INTEGRATING DISCIPLINES
CROSSING BOUNDARIES

Report on the IFS-SEARCA Workshop on Collaborative Research
30 August—1 September 2016 • SEARCA, College, Los Baños, Laguna, Philippines
The Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) is the oldest of the 21 Centers of Excellence of the Southeast Asian Ministers of Education Organization (SEAMEO). The Center is mandated to strengthen institutional capacities in agricultural and rural development in Southeast Asia through its core programs on graduate scholarship, research and development, and knowledge management. SEARCA’s knowledge management initiatives include learning events and systems, publications and other knowledge resources, virtual knowledge centers and websites, and seminars, conferences, and other meetings for knowledge exchange and creation.

One of the principal recommendations of the Pugwash Conference in Venice in 1965 was to establish the International Foundation for Science (IFS) in order to address the stultifying conditions under which younger faculty members in the universities of developing countries were attempting to do research. IFS was founded as a Research Council and registered as a non-governmental organization in Sweden in 1972. It receives funding from a portfolio of donors and funders, including development organizations and science academies. The annual budget is approximately USD 5 million. IFS has 135 affiliated organizations in 86 countries, mainly in the developing world. It has an international Board of Trustees. The IFS Secretariat is located in Stockholm, Sweden.
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Engage in synergy in pursuit of science-based solutions to the agriculture challenges raised by climate change.
EXECUTIVE SUMMARY

This report presents a synthesis of the experiences, sharing, learning, and feedback generated during the three-day Workshop on Collaborative Research jointly organized by the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) and the International Foundation for Science (IFS) for 55 early-career scientists from eight Southeast Asian countries to develop their collaborative research capacity. They are members of the 18 eligible teams from the region that pre-qualified for limited IFS-SEARCA Collaborative Research Grants.

Held from 30 August to 1 September 2016 at the SEARCA Headquarters inside the University of the Philippines campus in Los Baños, Laguna, Philippines, the workshop gathered the 55 applicants out of the 64 eligible researchers from Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Thailand, Timor Leste, and Vietnam, with six mentors from the first and second pilots of the IFS collaborative research grants program in Africa, three IFS facilitators and resource persons, and SEARCA’s three resource persons and a host of organizers.

Generally, the workshop aimed at equipping these research teams-in-process on how to engage in synergy in pursuit of science-based solutions to the agriculture challenges raised by climate change, through building the capacity of these early-career scientists in collaborative research concepts, approaches, design, methods, and analysis. Specifically, the participants were expected to:

- Learn more about the key concepts and issues in climate change adaptation and mitigation, and relate these to their own research proposals;
- Become more aware of concepts, approaches, designs, methods, and analysis in working together as collaborative researchers;
- Learn from the experiences of researchers already involved in collaborative research;
- Broaden scientific networks and strengthen their research collaboration potential; and
- Get to know their team members better as well as the attendees from other participating teams.

In view of these objectives, the workshop was designed to be participatory so as to further reinforce the concept and need for collaboration, as well as develop working and personal relations among team members since most, if not all of the participants, only first met their teammates in person for the first time during the workshop. The research proposals submitted to IFS and SEARCA served as the participants’ main instruments to work with to help them better understand the general principles and issues related to doing collaborative research on climate adaptation and mitigation.
Within the three-day event, the 18 teams took turns sharing their research proposals. This highlighted the culture of synergy and collaborative work that the organizers sought to initiate and develop among all the participants. This exercise also provided a better insight on the contents of the proposals that have been submitted to IFS and SEARCA for funding. Other activities ensued to engage all the researchers in a collaborative effort of sharing problems and solutions, such as group dynamics that aimed to check their knowledge and understanding on five important concepts in collaborative research -- monodisciplinarity, multidisciplinarity, interdisciplinarity, transdisciplinarity, and postdisciplinarity.

With two main themes to address—strengthening collaborative research work, and climate change adaptation and mitigation in Southeast Asia’s agricultural sector, the presentations and sharing of the resource persons focused on the following topics: *Introduction to the IFS-SEARCA Collaborative Research Pilots; Sharing of Pilots 1 and 2 Experience on Collaborative Research; Climate Change: Why, How, So What?, and It’s Real, It’s Here*, including a video showing the Collaborative Research Conference in Nairobi, Kenya. The roster of distinguished resource persons included the current Director of IFS, Dr. Nighisty Ghezae, and the Program Head of SEARCA’s Research and Development, Dr. Bessie Burgos; two of the country’s leading experts in climate change, namely: Dr. Julian Gonsalves and Dr. Rodel Lasco; and Mr. William Savage, workshop facilitator, who has worked with IFS on numerous occasions. Additional information on the resource persons can be found in the Participant Directory in Appendix 1.

The workshop also gave way to feedback and mentoring sessions wherein collaborators from the first and second pilots in Africa – as well as IFS and SEARCA officials – sat with the Southeast Asian research teams to scrutinize and provide inputs on how to improve their proposals, from budgeting to technical issues, including basic concerns like logging in to the online platform. Open forums and group discussions supplemented these and paved the way for both mentors and applicants to share experiences and learn from one another. Hence, by the end of the workshop, an overriding insight that participants drew from the event is that beyond the science, research collaboration is a transformative process of knowing yourself and learning to be open, humble, and appreciating another perspective, which are important in coming up with much better concepts and proposals for research in climate change adaptation and mitigation in agriculture in Southeast Asia.
A BRIEF BACKGROUND ON THE IFS-SEARCA COLLABORATION

Collaborative research was introduced into the 10-year strategic plan of IFS in 2011 and first piloted in 2012-2013. The first call for Expressions of Interest asked for early-career scientists to collaborate on research into neglected and underutilized species. The Pilot 1 countries were Ghana, Nigeria, South Africa, Tanzania and Uganda, with financing from the Carnegie Corporation of New York. The second call for Expressions of Interest for 2013-2014 asked for applications for research on biodiversity. The Pilot 2 countries were Benin, Burkina Faso, Cote d’Ivoire, Ghana, Nigeria, South Africa, Tanzania and Uganda, financed by Carnegie and the Belgian Science Policy Office (BELSPO).

In 2015, IFS and SEARCA agreed to pilot collaborative research in a number of Southeast Asian countries where the two organizations are both active. The third call for Expressions of Interest went out in the second week of January 2016 asking for people to collaborate on research into climate change adaptation and mitigation. Pilot 3 is financed by the Carolina Mac Gillavry Fund and SEARCA. It covers Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Thailand, Timor Leste, and Vietnam. But when choosing between applications of similar merit, teams with researchers from Cambodia, Lao PDR, Myanmar, the Philippines, Timor Leste, and Vietnam will be prioritized.

Eligible aspirants were invited into a specially designed social networking platform called Chatter. In so-called “plenary” workspaces, people discovered each other’s profiles, and against a call for collaborative research applications advertized on the platform, coalesced into teams, each receiving access to a private team workspace built on Chatter, where they planned and wrote their team applications.

Following the period requesting Expressions of Interest on 10-31 January 2016, Chatter groups were formed among the applicants for purposes of social networking, team building and submitting applications toward a deadline of 30 June 2016. Pre-screening of applications at the IFS Secretariat was in July, with external review from August through November, followed by a meeting of the Scientific Advisory Committee in December, and the IFS Director’s decision by 20 December 2016. The grant administration and research phase will begin in January-March 2017. Final deadline for submission of research proposals was 11 September 2016.
The Participants and Their Proposals

From among more than 300 eligible aspirants who initially expressed interest in submitting grant applications, IFS and SEARCA invited the 18 teams to the workshop to build their capacity in collaborative research and further improve their teams’ proposals submitted to the IFS-SEARCA grants program for Southeast Asia, or Pilot 3, launched in January. The following is an overview of the research projects (See Appendix 2 for the Proposal Briefs):

<table>
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<tr>
<th>Team:</th>
<th>Animal Waste Management</th>
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<tr>
<td><strong>Title of Research Project:</strong></td>
<td>Developing a total solution for sustainable pig production and minimizing greenhouse gas emission</td>
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<tr>
<th>Team:</th>
<th>AQUASafe</th>
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<tr>
<td><strong>Title of Research Project:</strong></td>
<td>Evaluation of climate change adaptation strategy through microbial resource management practices for the improvement of environmental sustainability of white shrimp <em>Litopenaeus vannamei</em> nursery and grow-out production in Asia Pacific region</td>
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<th>Team:</th>
<th>BEIL-Fisheries</th>
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<tr>
<td><strong>Title of Research Project:</strong></td>
<td>Social-ecological vulnerability and adaptation assessment of small scale reef fisheries in three Southeast Asian countries</td>
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<tr>
<th>Team Name:</th>
<th>CC Food &amp; Livelihood</th>
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<tr>
<td><strong>Title of Research Project:</strong></td>
<td>Assessing livelihood vulnerability to extreme climate events in mountainous areas: A study in Southeast Asia</td>
</tr>
<tr>
<td>Team Name</td>
<td>Title of Research Project</td>
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<tr>
<td>CDRM</td>
<td>Community-based disaster risk management and sustainable livelihood for selected vulnerable communities in Southeast Asian Countries</td>
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<tr>
<td>CHANGE</td>
<td>Climate change and pathogenicity with emphasis on Vibrio parahaemolyticus causing acute hepatopancreatic necrosis disease (AHPND) in shrimp</td>
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<td>Chitosan Group</td>
<td>Utilization of chitosan as a sustainable material for climate change adaptation and mitigation</td>
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<tr>
<td>Cliandhh_No1</td>
<td>Farming system as adaptation to climate change: Case studies with focus on delta region of Cambodia, Myanmar, and Vietnam</td>
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<tr>
<td>CLIMADAP-SEA</td>
<td>Climate change adaptation strategies of selected upland farming communities in Southeast Asia</td>
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<tr>
<td>CMV_EPACC_2016</td>
<td>Mainstreaming effective climate resilient agricultural technologies and practices to enhance food security in Cambodia, Myanmar, Vietnam</td>
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## The Participants and Their Proposals

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<tr>
<th>Team Name</th>
<th>Title of Research Project</th>
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<td>Investigation on genetic adaptation and virulence of fish iridovirus, Infectious Spleen Kidney Necrosis Virus (ISKNV), under high ambient temperature and development of molecular</td>
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<td>Forest Carbon</td>
<td>Towards carbon market in Southeast Asia: Estimating net ecosystem production in natural forests of Malaysia, Thailand, and Vietnam</td>
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<tr>
<td>GDPP</td>
<td>Young scientists: Preparing for the effects of climate change in aquaculture</td>
</tr>
<tr>
<td>Green Energy Smart Farm</td>
<td>Modeling optimal tomato greenhouse with incorporation of solar energy and energy efficiency technologies</td>
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<tr>
<td>IK and CC</td>
<td>Indigenous knowledge and climate change adaptation among ethnic minority groups in the northern mountainous region of Vietnam</td>
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<tr>
<td>PalMA-Asia</td>
<td>Climate change mitigation, impact, and adaptation concerning palm oil development in Indonesia and Myanmar</td>
</tr>
<tr>
<td>Renewable Energy</td>
<td>Development of renewable energy from rice husk to mitigate effects of climate change</td>
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<tr>
<td>TERRA</td>
<td>Climate change impact assessment and adaptation practices in fishing communities of wetlands in three Asian countries</td>
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WORKSHOP HIGHLIGHTS

Inputs & Outputs
**DAY 1 (30 August)**

**OPENING**

On behalf of Dr. Gil Saguiguit, Jr., SEARCA Director, Dr. Maria Celeste H. Cadiz, SEARCA’s Program Head for Knowledge Management, read his welcome remarks that officially opened the three-day event. Dr. Saguiguit reminded the participants that the workshop is an integral part of the screening process for the IFS-SEARCA Collaborative Research Grants focused on Climate Change Adaptation and Mitigation in agriculture, adding that it embodies the capacity development feature that is central to the mandates of both IFS and SEARCA. The holding of the workshop is timely as SEARCA celebrates its 50th founding anniversary this year since “IFS is an old friend and this collaborative undertaking is a rekindling of ties, so to speak, stronger than this time.” Dr. Saguiguit expressed gratitude that IFS had extended the third pilot to the Southeast Asian region.

In her welcome address, Dr. Nighisty Ghezae expressed profound gratitude to all the participants and to SEARCA for a well-organized workshop. Dr. Ghezae enumerated the two important aims for discussion during the workshop as (a) climate change adaptation and mitigation in Southeast Asia’s agriculture, and (b) with CChAM being a pertinent issue in Southeast Asia and as a knowledge-creation activity for the rest of the world.

Through the years, IFS was able to work with a lot of grantees and advisers in Southeast Asia. Dr. Ghezae said IFS is indeed happy to work again with SEARCA on this workshop because the activity served as a step forward in further strengthening working relations between the two organizations. She also commended the mentors from Africa for travelling a long way just to be able to share their experiences and advice to the participants. She expressed hope that both mentors and participants will benefit from the workshop as “we have a lot of common issues to learn together, like climate change adaptation and mitigation, and the
methodologies of collaborative research.” Dr. Ghezae likewise called on all the Southeast Asian researchers to pass on the knowledge they gained from the workshop to participants of similar collaborative events in the future. “Everybody goes home hopefully with more knowledge, more connections, more networking among yourselves, and more energized to do the research that is awaiting you.”

Dr. Cadiz then acknowledged and introduced all the attendees. She said it is important to be familiar with everyone in the workshop because of the large number of attendees. Team symbols were given to each participating group as their members were introduced by Dr. Cadiz. She also directed everyone to the members of the Workshop Management Group comprised of officials from both SEARCA and IFS, including Ms. Annika Eriksson, IFS Programme Administrator. Dr. Cadiz also acknowledged the presence of the SEARCA Executive Committee members, who were on hand to welcome the participants, as well as members of the SEARCA support staff. Group photos were taken afterwards.

