Towards a Unified Knowledge Sharing in Agriculture and Fisheries through e-Extension

ASEAN ICT EXCHANGE VISIT PROGRAMME

September 22 to October 1, 2013, Philippines

The Philippine Department of Agriculture through the Agricultural Training Institute (ATI) hosted this year’s “ASEAN ICT Exchange Visit Programme” as one of its commitment to the Association of Southeast Asian Nation (ASEAN) Sectoral Working Group on Agricultural Training and Extension (AWGATE). The activity aimed to share their experience in ICT in agriculture extension, as well as establish a network in the area of e-extension services. It served as a venue of promoting a sense of unity and cooperation among ASEAN members and the Philippines as well as an opportunity for knowledge sharing and in establishing a community of practice for e-extension in the ASEAN region.

There were 16 delegates who participated in the activity representing Malaysia (two representatives), Indonesia (two representatives), Thailand (two representatives) and Philippines (seven representatives), all working for the national government and local governments in their respective countries.

September 22, 2013

Arrival of Participants in Manila, Philippines

September 23, 2013

This day served as the opening ceremony and presentation of the country papers of the participating the countries. The ceremony kicked-off with a group dynamic that served as a getting to know venue for the participants and the training management team. As welcome remarks, Ms Antonieta J. Arceo, Officer-in-Charge /Chief of the ATI-Knowledge Products Management
Division went over some of the activities in store for the whole program and highlighted the mutual learning through knowledge sharing while having fun within the process.

Dr. Evelyn Aro-Esquejo, ATI’s Deputy Director, delivered an inspirational message to the participants. Dr. Esquejo first recognized the current problems that agriculture is facing nowadays – from the shortage to the urban sprawl that affects agriculture. She noted that there is a call for a new approach on the problems of agriculture; as such ICT is of utmost importance. She also highlighted the current milestones of ICT in the area of agriculture – empowerment, interaction in a larger network, access to credit among others. ICT’s contribution highlight is its milestone in the area of e-extension – which the Philippines takes pride of.

Before formally starting the activities scheduled in the afternoon, a briefing orientation on the ASEAN Exchange Visit Programme was delivered by Ms. Pamela G. Mappala, ATI’s Media Production Specialist III.

A levelling of expectations was facilitated by Ms. Maria Theresa Villanueva of ATI-Regional Training Center III for the course, resource persons, training management team, co-participants, food, accommodation and activities/field trips. The participants expressed their courses expectations on having an expanding horizons on knowledge on ICT, especially in the utility of the learnings to be gained in the course – its implications on their context of need and potential for re-echo in their places. Resource speakers were generally expected to be knowledgeable on their specific expertise, as well as have a rapport with the participants (being accommodating and with a sense of humor). Being a good host (an accommodating, helpful) was the expectation for the whole training management team. Participants agreed on the idea of having a participatory environment and an open venue for conversation and sharing as an expectation for every participant in the activity. For the last bit, food, accommodation and field trips, the participants expected that the food would be delicious and nutritious, and the field trips as a venue for learning folk wisdom.

The afternoon session was opened with the a presentation on the ATI Extension Programs and Activities delivered by Ms. Antonieta J. Arceo in behalf of Dr. Vilma A. Patindol, Officer-in-Charge Chief, Extension Governance and Policy Division. The presentation highlights were:

1. The Philippine e-Extension Program has three components, e-Farming, e-Learning and e-Trading. Of these three components only the e-Trading component is not yet in place since the ATI has a long way to go in terms of mobilizing partners, creating content, and do the exact electronic trading.

   e-Farming and e-Learning are already in place, e-Farming focuses on the provision of farm and market related information services through the Farmers Contact Center.
E-Learning, on the other hand, is on the online and blended certificate courses, digital learning resources that can be downloaded, or accessed through the e-Learning portal (www.e-extension.gov.ph). ATI currently offers 33 online courses on various commodities and social technologies.

2. The e-learning currently has 15,776 users, 80% of which are extension workers, following the concept of multiplier effect in agricultural extension. Interestingly, 12% of these are those involved in farming who are information seekers while 8% are retired or overseas Filipino workers who have the capital and the drive to invest in agriculture but lacks the knowledge of how to do it.

