic animals, but in Vietnam, especially in my University, we were lacking equipment to study this topic in the molecular level or even experts to use such equipment. Therefore, in the collaboration in other labs, there were experts and all the equipment that can help me to conduct the research. In the other hands, to have change to discuss with other experts, although they are different majors, it can help me to open my thinking or to have different approaches to my old topic"
- The exchange of new approaches, as seen in this quote:
  "Japanese tradition is the best. We have started with the cleaning of the outdoor plankton culture tanks for mass culture, indoors and equipment's. It was very surprising for us why we had started like this. Answer was very interesting. "you can forget the technical details by memory, but your body will remember everything in the rest of your life". Learning the whole

production process starting from cleaning the dusts of previous culture till the end of present culture was very wide experience given by the instructor"

Figure 8: Examples of best practice in the type of EU-Asia collaborations that stakeholders have been involved in.

Challenges of Collaboration

An overview of the challenges of Europe-Asia collaboration are outlined in Figure 7. It shows that lack of funding (25%), cultural differences (23%) and language barriers (23%) are noteworthy challenges when collaborating across regions. Lesser noted challenges are different research approaches used (12%) and levels of development (9%) across the regions. Figure 7 also shows that 3 percent of respondents considered other key challenges. Other reported challenges include issues of translating best practice approaches across regions, identifying suitable contact people within host region, time differences between regions making collaboration difficult, different standards, rules and regulations, a lack of transparency in knowledge sharing and lack of legal framework to support exchange processes.

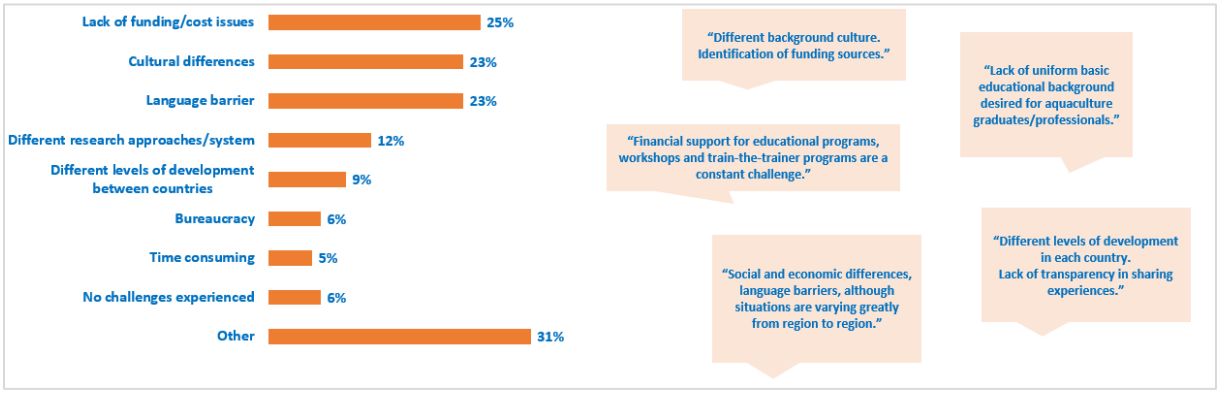


Figure 7: Challenges of collaborating with actors of another region

Suggested improvement of Europe-Asia collaborations

The respondents who are currently collaborating, or who have collaborated in the past, were asked to outline any suggested improvements that would help develop Europe-Asia collaborations based on

their experiences. Commonality in views amongst respondents suggested that there needs to be improvements within technical and educational support and training to ensure that the appropriate application of experience and knowledge can be transferred to their home conditions. Another suggested improvement noted by some was the training in culture and language to ensure maximum impact before undertaking exchange programmes. Also, suggestions were made that exchanges across sectors should be encouraged and continued. Other suggestions for improvements highlighted the importance of long-term collaborations, and the importance of mentorship to allow early career researchers to engage in EU-Asia collaborations. A further suggested improvement surrounds the reduction of bureaucracy, particularly within grant and proposal writing for collaborations and exchange programmes. A final notable suggestion for the improvement of collaboration surrounds support for funding and assistance in the identification of funding sources.

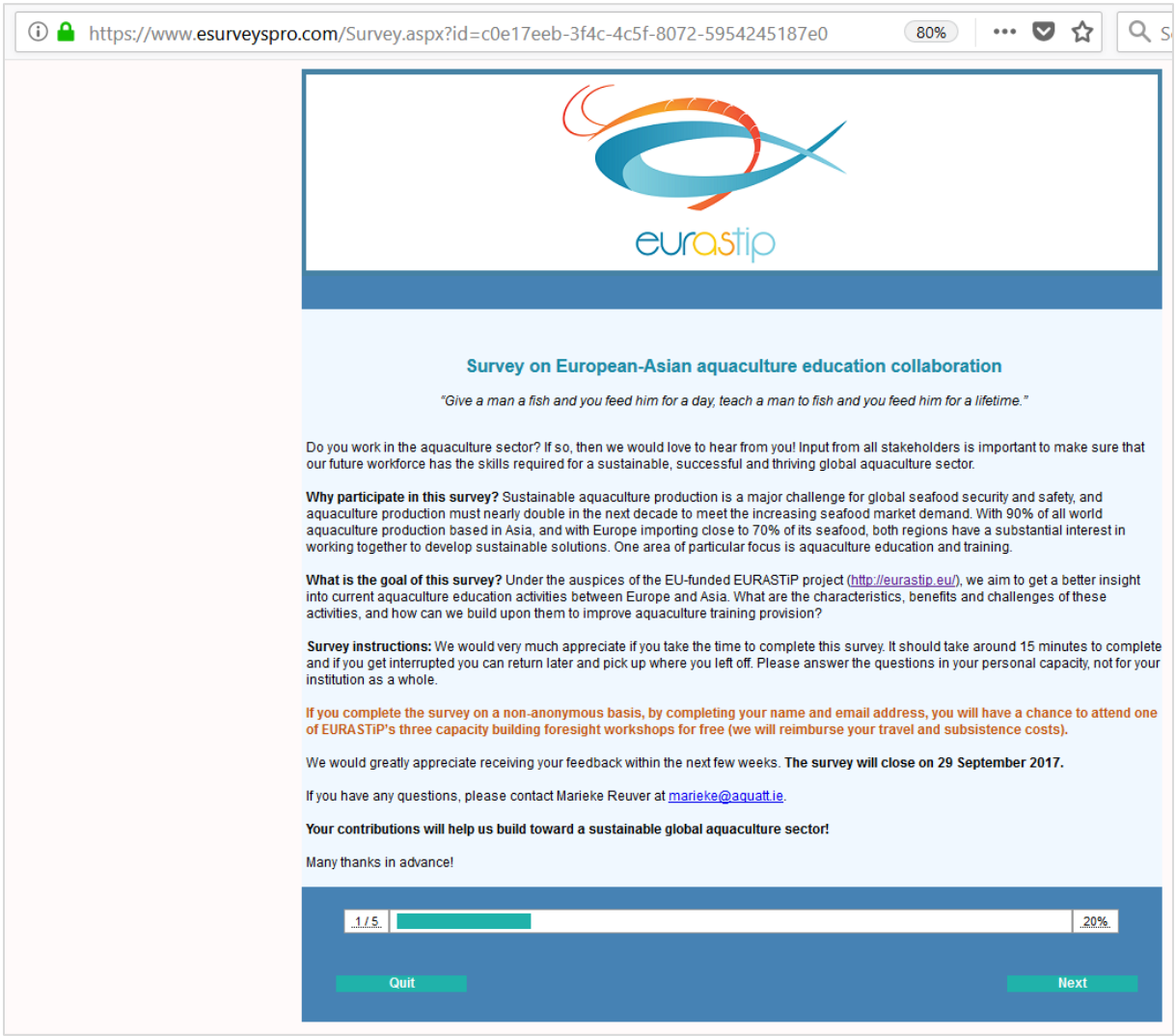
Implications for future EURASTiP workshops

A key objective of this survey was to inform three capacity building workshops included as part of Work Package 2 of the EURASTiP project. Up to now two of three workshops have been conducted and survey data has provided a key tool in the building of these workshops.