Thereafter, Mr. William Savage, workshop facilitator, took over and briefed everyone on what to expect during the three-day workshop. (See Appendix __ for the Workshop Program and Schedule) The 18 teams were then divided into three groups with six teams each, for purposes of reporting on their respective research proposals. The teams were instructed to make their presentations in just five minutes without the aid of PowerPoint or any similar application. The aim was to better equip the participants in making effective presentations by being able to synthesize their concepts and ideas, and clearly expressing these verbally in just a matter of minutes. Each team was assigned a mentor from Pilots 1 and 2. Mr. Savage encouraged everyone to go around and meet as many people as possible because “you never know what you’re going to find.” He related his surprise when one of the participants approached him and asked if he was the same Bill Savage who taught at the Asian Institute of Technology in Thailand years back. The teacher and the student got reacquainted through the workshop 20 years later.
SMALL GROUP WORK

Day 1 mainly focused on familiarizing participants with each other because prior to this event, many of them had only “met” their teammates over the digital platform called Chatter. To encourage deeper bonding and initiate synergy, six small groups were formed to discuss, share, and report on their understandings on five important concepts in collaborative research -- monodisciplinarity, multidisciplinarity, interdisciplinarity, transdisciplinarity, and postdisciplinarity. A sixth group, called the Mystery Team, was tasked to report on a “secret word” that they themselves would have to come up with. The word or concept should be discipline-related.
Group Reflections

Team Monodisciplinarity

- May pertain to just one specific area of study, i.e., one person, one researcher, one group
- Very specific, having limited scope and objective but applicable for all types of disciplines
- One person however can’t solve a problem all on his own

Team Multidisciplinarity

- Bringing several people from different disciplines to tackle an issue
- Keywords: differing perspectives, opinions, insights, subject areas, approaches, research backgrounds
- Given the different perspectives and strong opinions, there is danger that one particular research area or discipline might dominate a study
- There might be a separation of disciplines, instead of fusing together, in their approach to solve the issue
- There should be integration
Team Interdisciplinarity

- Issues are very complex
- Needs integration of different disciplines, knowledge, and fields
- Fundamental knowledge should be applied in this approach
- With interdisciplinarity, boundaries are crossed; there’s integration

Team Transdisciplinarity

- This is about different disciplines coming together and exchanging information
- Extending all the skills, relevant knowledge, know-how, and they consolidate when they come together
- Implement something new from the consolidation
- Creating innovative approach, something new to solve the problem
- We only bring in the relevant things to the issue or problem, not all the knowledge that comes out of a forum or coming together

Team Postdisciplinarity

- Split into two: post (after) and disciplinarity (specialization or discipline)
- After collaborative research, there could be commercialization of a product, dissemination of research findings, capacity building, product development, results could lead to policy, futuristic, impact assessment, innovation, different summaries, evaluation

Drs. Ghezae and Burgos followed with
Team Mystery

- The secret word came out after all the disciplinarity words: Self-discipline or Self-disciplinarity
- Vital because it entails a lot of characteristics and behavior as a professional, like being responsible, being accountable, open-minded, very consistent, honest, and dedicated
- Communication is very important; communicate and share whatever is in your mind
- To provoke discussion, ask questions
Dr. Ghezae opened the presentation by explaining the nature of IFS and the research grants program. She said the main mandate of IFS is to give research grants and organize capacity-building activities for young researchers. Dr. Ghezae said a new IFS strategy was formulated for 2011-2020, with two new approaches that will supplement the first approach which is individual research grants. The second approach is to offer collaborative research grants, while the third is the so-called Contributing to Innovation which is putting research into actual use.

IFS grants are applicable to the different countries in Africa and Latin America, and open to all young researchers who hold masters degree at the minimum. Research grants can be awarded to
projects with a minimum budget timeline of one year up to a period of three years. The third approach is not a research grants program but it endeavors to group stakeholders—researchers, entrepreneurs and policy makers—to work together in putting research into practice.

Dr. Burgos started her presentation by expressing delight that SEARCA is part of this initiative (See presentation slides in Appendix 3). She said SEARCA is thrilled to be the lead organizer of this workshop-training. After giving an overview on the nature of SEARCA, she explained that its current five-year term is focused on Inclusive and Sustainable Agricultural and Rural Development or ISARD. She said SEARCA’s current collaboration with IFS is perfectly aligned with ISARD as it focuses on the issue of climate change. SEARCA operates on five-year terms or programs.

Dr. Burgos said an umbrella program was formulated to address the issue of CChAM in Southeast Asia. This umbrella program, covering the years 2015-2020, will serve as the platform for collaboration among participating agencies including the Consortium of International Agricultural Research Centers’ (CGIAR) Climate Change, Agriculture and Food Security program (CCAFS), the International Center for Tropical Agriculture (CIAT), and the Southeast Asia University Consortium for Graduate Education in Agriculture and Natural Resources or simply the University Consortium formed by the five leading agriculture universities in Southeast Asia. The umbrella program, she explained, aims to address the growing threats posed by climate change on food security in the region.

According to the Intergovernmental Panel on Climate Change Fifth Assessment Report, or IPCC-AR5, there are a number of sub-regions that are already near the heat stress limits for rice, the staple food for a majority of the people in Southeast Asia. The umbrella program will focus on four major themes:

- Assessing climate change impacts and risks for policy, plans and investments;
- Advancing low-carbon agriculture and rural development;
- Enhancing proactive adaptation to climate change, variability and extremes; and
- Enabling policies (including processes) and governance for climate-resilient agriculture and rural communities (cross-cutting theme)

There are 21 sub-themes that will target 70 potential projects and activities, which already include the IFS-SEARCA Workshop on Collaborative Research. Dr. Burgos closed her presentation by giving a rundown of the teams that passed pre-screening and have been invited to this workshop, as well as the process of selection and invitation. She turned the floor back to Dr. Ghezae.
Dr. Ghezae elaborated on the timeline and process of approval. Upon receipt of proposals, she said these are immediately reviewed and pre-screened by in-house scientific advisers and program leaders of IFS to assess if the research has met minimum standards to be eligible to be sent to external advisers or specialists numbering about 1,500 worldwide. The proposals that are sent back to IFS are then forwarded to the Advisory Board which makes the final decisions on approval.

Dr. Ghezae divulged that IFS was a bit shocked when they received the proposals for Pilot 3 because these did not meet IFS standards. She said that only two proposals met the scientific standards and expressed disappointment that even though an extension had been given prior to the workshop, not all teams were able to respond favorably to the feedbacks sent by IFS on how to improve their applications. Dr. Ghezae shared that many proposals were deemed shallow and that the knowledge or research gaps were not identified, failing to show the innovativeness of their projects that will fill existing research gaps. “There is no value in redoing research that has already been done,” she said, adding that IFS is meticulous and detailed in reviewing proposals.

She emphasized that this will be the last chance given to the applicants and revealed that this is the first time in the history of IFS that an extension was given. The first and second pilots were not given the same privilege, according to her. The decision to extend the period for resubmission of proposals was arrived at based on three key factors: (a) IFS is committed to support the researchers, (b) the research grants program is competitive, and (c) IFS follows international standards in terms of the scientific quality of the research to awarded grants. Dr. Ghezae said they felt that unless IFS gives an extension, the purpose of the grants program will ultimately be defeated. She emphasized that since this is collaborative research, the participants should always coordinate with their teammates on the activities to be performed and have a realistic time plan and budget. If not, she warned that the possibility of failure at the end of the research period is high, something that they have learned after 40 years of experience, but immediately underscoring the support IFS and SEARCA would readily provide: “We want you to be the best researchers. We are failing you if we do not give the best support.”

She encouraged the participants to make the most out of the opportunity offered by the workshop to enhance their capacity in collaborative research and improve their chances of funding, and pushed them to review their applications “in a proper way, the IFS way.” In view of these, Dr. Ghezae said that for the entire duration of the workshop, she would like to have a better and clearer understanding of the following:

- Challenges that they are facing in writing proposals; and
- Why, despite the extension, no substantial improvements have been made on the resubmitted applications.

Mr. Savage asked all participants if they understood the process clearly and everyone nodded in approval. He then opened the floor for questions that, as he instructed, should be limited to the presentations done by Drs. Ghezae and Burgos on the process, assuring the participants that their concerns about the specifics or “nuts and bolts” of their proposals will be dealt with during the succeeding mentoring sessions.
Q&A (Edited for Brevity)

Q: Will the facilitators or mentors (from Pilots 1 and 2) also give inputs?

A (Dr. Ghezae): It all starts with what you want to ask. If you have an application, we give you a general feedback. So it is really up to the team to look at it and to say that we are alright with all these issues. We are here to support you, but it should start from you guys asking what type of help you need.

A (Dr. Burgos): If it’s on the technical or scientific ones, please, please take advantage of the expertise of our resource persons (Drs. Gonsalves and Lasco).

A (Mr. Savage): I thank you for the question because the way you framed the question was just right to help us understand what we need to do in response to what you say you would like to get support on.

Q: We have general feedback that we get through email. We have heard from some people that every team has feedback. Is that the way it is or only our team that gets the feedback?

A (Dr. Ghezae): We give feedback to everybody. There are a lot of similar problems which apply to all of you. It has a lot to do with the identification of the research gap and the literature review and the time plan and the budget. And if you go back to your applications, you should look to see, do we have a realistic time plan, do we have a realistic budget, how do we explain the details on how the budget is going to be used for the different research activities, and have we done our literature review properly?

Q: After we’ve submitted our application (through the online platform), can we edit it again? And I have a question about the timeline. We proposed to do our project for 18 months. We have a light budget. Is 18 months the best time plan? Do you have any suggestions on the best time plan?

A (Mr. Savage): I would like to use your good points as examples of the kinds of details that we need you to specify that you need help with in your team, and then we find the right people in our workshop to help you with that. On the individual part of the proposal, that would be Nighsty and Annika who will help you with that. And then on the case of framing a timeline, I think that will be with our IFS colleagues and your mentors. Those are the kinds of things that we need to focus on.

Q: For the case of resubmission of our
application, I did not make most of the changes because we have the workshop here and we’d like to meet our team members because now our team roster is different, we have to make the change for the timeline and the time frame. And another problem is that the application website may be good for countries with good internet connection. For our developing country, Myanmar, we use the internet connection with the mobile corporation making it difficult for us to meet deadlines. And the third one is about the referencing style. What style should be followed?

A (Mr. Savage): These three points are fantastic examples of what Nighisty was asking for in terms of difficulties that you had with the process. We will bring these into our support with you.

Q: I just want to know whether we can access information on the applications that was successful before so that we can easily understand the quality of the application and we will know what to do and also know who has already been approved.

A (Mr. Savage): So again, another question that can be addressed during our smaller group discussions.

Q: We have attached Excel file to our application containing the budget. Do attachments count as well as part of the proposal?

A (Ms. Eriksson) Yes, whatever attachments you have come as part of the proposal.

SYNTHESIS

Mr. Savage reminded participants that the answers will come in due time as the workshop is a process of discovering solutions and things have to be done step by step. This process is essential for the workshop to produce good outcomes. In his many years of experience in academic and scientific research work, he said that the opportunity offered by the workshop to learn how to revise their proposals is unusual. The workshop is a powerful experience for everyone to figure solutions for the problems they have with their proposals.
GROUP REPORTS 1: COLLABORATIVE RESEARCH PROPOSALS

The first group of six teams reported on the content of their proposals. Day 1 groups with their mentors are as follows: (See Appendix 3 for more detailed briefs of each research proposal)

<table>
<thead>
<tr>
<th>Team: IK and CC</th>
<th>Team: ANIMAL WASTE MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mentor: Ms. Cissy Nambejja</td>
<td>Mentor: Mrs. Adeola Eniola Ayano</td>
</tr>
<tr>
<td>• Project focus is to document and analyze indigenous knowledge on mitigating CC impact on minority groups in the mountainous areas of Vietnam.</td>
<td>• Sustainable animal production in Vietnam needs to address issues that by nature are ethical, natural, social, and environmental, including animal rights.</td>
</tr>
<tr>
<td>• Methods: (a) Identification of groups for study based on topography (b) Interview &amp; discussion groups and (c) Household survey.</td>
<td>• Focus is to initiate a social solution in maximizing processing of animal waste, thereby minimizing adverse environmental effects and producing useful byproducts not harmful to the environment.</td>
</tr>
<tr>
<td>• Three (3) parts: (a) Research (b) Presenting the results of research, and (c) Policy brief to advocate integration.</td>
<td>• Three (3) components of the project: (a) supplementation of probiotics and organic acid into the diet and reducing toxic gas emission levels; (b) treating the manure using biogas technology; and (c) treating digestate using biogas technology to lessen its adverse environmental effects.</td>
</tr>
<tr>
<td>Team: CC Food &amp; Livelihood</td>
<td>Team: CHANGE</td>
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<td>-------------------------------------------</td>
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<tr>
<td><strong>Mentor:</strong> Ms. Esther Kemigisha</td>
<td><strong>Mentor:</strong> Dr. Lawrence Sheringham Borquaye</td>
</tr>
<tr>
<td>• Focus of research is on Vietnam and the Philippines, two countries identified as most vulnerable to climate change and extreme climate events.</td>
<td>• There have been reports of outbreaks of the Vibrio parahaemolyticus causing acute hepatopancreatic necrosis disease (AHPND) in shrimp in China since 2009.</td>
</tr>
<tr>
<td>• After the cold spell in December 2015, they found out that the government in Vietnam does not know how to deal with the issue of CC.</td>
<td>• General aim of this research is to identify direct effects of CC on the spread of acute hepatopancreatic necrosis disease.</td>
</tr>
<tr>
<td>• Aim is to generate research that will influence policy creation towards addressing said issues in Vietnam and the Philippines.</td>
<td>• Will also look into cultural issues and the increasing salinity of seawater.</td>
</tr>
<tr>
<td>• Mapping for CC vulnerability.</td>
<td></td>
</tr>
<tr>
<td>Team: BEIL-Fisheries</td>
<td>Team: AQUASafe</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Mentor:</strong> Dr. Paul Erasto Kazyoba</td>
<td><strong>Mentor:</strong> Dr. Renan Ernest Traore</td>
</tr>
<tr>
<td>• Focus of research is assessment of the impacts of CC on small scale reef fisheries in Malaysia, the Philippines and Vietnam.</td>
<td>• Focus is on the warming of water bodies and its impact on shrimp production, specifically on white shrimp <em>Litopenaeus vannamei</em> nursery and grow-out production in Asia Pacific region.</td>
</tr>
<tr>
<td>• Will approach the research by looking at the fish, coral reefs, and the people in the affected communities.</td>
<td>• Will use antibiotics and employ the microbial resource management of biofloc technology</td>
</tr>
<tr>
<td>• Methods: (a) Personal interviews, (b) Focus group discussion, (c) Key informants interviews, and (d) Underwater visual census.</td>
<td>• Aim is to come up with recommendations on (a) an optimal strategy for a more sustainable shrimp production, and (b) as a climate change adaptation strategy in shrimp aquaculture in the Asia-Pacific region.</td>
</tr>
</tbody>
</table>
KEYNOTE PRESENTATIONS

Later in the afternoon, Drs. Julian Gonsalves and Rodel Lasco briefly presented on Climate Change Adaptation and Mitigation. Both stressed the need for further collaboration and analysis to provide tailor-made solutions that would enable localized and more effective adaptation and mitigation policies per locality.

Dr. Lasco’s presentation, titled “Climate Change: Why, How, So What?” gave a detailed overview of climate change on a global scale, including the new studies, laws and actions on CC mitigation and adaptation. He expressed frustration that adaptation and mitigation are being tackled separately instead of just being one cohesive issue. Underscoring the urgency of the matter, Dr. Lasco said people need to adapt now and researchers need to do good research on adaptation and mitigation.
On the other hand, Dr. Gonsalves’ report, titled “It’s Real, It’s Here” served as the perfect follow-through to Dr. Lasco’s presentation. He emphasized scalability and tailoring solutions per locality, though quickly adding that scalability is a research question by itself. Dr. Gonsalves explained that CC is a threat multiplier so the issue should not only be on climate proofing but also touch on what he calls the climate justice perspective. Ending his presentation, Dr. Gonsalves gave an example of climate smart agriculture: “The idea was to try to create a case for a multiple benefit system where poverty, hunger, food security as well as climate change adaptation are issues. We have found that this process requires a little bit of demystification because people are looking somewhere else for the solution, but the solution already probably exists.”

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- “Addressing climate change, whether mitigation or adaptation, is going to require changes in people’s behaviour. We really need to be tailoring both mitigation and adaptation efforts to local contexts, ...with the help of local people – a shared learning approach that analyzes, plans, mitigates/adapts, monitors what happens, and improves on initial results”.

- Carol J. Pierce Colfer

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Organic farming and reduced use of chemical inputs and water can reduce GHGs while increasing carbon storage and reducing cost inputs (multiple benefit).
Q&A (Edited for brevity)

The participants were divided into groups together with assigned mentors to discuss their reflections on the two presentations and formulate questions for the two resource persons.

Q (Group Adeola):
1. How do we adapt the resources of the Climate Smart Villages to other areas of research?
2. In climate smart agriculture, is there any major impact to flooding?
3. In countries with problems of drought and flooding, how can climate smart agriculture manage the situation?

