

Appendix 4.2

SMART AQUAFARM FEEDER AND MONITORING SYSTEM IN HIGHLY TURBID CONDITION (SAqFeeder)

MEETING OF THE ASEAN INSTITUTES FOR THE ASEAN IVO GRANT ON PROJECT SAqFeeder

Report/Minutes Form

I. Organizer:

Name:	Mr. Ace Zander C. Antonio
Position:	Head of Research Services
Institution:	TUPV, Philippines

II. Program:

Date: October 28 – 30, 2024

Venue: May's Organic Garden, Araneta Avenue, Bacolod City, Negros Occidental, Philippines

Program Agenda:

The objective of this meeting is to evaluate the current status of the SAqFeeder Project, address potential challenges, and outline the necessary steps for future progress. This gathering seeks to enhance collaboration among partner institutions to further the project's primary goal. The agenda items covered during the meeting include:

- Project Update
- Discussion of Potential Challenges
- Field Visit to the Aquafarm Site (MIRMA Agriculture Corporation)
- Future Activities and Action Items
- Q&A Session

III. Participants:

No.	Name	Organization
1	Dr. Franz Asunta de Leon	DOST – ASTI, Philippines
2	Dr. Meryl Regine Algodon	DOST – ASTI, Philippines
3	Mr. Gerwin Guba	DOST – ASTI, Philippines
4	Mr. Eduardo Jr Piedad	DOST – ASTI, Philippines
5	Mr. Chan Vei Siang	UTM, Malaysia
6	Dr. Nurun Najeebah Az-Zahra binti	UTB, Brunei (joined online via Google meet)
	Tashim	



7	Dr. Tiong Hoo Lim	UTB, Brunei (joined online via Google meet)
8	Dr. Eric Malo-oy	TUPV, Philippines
9	Mr. Ace Zander Antonio	TUPV, Philippines
10	Mr. Gershom Defe	TUPV, Philippines
11	Mr. Gregorio Crisostomo	TUPV, Philippines

IV. Summary of the activities corresponding to the objectives.

Day 1: Virtual Presentation of the Proposal and Introduction of Partnered Institutions.

The program commenced with a welcome address by Dr. Eric Malo-oy, the Campus Director of TUPV, followed by Engr. Ace Zander Antonio introducing the participants. Mr. Eduardo D. Piedad Jr., the project leader, delivered the opening remarks, and Mr. Greg Crisostomo outlined the activities planned for the three-day meeting. Engr. Antonio presented the SAqFeeder project proposal to the attendees, while representatives from DOST-ASTI, UTM, and UTB introduced their respective institutions. Dr. Lim Tiong Hoo from Universiti Teknologi Brunei then shared insights from previous ASEAN IVO projects, concluding with an open forum for discussion. The session wrapped up with a review of the SAqFeeder project implementation and plans for a field visit to the aquafarm site

Day 2: Field Visit to the aquafarm site at MIRMA Agriculture Corporation.

The project team of SAqFeeder went to MIRMA Agriculture Corporation in Hda. Luguay, Barangay Balaring, Silay City. Their objectives include assessing feeding strategies for shrimp, utilizing shrimp population estimation, feeding system and mechanism, and monitoring key water quality parameters.

Objectives:

- Feeding Analysis: Assess overfeeding and underfeeding practices.
- Shrimp Counting: Utilize computer vision for estimating shrimp populations.
- Optimal Feeding Strategies: Determine ideal feed rates and frequencies based on shrimp size, quantity, pond area, protein content, and type of feed (for both adult and juvenile shrimp).
- Environmental Monitoring: Track parameters such as dissolved oxygen (DO), salinity, pH, alkalinity, ammonia levels, and weather conditions, noting that warmer water is preferred to prevent bacterial growth.



The following are factors being observed during the visit:

Pond Specifications:

- Nursery tanks are 25 meters in diameter; adult ponds measure 40m x 40m.
- The large pond size necessitates strategic feed placement and feeding techniques.