The first workshop that took place was entitled "*Promoting Innovative Teaching through Collaboration in the International Sector*", this took place on Thursday the 9th of November 2017 in Batu, east Java, Indonesia. The workshop brought together 29 participants from 12 different countries in Europe and south-east Asia. Through raising some key issues identified through survey data, the workshop tackled stimulating topics such as best practice examples of innovative teaching and materials; real-life challenges experienced by educators in trying to implement innovative teaching and how to address them; how can a teacher be innovative, and how can aquaculture educators in Asia and Europe collaborate in innovative teaching.

The second workshop was entitled "*Ensuring Aquaculture Education Meets the Needs of the Aquaculture Sector*", this took place on Saturday the 25th of August 2018. This workshop brought together 29 aquaculture stakeholders from 12 countries in Europe and South-East Asia to discuss trends, opportunities and areas for strategic cooperation in relation to training provision that supports a sustainable global market. These issues were addressed through questions related to best practices of developing and delivering aquaculture courses based on industry demand; discussions on real life experiences of educators; and where collaboration across Europe and Asia can merge to develop aqua culture courses to meet best practice and industry needs. The third workshop will most probably take place at the International Fisheries Symposium in Asia in 2019 and the theme will be on Mobility of Europe-Asia collaborators and will be used as an opportunity to address further the identified benefits, challenges and potential of the progress of EU-Asia aquaculture collaboration.

Annex I – screen shots of the online survey



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Survey on European-Asian aquaculture education collaboration

"Give a man a fish and you feed him for a day, teach a man to fish and you feed him for a lifetime."

Do you work in the aquaculture sector? If so, then we would love to hear from you! Input from all stakeholders is important to make sure that our future workforce has the skills required for a sustainable, successful and thriving global aquaculture sector.

Why participate in this survey? Sustainable aquaculture production is a major challenge for global seafood security and safety, and aquaculture production must nearly double in the next decade to meet the increasing seafood market demand. With 90% of all world aquaculture production based in Asia, and with Europe importing close to 70% of its seafood, both regions have a substantial interest in working together to develop sustainable solutions. One area of particular focus is aquaculture education and training.

What is the goal of this survey? Under the auspices of the EU-funded EURASTiP project (http://eurastip.eu/), we aim to get a better insight into current aquaculture education activities between Europe and Asia. What are the characteristics, benefits and challenges of these activities, and how can we build upon them to improve aquaculture training provision?

Survey instructions: We would very much appreciate if you take the time to complete this survey. It should take around 15 minutes to complete and if you get interrupted you can return later and pick up where you left off. Please answer the questions in your personal capacity, not for your institution as a whole.

If you complete the survey on a non-anonymous basis, by completing your name and email address, you will have a chance to attend one of EURASTiP's three capacity building foresight workshops for free (we will reimburse your travel and subsistence costs).

We would greatly appreciate receiving your feedback within the next few weeks. **The survey will close on 29 September 2017.**

If you have any questions, please contact Marieke Reuver at marieke@aquatt.ie.

Your contributions will help us build toward a sustainable global aquaculture sector!

Many thanks in advance!

1 / 5 20%

Quit Next

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EURASTIP - Survey powered by

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PERSONAL INFORMATION

Please note that questions marked with a '*' are mandatory

1. Name (optional):

2. Country: *

3. Organisation (optional):

4. Email address (optional):

5. Are you, or have you been, a member of an aquaculture education network, such as Aqua-tnet, ASEAN-FEN or other? Please select as many answers as you feel appropriate *

- ☐ No
- ☐ Yes, I was a member of the Aqua-tnet network
- ☐ Yes, I am a member of the ASEAN-FEN network
- ☐ Yes, I was/am a member of another aquaculture education network (Please specify)

6. Please indicate which stakeholder group you consider yourself to belong to? Please select as many answers as you feel appropriate *

- ☐ Education
- ☐ Science
- ☐ Industry
- ☐ Policy
- ☐ Other (Please specify)

2 / 5 40%

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AQUACULTURE EDUCATION – MODELS OF COLLABORATION

Please note that questions marked with a '*' are mandatory

7. **Have you in the past collaborated, or do you currently collaborate, with actors from the other region (so if you are based in Europe, did you collaborate with actors based in Asia, and vice versa) in relation to aquaculture education?** *

- ○ Yes
- ○ No

8. **If you have answered no to Question 7, can you indicate why not?**

- ☐ Funding challenges
- ☐ Not aware of opportunities
- ☐ Lack of contacts
- ☐ Other (Please specify)

9. **If you have answered yes to Question 7, can you indicate below which type(s) of collaboration (multiple answers possible)**

- ☐ Sending students
- ☐ Receiving students
- ☐ I personally collaborate(d) with actors from the other region while being a student
- ☐ Sending staff
- ☐ Receiving staff
- ☐ I personally collaborate(d) with actors from the other region while being staff
- ☐ Organisation of joint education, such as guest lectures, summer school, a joint degree, etc.
- ☐ I collaborated with industry stakeholders, through e.g. lindustry placements / industry internships / industry guest lectureships etc.
- ☐ I collaborated with research stakeholders, through e.g. research placements / research internships, etc
- ☐ Other (Please specify)

10. **If you have answered yes to Question 7, please indicate which institution(s), including country/countries, you collaborate(d) with**

11. If you have answered yes to Question 7, what do/did you find were the benefits of collaborating with these actors of another region?

12. If you have answered yes to Question 7, what do/did you find were challenges of collaborating with these actors of another region?

13. If you have answered yes to Question 7, can you give us examples of what you find/found good examples of best practice in the type of collaboration you were/are involved in?

14. If you have answered yes to Question 7, do you perhaps have suggestions on any collaboration aspects that could be improved?