A (Dr. Lasco): Just initial comments. In terms of the flooding and how we could respond via climate smart agriculture, as I showed earlier, IRRI for example is developing rice varieties that can survive up to two-and-a-half weeks of flooding. That in a way is already an adaptation measure using the right rice variety. Another way to adapt is to plant somewhere else that is geographically not affected by flooding.

On drought, IRRI is also developing rice varieties that are more suitable to drought conditions. Stress is eliminated because of the right variety. The other option again is to shift geographically as in smart agriculture and smart ecology to overcome these climate changes.

A (Dr. Gonsalves) It is easier to deal with rainfall variability than with extreme flood situations. When we talk about extended droughts, we’re not talking about floods of the kind of deluge, but we’re talking about the variability of excess rain. I think solutions will adjust. We’re going to have to learn to deal with variables—sometimes too much rain, sometimes too little. The most difficult situation is heavy flooding. But now, IRRI has flood-tolerant rice varieties. So the solutions are already there but they are not magic bullets. That’s why we should do local adaptation testing.

Q (Group Adeola):
4. Is smart farming more beneficial economically for small farmers? If not, what kinds of incentives should be provided? Who should be providing these incentives?
5. How do we demonstrate quantitatively that smart agriculture will have an impact on climate change? How do we demonstrate quantitatively that our proposed projects will have impact on climate change mitigation?
6. How do we industrialize research?
7. How can we balance increasing animal productivity and environmental hazard?

A (Dr. Lasco): On incentives to small farmers, there could be a lot of economic and financial incentives. These are usually the first things that come to mind. But farmers are not incentivized by money. They can also be incentivized in terms of, for example, soil conservation and more regular income streams as opposed to erratic income streams. I think water conservation is another one. There are many ways to incentivize partners, not discounting financial incentives.

On the question how do we know if renewable energies are mitigating. In the IPCC as well as in the many regulatory carbon markets like the Kyoto Protocol, usually it’s the value-added compared to a baseline scenario. There are added carbon benefits of that technology and that additional benefit of value-added is what is usually quantified, and these are the carbon payments which are the ones paid for.
On animal and livestock, how to mitigate, there are many ways to do this and one is on methane. There are new technologies to reduce methane.

A (Dr. Gonsalves): On small livestock production, first of all, we have found small livestock production, particularly in goats and pigs, of special relevance to the poor. How do we get incentives for these people to continue to do this? We found that livestock is a major concern because of the systems of big production, the high carbon footprint, the feed is another location. There are health issues. There are many reasons why we wanted to look at alternative feed production systems. We have found that low-cost housing with low-cost materials have reduced temperatures. So there have been fewer problems with livestock pregnancies and alike. So temperatures can be lowered with proper housing materials. In the Philippines, we are doing this in Quezon. There is no shortage of ideas for small livestock for changing the production system. In the case of pigs, instead of harvesting at two-and-a-half months, you now do it in six months. That is the trend. The cost of credit associated with this big production is so high that only the rich can afford it. So we need to get back to a system that allows the bottom 40 percent to use alternative systems. Change is coming in the Philippines. There’s a huge opportunity for women for economic empowerment in small livestock production.

A (Dr. Lasco): I will start with the technologies for rice production as was mentioned that are tolerant. We’ve used LIDAR mapping and fine-scale photo interval using GIS, and we try to model how long the floods will last and how deep because those are two very important variables for determining which rice varieties are suitable for a particular area. That’s very high tech using information technology. So there are many technologies for rice. You can also shift production. For methane emissions, you can use alternate wetting and drying to reduce the methane footprint. So that’s more of mitigation as well.

On the question on adaptation measures, it’s very broad. For that question, there’s one book. In fact, in our Asia chapter report, there is one table containing all the adaptation measures, reported literature for various crops. So I would encourage you to download that report. It’s free from the IPCC website.

A (Dr. Lasco): On rice, IRRI’s alternative wetting and drying, what it really means is you dry it then you wet it. That’s the reason why rice needs water, the main reason why water stands in the rice fields. But you also have the proponent

Q (Group Cissy):
1. What are the technologies that effectively adapt climate change in rice production?
2. What are the research gaps in terms of climate change mitigation and adaptation?
3. What are the methods that have been used to study about indigenous knowledge regarding climate change adaptation?
4. What are the promising climate mitigation measures applicable to rural communities?

A (Dr. Lasco): On the livestock issue, remember, there is also potential for energy through methane production. And finally, research on industrialization. There is definitely a lot of room for research. There is like carbon capture and storage. These are high-tech technologies. A huge topic. There are a lot of options available and we don’t have enough time to discuss all of them now.
of Systems of Rice Intensification (SRI) which is not always accepted at IRRI. It was discovered in Madagascar but Cornell University propagated it. It is one of the most efficient systems for rice growing. But it’s not scale-neutral. It can only be done on small scale. So there’s the concept of letting your fields dry up so that the root systems will keep on. It’s hard to scale up SRI.

On adaptation options, it’s a general question. You got to get more trees into your system and that’s the agro forestry model. For me, the best adaptation option for small farmers with five hectares or less is more trees and diversification. Three concepts: diversify, intensify, and integrate. Diversify and you also mitigate the risks. Diversify and you also take care of the economic fluctuations of rice. As far as I’m concerned, this is the best time that small farmers have ever had as far as market is concerned because the world prices are going to go up. Intensify means where you have one crop per season and then you grow a second crop. Integrate means use some of the residues to keep the rest.

On indigenous knowledge, we cannot romanticize it. Farmers are now unable to use their indigenous knowledge to make those predictions they could before. The indigenous knowledge they’ve had has been challenged. I think we need to be careful about that. But that’s only about climate prediction. However, there are other aspects of indigenous knowledge that you can’t find a solution. Who is in a better position to find a solution? Then, we need to challenge them and partners in this process of finding the solutions. Check PROLINOVA’s website. It’s all about participatory innovation development. Now, you have to look at how indigenous knowledge is used for innovation development.

Q (Group Esther):
1. What is the difference between indigenous people and local people?

A (Dr. Lasco): That’s a lot of questions! Let’s start with the money: How do you get the money? Well, I can tell you, it’s very, very hard to get the money from that carbon finance. They have the regulatory market usually Kyoto protocol. It’s not yet finished, but it’s almost gone because of the new Paris Agreement, but it’s still there technically. But it’s hard. From experience, it’s so hard to get the money. You need to spend a lot of money. For example, for forestry projects, a transaction cost is about $100,000 to $200,000 per project. And so, small holders need to have that kind of money just to transact. It’s not really to plant the trees or do any development; it’s just to register the project, to pay for the consultants and so on. And so in the Philippines, we got zero projects from this carbon money, forest carbon money, as a result of this transaction cost. Unless you are in Brazil or in Indonesia, Indonesia has a lot of emissions, they’re getting a lot of money from what is known as REDD+. For example, Indonesia alone has commitments up to $1 billion.
just to be able to reduce emissions in Indonesia. So if you’re a small country, it’s very hard to get carbon money. That is just what I wanted to say there.

Secondly, on the question on mitigation and adaptation, how to combine the two, this is really a challenge because there are separate funds for mitigation and adaptation. But for you as researchers, I think it makes sense to see how adaptation and mitigation can synergize. For example, as mentioned by Julian, introducing trees on farms. Trees sequester carbon. At the same time, trees provide diversification, other farm products and enhance the resilience of farmers. That’s a good example of a win-win climate adaptation and mitigation work that you can do research on.

The third question I’d like to tackle is the livelihood approach. There’s a lot of literature on that. There are ways to quantify it. But one of the gaps there I think is that the quantification can be a bit subjective and the indices can be hard to interpret. And so you may want to think a little bit more on how to improve those indices especially in areas where you have very little information like in coastal areas. But it’s a very promising approach, the use of indices.

A (Dr. Gonsalves): The issue about adoption of climate smart agriculture and also this concept about synergy between mitigation and adaptation. It’s not as complex as it looks. I mean, if you have fruit trees, you have timber trees, you have other trees, you’re doing more than adaptation. I think that’s why I usually demystify. So you have more trees, you have intraspecies diversity and interspecies diversity. You have five kinds of fruit trees. We’re talking about orange, yellow, sweet potatoes as being soil property. In the Philippines, we have violets, we have reds, we have orange, we have yellow. They are all high in antioxidant and the market in the future will greatly improve. My theory is that there will be great income opportunities in the future. This is something we are very positive about. When we were in Addis for a science forum about two months ago, the view they have from Latin America, the view they have from Africa and the view from Asia was that the fact that the middle class is so big and doing so well, it’s going to create new markets for food that never existed before, but high quality food. Why don’t we look at that as well. It’s a huge opportunity.

Unfortunately, big corporations are already coming in and taking advantage of this expected big opportunity in Addis.

On the issue of CSA and adoption, a couple of things. First, I think we have to shed our competitiveness, wanting to have our own identity, our project, your project. There’s a lot of that going on and I think it’s sad. What we have found, you need to establish an evidence space. In other words, we need to show adoption on scale. We have to see in one village 34 percent have adopted. That is what I call adoption on scale. If you cannot demonstrate adoption on scale, I am going to assume that technology will diversify.

SPECIAL ANNOUNCEMENT
Dr. Ghezae acknowledged the presentations and sharing by Drs. Lasco and Gonsalves as loaded with new information and knowledge. In view of these new learning, trusting that all participants will do a good job, Dr. Ghezae announced that they are going to grant an extension for the resubmission of proposals until 11 September. This elicited applause from the participants. She reminded everyone of the feedback document provided to them containing the comments and shortcomings. These have been replaced by research literatures to guide participants in further improving the scientific basis of their proposals because a lot have shortcomings in this area, receiving the comment “incomplete, unconvincing literature review,” which is common to all applications. Applicants have been good in identifying the IPCC reports. But what was missing in their applications was the literature review on their own research topic. She encouraged all to see the feedback document and look at the tools provided to identify and resolve shortcomings identified in their research. Aside from being a guide, the document will also be used as a basis for review upon resubmission of the proposals.

A concern was raised regarding literature review. The participant said they have worked hard on their literature but the online platform where proposals are submitted somehow limited the space where they could write and elaborate on their literature. This, according to the participant, greatly affected the amount of literature that came with the submitted proposal.

Ms. Eriksson explained that the problem is technical with regards to formatting in the new Salesforce program. She said that using copy/paste of a Word text into Salesforce creates a lot of hidden formatting. She recommended using plain text to avoid the problem; otherwise the text will be too large for the boxes in the application, limiting the amount of information that can be written on the application.

In conclusion, Mr. Savage reminded everyone to include issues like this one on their task list, which he recommended participants to create at the beginning of the workshop. The task list will serve as a guide and reminder on all the concerns that needed to be addressed on their research proposals.

GROUP REPORTS 2: COLLABORATIVE RESEARCH PROPOSALS
The second group of six teams reported on the content of their proposals. After the presentations, capping the day were welcome cocktails at the SEARCA lobby, followed by dinner at the SEARCA Umali Auditorium.

<table>
<thead>
<tr>
<th>Team: Chitosan Group</th>
<th>Team: CLIMADAP-SEA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mentor:</strong> Mrs. Adeola Eniola Ayano</td>
<td><strong>Mentor:</strong> Ms. Cissy Nambejja</td>
</tr>
<tr>
<td>- Chitosan is a naturally abundant biopolymer extracted from crab and shrimp shells, which is a major waste product of the seafood industry</td>
<td>- Will assess the adaptive capacities of small farmers in the upland communities in the Philippines, Vietnam and Timor Leste</td>
</tr>
<tr>
<td>- Suitable material for biomedical applications, wastewater treatment and many other applications</td>
<td>- Specifically, it will identify the field level evidences and indications of climate change based on the farmers’ observations and direct experiences</td>
</tr>
<tr>
<td>- Chitosan application in CChAM has not yet been explored, so it is proposed to be a sustainable material for CChAM</td>
<td>- Aside from knowledge generation, will provide practical considerations like identification and recommendation of priority of the adaptation strategy that will be localized</td>
</tr>
<tr>
<td>Team: Cliandhh_No. 1</td>
<td>Team: FISH-HEALTH</td>
</tr>
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<td>---------------------</td>
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<tr>
<td><strong>Mentor:</strong> Ms. Esther Kemigisha</td>
<td><strong>Mentor:</strong> Dr. Lawrence Sheringham Borquaye</td>
</tr>
<tr>
<td>• Research is focused on the delta region of Cambodia, Vietnam and Myanmar</td>
<td>• Everybody wants to eat good quality of fish, hence the need to find a way to control the spread of infectious spleen and kidney necrosis virus</td>
</tr>
<tr>
<td>• Aim is to come up with a better understanding of climate change vulnerability of farm-households and climate change adaptation strategies and adoption of these strategies in the face of the increasing level of flooding and saltwater intrusion through measurements of different variables</td>
<td>• Over 20 years, Asian countries contributed 90 percent to global production in the aquaculture sector</td>
</tr>
<tr>
<td>• Considers themselves as the craziest group because there will be a lot of calculations, merging data of all the three countries</td>
<td>• There are many emerging fish diseases brought about by climate change</td>
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<td></td>
<td>• ISKNV usually happens in cold weather, but recently also observed in warm weather</td>
</tr>
<tr>
<td></td>
<td>• Will be divided into three sub-projects</td>
</tr>
</tbody>
</table>
## Team: TERRA

**Mentor:** Dr. Paul Erasto Kazyoba

- Research focus is on poor and marginalized fishing communities found in Con Dao National Park in Vietnam, Kuching Wetlands National Park in Malaysia, and Naujan National Park in the Philippines.
- As temperatures become warmer, wetland surface area will decrease.
- Five major components have been identified to address research gaps: (a) build site specific hydrologic processes of wetlands under current and future climate scenarios, (b) assessment of wetlands’ biodiversity and vulnerability to CC, (c) site-based assessment of wetlands’ ecosystem services, (d) socio-economic vulnerability assessment of communities under study, and (e) evaluation of policy implications of CC on fishing communities and development of a climate smart strategy for fisher folks.

## Team: Green Energy Smart Farm

**Mentor:** Dr. Renan Ernest Traore

- Modeling Optimal Tomato Greenhouse with Incorporation of Solar Energy and Energy Efficiency Technologies (only team so far whose members already know each other even before the workshop).
- CC has forced farmers to look for other crops to plant to adjust to the adverse weather detrimental to other crops.
- Tomato was chosen because it is considered a high-value vegetable in the Asian region as well as amongst the most vulnerable vegetable to disease.
- This research will draw a comprehensive framework to model greenhouse employing solar energy and energy efficiency at minimal cost.
Day 2 (31 August)

kicked off with an ice breaker that prepared everybody for the day’s agenda, which involved more collaborative work and brainstorming. Sensing that most of the participants still lacked energy, Mr. Savage instructed everyone to stand up and say “Good morning!” to the person near them using English. The same instructions were given afterwards, but this time, “Good morning!” was said in their second and then third primary languages, which prepped participants for the first agenda of the day.
The participants were asked to share feedbacks, evaluation, and other concerns they had so far since day 1:

- The need for collaboration was clear in Dr. Gonzalves’ presentation as all aspects and effects of CC are connected to each other. Research proposals can be combined to address the growing threat of CC.
- Nice to finally meet co-collaborators personally and work on their proposals face to face.
- Thankful to IFS and SEARCA for the extension on submission of proposals.
- Grateful for the opportunity to meet and make new friends and future partners.
- The workshop became a time to reacquaint with old friends and mentors.
- Learned the multi-country, multi-discipline, multi-teams approach to issues.
- For some, the best workshop they’ve attended so far especially the accommodations, the chance to try local cuisine and beverages like San Miguel Beer.
- A participant from Vietnam shared how grateful she was to the local staff who assisted her in trying to contact her family back home to get news on her son who was sick when she left for the workshop.
PRESENTATIONS: PILOTS 1 AND 2
COLLABORATIVE RESEARCH EXPERIENCE

A video on the collaborative research conference in Nairobi, Kenya in February 2016 was shown afterwards. As most of the participants have already seen the video, Mr. Savage nevertheless encouraged them to watch it again as “information has different meanings as we get more experience.”