3. The Farmer’s Contact Center (FCC) is established as a support center for the clients of the Philippine Department of Agriculture to deliver farm and business advisory services through the use of the latest mode of communication -- voice (call) and short messaging system (text) as well as as well as online communication like chat, online fora and email. Some of the topics covered in the FCC are Agriculture and Fisheries Technologies, Agricultural Marketing, Pests and Diseases Management, DA Programs and Services and e-Learning Concerns.

4. e-Extension also expanded its presence in the social networking sites (Twitter and Facebook) and optimized its online presence in Google searches.

Country Paper Presentations

The participants presented their country papers based on their experiences in their respective areas.

1. Indonesia

A. Marine and Fisheries Extension in Indonesia

Dr. O.D. Soebhakti Hasan, Lecturer, Fisheries University, Agency for Marine and Fisheries Human Resources Development in Jakarta, Indonesia presented a country paper highlighting the following points:

1. An overview of the AMFHRD background, mission and vision, duties, functions and responsibilities. AMFHRD focuses on formulating, analyzing, and implementing the policy of fisheries and human resources development and education management, training and fisheries extension program. They conduct education, training, and marine and fisheries extension to improve the competency of marine and fisheries human resources.

2. AMFHRD has the following programs:

   a. Community College - education center in a form of home schooling that is aimed for fishermen’s children who dropped their school. At the end of the program, participants earn a certificate.

   b. Marine and Fisheries Training Center – there are five Fisheries Education and Training Centers (UFET) and Personnel Training Center (BDA) under
AMFHRD: (1) Belawan UFET, Medan, (2) Tegal UFET, Central Java, (3) Banyuwangi UFET, East Java, (4) Aertembaga UFET, North Sulawesi, (5) Ambon UFET, Maluku. Participants in these trainings vary from government agencies, fishermen, farmers, and producers and other public communities.

c. P2MKP - The communities are to take part in the community-based training institutions, namely Independent Marine and Fisheries Training Center, referred to the Regulation of Minister of Marine Affairs and Fisheries number PER.01/MEN/2011 concerning establishment and development of P2MKP.

d. Information and Communication Facilities

i. PLIK dan MPLIK - Sub-District Internet Service Center (PLIK) and Sub-District Mobile Internet Center (MLIK) are initialized by Ministry of Communications and Information Technology to build internet network that can be used to spread marine and fisheries information throughout rural areas.

ii. SMS Gateway - direct information report given by extension instructors related to their areas.

iii. RAPIKAN (Radio Penyuluhan Industrialisasi Kelautan dan Perikanan) - part of Extension Multimedia Laboratory and airs on 107.6 FM.

iv. SIMLUHKP (Sistem Informasi Manajemen Penyuluhan Kelautan dan Perikanan) - The Marine and Fisheries Extension Center has created an information system application for Marine and Fisheries Extension that can be used by government institutional extension.

B. Agricultural Extension in Indonesia

Mr. Yusuf Darwin, ST, technical staff on Cyber Extension, Bureau of Agricultural Extension and Ms. Inang Sariati, S.Pt. MM, extension worker, Bureau of Agricultural Extension presented the agricultural extension in Indonesia, to wit:

1. Indonesia is an archipelago comprising of approximately 17,508 islands. The total land area is estimated about 1.92 millions square kilometers stretching for 5,150 kilometers between the Australia and Asian Continental mainland and dividing the Pacific and Indian Oceans at the Equator. The Republic consists of 33 provinces, 498 districts with more than 742 native languages and based on the statistic data of year 2010, population of Indonesia has reached 238 million. Indonesia has two seasons: rainy and dry. Agriculture (food crops, horticulture, estate crops and livestock) still remains the core for rural household in Indonesia.

2. Indonesia’s Agriculture Development program presented its four main targets: (1) achieving and sustainability of food self-sufficiency; (2) enhancing food diversification; (3) increasing added value, competitiveness and exports; and (4) improving farmers’ welfare.
3. General Condition of Agricultural Extension covers the current baseline conditions of the agricultural extension program in the country in terms of extension workers and farmers and farmer institution conditions.