3 / 5 60%

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eurastip

AQUACULTURE EDUCATION – KEY THEMES

Please note that questions marked with a "*" are mandatory

15. **What do you consider are the key themes in aquaculture education collaboration between Asia and Europe? Please select as many answers as you feel appropriate** *

- ☐ Ensuring education is responding to aquaculture industry needs
- ☐ Ensuring education is addressing future / projected aquaculture industry needs
- ☐ Promoting innovation and quality in teaching methods and materials
- ☐ Enhancing opportunities for mobility
- ☐ Facilitating mutual recognition of prior learning / qualifications / certificates between Europe and Asia
- ☐ Resolving administrative barriers such as collaboration templates/contracts
- ☐ Ensuring dedicated funding for aquaculture education collaborative activities between Europe and Asia
- ☐ Other (Please specify)

4 / 5 80%

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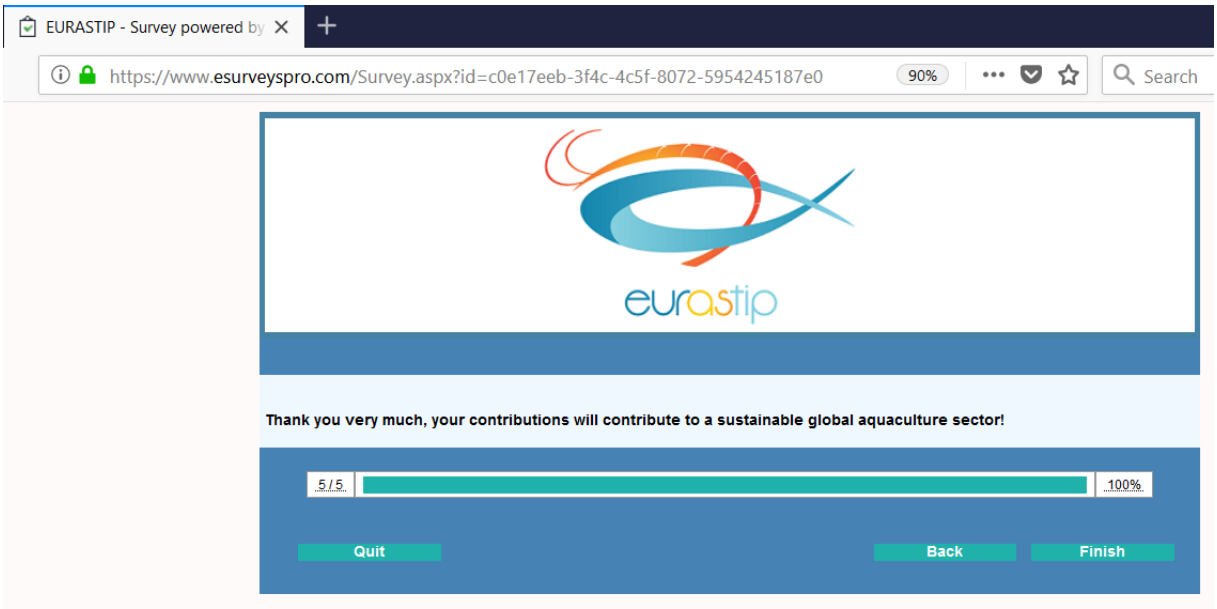
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Search
eurastip
Thank you very much, your contributions will contribute to a sustainable global aquaculture sector!
5 / 5
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Annex II – E-mail invitation to aquaculture educators

Email subject: **Survey on European – Asian aquaculture education collaboration**

Email content:
Do you work in the aquaculture sector? Then we would love to hear from you! Input from all stakeholders is important to make sure that our future workforce has the skills required for a sustainable, successful, and thriving global aquaculture sector.

What is the goal of this survey? Under the auspices of the EU-funded EURASTiP project (http://eurastip.eu/), we aim to get a better insight into current aquaculture education activities between Europe and Asia. What are characteristics, benefits and challenges, and how can we build upon these to improve aquaculture training provision.

Survey instructions: You can access the survey **here**. It should take around 15 minutes to complete and if you get interrupted you can return later and pick up where you left off.

If you complete the survey on a non-anonymous basis, by completing your name and email address, you will have a chance to attend one of EURASTiP's three capacity building foresight workshops for free (we will reimburse your travel and subsistence costs)!

We would greatly appreciate receiving your feedback within the next few weeks. The survey will close on 29 September 2017.

If you have any questions, please contact Marieke Reuver at marieke@aquatt.ie

Many thanks in advance!

Annex III – Complete overview of all results

Q5.	Are you, or have you been, a member of an aquaculture education network, such as Aqua-tnet, ASEAN-FEN or other?	
Not a member of an aquaculture education network	120	61.86%
Member of Aqua-tnet	41	21.13%
Member of ASEAN-NET	9	4.64%
**Other aquaculture education network*	26	13.40%

***Other recorded aquaculture education networks:**	**Response Count**
AASA	1
AquaEd Australia	1
AquaReg - RegEx Project	1
AquaTT	2
Artemia and Aquaculture Research Institute	1
Asian Fisheries Society	1
CIHEAM	1
Doctorant	1
EAS-SG	1
Fisheries Society of Nigeria	1
INGA (International Network of Genetics in Aquaculture)	1
Innovationsgruppe Aquakultur	1
IUoS co-operation with various	1
On the national level	1
RAIS	1
SARNISSA	1
Several	1
Spanish aquaculture association	1
VIDATEC	1
Vietnamstip	1
ViFiNet	2
VLIR	1
World Aquaculture society	1

Q6.	Please indicate which stakeholder group you consider yourself to belong to?	
Education	132	68.04%
Science	127	65.46%
Industry	55	28.35%
Policy	17	8.76%
**Other*	13	6.70%

***Other recorded stakeholder group**	**Response Count**
Aquaculture (pisciculture)	1
Aquaculture Engineering	1
Aquaculture Research and Development	1
Consulting	1
Entrepreneurial	1
Farmer, feed traders, fish traders, shrimp PL traders, commission agent	1
Have own fish culture	1
Interest in aquaculture	1
Knowledge Transfer - Innovation Amplifier	1
Service Industry	1
Veterinary Medicine	1

Q7.	Have you in the past collaborated, or do you currently collaborate, with actors from the other region (so if you are based in Europe, did you collaborate with actors based in Asia, and vice versa) in relation to aquaculture education?	
Yes	81	45.51%
No	97	54.49%

Q8. If you answered no to Q7, can you indicate why not?

Funding challenges	31	32.63%
Not aware of opportunities	56	58.95%
Lack of contacts	59	62.11%
**Other*	8	8.42%

***Other reason for why no collaboration**	**Response Count**
All of the above	1
I am an early career scientist	1
I have applied for funding, but we didn't get it. We are now in the process of re-applying	1
In the past no but just got a fund for collaboration with Faisalabad Agriculture University, Pakistan. Will experience that in couple of months. (Student and staff exchange) funded by Turkish Higher Education Council	1
My based in Bangladesh. I visit Thailand to see Tilapia, Shrimp and sea bass hatchery and farming. As I am working in a project under WorldFish, so I have an electronic collaboration with other students or researcher like China and Thailand.	1
Not based in Europe	1
Poor work countries from Latin America	1

Q9. If you answered yes to Q7, can you indicate the type(s) of collaboration

Sending students	31	36.47%
Receiving students	43	50.59%
I personally collaborate(d) with actors from the other region while being a student	21	24.71%
Sending staff	27	31.76%
Receiving staff	26	30.59%
I personally collaborate(d) with actors from the other region while being staff	41	48.24%
Organisation of joint education, such as guest, lectures, summer school, a joint degree, etc.	41	48.24%
I collaborated with industry stakeholders, through e.g. industry placement / industry internship / industry guest lecture	32	37.65%
I collaborated with research stakeholders through e.g. research placement / research internship, etc.	43	50.59%
**Other*	14	17.65%

***Other types of collaboration**	**Response Count**
Answered no	1
Churchill Fellowship	1
Honorary senior lecturer position held in UK	1
I am supervising Vietnamese PhD student	1
I attended a training in Asia	1
I collaborated with fish feed factory producers in Europe and fish farmers in Europe and, I spent some course about fish diseases, fish nutrition/ management and etc in Europe	1
I was EU Erasmus Mundus Scholar and worked on aquaculture in offshore wind farms	1
Implement aquatic veterinary educational programs	1
MSc and PhD supervisor	1
PhD student exchange	1
Preparing MoUs	1
Scientific collaboration	1
Submission of project research	1

Q10. If you answered yes to Q7, please indicate which institution(s), including country/countries you collaborate(d) with.

