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Preparing and Implementing the Project "Setting Up a Blended Learning Program for Sustainable Inclusive Agricultural Value Chain Development in Indonesia (BLVC); Indonesia-Netherlands Joint Project, in Maluku Islands

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Case Report
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Abstract

The project, setting up a blended learning program for sustainable inclusive agricultural value chain development in Indonesia, was implemented at the Faculty of Agriculture Pattmura University, Ambon, Maluku, Indonesia during 2017 – 2021. The project selected five commodities potential to Maluku islands; nutmeg, clove, coconut, sago and banana, as the focus of education and research attentions. Following the establishment of internet/video conference facilities, two cycles of lecturing in a blended learning system was conducted on the course of Agricultural Value Chain Analysis. Three international seminars/webinars were successfully completed during the implementation presenting keynote speakers from various institutions related to the five selected commodities and attended by participants from government, research and educational institutions, business institutions and community including farmers and farmers group. Despite some challenges faced, the project was able to attain its objectives in strengthening the capacity of beneficiary institution through provision of research equipments, international visitation of its staffs, educating/training of the students and staffs, provision of learning materials etc. Establishment of Innovation platform for nutmeg commodity and inclusion of the agricultural value chain course into the curriculum of the Faculty of Agriculture were part of the efforst to institutionalize the project accomplishment.

Keywords: Blended Learning; Value Chain; Maluku Province; Commodities; Sustainable; Inclusive

Introduction

Project's initiation

The project "*Setting up a Blended Learning Program for Sustainable Inclusive Agricultural Value Chain Development in Indonesia*" was inisiated around the middle of 2016 through a telephone conversation between the project initiator, Mr. Luud Clecx of AgroFair Company, the Netherlands and Dr. Semuel Leunufna of Faculty of Agriculture, Pattimura University, Ambon, Indonesia, requesting the faculty of Agriculture to be the beneficiary of the project and to obtain

general data of the University to be included in the project proposal submitted to the Netherlands Institution for Internationalization of Education (NUFFIC). The agreement was well supported in the process since there has been a research visit of three experts from the Netherlands; Prof. Ernst Woltering and Prof. Hogeveen van –Echtelt of the Biobased Research Wageningen University and Research, and Mr. Hans-William van der Wall, the managing director of AgroFair Company the Netherlands, in Ambon city for a joint project with the Faculty of Agriculture on banana diversity in Maluku Islands.

The proposal was submitted to NUFFIC in June, 2016, signed by the implementing institutions; AgroFair Company, Faculty of Agriculture Pattimura University and project counterparts; Maastricht School of Management (MSM) and Business School-Bogor Agriculture University (BS-IPB), two institutions which already have some experiences in similar joint project. The project was accepted to be funded in June 2017, and the memorandum of understanding (MoU) with the Pattimura University was signed in February, 2018, less than one year following project implementation.

Project's Tasks

Main tasks of the project, as implied from the project's title, are to establish facilities and implement the blended learning program as well as to develop an agricultural value chain which sustainable and inclusive in its characteristics.

Blended learning system as opposed to conventional learning system, which making use of class room, desks and teacher's present, face to face in the same room as the students, combined/mixing the conventional system with the internet learning system which making use of communication media, information technology (IT); WIFI, Internet network, computer (laptop, desktop), video conference system/ facilities; Skype, zoom; yahoo, Google; face book, whatsup; drop box etc., a learning system which, even though, provide similar intensity of interaction between the students and the teachers, does not necessitate their present in the same classroom. Moreover, it provides a possibility of receiving lectures from the best experts in the specialty, no matter where they reside in the world.

The blended learning system, first introduced to Maluku Province through the project (internet learning system, to certain degree, was implemented by open University (UT) while the conventional learning system was implement by other Universities in Ambon), proved to have helped easing the alteration from conventional leaning system to full information technology learning system when the earth quacks causing damages on campus vacilities in Ambon Island striked, continued with the Covid-19 pandemic, end of 2019. It appeared that students and lecturers attending Value Chain Analyses Course in the blended learning system were not so stressful during the alteration of the learning system and were able to provide motivation to others who have never been introduced to blended learning system.