4. Strategic policy and program were developed alongside the targets of the country’s agriculture development with five programs, namely Extension Institution Development; Extension Manpower Development; Farmer Institution Empowerment; Optimizing Extension Implementation Arrangement; and Improving Provision Support To Extension Facilities and Financial.

5. Some of the achievements and lessons learned in the sector: improvement in the capacity of village farmer group association in developing agribusiness; implementation of a farmer managed extension; a strengthening ties with the public-private sectors; and technology dissemination forming linkages among extension workers, researchers and farmers.

6. Cyber extension in Indonesia comprises of development of information systems and software development at the central level; provision of education materials; Procurement of computers for Hall Extension (BP3K), Bapeluh and Bakorluh; Appreciation for admin operator at the central, provincial (BPTP) and district-level user operator.

2. Thailand

Mrs. Siriwan Wungdee, Chief of Training Technology Development Group, Bureau of Technology Transfer Development and Mr. Pornchai Turach, Statistician, Professional Level, Information Center presented the Knowledge Transfer for Officers And Farmers By Department Of Agriculture Extension in Thailand. The main points presented were as follows:

- Thailand has 77 provinces 882 districts with a population of 65.98 million people. It has a crop area of 513,115 sq km and its agricultural products are rice, cassava (manioc), rubber, corn, sugarcane, coconuts, soybeans. There are 6.79 million farmers in Thailand – thus its claim that the country’s main occupation is a farmer.

- The Department of Agricultural Extension is one of the 14 departments under the Ministry of Agriculture and Cooperatives.

- There are six scopes in the knowledge Transfer by e-Learning for Agricultural Extension Officers namely: (1) Farm management; (2) Optimizing crop production; (3) Knowledge management; (4) Communication for Agricultural Extension; (5) Sufficiency Economy; and (6) Agricultural Extension techniques.

- Their model of e-Learning comprises of two parts: (1) produce e-Learning (which encompasses the content, design course, design media and lesson learning) and (2) online system (upload to website, open course online, take care/help and report online).

3. Malaysia

Mr. Ishak Pandak, Deputy Director, Technology and Information Management Unit, Planning and ICT Division, Department of Agriculture and Mr. Akramin Abdullah, Assistant
to the Director, Extension Section, Agricultural and Agro-based Industries presented the agricultural development in Malaysia, to wit:

- The agriculture sector in Malaysia has a total land area of 33 million hectares, where 20% of the total area or about 6.6 million hectares are agricultural areas.
- Industrial crops include oil palm, rubber, cocoa, tobacco and pepper and occupy about 77% of total agricultural land. Other crops are paddy, fruits, vegetables and coconut which cover 16% of total agricultural land.
- The agricultural sector in Malaysia is divided into two: Estate sub-sector (holdings more than 100 acres) and Smallholders' sub-sector (average farm size is about 1.45 ha and owned by individual farmers).
- Farmers’ Profile: Total Number of Farmers: approximately 1 million
- Farm Accreditation Scheme Malaysia (SALM) is a certification programme that gives recognition to growers who cultivate their crop plants according to the criteria/requirements spelt out in the Malaysian Standard MS 1529: 2001.

4. **Philippines**

A. **Agricultural Extension System**

Mr. Dennis Boyd Baltazar, e-Extension Coordinator, ATI-Regional Training Center VIII presented the status of agricultural extension in the Philippines, highlighting the following points:

- The Philippines has 16 Regions, 82 Provinces, 135 Cities, and 1,493 Municipalities, with a total population of 96.71 Million as of 2012 statistical data. The total land area is about 299,404 square kilometres and the agricultural area as of 2012 is comprised of the following: rice - 4,689,960 hectares; corn - 2,593,824.50 hectares; other crops - 6,556,746 hectares.
- Agricultural Extension System in the Philippines was based mainly on the establishment of the Agricultural Training Institute. ATI focuses on four components: (1) extension governance and policy which is aimed to develop an integrated national extension policy and agenda for agriculture and fisheries; (2) knowledge management for pre-testing and packaging technology-based knowledge products and the establishment of agriculture and fisheries knowledge centers in all regions of the country; (3) agricultural extension innovations and trainings which could be commodity-based courses, social technology courses, and agribusiness entrepreneurship courses; and (4) partnerships not only with other Department of Agriculture agencies (such as the Bureau of Soils and Water Management, the subject of this paper) for the implementation of the capability component of its national food, fiber, and energy production projects but also with local government units, non-government agencies, state colleges and universities, and other stakeholders for their specific extension requirements.
- ICT-supported extension activities comprised of:
  a. e-Learning – (online course and School-on-the Air) extension workers at the local government units agriculture students in State Colleges and Universities retirees and overseas contract workers
  b. e-Farming – composed of these services: Farmers’ Contact Center, NMRice and Techno Gabay Program
• TechnoGabay program provides a framework for more effective and sustainable strategy for bringing the needed information and technologies to the countryside. It aims to provide information and technology services in agriculture and strengthen the link among the technology generators, serves and adopters. It also aims to complement the local government units’ efforts in information delivery and technology services.

• The Farmers Information and Technology Services (FITS) is a delivery system conceptualized and established to improve access of farmers, traders, processors, entrepreneurs and other stakeholders to information and technology services. FITS provides information services (IEC materials, internet access, exhibits of new technologies, products and services) and technology services (training, technical assistance linking clients to experts).

B. Local Government Unit Extension System

Ms. Nenita D. Campo, Municipal Agriculturist and Manager of the Farmers’ Information Technology Services (FITS) Center in R.T. Romualdez, Agusan del Norte presented the local implementation of extension system in the province of Agusan del Norte.

From the Caraga Region of the Philippines, Agusan del Norte is a congressional district with a total population of 14,976. The income classification is fifth class with 1,997 farmers (in programmed areas) and a total land area of 8,147.046 hectares.

• The primary goal of the Sustainable Organic Farming Technology Systems (SOFTs) is to optimize utilization of human & natural resources in promoting Sustainable Agriculture & Development through Organic Farming System Approach.
  a. Current ICT-supported extension activities include the establishment of Rice FITS Center in R.T. Romualdez, Agusan del Norte through the assistance of Department of Science and Technology’s PCARRD & CCARRD
  b. Municipal Agriculture and Fishery Information Center (MAFIC) is the new home of RTR Rice FITS Center
  c. Conducted Computer Literacy Training for Farmers

As a conclusion for the day’s activities, a fellowship night was held for the participants.

September 24, 2013
Knowledge Sharing Presentations
The session was started off with an energizer led by the day’s host team as well as a recapitulation of what transpired previously.

Knowledge Management Initiatives for Agriculture and Fisheries Extension
Dr. Alexander G. Flor, a knowledge management (KM) expert and a professor at the University of the Philippines Open University, discussed the topic on KM initiatives for A&F extension. He briefly described the differences and similarities of extension services in Indonesia, Malaysia, Philippines, and Thailand during the 80’s and 90’s wherein extension is very strong during the earlier period then it was devolved or decentralized later, except for Thailand.

He further talked about the new farmer – a professional farmer who makes use of innovations; new extension worker – a link between the new farmers and services and new technologies; and the new age – the information age where the most important resource is knowledge.

Data, information, and knowledge were also differentiated. Dr. O.D Subhakti Hasan from Thailand defines data as unprocessed information such that after managing data, the output becomes information. Dr. Hasan then explained that knowledge is how the information is applied and utilized.

Further tackled during Dr. Flor’s presentation was knowledge management (KM) and its goal. Dr. Flor stated that in a nutshell, sharing and reuse of information bases is what KM is all about. This is where the use of information communication technologies (ICTs) comes in. Dr. Flor then cited some examples of KM programs and projects based on his experience. These include: the Poor Farmers’ Income Improvement through Innovation (PFI3) in Indonesia; Weather-Rice-Nutrient Integrated Decision Support System (WeRise) of the International Rice Research Institute (IRRI), a decision-support tool for climate change adaptation in rainfed rice areas that makes use of mobile phones, specifically with Android OS; and the E-agriculture, a global community that facilitates dialogue and resources on the use of ICTs towards a sustainable agriculture and rural development that may be accessed at www.e-agriculture.org; among others.

