

Intern Summary

Name: Meghan Borland

University: Dalhousie University, Canada

Duration of Internship with MDPI: End of April- Beginning of July, 2016

Internship title: IFITT Intern: Cost-benefit analysis

Introduction:

The Improving Fisheries Information and Traceability in Tuna (IFITT) project represents a partnership between Wageningen University, MDPI, This Fish and Bogor University. IFITT aims to improve data systems in the Western Pacific region using an integrated approach. This approach combines data from port sampling activities with data collected from the supply chains through traceability. By focusing on the economic component of the IFITT project, this internship contributed to assessing traceability systems as a mechanism for sustainable data collection within small-scale tuna fisheries in Indonesia.

Internship Objectives:

This internship aimed to establish if a business case for traceability exists for the system being implemented in Indonesian tuna fisheries. This internship specifically focused on the economic aspect of the IFITT program to develop a cost-benefits analysis framework.

Methods:

The internship methodology consisted of two components. The first represents the desktop component and the second, the practical field component.

- 1) Updated data relating to IFITT implementation costs. Data was compiled from 2014, 2014 and 2016 from five sites: i) Bitung, ii) Assilulu, iii) Lombok, iv) North Buru, and v) Ambon (office). Costs documentation on various topics were completed:
 - a. Costs associated with enumeration, purchases of equipment, compliance costs (licences/taxes) costs on wage of workers involved in enumeration and traceability.
 - b. Number of data workers

Intern Summary

- c. Length of employment of data workers
 - d. Level of education of data workers
 - e. Qualification of data workers
 - This update was based off of the internship report completed by Margherita Zorgno
- 2) Redoing the time/cost processor collection study, carried out in 2014, 2015 and earlier in 2016. This was conducted at both Harta Samudra and CV.SLI. This included timing the activities that take place within each node of processing and developing a narrative for each of those activities.

Results:

The main output of this internship was the development of a comprehensive excel spreadsheet that includes all the information related to the costs of the IFITT project. In addition, the time/cost processor studies from 2014, 2015 and 2016, were compiled, enabling future researchers to easily access this data. It was determined that the data compiled throughout the duration of the internship will serve as a foundation for the Return on Investment formula that Dr. Megan Bailey is devising. The information that was collected in this internship can be found here: https://www.dropbox.com/home/BorlandM_IFITT_Internship.

Discussion and conclusions:

The outputs from this internship and subsequently the formula are important as traceability requirements are becoming increasingly prevalent in the international seafood market. For example, both the Fair Trade and the Marine Stewardship Council (MSC) seafood certification programs outline traceability requirements. In order to comply with these standards and maintain market access in the Global North, fisheries including those in Indonesia must implement traceability technologies. The Return on Investment formula will allow investors or supply chain actors willing to 'go down the traceability technology route' to make informed financial decisions on investment needed, the length of time before the investment will create a return and some potential

Intern Summary

efficiencies all of this may create in their daily business. In addition it will allow researchers to address IFITT research objectives such as:

- 1) The cost per unit of traced product (B1.i2)
- 2) The cost per unit of data collected (B2.i2). While it is not defined what constitutes a unit of data collected, the research conducted by Gretchen Thuesen (gthuesen0958@gmail.com), which investigated two sites using the DOCK app, and two sites not using the DOCK app, may serve as an appropriate unit of data.

As the IFITT project comes to a conclusion, such information is not only important for the IFITT researcher team, its partners and participating industry, but also for developing a business case for traceability.

Follow-up steps for MDPI:

It is recommended that MDPI develop a protocol for the time-processor study. I was lucky in that Hastuti was able to provide me with assistance, enabling consistency with her previous data collection and my data collection. However, for the future it would be beneficial to develop a standardized protocol.

In addition, based on the IFITT research proposal, experiences in the field, and conversations with various supply chain actors in Indonesia, other questions that may be addressed using the aforementioned formula are:

- 1) Under what circumstances does it make sense to employ traceability technology in a small-scale fishery?
- 2) How the efficiency, cost, and/or the return on investment differ between small and large scale processing plants?
- 3) Who should pay for the costs of technology implementation and maintenance?
- 4) How does the implementation of traceability technology improve the training and/or qualification of personnel?

Intern Summary

- 5) How can traceability technology address the needs and requirements of various actors along the supply chain (i.e; fishermen, suppliers, processors)?
- 6) How are the benefits of traceability technologies distributed among supply chain actors?
- 7) How does processing efficiency vary between paper and technology based traceability systems?



With the fishermen and MDPI staff in Buru island.