Development of agricultural value chain was accomplished through courses based on blended learning system and action researches focused on, although not restricted to, five selected commodities, and justified by scoping studies; clove (*Syzygium aromaticum* (L.) Merr. & L.M.Perry, nutmeg (*Myristica fragrans* Hout.), coconut (*Cocos nucifera* L.), banana (*Musa* spp.), and sago (*Metroxylon sagu* Rottboll.). Teaching module of agricultural value chain course was developed with the theoretical part taught by the project counterparts, MSM Netherlands and SB-IPB, Indonesia alternating by guest lectures from a number of institutions emphasizing on the practical side of the value chain of five selected commodities. Those institutions were AgroFair Company the Netherlands, Faculty of Agriculture Pattimura University Ambon, Indonesia, Titane Business Community Netherlands-Maluku, Kamboti Spices Maluku small company, and Institute for the Assessment of Agricultural Technology (BPTP), Maluku. In addition to attending lectures, the students were required to prepare and conduct a class presentation on group works and individual works related to one of the five selected commodities as well as presentation in yearly international seminar organized by the project. Students accomplished the above requirements were awarded with certificate signed by all members of project consortium.

Sustainable means of the project, implemented through theoretical knowledge and action research was defined in three different aspects; first sustainable in terms of people/ community, in that sustainability of human value and culture should be taken into account. For instance; involving children in labour forces is considered unsustainable. Second, sustainability in terms of planet/environment, in that, the sustainability of the environment should be of concern. For instance; the project will not support all development efforts, which involve cutting down the forest, destroying habitats of biodiversity and replacing it with a monoculture cropping system such as that of oil-palm plantation. Third, sustainability by means of profit, in that the benefit obtained in developing value chain system of a product or service should continuously be improved following the improvement made in every chain of development.

Inclusive character of the value chain in project implementation was perceived in several aspects; first, inclusive in terms of agricultural value chain which started from input factors followed by production, post-harvest

handling, marketing, up to consume and recycling of the waste products, second, in terms of scientific specialty, in which, the participants of the course of Value Chain Analysis were not only from agribusiness department but also from the department of Plant culture (soil science, Plant breeding, Agronomy) and Post-Harvest Technology, the faculty of Agriculture Pattimura University, third, inclusive in the scale of enterprise/business/company, where not only involve local, small companies in Maluku such as Kamboty spice Maluku, Maenusu in Ambon but also Titane Maluku- Netherlands and Verstegen (a global importer of spice commodities) the Netherlands so that there will be joint works in developing and improving the value chain of commodities for the benefits of all parties involved; fourth, inclusive in learning system which involve not only the conventional system but also internet learning system in blended learning system; and fifth, inclusive in project consortium which involve not only local institution (Faculty of Agriculture Pattimura University) but also national (SB-IPB) and international institutions (AgroFair company and MSM the Netherlands).

Project's Objectives

The objectives of the project were to strengthen the educational institution, Faculty of Agriculture Pattimura University through improvement of the capacity of human resources (lecturers/researchers, quality of graduates), improvement in curriculum and learning system, action research, as well as to strengthen small and medium business enterprises through mapping of commodities value chain, identifying players (shareholders, stake holders) and improving the role they play within the chain.

Project's Consortium

Implementing institutions of the project composed of AgroFair Company, Netherlands as project's leader, Maastricht School of Management, Netherlands and Business School, Bogor Agriculture University, Indonesia as project's counterparts and Faculty of Agriculture Pattimura University, Indonesia as project beneficiary. The funding was provided mainly by the Netherlands Institution for Internasionalisation of Education (NUFFIC).

Objective

The present paper is intended to provide a short elaboration on the strategy of project implementation mainly at the beneficiary institution, in which, a number of major activities at the initiation, preparation and execution stages were described followed by the description of achievements attained as well as challenges and efforts to further continuing development of the accomplishments.

Preparation Activities

Visitation by project manager and counterpart from the Netherlands to evaluate general readiness of the beneficiary institution was done right after the approval of the project by the funding provider, NUFFIC. In several meetings and Focus Group Discussions (FGD) with a number of institutions, it was decided, temporarily, that the teaching, research and development activities of the project will be focused on five different agricultural commodities indicated previously. During the visit, trips to different areas/villages observing natural potential of Ambon Island were also conducted including visit to Kamboty Pusaka Maluku small business company, several villages and Dusun as well as Siwalima Museum of Ambon Island. At the end of the visiting activities, the project manager presented work plan of the project with a number of general activities and urged the consortium to proposed activities to accomplish the project. Complete data of beneficiary institution were also presented to the visitors by the beneficiary institution. A separate visit by the Indonesian counterpart, SB-IPB was filled with activities such as discussions with the Unpatti project coordinator, short lectures to the students interested to participate in the project and visitation to the market outlets selling creative post-harvest products of the five selected commodities.