**ICT-based Solutions for Agricultural Extension**

Mr. Jose Rey Y. Alo, e-Learning process adviser, covered the topic on ICTs in extension. He talked about mobile phones’ usage (statistics on ownership in the Philippines as well as in other Asian countries), kinds (cellular phone, fablet, tablet, likewise smart phones versus featured phones), as well as platforms (iOS, Blackberry, Android, and Windows), among others.

He also discussed the functions of extension, namely: linking producers/farmers to markets; raise awareness of opportunities; provide technical information, demonstrate or train; diagnose problems and recommend solutions; respond to follow up questions raised by clients; provide mass advisories; facilitate access to credit and inputs; assist with business planning; conduct surveys, enumerations, or monitoring and evaluation; and knowledge management.

Mr. Alo also presented ICT options in relation to extension functions. Some of these options include: radio and other audio; television and videos; cell phones; smart devices (applications and...
internet); computers and internet; and augmented reality. Since augmented reality is a new ICT technology that is not yet widely utilized, he expounded it by showing examples and videos on TouchCode, uBleam, Blippar, and PopCode.

Furthermore, Mr. Alo noted the e-Learning component of the Philippine e-Extension Program. He said that it will soon evolve into M-Learning or multi-device learning since he has been working on making the website and online courses compatible or viewable in mobile devices.

Exports Showroom, Agribusiness Development Center

The group dropped by the Exports Showroom of the Agribusiness Development Center (ADC) in the Philippine Department of Agriculture's central office in Diliman, Quezon City. Ms. Minky M. Alba the General Manager of ADC showed the participants around, briefly describing the various local agriculture and fisheries products displayed. She asserted that the ADC supports agri-fishery based producers and enterprises by providing effective marketing and promotion as well as technical services, hence, the showroom.

Philippine e-Extension Program for Agriculture and Fisheries

The e-Extension Program for Agriculture and Fisheries of the Philippine Department of Agriculture was presented by Ms. Antonieta J. Arceo, Chief of the Knowledge Products Management Division of the ATI Central Office.

Ms. Arceo described e-Extension as the electronic delivery of extension services of the network of institutions that provide a more efficient alternative to traditional extension system. She added that it maximizes the use of ICT to create an interactive bridge among the stakeholders and
enhance face-to-face and paper-based interaction in order to attain a modernized agriculture and fisheries sector.

She then elaborated on the three components of the program – e-Learning, e-Farming, and e-Trading. Ms. Arceo also showed the e-Extension portal, Facebook page, and Twitter account as well as the e-Learning website. She discussed the features and services of the various components, to wit:

- **e-Learning** offers online certificate courses and digital learning resources on crops, livestock and poultry, fisheries, social technology, and sustainable agriculture. An online course comprises modules, lessons, self-assessment questions and activities, and graded end-of-module tests;
- **e-Farming** delivers farm and business advisories through the Farmers’ Contact Center or FCC. It also provides technology and agri-marketing assistance to farmers, extension workers and agri-entrepreneurs in collaboration with the various agencies of the DA, LGUs, SUCs and stakeholders in extension. The FCC entertains queries sent through call, SMS, email, online fora, etc. via its hotlines; and
- **e-Trading** offers agri-marketing assistance and linkage among farmers, producers, buyers, etc. However, this component is not yet in place since mobilization and creation of content is still on-going.

Ms. Arceo also discussed how the e-Extension Program is being promoted in the country, the experiences or lessons learned during the development and implementation, and some action plans. She emphasized that the program’s strength is building capabilities of implementers and the stakeholders.

Part of the topic on the Philippine e-Extension Program is a visit on the FCC wherein the participants were able to meet and greet the Agents who are all licensed Agriculturists. The participants also witnessed how the center is operated. The FCC Agents showed the platform or system utilized by the center; examples of queries they received; how they answer calls and SMS; and data on the number of queries received on a monthly basis, among others.

**September 25, 2013**
**Field Learning Visit: Southern Luzon**

1. **Riceworld Museum and Learning Center, International Rice Research Institute**

Ms. Bea Martinez of International Rice Research Institute welcomed the group and presented a video presentation on the “Rice Science for a Better World.”