Afterwards, from video to live, the six mentors from Pilots 1 and 2 in Africa presented their practical experiences and insights as successful grantees of the IFS collaborative research grants in their region. But before this, Mr. Savage reminded the participants that the presentation would be on collaborative research and not on CChAM so that they could ask the right questions.

In opening, Dr. Paul Kazyoba of Pilot 1 assured the participants that they all went through the same process. “Nobody is born knowing everything,” he said. They go through different processes but at the end of the day the experience is still the same. He then introduced his peers.

Ms. Adeola Ayano, also from Pilot 1, was first presenter and shared on her experience in Team Formation. Before their team was formed, she said they had to look at four factors—they all have expertise, they have experience, they came from different countries, and there was gender diversity. “We came together believing in ourselves,” she recalled. Advising participants to be committed to one another in the team, there should be consensus to do your best, be humble and don’t look down on yourself or anyone else. Ms. Ayano said it is important to have a positive outlook especially throughout the proposal development stage. Ensure that everybody shares in the tasks. Proper delegation should be exercised.

Also from Pilot 1, Ms. Esther Kemigisha presented on Proposal Development. She said communication is the very first important thing that everyone should be aware of. The importance of proper communication, including prompt feedback, should be emphasized. She shared an experience wherein lack of communication resulted to confusion within their team. She was put in charge of collecting data from Uganda and Nigeria so she emailed a template to all team members to use for data collection. “I was shocked that at the time of data collection, someone was using old fashion (data collection method),” she recounted. However, their team was able to correct the situation even before it caused bigger problems. Be aware of the tools you have to use as a team to avoid confusion at the end.

In choosing a project, the team should agree either to build on an existing research or start from scratch. On writing the proposal, it looks simple but it’s not. Their team saw a lot of
information on the IFS website and became very eager to include these on their proposal. They did not follow the IFS template and later on found out that many of the information they included in preparing the proposal was not really needed.

After a proposal has been approved and funded comes execution. Dr. Renan Traore shared about Project Implementation and said that one common problem that many encounter is the apparent gap between the development of the proposal and the criteria set by the funding organization. He said this happens when there is not enough detail contained in the proposal and the team did not develop the kind of design ready for implementation. Dr. Traore stressed that communication is very vital to address this issue, and that it is necessary for team members to meet and discuss developments regularly.

Team meetings should be given priority even at the inception of the proposal for members to share and make decisions, to agree on the proposal, on implementation, on responsibility of each team member, on the budget, and on the timeline and monitoring plan. “It is necessary to clarify individual responsibilities, for example, in data collection, analysis and processing,” he explained.

Ms. Cissy Nambejja spoke of Possible Challenges researchers encounter before, during, and after proposal development. She said the first important thing to do is to identify the type of challenge one is facing. As with the previous presenters, Ms. Nambejja also underscored the importance of communication. “Communication is key and communication gaps can manifest in a number of ways,” she said. An example is when members of a team start “disappearing”.

She reminded everybody not to lose sight of the proposal’s objectives once a team wins a grant. She said a lot of teams suddenly lose contact with one another after being given the grant. “Friends, this has happened. Once you win that grant, right now you’re communicating, you’re in touch with one another. But once we forget that grant,
you’ll not know where others will go,” she warned.

The second thing to remember is transparency. She gave this example:” Some team members may claim not to have received their research fund even when it’s already been delivered to their accounts.” Ms. Nambejja advised everybody to be flexible, open-minded, calm and patient, and to establish trust and respect for one another.

Other possible challenges according to her include the following:

- Institutional differences
- Meeting set goals: deadlines, research objectives, competing priorities
- Changing circumstances
- Decision making
- Resource sharing: funds, materials, and equipment

After the challenges come the opportunities, especially with other funding agencies and other institutions for scaling up and/or scaling out. Dr. Lawrence Sheringham Borquaye said that he has learned so many things after winning a grant. Although it is natural for researchers to be always on the lookout for new ideas, getting a grant widens once horizon for new research ideas and scientists should always be mindful of this.

Dr. Borquaye said that it is important to be very creative and to learn new skills in project management. He shared that he before getting the grant, even as a team leader, his knowledge of project management was very much limited. But the project implementation offered him with many opportunities to learn and train.

Another opportunity is increased project impact due to comprehensive publications. He explained that this is due to the multidisciplinary nature of the project.
Q (TERRA): Were you able to consult with any external specialist or expert for free during the development stage of your proposal?

A (Ms. Kemigisha): We actually did not. There were IFS mentors who were always available. And apart from that, we actually did not have IFS-appointed mentors. It was upon you to find who can help. But I think this time, IFS should really consider appointing mentors.

(Dr. Ghezae): We have a plan to have a better program for mentorship but we haven’t formalized it. The idea is to do it in a very formal way, which we have already started with Pilots 1 and 2 but haven’t formalized yet. We have already drafted a program on how to do that. We have identified mentors. We use our advisers to help you, but the formal mentorship requires a lot of commitment and especially funding. But in one way or another, we have been able to support you for any issues you have been asking us. The more you shout, the more we help. So keep on shouting and ask for help and we’ll try our best.

(Dr. Burgos): On the part of SEARCA, SEARCA is committed to supplement the pool of mentors that IFS has. Initially, we have submitted the list. And thanks to CCAFS, to CIAT and our own network, they are willing to provide their mentorship services for free.

(Mr. Savage): So the message to the teams is shout—kindly. Communicate with both IFS and SEARCA. Contact Bessie. Thank you very much Bessie for that input.

Q (Renewable Energy): The first question, as a mentor, what do you think is the strength and the weakness of working with Southeast Asian researchers? The second question is how did you maintain communication and relationship during the research project between team members?

A (Ms. Ayano): On the first question, I can see everyone is really ready to learn, very friendly, very accommodating, and also very comfortable working with. Weakness? I can’t think of any.

A (Ms. Kemigisha): I really don’t want to call it
weakness and of course I don’t have the mandate to call it weakness, but this is what I have to say. This is really subject to correction. I can see positive energy here, but there is this one thing I’ve seen from my interaction with the teams that I have been allocated to. There is this question of “So what?” What does it contribute? There is lot of ambiguity. So there is really a lot to do with the projects. But in terms of attitude, I think the attitude means a lot.

A (Ms. Nambejja) Just maybe an addition to the weakness, but it’s not a weakness. But there is just general anxiety. Shall we get that grant? Shall we not get that grant? We also experienced that. Shall we, shall we not. But relax. Certainly, everyone is not going to get their grants. The lucky groups who will get their grant, well and good. That remains your post-disciplinarity. Those who will not get their grant, it is not the end of the world. There is life after that and there is another chance to apply next year. If you do not get that grant in the first application, just realize your weaknesses, where you made mistakes right now and by the second advertisement, you should be more than equipped to win that grant.

A (Ms. Ayano): And everything you learned here, you can apply later on. On the second question, how do we maintain relationship, in my group, we have regular meetings. We have time difference, so we set a date and time. I’m the secretary so I send emails. I remind everyone and then we meet on Skype.

A (Ms. Nambejja): In case emails and Skype doesn’t work, call the person. Use different approaches.

A (Mr. Traore): I think that this question is really very important because it tackles the management of the project. Communication is really important to maintaining relations. It is important to have a dedicated leader to remind responsibilities. It is also important to respect the timeline. You could use the internet to communicate.

Q (PalMA-Asia): When the research is not on schedule for some reason, for example, we cannot collect data, the computer broke down, can you share with us how you solved that kind of problem? Thank you.

A (Dr. Borquaye): We’ve experienced something similar. What we have put in our proposal was far more expensive than we could do with the fund. So my group asked me to speak with Annika and ask her what we are supposed to do. So when I came in, the condition we had was quite simple: I just had to communicate with IFS and tell them what our challenges are and they’ll find a way. They will understand that we have a challenge. So it is important that we talk to IFS.

A (Mr. Savage): That’s good enough. Let me assure everybody that a communication from you to your hosting organization, IFS or SEARCA, will be responded to and solutions will be found. So don’t think that that’s not going to happen, it will happen. That’s a good question. When something unexpected happens, don’t freak out. Contact the people who can give you some advice.

Q (IK & CC): Can you share with us one best lesson you learned from doing collaborative research, coordinating teamwork to work effectively and efficiently? Can we have one from each?

A (Ms. Nambejja): There are so many lessons, but a specific one is having a leader who is dedicated to the work. This one will help during proposal development. You’ll find that all the collaborators will help to develop their different research proposals and you’ll have to trust your team leader to match all your different inputs. So if you don’t have a proactive team leader that can be a big challenge. If the leader is really dedicated and
interested in the work, he can be willing to guide the, let me call them, researchers who are not yet matured in their experience, for example improving their research plans and so many other things.

A (Ms. Ayano): Basically, collaborative research taught me how to review. I was not good on review before. But during the proposal writing and as we worked on reports, we had to pass it around. Somebody will create your own column probably with a column or something so I am not able to use the review package. So after that, someone tells us to review. So we really need to review better.

A (Dr. Kazyoba): For me, it’s sharing of expertise. It’s very important. Each one of us has his own expertise. So bringing together four different expertises addressing one problem and successfully implementing the project is one of the biggest lessons I’ve learned. So that was my big lesson.

A (Ms. Kemigisha): I learned that in teamwork, you must expect this. In other words, if there’s a task to be done, do your best. If everybody would not do their task, what would be its impact on our project? You may find yourself in embarrassing moments. So always, when you give out a task, follow-up.

A (Dr. Traore): A lesson of collaborative research is to have a new contact in your work. Before our research collaboration, I don’t know any researcher in Tanzania, in Nigeria, or in Cote d’Ivoire. It’s very, very important. Another lesson is building of capacity. Thank you.

A (Dr. Borquaye): So let me go on a lighter note. You get a chance to travel. I’ve now been to the Philippines because of collaborative research. There is pride because I’m an IFS grantee. Those are my lessons from being a collaborative researcher. Thank you.

Q (Green Energy Smart Farm): My question is how do you do monitoring and evaluation?

A (Dr. Kazyoba): One of the key issues when we were developing our research, you just have to have in mind how you’re going to do M&E. And in particular, for this kind of research, we have two researchers in the Philippines, one in Malaysia and another one in Vietnam, definitely you need to have a M&E system to link you, to be able to follow up what exactly Malaysia is doing, and are they implementing the project according to the time table, are we achieving our objective. For instance, objective one has to be done by the first or second month of the project, objective two and so on. So after the first quarter or after the first two months of the project, definitely you should have Skype conference to find out from colleagues if they managed to implement, and this helps because if one of you is lagging behind, it should be the moment for him or her to catch up on time. So for M&E the best tool is to have a good interval of Skype conference.

Number two, sharing of data because at the end of the day, you may end up publishing again. Your data is important to your colleagues because you need to give your data to help in certain analysis. So through that, you may be able to monitor the progress of your colleague and your colleague will also be able to monitor how far you’ve gone. I think as simple as that. But make sure you have an M&E program.

A (Dr. Ghezae): I would like to link this one also to the timeline of the project proposal. That’s why I told you yesterday that it’s very important to have a very realistic timeline. And that helps you in the process of implementing your project to see where is where and how we are doing. So the baseline is having a very realistic timeline which is specified in your application and then it becomes very easy to monitor and evaluate from the IFS perspective.
A (Mr. Savage): Can I just summarize. This is important for everybody. So one, whenever there are discussions between the team and IFS about how things are going (monitoring), you will make reference to a clear timeline. And two, as part of the overall timeline with IFS and SEARCA, there will be some more formalized arrangement for overall monitoring and evaluation of this project together.

Q (GDPP): We would like to discuss about the budget disbursed to individuals. I believe that the individual budget would go to each of our institutions. Am I right? How about the collaborative budget? I believe I heard Cissy saying that the budget goes to the account. Is it the personal account or the institutional account? And how were you able to go about with the budget making with your institution?

A (Dr. Ghezae): I have to make a brief statement on the budget. The budget follows the project, meaning that it has to identify the activities and those activities have to be item budgeted. And then when you have got the activity of the project itself, the roles and responsibilities of each team are also specified there. So that will clarify how much money goes to which activity but also to whom that budget line is going to be allocated. As a total, what we are having is that each individual in a team has got $12,000 for the research part, and $3,000 for the collaborative part. So the total is $15,000 per individual. But how you share this budget among yourselves in a team depends on how activity in the budget is framed and on how the responsibilities are defined within the project. So some of the fieldwork might require maybe that one person gets more than another. Some activity may require that you don’t need to go to the field but you’re doing certain activities and it doesn’t require certain things, and there will certain common activities as a team that you need to have budgeted. So depending on all of these factors at the end of your proposal, you will show who is with what and how much money is needed by the particular individual to do his or her research. So once this is defined, the amount of money is sent to each individual’s institution. So it becomes the institution that you belong to that has got the appropriation of the funding be it for the research part and also for the collaborative part. So you need to think on how to frame your budget. That is why I was telling again and again you have to specify the activity, you have to specify who is doing what, and how much amount of money goes to any particular person. Is that clear?

Q: Is it possible to use the funding for another area of the project if that area needs more money?

A (Dr. Ghezae): The question is, if, for example, an individual requires less than $12,000 which is specified to him or her and another team member requires more than $12,000, will it be possible to use the money of the other person, and the answer is yes. And you have to be extremely clear in the activities so that’s why budgeting is not about money. Budgeting is about the project and the activities to be done on the budget. That should be very clear.

Q: Will the grant be given to the individual who heads the institution?

A (Dr. Ghezae): The question is that if the money is going to be transferred to the institution, does it go to the head of the institution? The answer is that the IFS grant is given to an individual but it’s given to the institution which the individual belongs to. And because of that, the head of the institution has to sign the contract with IFS. He or she has to know about the project and the signature of the contract with IFS is the contract signed by the head of your institution.
Q: So the money can go to the individual account of the head of the institution?
A (Dr. Ghezze): Does the head (of the institution) have a personal account for the institution?

Q: Yes. Our institution is the only research institute under the Ministry of Agriculture. So the account will be the name of the head of the institution?
A (Mr. Savage): So the clarification is it does not go to a personal account. Never. And if the account is in someone’s name as the head of an institution that needs to be clarified before the monies will be transferred. Believe me IFS will not send the money until they know it will go to an institutional account of some kind.

Q: Will IFS shoulder the fee or percentage being charged by the institution?
A (Dr. Ghezze): What she’s asking is that some institutions have regulations that they cut some 10 percent of the project money and whether that should be covered by IFS or by the institution. We don’t allow Institutions to charge you 10 percent overhead. By supporting young individuals, IFS is supporting the institution they belong to. And in our form, it’s clearly stated that they have to recognize your project, they have to sign your project and they have to support you. So the 10 percent which some institutions ask you to pay is the institution’s own contribution to your project, not in terms of money, but in terms of recognition that the support that we’re giving to you is also support to the institution. We are challenged by that but we don’t allow that to happen.