In the early stage of project implementation in Maluku, especially at the Faculty of Agriculture Pattimura University, several consecutive activities were conducted. First, project introduction and dissemination to campus community to prepare academic condition to support the project implementation. This was done through meetings, presentations and discussions with the heads of departments and study programs, lecturers and students, seminar at local and national levels, flyers on the announcement board as well as posting in the Facebook group. National seminar for project dissemination to academic community of the Faculty of Agriculture was held in a joint collaboration with the Ministry of Women Empowerment and Child protection of Indonesia (PPPA), Association of Teon Nila Serua Families (IKB-TNS), inviting a number of special guests including national entrepreneurs and a parliament member's advisor, presenting two speakers from Faculty of Agriculture Pattimura University and PPPA RI Ministry. The step above was continued with recruitment and inventory of the project participants including students, student's advisors, project coordinator at the department levels and the staffs to participate in the visitation to Ecuador and the Netherlands.

In the meantime, several comparison visits were conducted by the Unpatti project coordinator to several institutions to observe and study IT learning systems which have been developed and practiced in those institutions. Visit to Open University Ambon was done to observe the

facilities and learning system of the UT in Indonesia. The visit continued to the Central Office of Open University of Indonesia in Tangerang, Banten, to observe the programs developed and possible joint work in the future, while the visit to BS-IPB Bogor was conducted to observe the video convergence laboratory established and discuss the long distance lectures which have been previously conducted by SB-IPB.

The step of preparation of facilities for Blended learning system was implemented by provision of a class room with 40-50 seats completed with a lecture podium, a white board and an office desk, by the Faculty of Agriculture Pattimura University. The room was then upgraded by the project by cleaning and painting, creation of an office room, addition of file cabinets, wardrove and office utensils, a refrigerator, a dispenser, air conditioners etc. For the completion of video conference system, the project provided a video conference camera plus accessories (speaker phone, hub, cables etc.), a 42 inches TV monitor, an in focus projector, an additional microphone, a portable camera plus tripod. For an internet access, the project provided connecting cables and internet station in the room and paid for the internet connection from the Pattimura University network. A laptop and smart phone of the latest development were also provided by the project for the purpose of supporting blended learning activities. In later development, the project provided additional isolation layers to the classroom wall, created a sound-proof studio to avoid disturbance cause by echoes from the our-side sources.

Implementation activities

As a first sign of the involvement in academic activities and efforts to increase student's participation, the project provided a small *financial support on the research* of two students from agribusiness department on nut meg value chain in Banda and Ambon Islands. The results of their studies were not only resulted in an undergraduate degree for the two but also an opportunity for the presentation in the first international kick-off seminar of the project, in the year 2018.

Workshops on scoring study were done to prepare a number of students, supervisors and project coordinators to conduct scoping studies. Scoping study/research was intended to determine the number and kind of commodities representing Maluku Province/Islands, which is varied in climatic condition, potential commodities, culture, areas and governmental policies, etc., which will be the focused of development, especially in lecturing and researching of commodities value Chain. Even though, five commodities have been selected during the first visit by the project manager and counterparts to the beneficiary institution, there was still need to provide justification on their selection and reports on their value chain system in Maluku Islands. A one day workshop was held at the Faculty of Agriculture Pattimura University, directed and facilitated by the project manager (AgroFair Company) and the counterpart (MSM) the Netherlands, and keynote speakers from the counterpart SB-IPB and beneficiary institution, Faculty of Agriculture Pattimura University. The workshop was opened by the Dean and closed by the academic vice Dean of the Faculty of Agriculture Pattimura University, covered four different themes; general concept of Value Chain, recent project development, lessons learned from previous joint work of the counterpart institutions and methodological approach of scoping study. A Second small workshop was done to discuss the technical preparation and execution of the scoping study at the sampled regencies and municipalities. Despite the extensive preparations, the scoping study could not be implemented on the scheduled time due to a number of challenges faced.