Mr. Julian Lapitan, Senior Manager of National Programs Relations of IRRI, discussed the thrusts and programs of the organization that aims to contribute greatly to the farmers and other clients and noted the following:

- IRRI’s mission is to reduce poverty, improve health of Rice farmers and consumers, ensure environmental sustainability through collaborative research, partnership and strengthening of national agricultural research and extension systems.
➢ Rice is grown in all countries, except in extreme cold places, can grow as high as 3000 meter above sea level, can grow in tropical and temperate climates like in the Middle East which produces beautiful rice crops.
➢ Around 90% in Asia produced and consumed rice as well. Of the 200 million farmers, 2 million are rice farmers.
➢ IRRI is testing a new variety of rice named Golden Rice.
➢ Filipinos eat on an average of 100 to 130 kilogram of rice per person every year while Brunei Darussalam consumes 245 kilogram of rice per person every year.
➢ From being a dependent country to becoming independent and now seeking interdependency to secure food production. No country stands alone, one must work together, develop technology acceptable to other countries from the poorest to the urbanized country.
➢ IRRI has developed different varieties to address the calamities encountered such as doughts, flooding, among others. In this case, IRRI, IRRI developed a saline-tolerant and typhoon-tolerant rice variety called Submarine.
➢ IRRI’s concern is also human capacity development. Not only farmers are aging, but technologies as well as it will not sit in well with economic growth.

2. Rice Knowledge Bank, IRRI

Ms. Katherine Nelson, Consultant/Extension Communication Specialist-Training Center of IRRI, discussed the Rice Knowledge Bank (www.knowledgebank.irri.org) and noted the following:

➢ Shows lack of extension workers, lack of communication (living far from each other) so there is limited forms of research outputs
➢ RKB uses many modules on different subjects such as use of ICT, information package, audio tips, actionable SMS clips, “How to” video clips, printable fact sheets, brochures, posters, stickers, APPS available off-line on mobile phones and tablets from seeds to marketing
➢ Has 15 country partners owned and operated under national authority
➢ Has to translate all information on rice in different languages
➢ RKB on partnership: to deliver impact from research
Open Forum

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<tr>
<th>Questions</th>
<th>Answers</th>
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<tbody>
<tr>
<td>1. Mr. Ishak Pandak (Malaysia): How is the presentation design okay for computers?</td>
<td>Materials designed through PDF from most used to least used subjects format, no content for e-Learning site yet, ATI office will spearhead this site</td>
</tr>
<tr>
<td>2. Mr. Joeven Calasagsag of ATI (Philippines): Does RKB carry offline data?</td>
<td>No. The system is still being enhanced and updated.</td>
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3. Cybervillage in Barangay Bangka-bangka, Victoria, Laguna

The group visited the cybervillage established by IRRI in Barangay Bangka-bangka, Victoria, Laguna. The site was coordinated by Ms. Marianne de Luna while Mr. Benedict A. Pamatmat of IRRI presented the conceptual framework of the Cybervillage Project, also known as “Enhancing Knowledge Exchange and Decision Making among Rice Stakeholders through the Development and Promotion of Location-Specific Rice Knowledge Products and Delivery Systems.” The project started in October 2010 and extended in 2013 with the ultimate goal of improving the farmers’ productivity.

Barangay Bangka-bangka is one of the pilot sites for the cybervillage project where some ICT solutions were introduced such as the Nutrient Manager for Rice (NMRice) applications. Ms. Apple Suplido presented the NMRice and demonstrated how it works. Ms. Suplido noted that in the first semester of 2013, about 1,954 farmers were serviced by the NMRice.

Ms. Suplido likewise mentioned that the use of Pinoy Rice Knowledge Bank developed by the Philippine Rice Research Institute is also being introduced to the residents of the cybervillages.

Mr. Casiano Estrella, farmer-leader of Barangay Bangka-bangka, Victoria, Laguna showed their cybervillage office to the group together with his co-farmers from the village – Ms. Mercy Esguerra, Ms. Gina Oquendo, Mr. Leonardo Araneta.