Abo Akademi, Finland

AIT, Thailand

AIT, Thailand

AIT, Thailand

ALGARVE, UIVERSITY, PORTUGAL

Aller Aqua, Zambia

Aqua Wales, University of Wales, Swansea, UK

Aquac Wales, University of Wales, UK

Aquaculture Research Program, IRTA, Spain

Asian Institute of Technology, Bangkok,

Bangladesh

Bangladesh Agriculture University Mymensingh

Bangladesh, Ministry of Foreign Affairs

Bangladesh, U of Dhaka, Bangladesh Agricultural Univ, Mymensingh Research station

Belgium

Ben Tre Peoples Comm.

Bodega Marine Laboratory, University of California, USA

Both visited and received visitors from the Ocean University, China.

CADET (shrimp research facility - setting up indoor RAS system, training staff.

Cafoscari, Venice Univ. Italy

Cambodia: Mekong River Commission

Can Tho University.

Canto University, Vietnam; RIA-1 and RIA-2, Vietnam; LARReC and NUoL, Laos; FFRC, China

CEFAS UK

Central Institute of Freshwater Aquaculture (CIFA), Indian Council of Agricultural Research (ICAR), India

Chiang Mai University, Thailand

China Artemia Reference Center, University of Tianjin, China

Chonnam University in South Korea

CIHEAM Espage

CIRAD, France

CIRAD, Montpellier, France

Cochin University– INDIA

COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY, INDIA

Cochin University, Kerala, India

Collaborated with Ege University, Turkey and Jayawardenapura university, Sri Lanka while being a student at University of Naples Federico II Italy.

CSIRO - Australia

Different Universities

Ecology Center, Utah State University, Utah, USA

Educational programs throughout Europe, Africa, Asia-Pacific and the Americas, tailored specifically for aquaculture producers, veterinarians and veterinary para-professionals, aquaculture organizations, governments, and other stakeholders.

Egyptian International Center for Agriculture (EICA), Cairo, Egypt

Egyptian International Center for Agriculture (EICA), Cairo, Egypt

EU Erasmus Mundus scholar and spent time in Portugal and UK. I worked with aquaculture in offshore wind farms which was further funded by Scottish Aquaculture Research Forum. I organised an international stakeholder workshop in London on this topic

Fijian institute of Oceanography (FJIO), Xianen, China

Fish feed factory in Italy and rainbow trout eyed eggs in France

Fish Pathology Labs in South East Asia

Florida University, USA

Fujian Institute of Oceanography (FJIO), Xiamen, China

FUNDP/Namur Belgique

Gent University (Belgium), KU-Leuven University, Namur University (Belgium), Arhus University (Denmark)

Ghent University

Ghent University Belgium

Gothenburg University - Sweden

Gyeongsang National University

Hankuk University of Foreign Studies

Hanoi National University of Agriculture

Have received staff and students from the Institute of Parasitology, Czech Academy of Sciences, Ceske Budejovice, Czech Republic.

Have run short training workshops (typically 1 to 4 days) for stakeholders across Asia (e.g. India, Cambodia, Maldives) but also for Europeans now working in the Asia region who need a grounding in aquatic animal health (includes researchers from Brazil, Belgium, Italy, The Netherlands, UK etc).

Hong Duc University

Hue University of Agriculture & Forestry

In collaboration with the African Union (IBAR), OIE, FAO and other international organizations, and Centers of Excellence for Aquatic Veterinary Education, Diagnostics & Biosecurity (e.g. Ludwig Maximillians U., Munich, Germany; U. Pretoria, S. Africa; Hong Kong City U., China).

Indonesia

Institut Polytechnique Bogor

Institute of Aquaculture, University of Stirling, Scotland, UK receiving international students for BSc, MSc and PhD; supervising research projects within our facility.

IOCAS China

IRD Montpellier

IRTA Sant Carles de la Rapita, Spain

Japan

Japan, Alltech Japan

JICA individual Training course in Marine Hatchery in Nomosaki, Nagasaki City, Japan

Johann Heinrich von Thünen Institute, Federal Research Institute for

Kindai University (Japan)

Korea Maritime and Ocean University

Korea Maritime and Ocean University y Korea Maritime Institute

Korea Maritime Institute y Pukyong University

Korean Maritime Institute, South Korea Republic

Lab. of Aquaculture and Artemia Reference Center, University of Ghent, Belgium

Laos, Cambodia, Vietnam Nam Thailand and

Linnaeus University - Sweden

Malaysia

Marine Biodiversity Exploitation and conservation (MARBEC), France.

Marine Science Center of Basrah, Iraq

Mbarara University of Science and Technology, Uganda

Meajo University, Thailand

MEDRAP Project (FAO), Training course and site visit in former Yugoslavia (Limsky Channel)

Ministry of Fisheries, Vietnam

Most of the EU countries

Most of the North African countries

Multiple National and International veterinary organizations, and veterinary schools in all continents. A few current examples: World Veterinary Association (HQ in Belgium); World Organisation for Animal Health (OIE; HQ in France); FAO (Rome)); Federation of Veterinarians of Europe ((Belgium); Ludwig-Maximilians University, Faculty of Veterinary Medicine (Germany); Hong Kong City University, School of Veterinary Medicine (China); Chulalongkorn University, Faculty of Veterinary Science (Thailand); University of Pretoria, Faculty of Veterinary Science (S. Africa).

Myanmar

NACA, Training Centre for Integrated Fish Farming, Wuxi, China

Nah Trang University -Vietnam

Namur University, Belgium

Nantes University, France

National bank of Greece educational training programme for Africa

Netherlands

NhaTrang University

NIO Goa, India

NIOF Egypt

Norway - Strand VGS, Fusa VGS, Maloy VGS, Froya VGS, Val VGS

Novatek, Zambia

NOVUS AQUA Research Center in Ho Chi Minh Vietnam

NOVUS, Ho Chi Minh City (Vietnam)

Numerous in Vietnam, Thailand, Indonesia, Philippines

Nutriad Asia (Malaysia, Thayland, Indonesia)

Ocean University of China, China

PALOC, France.

Pancham Aquaculture Mumbai, India

Philippines

Portsmouth University, UK

Prince of Songkhla University Can Tho University, Kasetsart University, Chiang Mai University, An Giang University, RIA 1 and 2 in Vietnam, WorldFish, Bogor Agricultural University.

Prince of Songkla University, Thailand

Prince of Songkla University. Thailand

PUKYONG NATIONAL UNIVERSITY, KOREA

PUSAN NATIONAL UNIVERSITY, KOREA

QP Group, Tanzania

RIA 1

RIA 1, Vietnam

RMIT, Melbourne, Australia (Australia is not being mentioned in question 7?)

Royal University of Agriculture, Cambodia

Rural Areas, Forestry and Fisheries, Germany

Sam Ratulangi University

Scotland - NAFC Shetland, Inverness College UHI, Nicolson Institute, Lews Castle College UHI, LANTRA.

Scotland UK

SDMRI Titicorin, India

SEAFDEC - Philippines

several in China, Vietnam, Thailand, Indonesia, Malaysia, Myanmar, Cambodia, Laos

Shanghai Maritime University

Shanghai Ocean University

Shanghai ocean university. China

Shwe Bo university, Myanmar

South Federal University of Russia

South Korea

South-west university of China

Spain, Portugal, Turkey, Germany

Stirling University

Stirling, UK

Stockholm Resilience Centre, Stockholm University, Sweden.