A visit of delegation from beneficiary institution to Ecuador and the Netherlands was named experiencing visit, intended to provide experience through direct observation of value Cain system of banana commodity started from the planting field in Ecuador up to supermarkets in the Netherlds and Europe. A two weeks visit was attended by three personals of the faculty of Agriculture, Pattimura University Ambon, accompanied by a personal appointed by AgroFair Company, Mrs. Karin Bleijleven. The activities in Ecuador were centered at the Asoguabo, a farmer's association located in the village Elguabo, Ecuador, headed by Mrs. Liane Zoeteweij. A number of activities were accomplished during the visit organized by the project manager (AgroFair Company) and Assoguabo leadership started from the field visits to different banana plantations owned by the assoguabo association and owned by its members privately where the delegates observed the whole cultural techniques activities, harvesting, internal quality inspection, cleaning, spraying, labeling, packaging, inspection of external inspector, pellet formation, preparation of temperature condition and loading into container, loading into the truck, transporting to Machala ship harbor, loading to the ships and sailing to Europe (Rooterdam ship port), Russia, Germany etc.

It is also interesting to note that almost each of the activities mentioned above was independently running by different players in the world's value chain of banana. Since the Assoguabo applied organic certification as well as fair trade in its products, inspection to ensure the compliance of the farmers was also conducted. Moreover, a certain code number was given to each of the boxes indicating information such as week of harvest, farmer who produces the banana etc, in order to be able to trace back the producers when unwanted quality was found in the market by the consumers or along the value chain. As a compensation for the compliancy to the

standard quality of the products, the farmer's association was awarded with one US $ for each box which was exported and since about 1 million boxes were exported per years, the farmers' association was given responsible for 1 million US$ per year to be managed for their own benefits, such as training to improve their farming practices, building schools for their youth, etc.

During the field visits, the delegates were also informed on the preliminary researches related to improving the efficiency of nutrition up take, soil water conservation, symptoms description and management of Sigatoka disease caused by fungy *Mycosphaerella fijiensis*. Such studies include the use of cover crops in banana cultivation, mixed cropping of banana and cacao, the use micorrhiza for Nitrogen fixation at the vegetative growth stage of banana. Aside of the monoculture cropping system which are mostly occur in the plain lower latitude, the visit was also include the farmer's field at the steep and higher latitude areas where the policulture cropping system was practiced. In addition to the visit to planting fields and Machala ship harbor, visit to Machala Technical University was done to observe the research field and cacao production system as well as to discuss the curriculum of the agronomy study program. A great number (>100) of video clips recorded along the value chain of banana, prepared in three different languages (Spanish, English and Bahasa Indonesia) were produced during the visit and become highly valuable learning materials.

Visit to the Netherlands was also filled with a number of attractive activities added to delegate's experiences. Meeting of project consorsium was done in the office of AgroFair Company, Barrendrect, attended by Managing Director and heads of Departments of AgroFair Company, BLVC Project Manager, and project counterpart of MSM, University of Pattimura project coordinator and the member of the delegates as well as the companion of the delegates from AgroFair Company. Following the introduction and presentation of each department of AgroFair Company, visits were done to the loading/unloading dock and storeroom of the company to observe banana boxes imported from importing countries including Ecuador, temporarily stored before being delivered to super markets in the Netherlands and other European countries as part of the end chain of the whole banana's value chain. A number of additional visits were done including visit to Wageningen University and Research, where Prof. Ernst Woltering of Department of Biobased Research presented his research plans and activities, as well as the research facilities, visit to Verstagen, a world spice commodities importir, where Mrs. Marianne van Keep introduced and presented their family company and its works, and visit to Naturalis Biodiversity Center, Leiden, where the delegates were received by the representatives of the institution's leadership and presentations of research works; Dr. John Mols, Prof. Dr. Erik Smets, Dr. Willem Renema, Dr. Barry van der Horn and Mr. Frits Blessing from a spice company consultant, active in Maluku (Maluku Living Laboratory). During the visit, a joint research proposal with Pattimura University was discussed, although, the discussed joint work has not yet been realized. Later in the development, however, scientists from Naturalis Biodiversity Center conducted analyses and provided the DNA profiles of Banda Nutmeg, which was valuable in supporting the patent claim of Banda nutmeg with geographical indication by Indonesian government.