Q (FISH-HEALTH): When we work in a team and a team member says I can work alone. With IFS, we need to work together, right? So have you experienced something like that?
A (Dr. Kazyoba): Let me rephrase your question. One of the team members says I can do this alone in my country, while it is good that you work together and you want to know if we’ve experienced that. Number one, depending on the nature of the work, depending on the nature of the project. You have a collaborative project. However, each one of you has a say on the project. There’s one title for the project but there’s one title for each one of you. As far as I know, that’s how it is. So some projects, one person might emphasize a certain objective in his or her own country. Not all, but there’s one particular objective that all would need immediately to work on. Number two, especially the lab-based projects. You work in a lab, you work in a different lab. However, there is a point in time where whatever one of you is doing in your lab would have to be sent to another lab. And third, let’s say you have to work in a far place, it is important that everyone in the team cooperate. Each member of the team might have their own models of the project and each model is based on the needs of a particular country or locality. But you need to understand that you are addressing a bigger need, so there is a point that you need to leave specific objectives and come together.

Q (CMV_EPACC_2016): We have a question about improving literature review. We have a three-country case, Cambodia, Myanmar, and Vietnam. I gather from your presentation that we should wait for literature, probably coming from one literature review. But in our case, we have three separate literature reviews. Can you just confirm, which we should follow, the separate one or the common one?
A (Dr. Borquaye): There is a team proposal and then there are individual proposals. So for sure, your team proposal which covers all case countries should encompass all three. When it
comes to your individual proposal, there you can focus on your own country. So let’s say, it’s about economic laws due to CC. In a team proposal, it has to include all those three countries.

_Mr. Savage interjected that there are three unannounced short presentations in the afternoon which have been identified based on the needs and/or concerns raised since the start of the workshop._

_Q (CLIMADAP-SEA): What have been the limitations, constraints and problems you encountered in the project implementation? And in what particular stage of the implementation did this problem arise and were you able to solve the problem?_

_A (Ms. Kemigisha): I would not call it a limitation, probably a risk that we have not foreseen. We had thought, for example, that we would collect the seeds from three countries. We were not able to recognize initially the diverse conditions in these countries, including the seasons and soil conditions. We realized that in Uganda, the different ecological zones affected root collection. But we went ahead with it anyway. Yes, we had progress, we like to finish on time but really not as we expected._

_Q (Cliandhh_No1): Do you see any potential for publication? And can you give us some strategies for publication in the future?_

_A (Dr. Kazyoba): How many here are lecturers? Assistant lecturers? We say, publish or perish, right? I think the best way to assess whether a project has been successful for IFS, even for us, is to see your paper published. So when you’re setting up objectives, we can see where we can do well. So the potential for publishing is very high. Not only publishing, but if you come up with any innovation, you can just as well patent it, IP, probably social innovation, the process._

_A (Dr. Ghezae): Our studies have shown that an IFS grantee on the average publishes three publications in her/his research period. So I think that is a good indication on the potential for publication._

_Q (Chitosan Group): How do you ensure the commitment of your team members?_

_A (Ms. Nambejja): Through consistent communication. Like I said earlier, if you send an email and that person does not respond, you do a Skype call and that person is not available, make a phone call. Most likely phone calls will work. Those living with that person will wake him up._

_A (Mr. Savage): Also, get their mailing address and send them a letter, a birthday card, a where-are-you card._

_Q (CHANGE): Most of our questions have already been answered. Maybe you can share to us anything that can improve our application, our collaboration? Anything else that you think is missing that could improve the collaborations so far?_

_A (Dr. Borquaye): Just one thing: your application cannot have spelling mistakes. It’s basic but it’s very, very important. Reviewers have a lot of work to do, so make sure there are no spelling mistakes. It’s embarrassing. Let them recall your application because your science is not good, not because of spelling mistakes._

_Q (CDRM): I have a question related to postdisciplinarity. What have you done after you’ve finished all of your individual and collaborative projects? What have been your achievements?_

_A (Ms. Kemigisha): I will share our team’s
experience. We had 40 percent for the, call it the prominence assessment, and my institution, Makerere, we have an established listing for such. So we have to come to the National Agriculture Extension Organization where we set out this experiment. It is a long-time experiment trial because these trees usually can’t even stay for 30 years. But for the second stage of this project, we will monitor them for three years.

But that collaboration will stay with Makerere University and the National Cooperative Research Organization, and we shall look at how to scale it out and how to scale it up. There were other institutions, other opportunities. So for you, I encourage you to do as much collaboration as you can. It’s a good thing to do especially for marketing your project and increasing uptake.

GROUP REPORTS 3: COLLABORATIVE RESEARCH PROPOSALS

The third group of six teams’ report on their proposals.

<table>
<thead>
<tr>
<th>Team: Renewable Energy</th>
<th>Team: CMV_EPACC_2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mentor:</strong> Mrs. Adeola Eniola Ayano</td>
<td><strong>Mentor:</strong> Ms. Cissy Nambejja</td>
</tr>
<tr>
<td>• Fossil fuels, with its contributing effect to global warming and climate change, is slowly being replaced with the use of biomass to generate heat and energy. A good example of biomass is rice husk</td>
<td>• Ultimate goal is to enhance food security in Cambodia, Myanmar and Vietnam</td>
</tr>
<tr>
<td>• However, a problem is that rice husk is usually burned in the fields, resulting in emission of greenhouse gases</td>
<td>• There is still no study that measures the impact of new methods and technologies to the farmers on which one is more effective to make them resilient to CC</td>
</tr>
<tr>
<td>• Focus is to innovate alternative technology to reduce greenhouse gas emissions from rice husk being burned, making it a viable alternative source of energy</td>
<td>• Study socioeconomic impact of new technology</td>
</tr>
</tbody>
</table>
Team: Forest Carbon  
Mentor: Ms. Esther Kemigisha

- Will attempt to quantify the Net Ecosystem Production (NEP) to support basic and income modules for locals
- Based on the literatures and documents sent by IFS, they found out that they actually fit into subtheme 1.1 of the Collaborative Research Grants project
- Research will cover two forests in Malaysia, one in Vietnam, and one in Thailand
- We have to put a monetary value to our forests, which will compensate the local folk and reduce poverty of communities affected by logging bans

Team: GDPP  
Mentor: Dr. Lawrence Sheringham Borquaye

- Will investigate how CC in the past two years have affected aquaculture production in Thailand, Cambodia, Malaysia and the Philippines
- Tilapia farming will be the focal point of research and assessment of the effects of extreme temperatures
- Tilapia is accessible to the poor, hence the rationale for its selection for research
- Would entail giving immunostimulant feeds to tilapia and physically changing fishing ponds, for instance, in Cambodia
Team: CDRM

Mentor: Dr. Renan Ernest Traore

• Focus is community involvement in CChAM
• Disaster risk management
• Target communities: Madura Island and Bali in Indonesia; Timor Leste and Vietnam using the climate smart agriculture approach

Team: PalMA-Asia

Mentor: Dr. Renan Ernest Traore

• There is a great need to mitigate carbon emission in Indonesia, which is a big undertaking
• Expect more emissions from Indonesia since it is export oriented with more production
• Aside from Indonesia, there will also be focus on Myanmar
• Participatory integrated assessment approach

With the intensity of the day’s sessions, participants were obviously tired and some were already sleepy. To prep everyone for the succeeding presentations, Mr. Savage made all participants stand up and then raise and shake their arms.
“UNANNOUNCED” PRESENTATIONS

The schedule was adjusted to give way to “instant” presentations deemed necessary to address overriding concerns of most of the participants. Dr. Paul Erasto Kazyoba of Tanzania and one of the mentors from Pilots 1 and 2, spoke about literature research, a deficiency observed in almost all applications. He gave as examples the websites of Hinari, Google Scholar, and FAO as among those that are most useful for researchers in searching for literature and additional references. Several participants recounted the difficulty they experienced in their own countries just to download research documents or literature.
Addressing this, Dr. Lasco shared that authors are more than willing to share PDF copies of their works for free if they are just emailed for proper requests. He said these authors would love to share their work. Dr. Lasco also cautioned against what is called “predatory journals,” while reminding everybody to be always mindful in following their organization’s rules on accessing information from online sources.

Dr. Ha Thanh Dong of Vietnam made the second presentation regarding ORCID or the Open Researcher and Contributor ID platform, a digital identifier for registered researchers. ORCID is a nonprofit helping create a world in which all who participate in research, scholarship and innovation are uniquely identified and connected to their contributions and affiliations, across disciplines, borders, and time. (www.orcid.org/content/about-orcid)

A third sharing on budgeting was made by Dr. Bryan Pajarito of the Philippines. Dr. Pajarito reminded everyone to be familiar with the procurement rules of their own university or organization. Ms. Eriksson supplemented this by giving tips on the technical side of submitting one’s proposal at the IFS website. She reminded everyone that in case the proposal is not yet 100 percent finalized, submission status should stay at “READY” so that it could still be accessed and edited in case of additional information.
INSIGHTS AND COMMENTS

Later in the afternoon, Drs. Gonsalves and Lasco shared more insights and gave advice to the participants, who were thankful that the two resource persons were able to talk about complex scientific ideas in simple terms—something that they would like to emulate.

Dr. Lasco’s parting words:

- You are privileged because you have access to new communications, i.e., internet;
- Have a solid review of literature and cite recent literature in your reviews;
- Always highlight what’s exciting in your proposal; and
- Maximize the privilege that you now have to work for your respective countries.

For his part, Dr. Gonsalves gave the following reminders and observations:

- The workshop is exceptional and is a good time for those not looking for “big” money;
- Engage in anticipatory research;
- Scalability is important;
- Follow a formula of Action ¨ Reflection ¨ Modifying action;
- Gender issues should be discussed;
- Proof of concept on the ground (like brown tag seminars); and
- Create synthesis documents.

To help the participants relax and be energized for the next day’s sessions, group tours were organized in the so-called growth triangle of Los Baños, Laguna, just outside the campus of the University of the Philippines.
Day 3 (1 September)

The schedule was revised and the entire morning was spent on more brainstorming and mentoring sessions. Dr. Ghezae, Ms. Eriksson and collaborators from Pilots 1 and 2, sat with individual teams and scrutinized the specifics of their proposals—from technical issues like using the online application system to matters regarding research issues, including project budgets and work planning.
GROUP WORKSHOP EVALUATION

The afternoon sessions were devoted to evaluating and assessing the general conduct of the workshop. Evaluation sheets were given for all participants to fill out. Seats were then arranged in a big circle and one by one, team representatives gave their responses to two questions—

- Learning gained from the three-day workshop
- Personal evaluation of the workshop
As each one shared his responses to the two questions, it became clear that the workshop served its purpose to be a venue of collaboration and future cooperation. Everyone was thankful for the new learning as well as for the new friends they have gained. The participants expressed their gratitude to both SEARCA and IFS for all the help and the new opportunities that the event has opened up for them. Emotions filled the conference hall as the microphone was passed, lending a human spirit to an otherwise scientific event that brought to fore the imperative need for all people to work more closely together to solve the problems that mankind now face.
INDIVIDUAL FEEDBACKS FROM PARTICIPANTS

LEARNINGS FROM THE WORKSHOP

- The workshop equipped us with more knowledge, new techniques to make new proposals
- Developed a high standard for international collaboration
- Inspired to write the best proposal
- Learned to understand differing opinions to support team collaboration
- Learned how to overcome certain problems and limitations like communication
- If you want to achieve your targets, always be “hungry” and stay “foolish”
- Learned tenacity and consistency
- Learned how to effectively share opinions and knowledge
- Learned journal writing
- Learned so much from the workshop that it would be entirely participants’ fault if they still don’t get a grant
- Learned collaborative way of proposal writing
- Enlightened on the concept of capacity building
- Realized that the most effective work is outside on the ground, not in offices and laboratories
- Learned humility to do real work
- More knowledge on CChAM
- Learned the protocols on proposal writing, which led to better understanding and respect for each other’s opinions

COMMENTS ON THE WORKSHOP

- Enjoyed the hospitality
- Grateful for the opportunity to meet peers and improve the proposal, and for the second chance to get a grant
- Workshop gave the chance to work face to face
- Grateful to the supportive staff both from IFS and SEARCA; managers and staff were busy and yet took time to respond and help
- Event provided a multicultural experience
- Widen circle of friends
- Grateful to have been included in the workshop even though just a first-time grant applicant
- Workshop gave life to their work—from virtual to actual
- All three days were filled with so much energy and the atmosphere of scientific research was in the air
- Thankful to the African mentors from Pilots 1 and 2 for sharing their time, talent and knowledge
- The venue and program were conducive for learning as a team, and all attendees enjoyed their stay at SEARCA
- The workshop gave a greater awareness for the need to collaborate to solve global problems posed by CC
- The event leveled the IFS-SEARCA collaborative research grants program’s playing field
LEARNINGS FROM THE WORKSHOP

- Always keep smiling no matter what
- Became more critical of self and aware of own weaknesses and strengths
- To improve the proposal, basic thing to start is answer the 5Ws and 1H (Who, What, Where, When, Why & How)
- Learning is an ongoing process
- Better understanding of different disciplines that are related to the research on CChAM
- Better appreciation of literature review, and thankful for the tips on how to download literature faster and for free
- Learned how to better navigate IFS’ online platform for proposal submission
- No more daydreaming, this is the real thing
- Better appreciation of the value of shared efforts, the main ingredient in any collaborative undertaking
- After learning of the feedbacks, realization that the proposals submitted were not perfect

COMMENTS ON THE WORKSHOP
A general observation is that the participants, especially peers who met each other in person for the first time, became emotional as the workshop also became a venue to develop deeper and new friendships. One participant, before sharing her thoughts of the workshop, even rendered a popular Philippine version of a “Thank You” song, usually heard during Christmastime, to express her profound gratitude to both IFS and SEARCA, saying that the workshop was a life-changing experience. On the organizers of the workshop, Dr. Cadiz summed it all up by saying, “IFS and SEARCA make such a really good team” that the workshop brought to fore the real need to address research gaps and to develop trainings on capacity building and collaboration. Mr. Savage expressed delight in observing each team come together in 18 different ways. He said the workshop taught everyone a new appreciation of how others speak English, and everyone should be mindful of this. Dr. Ghezae thanked all the participants for allowing IFS and SEARCA to be a part of their lives as early-career scientists, and also expressed gratitude to SEARCA for being professional and such a fantastic partner. She also took the opportunity to call on all participants to support efforts to further involve young women scientists in more collaborative endeavors as IFS is gender sensitive. Dr. Ghezae cited the experience of Ms. Giang Thi Thu Lu, a PhD student from Vietnam, who shared her ordeal in going to the workshop. Her young son was sick when she left Vietnam and she felt guilty leaving him to her parents. With the help of SEARCA staff, Ms. Lu was able to check on her son’s condition thus giving her peace of mind to focus on the workshop. Dr. Ghezae said this shows the need to support working mothers so they wouldn’t feel guilty taking part in international conferences.

Ms. Eriksson specifically thanked Ms. Nova Ramos for the great help she extended in making life easier for all of the attendees during the workshop. Mr. Savage expressed the same sentiments, saying SEARCA by far has been the most professional organization that he has ever worked with. Everybody agreed that the workshop was a huge success.
Dr. Saguiguit gave an inspirational talk and shared his insights on the workshop and on SEARCA’s working relationship with the IFS, which he said has been fulfilling. Expressing gratitude to all who participated and made the workshop possible, Dr. Saguiguit then led the awarding of certificates to all participants. Thereafter, Drs. Burgos and Ghezae delivered their respective closing remarks, with the latter making an announcement to further extend the deadline for submission of research proposals. Both SEARCA and the IFS reiterated its commitment to support the researchers. Dr. Ghezae assured the participants that IFS and SEARCA will always be available to help, because “your success is our success.” She reiterated that regardless of knowledge and position, participants, mentors, and advisers should look at each other as equals. “We are here together for a common cause – to solve critical global problems.”