SUA, Tanzania

TAFIRI, Tanzania

Technological education in aquaculture (Messolongi, & Thesprotea-Greece)

ThuFico (private company, demonstration setup on one of their farms).

Tohoku University in Japan

TRONDHEIM UNIVERSITY, NORWAY

TunaTech Aquaculture services, Germany

UC USA

United Kingdom, Belgium, Italy, Vietnam, Thailand and Malaysia

Universidad do Algarve, Portugal

University of Algarve, Portugal

UNIVERSITY OF AUBURN, USA

University of Can Tho. Vietnam

University of Chiang Mai, Thailand

University of Coimbra, Coimbra (Portugal)

University of Crete

University of Dhi Qar, Iraq

University of Guangzhou (China)

University of Kerala, India

University of Manado, Indonesia

University of Namibia (SANUMARC Centre)

University of Parakou

University of Plymouth, UK

University of Rhodes Island - USA

University of Stirling, Scotland

University of Texas at Austin, USA

University of Tokyo (Japan)

University of Trondheim, Norway

University of Veterinary Medicine, Vienna, Austria

UoS, Scotland,

User Univ. Chiang Mai

USSEC, USA

Various in Vietnam, Bangladesh, China, Indonesia +

Various Institutions and farming organisations in Russia, Kyrgystan, Vietnam, France and Armenia.

VASEP.

Vietnam

Vietnam

Vietnam Nha Trang Univ

Vietnam: Can Tho U, RIA 2, U NhaTrang, U Hanoi, U Hue

Vinh University, Vietnam

Wageningen University

WIOMSA- Tanzania

Yokohama National University

Zaho University, Kurdistan,

ZHAW, Switzerland

Zhejiang Ocean University, China.

Q11.	If you answered yes to Q7, what do/did you find were the benefits of collaborating with these actors of another region

Able to compare practices in each region

Access to strains and epidemiological data to develop novel vaccines and health solutions for the region

Advanced lab equipment

Advanced techniques

At the end of training we were able to start a project between two countries

Based on the increasing requests for training and educational programs that are focused on scientifically sound principles, internationally (OIE) accepted standards, and practical approaches for preventing, controlling and eradicating diseases, these programs are enormously beneficial to all stakeholders in all regions.

Benefits include conducting programmes of research / investigations that fall out with the normal programme of research trials we conduct;

Better understanding of gaps and needs of Vietnamese aquaculture

Broaden internationalisation at our university

Building cooperative research and training programs

Case studies

Collaborative authorship of scientific publications

Complementary expertise

Critical thinking or discussion

Developing the aquaculture knowledge capacity

Developing the capacity to work in a multi-national environment

Different competence

Different research approaches

Discovering new ways to streamline school-to-work apprenticeship pathways in salmon aquaculture. Ability to share knowledge and expertise.

Education and R&D improvement

Education and training - transfer of our technologies and knowledge in pond aquaculture

Education and training of students and young researchers

Enhancement of my technical knowledge about IFF

Ensures that my status as an honorary lecturer is justified by contributing to the learning and teaching objectives of the HE organisation.

Establishing bridges for collaboration between European and Asian Aquaculture

Establishing links for mentor ship and problem solving

Exchange knowledge and skills acquired in different geographical conditions, different cultures, etc.

Exchange of experience

Exchange of experiences

Exchange of knowledge, acquisition of expertise in SE Asian aquaculture, better understanding of global issues (e.g. seafood traceability)

Exchange of technical experience and skills

Exchanging information & Knowledge

Experience

Experience exchange

Expertise

Explore new fields/species for research

Finding out the needs and challenges on pathology in Asian cultures

Fresh insights to shared goals.

Funding for aquaculture research

Get to know other farming strategies, farmed species, and how dependent local populations are on this protein supply.

Good benefits

Good practice on hatchery management, artemia and rotifer production, mass cultures, enrichment, spawning, larval and fry production red sea bream, sea bass and amberjack

I am from India with a long coastline and marine space. In Europe there is a multitude of economic activities happening in the marine space. Whereas in India with all its economic growth the activities are very limited. After returning from Europe I am working to connect companies or government in either place with each other to start commercial projects in the land ocean interaction zone.

I enjoy teaching and running workshops.

I found the benefits to be similar to most other collaborations I have had with people. It is always interesting to work with others who may have a different way of looking at things.

I have chance to exchange research interest, experience

I wish more were possible, but we did not obtain funding

Ideas for career advancement

Impact leverage

Improved education

Improved Research

Improving cultural and social exchange between Countries

Increase collaboration in research

Increase number of publications

Increase qualified research

Increase scientific network

Infusion, expansion & refinement of concepts and programs ensuring "Day-1" knowledge, skills & experience in aquatic veterinary medicine to support and deliver services to aquaculture producers and industries. Much of this involves refining veterinary school curricula and developing extracurricular continuing education/professional development and training programs, to ensure an adequate veterinary workforce in any country.

It was good because I learned new information about fish farming.

Joint publications

Joint Publications

Joint Workshops for students and staff

Know-how exchange

Knowledge

Knowledge exchange

Learn aquaculture practices related those regions

Learn how to carryout experiments related culture species

Learning experience from seeing different culture /aquaculture

Low-hanging fruits on the environmental-tree to be picked easily.

Mainly exchange of knowledge between teachers and receiving students

Making new contacts and linkages with students / researchers that typically return to the aquatic sector within their home countries on completion of their studies;

Methodology

Modest funding support to underpin the student research (funds are typically matched - 50:50 internal and student HE organisation);

More trained staff

Mutual benefit between/among institutions and countries in terms of sharing knowledge and scientific information, education, etc.

New networks & new insights

Opportunities for new linkages

Opportunity to get acquainted with aquaculture activities (industry, education, research) in other regions, setting up partnerships in education and research, facilitating interaction with industry here and there

Other strategies for aquaculture development

Possible feedbacks to the national industry

Potential publication of the research results if appropriate and robust;

Providing training and education,

Receiving students

Recruit masters or PhD students

Research collaboration - new techniques/methods, new findings, enhanced networking, and sharing of outputs.

Research partnerships - sharing knowledge and resources to implement research; facilitating opportunities for MSc students.

Science and knowledge interchange

Science exchange and students

Scientific collaboration aimed to share research investigations on fish pathology

Shared knowledge and practices

Sharing experiences

Sharing scientific knowledge

Similar environmental issues

Staff upgraded and qualified, research capacity building up, network strengthening

Study and get the new knowledge and technology

Techniques on aquaculture innovation and extension

Technology

The benefit of collaborating with these actors of another region is to know the development of aquaculture not only in China but also in South East Asia therefore we can collaborate as research team.

The infrastructure and supporting systems are different i.e. feed delivery, fish health certification, Processing and marketing constraints.

The knowledge can be got from the advanced countries in the field of Fisheries and Aquaculture

The main benefits were related to application of personal skills in LICs and as counterpart a personal benefit in strength the relationships with No-EU Countries colleagues.

The reasons for wanting to join an Aquaculture education system of another country may be simply to get out of a dead-end situation in one's own country,

The typical multiple benefits when there is a collaboration with a country like Iraq, where education and research and production activities have been seriously damaged by the past and current condition

This cooperation and teaching have initiated and developed the aquaculture and administration operators in the receiving countries and been a good boost in capacity building.

To exchange information and upgrade my knowledge

To update advanced technology on aquaculture and related sector worldwide

Understand better complexity and inter-linkages (inter-dependence) between regions in aquaculture development.