Further project activity was preparation of teaching module for the value Chain Analysis Course. The original module prepared by counterparts (MSM Netherlads and IPB Indonesia) was discussed in a number of consorsium's meetings, received inputs and suggestions, revised and formally implemented in teaching of the course. The core content, value chain theory was thought by the counterpart MSM and SB-IPB (Dr. Diederick de Boer, Dr. Jeroen van Weijk and Dr. Idqan Fahmi), supported by guest lectures from AgroFair Company, Pattimura University, Titane Small Business Netherlands-Maluku, Camboty Spices Maluku and Institute for Agriculture Technology Assessment (BPTP), Maluku, discussing practical implementation of value chain related to five selected commodities; clove, nutmeg, coco nut, banana, sago. The module was arranged in 16 meetings in the form of face to face classroom lecture, video convergence live and recorded lectures at 100 – 120 min. duration of lecture/discussion/classroom assignment, students group works and presentation on one of the five selected commodities, and individual task and presentation, which can be part of the proposal or final research of the students on one of the five selected commodities. If group works emphasize more on the literature study in addition to field observations, the individual work should emphasize more on the field data or observation. The credit value has not been given to the course since it has not been part of the curriculum of the Agriculture Faculty Pattimura University.

Two cycles of lecturing on Agricultural value chain analysis course was completed during the course of the project parallel to the semester courses at the Faculty of Agriculture Pattimura University. The students attended were from three departments; plant culture, post-harvest technology and agribusiness, both through department and self-registrations. To take part in the course, the students were required (although not strictly applied) to have 3,0 or higher GPA (Grade Point Average) or may be discussed, knowledgeable and skillful in utilizing computer software's and willing to learn different software's (if possible owned a laptop). Fluency in English was considered an advantage. In the first cycle of the course 30-40 students were registered

and the whole program was implemented in a blended learning system. The number, however, was decreased gradually leaving 7 students at the end of the course. In the second cycle of lectures, similar trend of student's participation was also observed, decrease at the end. The lecturing was mostly of internet/video conference system due to series of earthquakes causing several damages on the campus building, followed by the onset of Covid-19 pandemic. In the continuation of the lectures following a short break as a result of the above catastrophic events in Maluku and the world, the project provided a small to the students in the form of the cost for internet pulse. All the activities were coordinated from the BLVC project secretariat, Faculty of Agriculture Pattimura University.

In organizing the lectures, the local manager prepared and posted leaflet/announcement on several announcing boards regarding the next lecture, contacted the lecturers, obtaining lecturing materials (power point, discussion sheets, class group/individual works, questions to be asked by the lecturer and translated them into Bahasa Indonesia when necessary), prepared and posted the reminder to the students on WAG one day before to be pondered upon prior to the lecture, prepared the video conference system (making sure that the camera and the speaker phone, additional microphone to assist class discussions were well set up), making sure that the internet network worked well, checking out the skype or zoom system, preparing the list of class attendee and lecturing report, recorded the lecture manually using portable camera, translating the lectures given in English into Bahasa Indonesia, taking documentation pictures and posted as a way of project promotion. In the case where the lecture was given from the Netherlands (Maastricht, The Hague or Rotterdam), the lecturing schedule were adjusted to 16.00 PM Ambon Time, and 08.00 AM Netherlands Time for direct, live lectures, while for the recorded lectures, the schedule was held at 11.00 AM Ambon Time and the questions, comments from the students were discussed with the lecturers at 16.00 PM Ambon Time (08.00 AM Netherlands Time) and the answers were passed on to the students in the next lecturing time or through WAG.

A number of internet/computer software's were used during the project implementation. Google drive was used for the purpose of communicating course materials (power points, recorded lectures, references) among students and lecturers where everyone was connected to google drive using *e-mail* account. Exchanging information such as lecturing reminder, question and answer, sharing of other course materials, exchanging pictures etc. was done through WAG. Course evaluation was done with the help of Google form. Project promotion through short messages and pictures was done using face book group and personal and the exchanging of other project materials was accomplished through e-mail, drop-box, we-transfer and others.

A formal organizational structure and personalities of the project at beneficiary institution was requested by the project manager in a weekly meeting of the consortium. The purpose was to promote more participation of staffs and students in the project activities, to encourage more inputs on the project development and to manage difficulties raised within each department involved regarding project implementations. A number of staff member were assigned as representatives of the project to each department and study program involved, with the tasks of coordination with the head of the Departments and Study programs in supporting project activities. In addition, every research (thesis) advisor of students involved in the project were part of the project's supervisor with the tasks of providing inputs to the project. In several aspects, the organization were able to support the project, even though, not quite intensive and effective.