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<tr>
<td>1. Mr. Ishak Pandak of Malaysia: What is the recommendation of the system?</td>
<td>Application of fertilizer adjust specifically depends on the area, if manage properly produce good yield</td>
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September 26, 2013
Field Learning Visits: Northern Luzon
1. **Philippine Rice Research Institute**

The group was gathered for an initial briefing on the background of PhilRice (through a video presentation) and a presentation on the IT Services of PhilRice delivered by Marlon Brando, the study leader of the Management of Databases and IT Based Exposed Services of the Development Communication Division of PhilRice. His presentation highlighted the IT cased modalities used by PhilRice such as web conferencing, digital knowledge resources (in the form of CD's, videos, among others), Pinoy Farmer’s Text Center and websites (OPAPA and Databases, Social networking sites PalayChikahan and opapacybercom.groups, E-learning and the Pinoy Rice Knowledge Bank).

After lunch, the group gathered again for a tour of some of the laboratories in PhilRice. Another briefing commenced with a presentation on PhilRice Information Systems Division (ISD) by Jovino Lopez de Dios, head of Information Systems Division at PhilRice. The presentation highlighted its core (its mission, vision, objectives and strategies) and the programs that they developed alongside this core. Its programs are guided by the objectives of increasing PhilRice’s online presence, technical capacity and realizing potential of IT in building up RiceAg IS. Projects are not limited within the division, but there are a lot of projects that had collaborations with other institutions. The division maintains the following general ICT maintenance and improvements: email services, network infrastructure improvements in central station, Database system and server improvements (online database, map and web Servers), Client or Work station, LAN Management and network improvements for PhilRice Stations, Rescheduling of internet connections for efficiency and security, Telephone Communication System, System Security, and Incident Reporting and documentation.

2. **Philippine Carabao Center**

The next stop was the Philippine Carabao Center (PCC) at Muñoz, Nueva Ecija. The group was first oriented in their mini-theatre about the background, mission, vision, objectives, and services of the center. PCC is an attached agency of the Department of Agriculture and has 13 regional centers all over the Philippines. After the orientation, the group was toured on PCC’s carabao farm, milking station and gene pool.

The tour was the last activity for the day. Participants and the training management team settled at the PCC Hostel for the night.
September 27, 2013
Field Learning Visit: ATI-Regional Training Center in Cordillera Administrative Region (ATI-RTC CAR)

The group was welcomed by the staff of the ATI-RTC CAR, as facilitated by Mr. Maximino Aromin, Jr., designated e-Extension Coordinator of the Center. The briefing started with a video presentation about the region that tackles the geographic location, tourism, livelihood, transport and economic aspects of CAR, highlighting the following:

- The region was named after the Cordillera mountain ranges that surround the provinces of the region. It is located in the northern part of Luzon, with six provinces -- namely Abra, Apayao, Kalinga, Ifugao, Benguet and Mt. Province. Baguio City is the region’s capital also known as the summer capital of the Philippines.
- Known as the Salad Bowl of the Philippines, Cordillera is a rich source of fruits and vegetables like mangoes in Abra, strawberry in Benguet, coffee and citrus fruits from kalinga, cassava from Apayao, highland vegetables from Ifugao and Mt. Province and other crops rarely found anywhere else in the country.
- Investments in food processing, packaging and post-harvest services and facilities are welcomed in the region. Other industries in the region include cut flowers, organically grown rice and processed fruits.
- The region has focused on light to medium manufacturing industries which preserved age-old practices and traditional means of livelihood.
- The region is home to world famous Banaue Rice terraces as well as to Mt. Data and Mt. Pulag.

Briefing on the Programs and Services of ATI-RTC CAR

Dr. Arlene L. Flores, Center Director of ATI-RTC CAR briefed the participants on the various programs and services that the Center offers. ATI-RTC CAR is one of the 16 regional training centers of ATI and covers six provinces in the region namely: Benguet, Ifugao, Mt. Province, Kalinga, Abra and Apayao.