Current Autofeeder System: Users must manually set timers and feeding frequencies, requiring ongoing supervision.

Workflow Overview:

- The production cycle lasts approximately 90 days: 30 days in nursery tanks followed by a 60-day cultivation in larger ponds.
- Daily water sampling is essential for lab analysis and record-keeping.
- Shrimp health assessments via PCR and genomic analysis are time-consuming and may not be practical during viral outbreaks.

Signing of CRDA by TUPV

The signing of the Cooperative Research and Development Agreement (CRDA) along with TUPV, ASTI, UTM and UTB was noted as a significant development in collaboration efforts.

Day 3: Project Planning Discussion and Future Activities

The project team concluded their meeting at May's Organic Garden in Bacolod City, where they engaged in a comprehensive discussion about future activities, including plans for data collection from aquafarms, the development of an autofeeder prototype, and the creation of a progressive web app dashboard. The following topics below are disscused:

Deliverables for Year One (March 2025):

- Research and Publication: Conduct a thorough literature review and prepare a journal publication.
- Data Collection: Gather data from aquafarms in the Philippines and Brunei.

Prototype Development: Identify necessary components and design specifications for the autofeeder system.

Dashboard Development: Create a progressive web app for both Android and iOS using technologies such as Node-RED, MQTT, InfluxDB, and Grafana/Streamlit.



Budget Considerations: Source a computer for under \$1,000. Budget allocations may be adjusted, allowing funds designated for computer purchases to be redirected towards autofeeder development.

Upcoming Activities: Finalize the project location by the end of November 2024, with invitations to be sent by the project leader to the host institution. A list of required equipment and software subscriptions is due by mid-November.

Tour of RU Foundry & Machine Shop Corp: Explored sustainable agricultural environmental products, gaining insights into potential applications for project needs.

Visit to TUPV: Reviewed the autofeeder prototype and engaged in knowledge-sharing sessions to enhance project collaboration and innovation.

V. Others

Day 1



Figure 1. Photo session after the first day project meeting with partner institutions



Day 2



Figure 2. Farm Visit and Conducted Initial data collection for AI Models at MARMI Agriculture Corporation



Figure 3. Day 2 Photo session



Day 3



Figure 4. Day 3 Culmination Day



VI. Workshop Evaluation Questionnaire

Workshop Name: <u>MEETING OF THE ASEAN INSTITUTES FOR THE ASEAN IVO GRANT</u> <u>ON PROJECT SAqFeeder</u>

Location: May's Organic Garden, Araneta Avenue, Bacolod City

Date: October 28-30, 2024

Participant Name (optional): Chan Vei Siang

Institution /Company name of participant (optional): Universiti Teknologi Malaysia

Job Title: <u>Research Assistant</u>

Please give us your comments here:

A very productive workshop. I have learned a lot about the shrimp farm management and on how to improve the aquaculture in this workshop. Several data are collected for further requirement analysis. The next action tasks are coordinated and distributed. In terms of venue and hospitality, the meeting place and accommodation is very calm and serene. The owners and workers of the property are very friendly, helpful, and provide great services. The foods are delicious too. As for the hosting institution, TUPV had done a great job in arranging the meeting place, transportation, food and beverage, and research activities. All scheduled activities were conducted in orderly manner and appropriately. The chance for culture and historical explorations is also a plus (farmer's market, The Ruin and other historical buildings, Bacolod's old bakery).



VI. Workshop Evaluation Questionnaire

Workshop Name: <u>MEETING OF THE ASEAN INSTITUTES FOR THE ASEAN IVO GRANT</u> <u>ON PROJECT SAqFeeder</u>

Location: May's Organic Garden, Araneta Avenue, Bacolod City

Date: October 28-30, 2024

Participant Name (optional): <u>Dr. Lim Tiong Hoo</u>

Institution /Company name of participant (optional): Universiti Teknologi Brunei

Job Title: <u>Senior Assistant Professor</u>

Please give us your comments here:

Very fruitful workshop where direction of the project and update were discussed.