The first international seminar of the project was held in June, 2018 after completing one year of implementation and was named kick-off seminar with the objectives, in part, of initiating implementation of the whole project (since 2017) and evaluating the project accomplishments in previous year as well as opening the second year implementation (2018). Other objectives were to introduce the project to Maluku Governments, to scientific community (Pattimura University) and to general public. It was held in two different venues; Swiss-bel hotel, Ambon city and project secretariat Faculty of Agriculture Pattimura University and attended by about 48 participants. The Seminar was technically organized by students participated in the project, opened by the Dean of the Faculty of Agriculture Pattimura University representing the Rector of the Pattimura University. Four key-note speakers were presented; AgroFair Company, BS-IPB University, Pattimura University and Department of Agriculture of Maluku Province. Speakers from the staffs and students of the Faculty of Agriculture Pattimura University took part in the second day of the seminar. The seminar was broadly covered by press and published in various media; printed and electronic. Results of the first international kick off seminar were published in a proceedings by Wallace Center Pattimura University Publishing, Ambon, ISBN: 978-602-53465-0-7 with editors Luud Clercx and Semuel Leunufna (2018), [1].

Second international kick-off seminar was held in November, 2019 aimed at disseminating results of project implementation in previous year (2018) and opened the final phase of the project, 2019-2020. The seminar, with the theme, "connecting policy, education, research, business and community", well known as quadruple helix, presented a number of key-note speakers from government (Department of Agriculture Maluku Province, Indonesian Palm Research

Institute North Sulawesi), BLVC Project (AgroFair Company, MSM, SB-IPB, Unpatti), business enterprises (Verstagen Netherlands, Kamboty Spices Maluku), Education (Pattimura University) and research (BPTP) institutes, both through face to face meeting and through internet, zoom/video conference system. Venues of the seminar were Santika Hotel, Tantui, Ambon and project secretariat Faculty of Agriculture Pattimura University, Ambon, attended by about 55 participants. The seminar was also mark the involvement of BPTP Maluku as a guest lectures in the Value Chain Analysis Course. Technically the seminar was organized by the students of the project and was opened by the first Deputy of Maluku Governor.

Final International seminar has been planned to be done in April 2021 following the extension of project duration due to covid-19 pandemic and earth quake events in Maluku Islands causing suspension of some of the project's activities. The seminar will be done in the form of two days webinar. Keynote speakers will be of the institutions involved in the research and report of scoping study regarding the value chain of five selected commodities, beside project's consortium. In addition to student's presentations, there will also be invitation to other speakers who are willing to present their works on one of the five commodities selected by the project. "Collaborating to innovate, compete and promote inclusive and sustainable development" has been considered the theme of this final seminar, representing the essence and the values carried along in the project's activities. More than a hundred WA accounts of participants of project's previous seminars have been gathered in addition to accounts of new participant candidates, to be invited in this zoom-based webinar composed of staffs and students of the Faculty of Agriculture Pattimura university, research institutions such as LIPI Ambon, BPTP, other research scientists and institutions, other government institutions; BAPEDA Maluku, Department of Agriculture, vocational schools such as SMK Passo, SMK Negri 2, 4, 9 Seram Island, small business companies, farmers and farmer's group. The Webinar will be opened by the Rector of the Pattimura University and the Agriculture Councilor of Netherlands Embassy for the Republic of Indonesia, following their welcome words.

Following the successful implementation of two cycles of Agricultural Value Chain Analysis Course through blended learning program, the project intended to integrate the course into the curriculum of the Faculty of Agriculture Pattimura University. With an understanding that students of the Faculty of Agriculture should have an insight on the value chain system, placement of the course at the fourth semester as one of the basic vocational courses with pre-requisite courses such as general economy and basic agronomy was considered appropriate where the students from many departments (plant culture, post-harvest technology and agribusiness) will have a chance to take part in.

Course materials offered, as have successfully implemented consist of theoretical part , thought by value chain experts interchanged with guest lectures from different institutions teaching the practical aspects related to the selected commodities. Group assignments are given with representations of students from each department in the same group. Students who choose to do research on value chain as the final taks (thesis) of their study may be done so with the emphasis on each of their scientific background. In general, students more attracted to study value chain for the thesis are those of agribusiness department, while those of other departments are more attracted to do the study on their specialty, although with the value chain system in mind. With addition of practicum to the lectures, the Value Chain Course can be given three credits 3 (2+1 credits). All course materials are available in the text book provided by the project (to be published).