As a parting message, Dr. Burgos reminded participants about the important elements of TEAMWORK, namely:

- Thankfulness for the partnership and Trust in fellow team members;
- Enjoyment of the research comradeship;
- Accountability in utilizing the research grant;
- Finding of Meaning in the collaborative research endeavor;
- Striving for Win-win courses of action;
- Out-of the box thinking;
- Reaching out to team members, mentors, relevant networks and institutions, and IFS and SEARCA; and
- Keeping it simple and succinct (KISS) in communicating research ideas and outputs.
AWARDING OF CERTIFICATES
The three-day workshop ended on a high note – literally, as all attendees, gathered in a circle, linked hands and in unison sang *If We Hold On Together*, theme song from the movie *Land Before Time*, further reinforcing the need for continuous collaboration between all participants in future endeavors.
Workshop Evaluation

Using a five-point rating scale with 5 as highest and 1 as lowest, organizers solicited feedback from the workshop participants on the clarity and achievement of its objectives, time allocations, content/topics, materials, and administrative arrangements. Participants also had the chance to elaborate on their ratings. In addition, an added page allowed for additional comments and suggestions. Fifty-four (54) out of the 55 participants (98%) returned their accomplished evaluation forms.

General Evaluation

Table 1 shows that participants found the workshop very satisfactory, successful and useful, rating the workshop materials and exercises highest, assessment of objectives based on clarity and achievement. They were also satisfied with the administrative arrangements and time allocation. Content/topics got the lowest rating, although still high at 4.25. Overall, the participants found the workshop to be generally excellent and well implemented.

Table 1. Summary of general quantitative evaluation results

<table>
<thead>
<tr>
<th>SUMMATIVE EVALUATION CRITERIA</th>
<th>MEAN RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workshop materials and exercises</td>
<td>4.55</td>
</tr>
<tr>
<td>Assessment of objectives based on clarity and achievement</td>
<td>4.50</td>
</tr>
<tr>
<td>Administrative arrangements</td>
<td>4.31</td>
</tr>
<tr>
<td>Time allocation</td>
<td>4.30</td>
</tr>
<tr>
<td>Content/topics</td>
<td>4.25</td>
</tr>
<tr>
<td><strong>OVERALL RATING</strong></td>
<td><strong>4.38</strong></td>
</tr>
</tbody>
</table>

Evaluation of Workshop Materials and Exercises

This criterion received a high average rating of 4.55. Participants considered the workshop materials to be sufficient, clear, and relevant and they felt that these will be useful for them once they are back on their jobs.
As for suggestions to improve the workshop materials, two participants suggested to have speakers who are experts in fisheries or in marine sciences to help them with their proposals. Though the workshop materials were distributed each day after the workshop, one participants suggested to have the presentations a day before these are discussed.

One participant suggested to include, in future offerings of the workshop, a session on climate change impacts (e.g., effects of changing climate on different sectors such as impact on agriculture, biodiversity, natural ecosystems, etc.). Two participants said the workshop materials were very good and enough for what they need. One participant suggested to have a presentation of the results from previous pilots. Another one suggested for the workshop organizers to “identify speakers with background/experience with the potential groups that attended the workshop.”

**Evaluation of Objectives based on Clarity and Achievement**

This criterion received a high average rating of 4.50. Participants considered the objectives of the workshop as clear and felt that these have been achieved.

**Evaluation of Administrative Arrangements**

The administrative arrangements (Table 2) likewise got a very positive feedback, with an average rating of 4.31. Participants highly rated the performance of the workshop management group (4.76) and overall administrative arrangements of the forum (4.69). They were also quite satisfied with their meal (3.94) and accommodation (4.20) arrangements.

They were also quite satisfied with the workshop venue (4.55) and local transportation (4.50) arrangements. Wifi connectivity at the IRRI Swaminathan Hall where 10 of the 55 participants were billeted got the lowest rating at 2.93. The SEARCA Guesthouse (SGH) got the highest rating among the three accommodation facilities, with a mean rating of 4.38.
Table 2. Summative evaluation of administrative arrangements

<table>
<thead>
<tr>
<th>SUMMATIVE EVALUATION CRITERIA</th>
<th>MEAN RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization, logistics, and administrative arrangements of the workshop</td>
<td>4.69</td>
</tr>
<tr>
<td>Performance of the Workshop Management Group</td>
<td>4.76</td>
</tr>
<tr>
<td>Meals served during the workshop:</td>
<td></td>
</tr>
<tr>
<td>Breakfast</td>
<td></td>
</tr>
<tr>
<td>IRRI</td>
<td>3.93</td>
</tr>
<tr>
<td>SRH</td>
<td>3.53</td>
</tr>
<tr>
<td>SGH</td>
<td>3.81</td>
</tr>
<tr>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>Snacks</td>
<td>4.23</td>
</tr>
<tr>
<td>Wifi connectivity at the:</td>
<td></td>
</tr>
<tr>
<td>Accommodation Facility</td>
<td></td>
</tr>
<tr>
<td>IRRISwaminathan Hall</td>
<td>2.93</td>
</tr>
<tr>
<td>b. SRH</td>
<td>3.07</td>
</tr>
<tr>
<td>c. SGH</td>
<td>3.42</td>
</tr>
<tr>
<td>b. Umali Auditorium (workshop venue)</td>
<td>3.76</td>
</tr>
<tr>
<td>Accommodation facility</td>
<td></td>
</tr>
<tr>
<td>IRRI Swaminathan Hall</td>
<td>4.09</td>
</tr>
<tr>
<td>SRH</td>
<td>4.12</td>
</tr>
<tr>
<td>SGH</td>
<td>4.38</td>
</tr>
<tr>
<td>Training-workshop venue</td>
<td>4.55</td>
</tr>
<tr>
<td>Local transportation</td>
<td>4.50</td>
</tr>
<tr>
<td>OVERALL RATING</td>
<td>4.00</td>
</tr>
</tbody>
</table>
In general, the participants were quite satisfied with the administrative arrangements of the workshop. Some of them gave the following comments:

- Great organization of the workshop. Congratulations!
- Everything was a good experience for me. Thank you very much!
- Thank you very much, SEARCA, for your warm hospitality and for making things convenient for us during the workshop.
- Thanks, SEARCA, for an excellent job! You are truly consistently hospitable!
- Thank you for your excellent and professional organization of the workshop. I really enjoyed it!
- You are one great organizer. Thank you, SEARCA!
- I can only say, you did a perfect job!

**Evaluation of Time Allocation**

This criterion received an overall rating of 4.30. Table 3 below shows the summary of evaluation for time allocation.

**Table 3. Summary of how participants rated time/time allocations**

<table>
<thead>
<tr>
<th>SUMMATIVE EVALUATION CRITERIA</th>
<th>MEAN RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The duration of the workshop was sufficient.</td>
<td>4.26</td>
</tr>
<tr>
<td>2. The time allotted to lectures/discussions and workshops was sufficient.</td>
<td>4.26</td>
</tr>
<tr>
<td>3. There was sufficient time and opportunity for discussion.</td>
<td>4.30</td>
</tr>
<tr>
<td>4. There was sufficient time and opportunity for networking.</td>
<td>4.31</td>
</tr>
<tr>
<td>5. Allowed enough flexibility to enable participants to achieve learning objec-</td>
<td>4.35</td>
</tr>
<tr>
<td>OVERALL RATING</td>
<td>4.30</td>
</tr>
</tbody>
</table>
Duration of the workshop and sufficiency of time allotted to lectures/discussions and workshops got the lowest mean ratings both at 4.26. When asked how they found the duration of the workshop, 4 participants (7%) said they found the duration too long, 43 participants (80%) noted it was just right, and 7 participants (13%) said it was too short.

Participants felt there was sufficient time and opportunity for discussion (4.30) and networking (4.31). They also felt that the time allocations of the workshop allowed enough flexibility to enable them to achieve the learning objectives, giving this criterion a mean rating of 4.35.

Table 4 presents the sessions that participants said ought to be/to have been given more time or emphasis.

**Table 4. Sessions to be given more time/emphasis**

<table>
<thead>
<tr>
<th>SESSION</th>
<th>NUMBER OF RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group discussions</td>
<td>11</td>
</tr>
<tr>
<td>Resource persons’ lectures/presentations</td>
<td>8</td>
</tr>
<tr>
<td>Group time/mentoring with experts/resource persons</td>
<td>5</td>
</tr>
<tr>
<td>Team proposal revisions/improvements</td>
<td>1</td>
</tr>
</tbody>
</table>

Three of the participants suggested to include a session on preparing/writing good proposals. One participant suggested that lunch time should be lengthened. Three others suggested to have less time for coaching, open forum with previous pilots, and lectures.

**Evaluation of Content/Topics**

Most of the participants said that they felt that the workshop content/topics were relevant to their job, have practical application, and adequate for their purposes (Table 5).
Table 5. Summary of how participants rated workshop content/topics

<table>
<thead>
<tr>
<th>SUMMATIVE EVALUATION CRITERIA</th>
<th>MEAN RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was the information presented in the sessions adequate for your purposes?</td>
<td>4.11</td>
</tr>
<tr>
<td>Is the information relevant to your current work situation?</td>
<td>4.33</td>
</tr>
<tr>
<td>Does the information have a practical application?</td>
<td>4.49</td>
</tr>
<tr>
<td>Is the information that was presented new to you?</td>
<td>4.08</td>
</tr>
<tr>
<td><strong>OVERALL RATING</strong></td>
<td><strong>4.25</strong></td>
</tr>
</tbody>
</table>

Three participants commented that the “workshop content is comprehensive and sufficient enough, everything was well-organized, and the workshop flow was perfect as it was.”

Some participants suggested the following to improve the workshop content:

- Get comments from reviewers of proposals for every group so we can correct our proposals immediately
- Include fisheries experts as resource persons
- Coach participants on how to do literature review and correct citation styles
- Presentations from previous pilots
- Perhaps some basic topics on hydrologic modelling and forecasting
- Present solutions from other fields, not limited to agriculture
- More time for group discussions, especially those with moderators from previous pilots
- Include sessions on how to improve research proposals, effective writing for research grants

The individual resource persons, workshop facilitator, and workshop co-facilitators were also evaluated (Tables 6 and 7).
Based on the average of 4.69, the resource persons on the topics *IFS-SEARCA Collaborative Research Grants (B)* and *It’s Real, It’s Here: Adapting to and Mitigating the Effects of Climate Change* received the highest evaluation. The main workshop facilitator got the highest rating at 4.79.

**Table 6. Summative evaluation of individual sessions/resource persons**

<table>
<thead>
<tr>
<th>SESSION</th>
<th>MEAN RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge and Mastery of Subject Matter</td>
<td></td>
</tr>
<tr>
<td>IFS-SEARCA Collaborative Research Grants (A) (BMBurgos)</td>
<td>4.42</td>
</tr>
<tr>
<td>IFS-SEARCA Collaborative Research Grants (B) (NGhezae)</td>
<td>4.76</td>
</tr>
<tr>
<td>Climate Change: Why, How, So What? (RDLasco)</td>
<td>4.68</td>
</tr>
<tr>
<td>Its’ Real, It’s Here: Adapting to and Mitigating the Effects of Climate Change (JFGonsalves)</td>
<td>4.71</td>
</tr>
</tbody>
</table>
It’s Real, It’s Here: Adapting to and Mitigating the Effects of Climate Change received the highest evaluation.

<table>
<thead>
<tr>
<th>SESSION</th>
<th>Organization and Planning</th>
<th>Resource Person-Participant Interaction</th>
<th>Motivation and Learning</th>
<th>Teaching Methods</th>
<th>Overall Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFS-SEARCA Collaborative Research Grants (A)</td>
<td>4.42</td>
<td>4.54</td>
<td>4.48</td>
<td>4.44</td>
<td>4.48</td>
</tr>
<tr>
<td>(BMBurgos)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IFS-SEARCA Collaborative Research Grants (B)</td>
<td>4.76</td>
<td>4.66</td>
<td>4.71</td>
<td>4.58</td>
<td>4.69</td>
</tr>
<tr>
<td>(NGhezae)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Climate Change: Why, How, So What?</td>
<td>4.68</td>
<td>4.64</td>
<td>4.65</td>
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</tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>4.71</td>
<td>4.67</td>
<td>4.68</td>
<td>4.69</td>
<td>4.69</td>
</tr>
</tbody>
</table>
Table 7. Summative evaluation of workshop facilitator and co-facilitators

<table>
<thead>
<tr>
<th>FACILITATORS</th>
<th>MEAN RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Knowledge and Mastery of Subject Matter</td>
</tr>
<tr>
<td></td>
<td>Facilitator-Participant Interaction</td>
</tr>
<tr>
<td></td>
<td>Motivation and Learning Facilitating Methods</td>
</tr>
<tr>
<td></td>
<td>Overall Average</td>
</tr>
<tr>
<td>WSavage (Workshop Facilitator)</td>
<td>4.81</td>
</tr>
<tr>
<td>AEAyano (Co-facilitator)</td>
<td>4.40</td>
</tr>
<tr>
<td>LSBorquaye (Co-facilitator)</td>
<td>4.47</td>
</tr>
<tr>
<td>PEKazyoba (Co-facilitator)</td>
<td>4.52</td>
</tr>
<tr>
<td>EKemigisha (Co-facilitator)</td>
<td>4.56</td>
</tr>
<tr>
<td>CNambejja (Co-facilitator)</td>
<td>4.47</td>
</tr>
<tr>
<td>RETraore (Co-facilitator)</td>
<td>4.43</td>
</tr>
</tbody>
</table>

Most of the participants (84%) answered in the affirmative on whether they would recommend the workshop to others, citing the following to whom/to which they would recommend the workshop to:

- Colleagues, friends, and networks in research and academic fields and own organization (30)
- Young and new researchers/scientists in own institution to expose them on how to write good quality proposals (9)
- Students in own university (3)
- Other higher education and research institutions (1)
- Research scientists and engineers (1)
- Upcoming IFS participants (individual or team) (1)
- Policy makers in own country (1)
Most of the participants (84%) answered in the affirmative on whether they would recommend the workshop to others, citing the following to whom/which they would recommend the workshop to:

- Colleagues, friends, and networks in research and academic fields and own organization (30)
- Young and new researchers/scientists in own institution to expose them on how to write good quality proposals (9)
- Students in own university (3)
- Other higher education and research institutions (1)
- Research scientists and engineers (1)
- Upcoming IFS participants (individual or team) (1)
- Policy makers in own country (1)

### Table 7. Summative evaluation of workshop facilitator and co-facilitators

<table>
<thead>
<tr>
<th>Facilitator-Participant Interaction</th>
<th>Motivation and Learning</th>
<th>Facilitating Methods</th>
<th>Overall Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSavage</td>
<td>4.81</td>
<td>4.78</td>
<td>4.79</td>
</tr>
<tr>
<td>AEAyano</td>
<td>4.40</td>
<td>4.44</td>
<td>4.42</td>
</tr>
<tr>
<td>LSBorquaye</td>
<td>4.47</td>
<td>4.46</td>
<td>4.47</td>
</tr>
<tr>
<td>PEKazyoba</td>
<td>4.52</td>
<td>4.44</td>
<td>4.48</td>
</tr>
<tr>
<td>EKemigisha</td>
<td>4.56</td>
<td>4.56</td>
<td>4.54</td>
</tr>
<tr>
<td>CNambejja</td>
<td>4.47</td>
<td>4.51</td>
<td>4.46</td>
</tr>
</tbody>
</table>

Participants (9)
Participants were likewise asked to describe the workshop in one sentence and how it has helped them. Some participants described the workshop as “fantastic, fruitful, very informative, valuable, and a great workshop.” One participant described the workshop as “FUNTASTIC + GOOD.” Others gave the following responses:

- It was an amazing venue for learnings as a researcher in collaborative research.
- It was really fantastic and very helpful for me.
- It is a very good workshop and it helped us improve our collaborative research.
- It is very helpful for me in terms of revising my grant application by improving my knowledge from resource persons and different insights gathered from peer groups.
- It is an effective tool for capacity building.
- It helped to significantly improve my research capacity.
- This workshop has opened up my mind in not only focusing on just one discipline in order to tackle issues but more in networking and teamwork.
- It broadened my views and it was very helpful for researchers who are just starting their research careers.
- Participants from diverse backgrounds and disciplines come together on our IFS common platform to find solutions to global problems/challenges.
- The workshop served as a training ground on how to write good quality research proposal for international grants.
- It is an excellent workshop and really helpful for young researchers.
- This workshop is not only a collaborative workshop but also training, teaching, and guiding all the things that I never knew before.
- It improved my knowledge and expanded my network.
- This workshop provided a venue for intellectual discussions between and among researchers and academicians.
- It is prepared very carefully and successfully improved the understanding of collaborative research and building research networks for young researchers in Southeast Asia.
- This workshop has totally improved my capacity as researcher.
- It really is more practical to sit together to work on problems with proposals.
- The workshop provided practical useful skills when starting and developing collaborative research proposals.