Understanding not to draw implicit parallels between European and other employment systems and employment rankings - not all professors are equally safe nor well regarded

Understanding the realities of living in completely different cultures with different rules and try to adapt to those.

Updated curricula and teaching methods

Updated research methods

Very interesting for our students

Visit to Denmark was of great value ("Seeing is believing")

We made research and published some articles

Yes absolutely. I have learned so many new methods in the lab and field. it was encouraging experience for me

Q12.	If you answered yes to Q7, what do/did you find were the challenges of collaborating with these actors of another region

Access to location, language barrier, poor R&D basis.

Access to right people to develop new projects, might be due to low level of organisation

Administrative bureaucracy

And of course, funding is ALWAYS a problem.

Aquaculture industries in Europe, Africa and Asia are very different from each other.

As above, plus Language Barriers and corruption

Asian aquaculture is much more diverse, and many cultures have a short history, much more research is needed. The research institutions and staff are prepared and ready, but the European experience will be very helpful to take right directions.

Benchmarking technologies and education systems through common activities development

Besides when these programmes are done without any avenues to interact with the industry in the European countries future projects don't come about.

Budget

Budget and financial problems

Bureaucracy

Bureaucracy and often different research approaches.

Common frameworks

Costs of travel.

Cultural difference inherent to a population did affect my work and life when I was in Europe.

Cultural differences, communication in a shared language (English)

Cultural differences, low development in remote areas, capacity, know-how, etc.

Culture

Differences in culture/economic understanding (depreciation is an unknown word in Vietnam).

Differences in language and culture; different school system

Different approach to project management

Different approaches needed, sometimes that is not well understood by collaborators from other continents.

Different background culture for some of them

Different culture of discussion of problems. People in Asia are very polite and sometimes it is hard to find out what IS the problem, if things are not moving along as fast as expected.

Different cultures

Different levels of development in each country this creates different challenges to be addressed

Difficulties in searching for grant to collaborate

Difficulties in technical and administrative reporting

Financial support for educational programs, workshops and train-the-trainer programs are a constant challenge - particularly in lesser-developed countries.

For example, in the EAEVE certification of the degree courses

For some students, it may be their first trip to Asia, in addition to the marked differences in culture and climate, they may be unfamiliar with tropical aquaculture, greenwater practices, the use of biofloc, crustacean aquaculture etc. So new learning opportunities lie in learning about new species culture and maintenance of their environment. Challenges lie in different codes of conduct and the need to be aware of cultural differences; need to be flexible as certain resources and materials are limited or not readily accessible in some Asian states and so the individuals need to be resourceful, innovative and flexible. Some lab reagents, for example, can be difficult to source. Students therefore will gain valuable experience in learning proper project management (time and resources), the importance of networking and effective communication. We attempt to minimise such events through early communication and regular meetings prior to a visit to ensure that the objectives of the visit / research are met in a timely manner. The biggest challenge we faced was just a few weeks ago with regard to the recognition of medical insurance (the Thai hospitals did not want to deal with foreign medical insurance agencies and would not administer remedial care to the student (from the UK with full Uni cover) until we agreed to cover the medical expenses paid in full, in cash, up front.

From Kurdistan, we transformed weapon designer biotechnologists in Agriculture biotech

Funding

Funding (particularly in developing countries) for developing and running training workshops and programs to allow veterinary school, veterinarians/veterinary students/para-veterinary professionals and aquaculture producer/industry (when appropriate), to participate - these utilize leading aquatic veterinarians in several countries as instructors/facilitators.
Funding the collaboration programs (Some European and Asian countries are extremely expensive which gives limited opportunity to live, accommodation, eat and travel).
Gaining different view on science. also, they visited my country too. so, we need to share our education system and also industrial improvements in different countries.

Habits and cultural differences

I did not face any significant challenges collaborating with all the scientists.

Identification of funding sources

Institutional changes

It is difficult to collaborate without financial support

It was collaboration in private aquaculture sector, and I served as consultant

Lack of finances and legal framework to support such exchange processes

Lack of transparency in sharing experiences

Lack of uniform basic educational background desired for aquaculture graduates/professionals

Language

Language and bureaucracy

Language, culture

Limits of fund to send students for credit exchange

Long-time preparation

Major challenge has been the funding of the activity.

More effective utilisation of natural food resources

New knowledge and cordiality

Not much effort has been taken in pathology and treatments in Asian cultures, as cultured species are very resistant. But higher productions are bringing harder diseases and they should be prepared for control and prophylaxis

Occasionally there were language trouble.

Other cultural setting, socio-economic differences, also other water use strategies needed

Poor internet communications at times

Quality of research input - but far outweighed by empirical knowledge and networks.

Rules very different, sometimes language, way of living.

Science and knowledge interchange

Social and economic differences, language barriers although situations are varying greatly from region to region.

Some new technology could not apply due to lack of modern equipment

Sometimes it is hard to have face to face discussion

The challenge of collaborating with these actors of another region is to interact and compete positively with colleagues of South East Asia in research for Aquaculture sustainability.
The collaboration aimed to realize many challenges, in the field of education by courses and lectures and in the field of research, accepting PhD students from this country

The fear to expose ideas for advancement

The main challenges are to face the funding opportunities

The trip to Europe and two years stay was my second outing from India. Previously I spend two years in Japan as Japanese Government Monbukagakusho Scholar. I did not find any major challenge. I was already experienced in looking after my work and life in a totally different non-English speaking culture. The trip to Europe was easier.

The university did not have close contact to the industry (as claimed).

Time consuming

Time difference

To reinforce this collaboration

Use of local agricultural by-products for fish nutrition Outputs

Vietnamese language and identification of contact people

We did not have enough information to exchange and we do not have enough places in University to do exchange staffs as well as students

We work together in a practice-based research project based upon questions from Dutch entrepreneurs. Even though some expertise is present at SOU it is hard to utilize that for the Dutch entrepreneurs. Most because of organizational challenges and a more fundamental approach in SOU.
When people from different regions collaborate, the funding bodies should remember that these people who are funded can create a lot of after projects for future development. But most often they return to their countries. Even though they know the avenues to re-connect back again it is often the case that the eligibility conditions for most programmes and the non-desire of people involved to make use of already trained individuals in such projects is hampering real results.

Q13.	If you answered yes to Q7, can you give us examples of what you find/found to be best practice in the type of collaboration you were/are involved in?

1. We had regular project progress meetings in different countries in different years. 2. The group came out with SOP for all laboratory analyses so that all analyses carried out in different countries followed the same procedures and protocols. 3. We shared results and co-authored manuscripts. 4. That was a good project, and the members shared many things in terms of research and networking.

1.Japanese tradition is the best. We have started with the cleaning of the outdoor plankton culture tanks for mass culture, indoors and equipment's. It was very surprising for us why we had started like this. Answer was very interesting. "you can forget the technical details by memory, but your body will remember everything in the rest of your life". Learning the whole production process starting from cleaning the dusts of previous culture till the end of present culture was very wide experience given by the instructor and JICA coordinator. 2. Function of the assigned JICA coordinator was to be a powerful bridge between the trainees and the trainers. It is very useful to maximise the benefit of the training program. 3. Teaching the whole process is better than the partial training. So we were given a responsibility to make counting's and enrichment of phytoplankton culture, feed with different sized of rotifers after enrichment, prepare artemia and decapsulation, counting and size measurements, feeding the larvae of red sea bream in our own tanks, counting/measuring fish eggs and larvae, daily checks and following up the growth till the size of transferring to the cages was very interesting and useful. On the other hand, laboratory studies, use of wide screen microscopes and measurement technics was very useful.
Action research programmes where research is collaboratively undertaken by European and SE Asian institutions. This balances out strengths and weaknesses from both sides.