In additions to all the activities, the project has also provided a number of laboratory equipments to support researches at the post-harvest technology department. The purchase of the equipments was done based on a proposal from the beneficiary institution to consorsium. Laboratory room was provided by the Faculty of Agriculture as part of the contribution of the beneficiary institution to the project. During the purchase and shipment of the equipments, it was found that some of the equipments such as water distillator were damaged during the transportation and through further communication with the selling company, it was agreed that the damage equipments were to be replaced. The tools purchased and the descriptions are provided in the proposal.

The project implementation period was allowed to be extended by the funding provider (NUFFIC) for a number of Months as requested by the project manager due to the events of earthquakes in Maluku Islands causing destruction of faculty building as well as the beginning of Civid-19 pandemic.

Nutmeg innovative platform was one of the latest programs of the project. Formation of the innovative platform was intended to promote further development of selected commudities following the termination of the project. Nutmeg was selected to be the focused commodity of the platform due to its important to Maluku throughout history, its genetic distinctiveness, its competitive potential as an export commodity, its well-developed value chain system in Maluku islands, and it has been part of the government strategic plan to further develope its role in improving the income of nutmeg farmers in Maluku. The platform was established in December, 2020 with some of its first member include government institution for

Small and Medium Business Enterprises (UMKM), Maluku Regional Development Plan Institute (BAPEDA), Maluku Department of Agriculture (Dinas Pertanian), BPTP Maluku, Kamboty Spices Maluku, Maenusu Small Business Company, and coordinated temporarily by Mr. luud Clercx (Agrofair Company, Project manager), Mr. Frits Blessing (Maluku Living Laboratory) and Dr. Semuel Leunufna (Faculty of Agriculture Pattimura University, Center for the Conservation of Maluku's Biodiversity). During some of its first meetings, the platform decided to prepare a project proposal on Training of officials and students of vocational schools related to food security with nutmeg as based crop commodity. The proposal (Taylor Made Training-TMT) also involves a number of institutions in the implementation, in case it is accepted. The institutions include MDF (training consultancy, Netherlands), Lentiz (Netherlands), Verstegen (Netherlands), Vocational Schools (SMK Passo Ambon, SMK Negri 2, SMK Negri 4 and SMK Negri 9 Seram) in addition to those composed the nutmeg innovative platform. The proposal has been submitted to the funding provider NUFFIC and awaits the results of the selection procedure.

It was previously indicated that the implementation of scoping study by students and advisors to study value chain system of five selected commodities was faced with certain challenges. With the passing of time and addition of other programs to be accomplished, the project decided to assign the study and write-up of value chain system of the five commodities in Maluku islands to experts in each of the commodity, who have done extensive studies on each commodity, who also were part of the speakers/keynote speakers in the previous project's seminar and guests lecturers of agricultural value chain analysis course. The value chain reports on each commodity submitted, combined with theoretical aspects of the value chain prepared by the project, were then presented, discussed and revised in the third/closing International webinar, be prepared as a book and be used as teaching/learning materials for further cycles of value chain course.

A great number of scientific publications related to five selected commodities in Maluku islands were completed during the course of the project. The publications were done through international/national journals, proceedings and/or seminar presentations.

Decision making within the project

A number of main programs have been proposed to be implemented right in the beginning of the project following its acceptance. Further technical programs and activities were encouraged to be proposed by members of consortium and discussed during the weekly project Skype/zoom meetings lead by project manager. The meetings notes were summarized by the project manager shared among the consorsium and implemented within the time and places determined; mostly at the beneficiary institution.

Achievements

Referring to the objectives to be accomplished through implementation of the project, a number achievements, which generally indicate improvements in institutional capacity as a result of improvement in human and other resources capacities are described below, either at the beneficiary institution, at small business companies as well as in government involvement in the development of certain commodities.