- It increased my level of understanding in doing collaborative research using international standards.

- This workshop broadened my perspective about collaborative research.

- This workshop provided me insights on having patience and open communication with partners and collaborators.

- Expectation that meet the standard

- It is a very constructive and most accommodating workshop I ever attended.

- This workshop was very useful in terms of learning new ideas and building collaboration, gain confidence to pursue further.

When asked how they would do things differently as a result of attending the workshop, 13 participants noted that they would like to write good quality research proposals and improve their interpersonal and collaborative skills, while three said that they would like to do more collaborative research. Others gave the following responses:

- Respect the comments and backgrounds, among other things, of my colleagues in my team for better teamwork

- Be brave to explore new things (new disciplines); more open communication; be positive in taking on challenges; be understanding

- Review positions and contributions of team members; review scientific sources of the literature review

- Focus more on research work; do research more collaboratively

- Conduct regular meeting through Skype

- Look for scientific journals from various sources; email author/s to ask for paper if it is not for sale

- Engage people from different expertise in conducting research
• Working in a group from different backgrounds; detailed budgeting; discussions to understand/to listen

• Be very critical of sources, be more concise, don't litter your thoughts, gain confidence

• Some hands-on training/workshop on modelling

• More patience and understanding to others

• Budgeting; timeline for activities; revise writing structure

• Be specific and concise; be confident; be open-minded; be scientific-oriented

• Strategize my research plan better; improve my skill to participate better in research grant opportunities

• Way to manage collaborative researches

• Focus on impact of climate change on pathology of bacteria in shrimp culture
APPENDICES
APPENDIX 1: Directory
INTEGRATING DISCIPLINES. CROSSING BOUNDARIES.
Report on the IFS-SEARCA Workshop on Collaborative Research

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Report on the IFS-SEARCA Workshop on Collaborative Research

CMV_EPACC_2016

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Report on the IFS-SEARCA Workshop on Collaborative Research

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APPENDIX 3: Proposal Briefs

Team applications within the IFS/SEARCA call for collaborative research applications 2016

This document lists the team names, titles and summaries of 18 teams selected to participate in the workshop

1. Team Name
Animal Waste Management

2. Title of the Team Research Project
Developing a total solution for sustainable pig production and minimizing greenhouse gas emission

3. Summary of the Team Research Project
Figure 1 presents the research components and cycle concept of this join project. The research will be initiating by the supplementation of probiotics and organic acid into diet for pigs to increase growth performance, nutrition digestibility and fecal noxious gas emission. The supplementation with those products will be replaced using anti-biotic in pig diet in the near future. Pig manure is rich in N and used as feedstock for many anaerobic digesters to produce biogas; however, the carbon: nitrogen ratio is around 6 to 8, which is insufficient for normal functionality of anaerobic digester. Co-digestion (pig manure with various organic wastes) opens an opportunity for economic savings and significant reduction of greenhouse gas emission. The digestate after biogas system still contains of high level nutrient (N and P), which can be recovered or used as fertilizer. Therefore in the last part of this project, we focus on how to treat digestate to be ensured the stuff discharged to environment is hygiene enough and meet the standard of waste water discharge to environment.

1. Team Name:
AQUASafe

2. Title of the Team Research Project
Evaluation of climate change adaptation strategy through microbial resource management practices for the improvement of environmental sustainability of white shrimp Litopenaeusvannamei nursery and grow-out production in Asia Pacific region

3. Summary of the Team Research Project
Our collaborative research project aims to evaluate microbial resources management for improvement of environmental sustainability of shrimp aquaculture system. Within this collaborative project, four sub-projects are intertwined and complementary to ensure the achievement of the ultimate goal. The aim of Sub-project 1 is to evaluate the application of microbial resource management of biofloc technology for the improvement of environmental sustainability of white shrimp nursery and grow-out production using zero-water discharge system with and without biofloc technology, at different feeding regimes (low protein pellets versus high protein pellets with carbon source addition). The results of Sub-project 1 will be used in the latter parts of the Team Project (Sub-project 2 to 4), with the aims to (1) evaluate the effects of use of biofloc system on shrimp nutrition, health and immunostimulation, (2) formulate computational models and perform numerical simulations to analyze the interaction of the different factors at the system-level, and (3) validate the recommended computational optimal strategies for a more sustainable shrimp nursery and grow-out production. The overall team project will provide detailed evaluation on the effect of modifying the dynamics of microbial communities through the application of biofloc technology on the shrimp culture performance, as a climate change adaptation strategy in shrimp aquaculture industry in Asia Pacific region.
1. Team Name:
BEIL-Fisheries

2. Title of the Team Research Project
Social-ecological vulnerability and adaptation assessment of small scale reef fisheries in three Southeast Asian countries

3. Summary of the Team Research Project
Climate variability and change in Malaysia, the Philippines and Vietnam are expected to have various impacts on the environment, health, infrastructure, energy and coastal communities. This will have compounding threats on reef fisheries and other consequences on coastal communities and food security. Given the negative projections of variable rainfall patterns, stronger typhoons and droughts this will have impact on coastal communities heavily dependent on fisheries and the aquaculture sectors. Although there are a number of climate change studies in the selected three countries of Southeast Asia, showing negative impacts with decreased yield in farmed species whether grains, fish or in the natural forests, there are currently few fisheries studies in the larger area in terms of vulnerability assessments, most of these have not considered climate change variability effects. Given the lack of studies that have been conducted on vulnerability of the fish assemblage and fishing communities in relation to climate change in the study sites our research will therefore answer three main questions: 1) How does climate variability and fishing effort affect reef fish biomass in the study sites? 2) How does climate variability and change affect the reef ecosystem in the two study sites 3) How vulnerable are the fishing communities in terms of climate variability? In line with these questions, four objectives were developed: 1) To identify the level of vulnerability of reef fish, neritic and pelagic fishes in the study sites in relation to climate parameters like sea surface temperature; 2) To quantify the biomass and catch rates of the different types of fish caught in the study sites; 3) To assess the level of degradation of coral reefs in the two study sites; 4) To evaluate the socioeconomic vulnerability of the fishing villages in the two study sites in terms of impact of climate change. The methods to be used in the study are personal interviews, focus group discussion, key informant interviews and underwater visual census. The results of the project will help the surrounding communities to plan on how they should adapt to the adverse impacts of climate change on their communities.

1. Team Name:
CC Food & Livelihood

2. Title of the Team Research Project
Assessing livelihood vulnerability to extreme climate events in mountainous areas: A study in South East Asia

3. Summary of the Team Research Project
Natural hazards have long time been the problem of concern in Vietnam and Philippines. The two countries are the most vulnerable in the world to climate change and extreme climate events (IPCC, 2007; World Bank, 2011). In 2010, climate extreme events cost Vietnam 5 percent of its Gross Domestic Product (GDP) and this number is forecasted to increase up to 11 percent by 2030 (DARA international, 2012). According to the World Risk Index 2014 findings, Philippines is the third most exposed countries in the Asia and the Pacific region. However, climate change, extreme climate events and their impacts on livelihood in mountainous areas have been, to a certain extent, overlooked so far. In fact, most climate researchers focus on coastal areas and deltas. The recent unprecedented cold spell in the north of Vietnam raises the need of more attention to such areas. The losses in such event were large, thousands of cattle were killed and thousands of hectares of crops were severely damaged in just a week's time. In addition, the local people there often have fewer choices of jobs than in other areas such as deltas. Thus, their livelihood could be more adversely affected than the others. This study aims at examining the vulnerability of livelihood in mountainous areas to climate extreme events in Vietnam and Philippines, in order to support the poor people and climate response policy-makers in the areas.
1. Team Name: CDRM

2. Title of the Team Research Project

Community-based disaster risk management and sustainable livelihood for selected vulnerable communities in Southeast Asian Countries

3. Summary of the Team Research Project

This is an integrated research project on community-based disaster risk management topic involving three individual research components in some Southeast Asian countries including Vietnam, Indonesia and Timor-Leste. All proposed individual projects are integrated parts of collaborative research project with broader topic on Community-based Disaster and Risk Management (CDRM), with the main goal is to reduce disaster risk and achieve sustainable living for the community. Each team members proposes different approach for achieving the goals, by which community involvement is the key issue. These individual research projects cover wide ranges of disaster risk assessment such as droughts, floods, typhoons, riverside erosion, etc. and will try to find mitigation and adaptation strategies to support the targeted communities in various sectors such as agriculture, fishery and forestry. The project in Vietnam focuses to enhance participatory risk assessment, community-based and gender focus in resilience and adoption of selected effective agricultural production for targeted sampan dwellers in Thua Thien Hue province, Central Vietnam. Since Climate Smart (CSA) Agriculture has been become a successful tool to build resilience to climate change in many countries, particularly in developing countries, for project in Indonesia, two projects will be supporting highly vulnerable communities in Indonesia i.e. Madura (agriculture sector) and Bali (forestry sector) through Climate Smart Agriculture (CSA) approach. The CSA approach integrates the three dimensions of sustainable development (economic, social and environmental) by jointly addressing food security and climate challenges. The influence of gender to CSA adoption will be investigated as well for the case of Madura community. While in Timor Leste, climate field schools will be implemented to address farmers’ resilience to face unpredictable weather condition while able to increase yield production and family income by reducing failure on rice, maize and vegetables production.

1. Team Name: CHANGE

2. Title of the Team Research Project

Climate change and pathogenicity with emphasized on Vibrio parahaemolyticus causing acute hepatopancreatic necrosis disease (AHPND) in shrimp.

3. Summary of the Team Research Project

Outbreaks of the recently emerging acute hepatopancreatic necrosis disease (AHPND) began in China in 2009 and spread sequentially throughout the respective Southeast Asian countries including Vietnam, Malaysia, Thailand, and Philippines. This outbreaks have caused serious losses for shrimp total productions in which the disease is caused by a specific isolate of the gram-negative bacterium Vibrio parahaemolyticus harboring the unique extrachromosomal plasmid encoded two major toxins (PirA and PirB that induce the cell death) and several uncharacterized virulent-related toxins. This Team’s research project aims to investigate the consequence effect of climate change on the severity of AHPND outbreaks both against the causative agent V. parahaemolyticus (pathogen), shrimp susceptibility (host) and to develop the practical way to solve this outbreak under the laboratory scale. The obtain data will provide not only the knowledge of climate change impacts on the basis of virulence of AHPND- V. parahaemolyticus unique bacteria, the immunity against the disease of shrimp and the preliminary clue to solve or prevent this disease in shrimp but also the early warning or awareness of climate change on the severity of AHPND outbreaks in the future..
1. Team Name:
Chitosan Group

2. Title of the Team Research Project
Utilization of chitosan as a sustainable material for climate change adaptation and mitigation

3. Summary of the Team Research Project
The team project proposes the utilization of chitosan as a sustainable material for climate change adaptation and mitigation (CCHAM). Chitosan is an abundant biopolymer that occurs naturally as chitin which is a major waste product of the seafood industry. It is known for its biocompatibility, biodegradability, biorenewability, and non-toxicity, which makes it ideal for biomedical applications, water filtration, food preservation, and many others. However, the application of chitosan to CCHAM is yet to be fully explored. The team project is composed of three individual member projects, with each member project proposing an innovative material based from chitosan that addresses specific aspects of CCHAM. The member project of Mr. Hau-V. Dong from Vietnam proposes the use of chitosan hydrogels as growth media of seedlings during drought. The hydrogels are expected to improve the resilience of seedlings to drought and reduce the impact of climate change to agriculture. The member project of Mr. Bryan Pajarito from Philippines suggests the application of chitosan-coated porous adsorbents for carbon dioxide capture. The adsorbents are expected to reduce carbon dioxide emissions of power plants. The member project of Ms. Yuni Kusumastuti from Indonesia presents the utilization of chitosan-coated control release fertilizer (CRF) to reduce nitrogen loss and control the release of nutrients to plants. Chitosan-coated CRFs are expected to increase crop yield while reducing emissions of hazardous greenhouse gases. The member project on chitosan hydrogels is dedicated to climate change adaptation, while the member projects on chitosan-coated porous adsorbent and chitosan-coated CRFs are focused on climate change mitigation. Overall, the team project aims to develop chitosan-based materials that will provide significant contribution to the field of CCHAM.

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1. Team Name:
Cliandhh_No1

2. Title of the Team Research Project
Farming system as the adaptation to climate change: Case studies focus on delta region of Cambodia, Myanmar and Vietnam

3. Summary of the Team Research Project
Global climate change poses risks to human and natural systems at a global scale. The rise of sea level, flooding and salt-water intrusion increases pressure on livelihoods and population of the coastal areas, especially Mekong river basin. The saltwater intrusion can reach a large distance from the coastline and affect water use activities in estuaries. Therefore, a better understanding of climate change vulnerability of farm-households and climate change adaptation strategies and adoption of these strategies in the delta areas of Mekong region is becoming necessary to address the increasing level of flooding and saltwater intrusion and its impact of farm households. It is also important for policy makers to comprehend the tendency of adaptation changes, and the barriers to adaptation at farm households level. Farmers’ choice of adaptation decisions might evolve in responding to climate change. To capture this our research group (team members from Cambodia, Myanmar and Vietnam) therefore would like to do research in delta areas of the country and comparative studies on information related to farmers’ choice of climate change adaptation strategies of the past with current measures. After that, the perceptions about the risks introduced by climate change and the barriers related to adaptation will be considered. Finally the determinants related to adaptation decisions will be examined. Moreover, we would like to measure the climate-induced vulnerability of communities or regions in delta areas. In depth knowledge on the vulnerability of farm households, and their adaptive capacity in the delta areas of CMV countries will be presented. Finally, we will formulate the solutions, and recommendations to address the farmers’ choice of climate change adaptation and the farming systems to reduce the negative effects of climate change on delta areas of CMV countries.
1. Team Name: CLIMADAP-SEA

2. Title of the Team Research Project
Climate Change Adaptation Strategies of Selected Upland Farming Communities in Southeast Asia

3. Summary of the Team Research Project
The proposed research project aims to assess the climate change adaptation strategies that are being employed by the farmers in the selected upland farming communities in the Philippines, Vietnam and East Timor. This is in line with the global issue on climate change which are currently being experienced by agriculture or farming sector, particularly in the developing countries mentioned above. This research will investigate whether the upland farming communities have already been experiencing climate change, and look into the field-level evidences and indications of climate change, how they cope and adapt to climate change impacts considering their socioeconomic conditions and the biophysical characteristics of their farms. The research will involve the upland farmers who will be sampled using appropriate sampling method. A combination of data gathering techniques such as farm household survey, field observation and visits, focus group discussion and secondary data gathering to obtain relevant data and information. Qualitative and quantitative data analysis will be done to interpret empirical data and evidences. The proposed research project is a regional collaboration of researchers from the Philippines, Vietnam and East Timor with the aim of promoting exchange and sharing of information and expertise. The research findings will be disseminated via presentation to scientific conferences and seminars, and publication of research articles to appropriate scientific journals.