As well as also get the get the knowledge in the field of Aquaculture

Based on principles outlined in, for example, Palić D, AD Scarfe & C Walster (2015). A Standardized Approach for Meeting National and International Aquaculture Biosecurity Requirements for Preventing, Controlling and Eradicating Infectious Diseases. J. Applied Aquacult., 37(3): 149-184. (JAA Special Edition "Meeting Optimal Biosecurity Requirements"), economically and ecologically sustainable aquaculture is thriving and growing.

Bureaucracy is much less.

Cage 1: In Vietnam, we are facing huge loss of carp virus during Spring and Autumn, I have contact and discuss with professional expert at University of Veterinary Medicine, Vienna where I can clarify my concern Cage 2: I work with Expert on aqua nutrition from Chiang Mai University to develop suitable diets for Black carp farmed in Vietnam

Collaboration is effective when milestones and deliverables are clearly defined and described. Including time line.

Collaborations could improve work efficiencies

Communication is simple and quick.

Comparing European host-parasite models with Asian episodes

Continuous education.

Development and carrying out training courses for students and later for farmers.

Development of common problems to be addressed by the same actors in different or the same region

Diagnosing and teaching how to diagnose parasite species; mainly identifying those pathogens particularly virulent which require more aggressive treatments.
Double degree program with Can Tho University in Vietnam, with Kasetsart University in Thailand, with Ocean University of China in Qingdao

Due to climate change in the region

Evaluation of vaccine development for olive flounder, capacity to provide vaccines for grouper

Ex: 20 years ago, my college didn't nay equipment for fatty acid analysis, I took my sample to Namur University for analysis

Exchange staffs in project Asia-Link

Existence of bilateral experienced persons/organisations

Foundation Apprenticeship model in Scotland.

Good connections and reliable cooperative partner in the receiving country.

good methodology in research and education

good practice in producing

High standard of living

High technology

I could improve my job with this collaboration

I did my research in antibiotic resistant commensal bacteria in aquatic animals, but in Vietnam, especially in my University, we were lacking equipment to study this topic in the molecular level or even experts to use such equipment. Therefore, in the collaboration in other labs, there were experts and all the equipment that can help me to conduct the research. In the other hands, to have change to discuss with other experts, although they are different majors, it can help me to open my thinking or to have different approaches to my old topic

I have learned to work a specific bacterium which I haven't worked before. it causes the bacterial diseases in RBT hatcheries.

I will be involved and dedicate myself in teaching, workshop conducting, master trainer in the field of Aquaculture

Important to add hands on practice into lecture programs while educating and training students.

In my case, I wrote personally to one of researcher at Ege University to ask for training. During training period, we were able to discuss limitations, and difficulties for collaborations. So, after getting to train we were able to collaborate each other to start a project without difficulties.
In the past 2.5 years, I have received 1 BSc, 3 MSc and 2 PhD students from Europe. Three (1 BSc, 2 MSc) projects were proposed myself, the 2 MSc students were awarded distinctions for their research - in each case, early contact was made with regular meetings to prepare materials, facilities, systems and animals in advance of their visit to Thailand. There was close day to day supervision of the students throughout their entire stay, all procedures were supervised and supported by a dynamic, young local team who were also engaged in the programme, were involved in the project planning, supervision and execution. The learning experiences of my own staff were also enriched through the personal professional relationships forged with students with different aquaculture experiences and backgrounds.

Integrated aquaculture practices (multitrophic) in small villages

International Aquatic Veterinary Biosecurity Consortium (IAVBC) Aquaculture Biosecurity Workshops - e.g. http://www.fisch.vetmed.uni-muenchen.de/biosecurity/index.html.

Joint organization of technology transfer workshops

Joint organization of training sessions

Joint publication

Joint research

Learning good practices and treatments useful in each area

learning of modern technology in hatcheries and feeding

Norwegian 2+2 model of apprenticeship training. Community development around salmon aquaculture and "blue competence" in Froya.

NOVUS AQUA RESEARCH CENTER, developed investigation in their own labs with similar lab practices as in Europe, following very strict rules to allow results to be well validated.

Organization of education and technical trips for students in Italy to see examples of fish farming

Outputs in improved management of farm ponds and reservoirs

Participation in the management is the best tool

Pilot studies for process innovation

Placements for student practice are essential.

Please see; Bosma R.H., Le D. Phung, Le V. An, Ngo T. An, Tran M.T. Hang, Pham H. Son & Wals A. (2016) Making Curricula Competence-oriented at Vietnamese Universities. Tropicultura 34-SI: 3-19.

Previous methodologies for MoUs

Provision of mentor ship to young expertise readily available

Sandwich programs for Master and PhD students.

Sending MSc students for internship or thesis work to Asian partners

Setting financial/administrative programs

Several published papers as outcomes of common supervision of final year students' projects: 1. Theodorou J.A., Leech B.S., Mulhern A., March S., Perdikaris C., & Hellio C. (2017). Performance of the cultured Mediterranean mussel Mytilus galloprovincialis Lamark, 1819 after summer post-harvest re-immersion. MEDCOAST Proceedings 2017. 2. Theodorou J.A., James R., Tagalis D., Tzovenis I., Hellio C. & Katselis G. (2017). Density and size structure of the endangered bivalve Pinna nobilis, (fan mussel) in the shallow water zone of Maliakos Gulf, Greece. Acta Adriatica 58(581):63-76. 3. Theodorou J.A., James R., Tzovenis I., Hellio C. (2015). The recruitment of the endangered fan mussel (Pinna nobilis, L.1758) on the ropes of a Mediterranean mussel long line farm. Journal Shellfish Research 34(2): 409–414. 4. Theodorou J.A., Tzovenis I., Adams C.M., Sorgeloos P. & Viaene, J. (2014). Risk factors affecting the profitability of the Mediterranean mussel Mytilus galloprovincialis, farming in Greece. Journal of Shellfish Research 33(3): 695–708.

Share experience and solutions to often common challenges

Sharing of research publications and other information e.g. findings

Solution and sustainable aquaculture problem

Staff and student exchange between Val VGS and Huon Valley Trade Training Centre.

Staff exchange and visiting lecturers, PhD double degree training program

Staff training.

Start with a clear vision of the aquaculture priorities in the receiving / sending countries

Stays in another institutions/laboratories

Student internship

Studying with sturgeon fish species, which is important species both meat and caviar production

Summer schools, small joint project

Teaching and training approach

Technical know-how and overall experience from Asia are useful for aquaculture development in Africa

The best example is kind of short program or conference with research paper presentation and discussion with all delegates.

The best experience was joint supervision of a PhD student, who also came to Switzerland to do part of the work. But this was several years ago.
The longer the interchange the better with much higher probability of continued collaboration. I think short visits fail to make a collaboration that will continue.

The need for industrial Production ambitions to have industrial-age systems in Place for market Access

There is success when professional, diplomatic and government efforts are coherent. In Laos for example the initial FAO support triggered government assistance that was R&D cooperation in the beginning and then it turned into business cooperation by the help of a tied aid loan program.

To be very very patient

To provide appropriate training or teaching

We graduated 5 joint PhD students so far and 4 are running. We published many joint research papers. Organised 7 international workshops and conferences

Workshops with the opportunity to engage in the field

Q14.	If you answered yes to Q7, do you perhaps have suggestions on any collaboration aspects that could be improved?