1. The presence of a modern, confortable and soundproof classrooms equipped with internet facilities, video conference system and accessories (video conference camera, audio receiver, laptop, hand phone, computer software's, additional microphone, etc.), air conditioners, in-focus projector, white board etc.
2. The presence of a laboratory equipment's for researches in post-harvest technology specialty as well as other specialties.
3. The experience in utilizing blended learning system for the first time at the Faculty of Agriculture, Pattimura University and Maluku Province, which enable the students and some staffs to attend lectures given by international experts in their specialties from different parts of the world.
4. Experience of following through the world level value chain system of banana in Ecuador and the Netherlands and a great number of related experiences to delegates of Pattimura University taking part in the visitation.
5. Provision of a great number of learning materials in the form of videos recording on the implementation of banana value chain in Ecuador extended to the Netherlands.
6. Contribution in the alteration of conventional learning system to full internet learning system as a consequence of covid-19 pandemic, in which numbers of students and staffs, who have become familiar with internet learning system have provided motivation to the others.
7. Level "A" on the accreditation of Agrotechnology study program and Agribusiness Department Faculty of Agriculture, which is partly, a reflection of the ability to execute an international joint work successfully.
8. The presence of Agricultural Value Chain Analysis Module relevant to the advancement in development of science, economic sectors, promoting joint collaboration among institutes of research and education, small business enterprises, community (farmers) and governmental institutions (quadruple helix collaboration), which has been successfully implemented in two cycles of teaching at the faculty of Agriculture Pattimura University.

9. The presence of a text book containing learning materials for the Agricultural Value Chain Analysis Cource in addition to other learning materials such as recorded lectures, power point lecturing materials and other recorded learning materials indicated previously.
10. Publication of a great number of studies related to selected commodities either in the international journals, proceedings or as presentations in seminars/ webinars.
11. Promotion of students researches in five selected commodities in different scientific specialties; agribusiness, post-harvest technology and agroecotechnology, as observed in the students seminars for their final works (thesis) at the Faculty of Agriculture Pattimura University.
12. Formation of Nutmeg innovation platform involving government representation (Regional Planning Institute-BAPEDA, Department of Agriculture, Department of small and medium business enterprises-UMKM-), small business enterprises (Maenusu, Kamboti Spices Maluku), Education and Research Institutions (Pattimura University, Institute for the Assessment of Agricultural Technology-BPTP), farmers and farmers group (Liliboy, etc.) for further assessing and developing nutmeg commodity in Maluku.
13. Establishment of better relationships among local spices small business enterprises and spices international importer in the Netherlands, which enable further development of spice business and the economy of spices farmers in Maluku.
14. Increase in export intensity in spices as well as other commodities organized by Maluku Government both through sea (Yos Sudarso ship harbor) and through air (Garuda Cargo) (Sources: local newspaper and Maluku Government Face Book).

Challenges facing

Accommodating every requirements/need for students and staffs in the lecturing schedule in order to have them all present in every lecture of the agricultural value chain course was not an easy task since the course has not been part of the curriculum of the Faculty of Agriculture and, therefore, was not arranged in the lecturing schedule of running semester. During the discussions with the head of Departments and Study Programs, a solution, in fact has been taken, which made it possible for everyone to attend the lectures. Still, however, the number of attendee was very low at the end of the course period. In case of other joint work in the future, it is recommended for leadership of the beneficiary institution and therefore the staffs and students involved in the program to commit to the agreement and adhere to the task given.

Introducing the Agricultural value chain course into the curriculum of the Faculty should be able to solve the problem of lecturing schedule and number of students present in the class. Incorporating the course into the curriculum should also not be a problem and even necessary since the contents discussed are important and on line with the trend of global and national development in the scientific specialty. Efforts through meetings and discussions are still continue in this matter.

A number of laboratory equipments have been provided by the project and arranged in the laboratory room provided by the Faculty. The challenge facing is to formulate a strategic plan and research programs to conduct studies/researches related to the department's plan of development, making use of the present laboratory equipments.

Scoping study was not able to be executed by the students and advisors on time at the early stage of project implementation, even though, two consecutive workshops have been completed for the preparation. Some of the challenges encountered were the wide spread research areas, many with scarcity of transportations air (planes) , sea (ship/ ferry) and land (public transportation) between and within the islands at some of the regencies in the province causing delays, high cost, as well as uncertainty in appointment time between research team and government officials (including mayors/regents). With the improvement in the infrastructures, many of the challenges can be overcome.

Closing

Successful implementation of the project "Setting up a blended learning program for sustainable inclusive agricultural value chain development in Indonesia" has been supported by different parties directly or indirectly. We would like to thank the funding provider NUFFIC, Netherlands, Maluku Provincial Government, Ambon Municipality Government, Central Maluku Regency, Leaderships at the Pattimura University and Faculty of Agriculture, Maluku Department of Agriculture, BPTP Maluku, Kamboty Spices Maluku, Maenusu, Farmers and Farmers group etc. for taking part in supporting the project implementation.

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