1. Team Name: CMV_EPACC_2016

2. Title of the Team Research Project
Mainstreaming Effective Climate Resilient Agricultural Technologies and Practices to Enhance Food Security in Cambodia, Myanmar, Vietnam

3. Summary of the Team Research Project
Southeast Asia is highly vulnerable to climate change since a large proportion of its population is concentrated along coastlines, and with livelihoods that rely heavily on agriculture natural resources and forestry (Gunta et al 2014). Hence, negative impacts of climate change become serious threads to the regional food security in ASEAN. To maintain regional food and nutrition security, agriculture system must be resilient to climate change, and it is need to strengthen resilient technologies to reduce negative impacts. For strengthening resilient technologies, it is essential to answer to the questions; (i) which climate resilient agricultural technologies are effectively applying in current situation?, and (ii) how can or do these technologies contribute to the food security by reducing negative impacts? To elucidate these research questions, this study will be conducted with the objective of “to carry out socioeconomic comparison as affected by current climate resilient agricultural technologies, focusing on food security status, in selected ASEAN countries”. As a source of data, both primary and secondary data will be used. Primary Information will be collected through personal interview with stratified random sampling and purposive methods. The farmers suffering climate change impact on farming activities, extension officers who disseminate agricultural technologies related to climate change issue, and agricultural scientists working in those fields, will be considered as key respondents. According to major food producing area in the region which also suffers the negative impacts of climate change, Cambodia, Vietnam and Myanmar will be selected with a total 900 sample respondents. This research will highlight how the current resilient agricultural technologies contribute to the socioeconomic status by maintaining or improving food security level, and which technologies should be scaling up or scaling out.
1. Team Name:

FISH-HEALTH

2. Title of the Team Research Project

Investigation on genetic adaptation and virulence of fish iridovirus, Infectious Spleen Kidney Necrosis Virus (ISKNV), under high ambient temperature and development of molecular control strategy

3. Summary of the Team Research Project

Infectious spleen and kidney necrosis virus (ISKNV) has been classified in Megalocytivirus genus of the family Iridoviridae. The disease outbreaks from this virus caused economic losses, due to mass mortality, in fish industry of China, Japan and South-East Asia. Thermal stress has been proposed to be an environmental trigger for natural disease outbreaks, as it could influence both fish immunity and pathogen invasion and transmission. Therefore, if global warming rises as it has recently been, the effect of high temperature on the fish disease outbreak should be precautious for successful control of disease in aquaculture. Here, we are interested in investigation of genetic adaptation and the resulting pathogenicity of ISKNV at high ambient temperature (33-35 °C). Genetic variation of viral pathogen may occur to elevate its potential for survival as the virus face continuous environmental change. Comparative genomics of ISKNV wildtype and mutants will aid identifying candidate target genes for RNA silencing-based vaccine development. Briefly, ISKNV strains collected from natural disease outbreaks will be cultured in fish cell line (Grunt Fin cells) under the stressful thermal conditions. High temperature-resistant strains will be selected for genome sequencing analysis. Comparative genomics of the viral strains should shed light for developing RNA silencing technology against ISKNV at high ambient temperature. Application of effective vaccine, together with good husbandry, would improve overall fish health for successful and sustainable fish aquaculture.

1. Team Name:

Forest Carbon

2. Title of the Team Research Project


3. Summary of the Team Research Project

The Governments initiative in increasing the forest cover is reducing the income of local people, as they are banned from logging and reducing illegal logging. For instance in compensation, the locals in Vietnam are currently paid 10 US$/ha/year for protection/preservation purposes. In Malaysia, illegal loggers can be fined and face jail term. Such low payment results from no clear knowledge on how much carbon is stored in protected forests. Therefore, quantifying Net Ecosystem Production (NEP) will be supporting basic an income module for locals. If the amount of carbon accumulated in protected natural forests becomes known, then carbon certificates can be issued to them. Forest protectors can market their carbon to CO2 emitters by open negotiations. This study will be carried out in Malaysia, Thailand, and Vietnam aiming at estimating NEP of forests to contribute to REDD+. Plots of 100 m x 100 m will be established and diameter of all stems will be measured annually. In addition, litter traps, soil core collection, and litter bag experiments will be established inside the plot and the data will be collected bi-annually. This research will not only provide the results on carbon sequestration capacity of natural forests in Southeast Asian but also consolidate the method on estimating NEP, as simple as possible to apply in the region, where human resource and technology/equipment are still limited. The final beneficiaries are natural forest protectors. With such knowledge on NEP of their protected forests, they can call for higher payment from CO2 emitters to their efforts on protecting forest.
1. Team Name:

GDPP

2. Title of the Team Research Project

Young scientists: Preparing for the effects of climate change in aquaculture

3. Summary of the Team Research Project

The team proposed a project of investigation of how climate change during two years could affect aquaculture production in some South East Asian Countries; Thailand, Cambodia, Malaysia and the Philippines. Observation via surveying farmers who involve in aquaculture practicing will be done. Assessment of impact by extreme temperature will be done on tilapia hatcheries and grow-out systems. As the climate change affect fish and also pathogen around it, observation of pathogen both bacterial and virus occurrence will be done in fish and shrimp farming in the Philippines. After all data analyzed, solving of climate change problems according to enhance fish’s health during nursing period will be done by using immune stimulated feed for local tilapia production in Thailand. Then challenging test will be done according to type of pathogen found. As these herbs and fruit peel are rich in bioactive compound that would be easily found in local area, this could be considered minimizing waste from aquaculture. Using herbs as immunostimulation would reduce use of chemicals and drugs during growing period providing clean and healthy food for human. Finally, in order to reduce climate change effect by reducing utilization of fish meal, fish oil and other non-sustainable protein sources. A growth trial of tilapia aquaculture will be done in Malaysia using combination of black soldier fly larvae and an underutilized crop to replace non-sustainable protein sources and micronutrient sources, respectively. Application of insect meal could reduce the use of imported soybean meal which means lower fuel consumption and elimination of carbon footprint. The outcome of this project will not only help us to understand situation of climate change in the South East Asian countries but also resulted in a zero waste fish production, low carbon footprint and also help improving local fish farmer livelihood in the countries.

1. Team Name:

Green Energy Smart Farm

2. Title of the Team Research Project

Modeling Optimal Tomato Greenhouse with Incorporation of Solar Energy and Energy Efficiency Technologies

3. Summary of the Team Research Project

Agriculture is the main source of food and livelihood for millions of families across ASEAN. However, this sector is now threatening by climate change. As a result, declining the crop yields including tomato. This climate change has forced farmers in ASEAN to grow tomato in a greenhouse environment to produce a good quality of tomato. The existing greenhouse systems consume a lot of energy and are expensive. Therefore, a low energy smart greenhouse incorporating solar energy and energy efficiency (EE) at optimum cost is needed. The objective of this research is; 1) to model optimal greenhouse for tomato production under the climate of ASEAN considering various envelop and material, solar and EE technologies at minimum cost and maximum energy savings, subjects to greenhouse environment control constraints such as temperature, humidity, lighting and CO2 using energy simulation software, 2) to develop a prototype optimal greenhouse model based on the result obtain from simulation as in objective (1) and a real time web-based energy and environment control monitoring system and algorithm, and 3) to investigate the effect of the optimal greenhouse model on the energy use, cost, climate change and tomato production and quality. Tomato is chosen for the study because it contains good nutritional hence considered as a high value vegetable in ASEAN. Furthermore, tomato is sensitive to disease. The study begins with first modeling the optimal greenhouse using energy simulation software taking into account various combinations of greenhouse envelopes and materials, solar energy and EE technologies at minimum cost and maximum energy savings. Based on the optimum result from the simulation, a prototype optimum model of the greenhouse for tomato production will be developed. Finally, a comprehensive study on the energy savings, cost, climate change and tomato production- growth physiological change, yield, bio-chemical content and fruit quality will be conducted.
1. Team Name:
IK and CC

2. Title of the Team Research Project
Indigenous knowledge and climate change adaptation among ethnic minority groups in the northern mountainous region of Vietnam

3. Summary of the Team Research Project
Vietnam is one of the most vulnerable countries to climate change in the world. The northern mountainous region (NMR) is the home of 31 out of 54 officially recognized ethnic groups in Vietnam, accounting for more than 50% of the total minority population. About 85% of the ethnic minority populations in Vietnam belong to indigenous groups that have been settled in the mountainous regions of the country for many centuries. In the northern region of Vietnam, ethnic minorities or indigenous people are identified as the most vulnerable human populations. However, little is known about how indigenous people are adapting to climate change using their experience and local practices. This study will examine how and in what ways indigenous knowledge is used for adaptation to climate change among ethnic minority people in the northern uplands of Vietnam using a case study of three ethnic groups (Tay, Dao and Hmong). Case study villages will be selected to represent different ethnic groups, different land uses, different resource entitlements, different socio-economic status, and thus different susceptibility and likely responses to climate change impacts. In the NMR, ethnic minority distribution is divided into three sub-regions usually based on elevation. Tay live in the low altitudes; Dao live in the middle altitudes, and Hmong people live in the highest altitudes. The general objective of the study is to identify, document, and analyze indigenous knowledge of the Tay, Dao and Hmong people in the NMR relevant to climate change adaptation and to understand how it could be used in adaptation planning. The study will provide insights into how different ethnic group living in different landscapes are adapting to climate change, and provide recommendations for the government's climate change policy. Data will be collected using participatory, “bottom-up” methods.

1. Team Name:
PaIMA-Asia

2. Title of the Team Research Project
Climate Change Mitigation, Impact and Adaptation Concerning Palm Oil Development in Indonesia and Myanmar

3. Summary of the Team Research Project
Our team will focus on climate change mitigation, impact and adaptation concerning palm oil development in Indonesia and Myanmar. Indonesia collaborators focus on carbon emission mitigation options from land uses and mills. Expansion of oil palm plantations have deforested and converted peatlands. Effective land use planning is important, and we will investigate how this can be done in participatory ways at local levels (province, regencies, companies and smallholder participation). This result will be upscale to national level carbon emission (mitigation) by scenario analysis from 2015 to 2050. Mills produces palm oil and some waste becoming the sources of CH4 emission. We will investigate feasibility of policies and technical options to mitigate CH4 emission from EFB and POME by respectively utilization of EFB to feed livestock and CH4 capture to produce electricity by case studies. The case studies are up-scaled to national level carbon emission mitigation. Myanmar is vulnerable to the increase of the temperature and rainfall variability with higher frequency and intensity of rainfall. Agricultural conversion and extensive land expansion aiming to improve the edible oil productivity, therefore, accelerates the environmental degradation. Unsustainable palm oil production was compounded by mis management and increasing climate change. In this regard, we observe the effects of climate change on palm oil yield, crop production system of oil palm smallholders, farm level adaptation measures and factors influencing on adoption of adaptation practices, farmers' perception on environmental degradation and biodiversity losses due to oil palm plantations, and policy modeling to trade-off between oil palm development and environmental degradation.
1. Team Name:
Renewable Energy

2. Title of the Team Research Project
Development of Renewable Energy from Rice Husk to Mitigate Effects of Climate Change

3. Summary of the Team Research Project
Rice husk is an abundant source of biomass that can be used for production of renewable energy to help mitigate climate change. Millions of tons of rice husks are generated annually in Southeast Asia. Rice husks are traditionally burned in the field or dumped in land fill sites. The burning results in the loss of the energy equivalent to millions of barrels of oil to the atmosphere. Clearly, the disposal of rice husks not only waste tremendous amount of energy but contribute to air pollution. An alternative utilization of rice husks is feedstock for the production of biofuel (e.g., fuel pellets, syngas, biogas, etc.). However, rice husks contain high levels of ash and alkali metals that could lead to deposit formation in boilers and furnaces during thermal conversion of solid and liquid fuels. These limitations make rice husk combustion and ash disposal a potential problem. However, these challenges can be resolved by use of efficient combustion technologies, feedstock pre-treatment and use of additives and catalysts to mitigate ash related problems. The present project proposal aims to investigate the use of rice husk as feedstock in the production of clean renewable energy. Specifically, alternative conversion technologies including hydrothermal carbonization, catalytic fast pyrolysis and anaerobic digestion will be used to improve fuel properties of rice husk. Lastly, a comparative economic analysis and environmental impact assessment using life cycle analysis (LCA) of the three conversion technologies will be used to compare the economics and potential climate change mitigation potential of each method. Successful implementation of the project could help stimulate interest on the use of rice husk for bioenergy production in ASEAN member countries.

1. Team Name:
TERRA

2. Title of the Team Research Project
Climate change impact assessment and adaptation practices in fishing communities of wetlands in three (3) Asian countries

3. Summary of the Team Research Project
Climate change has been a serious agenda all throughout the world. Due to its impacts which could be life threatening and disastrous in many areas around the globe, this creates an alarming call for many policymakers and stakeholders. Wetlands which are vital to humanity and the species that depend on their biodiversity suffer adverse impacts from climate change. These species must adapt or migrate to areas with more favorable conditions to survive, or suffer losses. Further, wetlands also face threats and development pressures from humanity and environmental pollution. Wetlands are one of the world’s most important environmental assets but has been underestimated in its role in both carbon storage and regulation of greenhouse gas emissions. Other than regulation services, wetlands also offer provisioning, supporting, and cultural services. Unfortunately, globally, wetlands and their resources are undervalued which then compromised their financial and economic equity, efficiency and sustainability. Wetlands services are often perceived in terms of uses that yield economic benefits (visible and immediate). More often, the poor communities that rely on wetlands services for their livelihood and daily lives are marginalised since some non-marketed values are not included in decision-making. Aside from need for valuation of wetland ecosystem services, it is important that the socio-economic vulnerability of local communities, specially the fishing communities, be assessed. Social and economics benefits of fishing household from wetlands resources must be estimated, capital assets assessed and demographic resilience of communities identified. Climate Change will only add to the problems of governance in small-scale fisheries as wetlands ecosystem productivity decreases and with the growing need to mainstream local and community owned adaptation practices and solution as a response to climate change. Researches to document local livelihood adaptation best practices and provide community-owned policy options will help fisherfolk community include their knowledge, needs, and agenda into development priorities and policies. Identifying sustainability of local fisheries livelihood adaptation practices in a future dictated by climate change will provide policy makers with an opportunity to include funding for such context.