All the problems turn around available funding's for a targeted and fruitful collaboration, whatever the type of collaboration.

Any of the Advance Country in the world in Aquaculture will be beneficial

Assess institutional options for improvement of curricula and teachers

At the time of writing of this note (September 2017) the European Union is meeting to ban Indian shrimps from being imported into the EU. This is the area of work of Dr Joseph Paul. Disruption in shrimp supply from India due to an EU ban will send world seafood prices skyrocketing. India has become the shrimp basket of the world in recent years and Indian exporters are dictating price. A ban will stop the boom in the Indian shrimp farming sector and further expansion. According to the Food and Agriculture Organisation of the United Nations there would be a shortage of 30 million tonnes of seafood by 2030. We have the land. We have the trained manpower. We have the experience. But new technology and certifications are very much new to us. The EU is strong in technology and certifications. The educationists and industry in EU have a lot to gain by developing (educating/research) shrimp producing countries like India. But the policy makers meet and decide the ban without giving a role to the educationists/researcher and the production industry (in both the regions) to talk with each other and solve the situation. This is an area of collaboration which if done now will make available seafood to the world at a stable price.

Better coordination by Inter-governmental Agencies for communication of cooperation and financing opportunities

Building theoretical and methodological capacity of colleagues in SE Asia.

Collaboration should be based on mutual benefits

Collaboration with culturing companies and other companies involved is preferable.

Collaborations are necessary to develop a professional uniform educational programme for Fish and Aquaculture sciences, that could lead to future recruitment of Professional aquaculture graduates in to aquaculture production sector for the overall management of the sector including aquaculture policy.
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Continue to exchange staffs and students and extend to companies and industry

Credit exchange system

European plankton and fish culture methods should be supported by the Japanese traditionally developed methods by short and midterm training possibilities. It will be very useful for enterprisers, technical staff and hatchery managers.

Exchange staff would help both parties

Fragmented bilateral cooperation's may be better organized through inter-regional framework.

Help for search for funding.

I always support young researchers on to get specialized a subject which they interested in. Then find people in this area to collaborate. in fact, now so many websites giving this opportunity. if you would like to collaborate you would find person who worked on the area that you would like to keep on.

I think it is better to have a transition period to understand each other before starting a collaboration.

I think we had done the best we could. We could have prepared more manuscripts.

I would avoid sending important people for a short visit and whirl wind tour.

I would focus on two-way interchanges of young people (but not necessarily just young people) to study or work in each other's countries.

Improve in linkage

In short regular communication channels between industry, academia, educations, research, consultants in the form a central depository of projects possible should ideally be created. People with various knowledge, experience, contacts should be given an opportunity send in project ideas which people who are eligible can apply for. Otherwise the wrong fish will be cooked and given to another country.

Language training.

Less bureaucracy for collaborations

Linking with Asian Universities will be mutual benefits by sharing knowledge of different culture technologies and farming species. (i.e. IMTA experience from Asia and intensive marine farming from EU)

Links to aquaculture policy influence is limited and needs improvement.

More collaboration

More of 13's answers

More opportunity for our students and staff to go abroad

More strict interaction through public events

My primary interest is in exploring possibilities of EURASTiP/iPAVE collaboration,

Networking to enhance aquaculture research funding needs to be improved.

No

No, we struggle with these questions ourselves

None

Not really. I really LOVED to collaborate with Univ. CM. Alas, my "partner" there is retired.

Not right now.

Online or, better, face-to-face courses on pathology

Opening dialogue and assisting funding for collaboration on practical education and training programs for aquaculture producers, veterinarians and veterinary para-professionals, aquaculture organizations, governments, and other stakeholders, that are focused on scientifically sound principles, internationally (OIE) accepted standards, and practical approaches for preventing, controlling and eradicating diseases.

Organizing more practical workshops

Organizing short- and long-term courses for students and postgraduates

Outside the learning and teaching objectives, we learned a great deal about dealing with local hospitals and what to do in an emergency. Early planning, regular meetings prior to a visit, the sharing of research methodologies, equipment / chemical lists, visit objectives and outcomes means that with proper planning that these can be achieved in full. It is also an opportunity to identify where additional support be required in advance of a visit (critical background reading, learning molarities, gaining proficiency in specific techniques) - and critically, having a back-up plan.

Participation, co-management

Possibility of availability of new information

Provide education of the students aimed at appropriate application of acquired experience, knowledge and skills in their home conditions

Reduce the paperwork and time use of academic proposals and actions....

Research on aquaculture feed especially for marine fish and shrimp

Starvation and global warming are the biggest problem in the world. We can work with these subject

Study and training to obtain appropriated tech.

Sufficient Financial resources for the succeed

Support "triangle" collaboration (e.g. Asia, Europe, Africa)

That students know a little local language

The need for mentorship programs to be enhanced to facilitate transfer of aquaculture knowledge to young experts and entrepreneurs.

The region needs training in terms of fish health management strategies in order for all stakeholders to understand the steps and timeframe required to develop novel solutions to be able to lab and field validate them and boost the availability of solutions and the sustainability of the sector.

There is more to science - apart from science....

This country needs a huge activity of education and technical support in the field of aquaculture and in the field of checking the safety and quality of the fish chain

To create a system for common recognition of work or studies done in the partner country

To dedicate funds for research calls

Vietnam is one of the biggest exporters in seafood, especially to European countries as the main importers, it is important to have such collaboration that can help to sustainably develop the Vietnam aquaculture and processing sectors. In aquaculture, in my opinion, the genetically improved advances of the key aquatic animals are what we need to strongly collaborate in research and apply. In processing, in addition to aquaculture, how to approve the aquaculture farms in Vietnam as safe (follow applicable EU standards) as well as clear and applicable standards for the processors to export to Europe are significant.
We have to address in small scale aquaculture as well as enhance the capacity level of the fish farmers and women in the field of Aquaculture

We hope there will be a post doc research collaboration among young research of South East Asia in Ocean University of China.

We mostly need more regular contact

work together with local institutions to develop funding schemes (not setting up a grant structure while "sitting in a ventilated office in Europe":))

Yes, common study programmes, workshops, study visits will help to better understand each other and adjust solutions to the needs.

Q15. What do you consider are the key themes in aquaculture education collaboration between Asia and Europe?		
Ensuring education is responding to the industry needs	117	68.82%
Ensuring education is addressing future/projected aquaculture industry needs	119	70.00%
Promoting innovation and quality in teaching methods and materials	117	68.82%
Enhancing opportunities for mobility	88	51.76%
Facilitating mutual recognition of prior learning / qualifications / certificates between Europe and Asia	65	38.24%
Resolving administrative barriers such as collaborative activities between Europe and Asia	63	37.06%
Ensuring dedicated funding for aquaculture education collaborative activities between Europe and Asia	119	70.00%
**Other*	13	7.65%

***Other key theme of aquaculture collaboration**	**Response Count**
Ensuring food safety	1
Address sustainability of aquaculture industry	3
Innovation or science and research developments	1
Extending similar collaborations to Africa	1
Central depository for future collaboration ideas	1
Ensuring export of carp, prawn, crab with the collaboration between Europe and Asia	1
Combining the methodologies as new tools and strategies from the beginning of the production sages till the end of marketing will be very useful.	1
Setting up credit exchange and double degree schemes	1
Establishing a list of general and specific competency areas needed by aquaculture practitioners/technologists. This is crucial to then facilitate learning certificates	1