Dr. Flores presented the different programs of ATI-RTC CAR as follows:

1. Knowledge Management
   - This program focuses on the center’s initiative on knowledge products management that includes Knowledge Systems (ICT Services), e-Extension Program, Knowledge Products Development, Knowledge Network, Corporate Communication and the Techno Gabay Program.
   - The Knowledge Systems (ICT Services) comprise of the databases that ATI-RTC CAR maintains as well as the web contents that they upload. On the other hand,
Dr. Flores explained that under the Philippine e-Extension Program, ATI-RTC CAR developed and administered its first e-Learning course on Arabica Coffee Production. Likewise, Dr. Flores presented the results of the e-Learning evaluation on Arabica Coffee Production conducted by one of her staff showing a very satisfactory rating.

- ATI-RTC CAR also develops and distributes Information Education and Communication (IEC) materials as well as corporate communication materials for its clienteles. As one of the components of Techno Gabay Program the Farmers Information and Technology Service (FITS) Center also distributes IEC materials to clienteles.

2. Training and extension education support

- ATI-RTC CAR provides training and extension support to its clienteles such as commodity-based technologies, institutional capability development/social technology, special concern trainings as well as training programs that are designed by clientele level.
- As support to their training activities ATI-RTC CAR conducts Techno-Demo & Extension Projects.
- The provision of technical information and assistance to Rural Based Organizations (RBOs), farmers, Agricultural Extension Workers (AEWs) and walk-ins clients is part of ATI-RTC CAR’s extension support.
- For the educational support component, Dr. Flores said that ATI-RTC CAR provides scholarships to DA staff as well as to students who are taking agriculture courses.

3. Extension Program and Partnership

- To advance the extension delivery to its clienteles, ATI-RTC CAR has enhanced its partnership and linkages with the different agencies related to agriculture.
- ATI-RTC CAR outsources some of their training programs through the accreditation of Extension Service Providers (ESP).

4. Innovations

- Some of the innovations that ATI-RTC CAR has introduced are development of Learning Sites, Schools for Practical Agriculture (SPA), Agri-tecture, Farm Tourism, Ladderized Course on Agricultural Entrepreneurship

5. Planning, Monitoring and Evaluation

- ATI-RTC CAR conducts both corporate and extension system level of planning, monitoring and evaluation.
- In terms of extension system, ATI-RTC CAR has conducted monitoring of agricultural extension & training interventions and impact evaluation studies on agricultural extension and training.

Open Forum:
An open forum ensued where Dr. Flores answered questions from the participants. The table below shows the issues and recommendations during the open forum:

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<tr>
<th>Issues</th>
<th>Recommendations</th>
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<tr>
<td>How will the programs of ATI-CAR be</td>
<td>ATI-CAR will not be affected by the</td>
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affected after the Rationalization Plan is implemented? | Rationalization Plan (Rat Plan) because it is the only training center in the region. Since ATI-CAR is undermanned, the Rat Plan will actually benefit the Center since it will allow us to hire additional staff.

The Programs of ATI-CAR does not include anything on Fisheries | Under the Department of Agriculture, the Bureau of Fisheries and Aquatic Resources (BFAR) handles the programs on fisheries but ATI-CAR works and coordinate with them.

How many extension workers are there in the region? | There are 646 extension workers in the region, a ratio of 1 extension worker for every 250 clients.

What are the roles of extension workers? | They do everything from conduct of training, techno demo and extension visits.

After the training, how do you evaluate your clienteles? | After the training we start monitoring our clienteles and then we evaluate the action plans that they have submitted. We checked if they have indeed implemented their action plans. ATI-CAR also provides financial assistance to our training graduates. Once a year, we outsource the conduct of impact evaluations on our training programs.

**September 28, 2013**

**Consolidation Workshop and Action Planning Workshop**

A consolidation workshop on field learning observations was conducted and facilitated by Ms. Antonieta J. Arceo of ATI. The participants were grouped into three and categorized their observations according to the See, Think and Feel categories:

The See category comprised of the inputs from all the activities done for the past few days. Think and Feel categories are processed with their own perceptions of the inputs from all the activities. This activity became a warm up for the action planning in the afternoon.

In general, the three groups identified things under what they see as something different, something that augments the current knowledge on a certain area. They interpret these things written on that metacard under “what they see” is perceived in “what they think” in the utility of this said idea in the first category. Feeling is generally trending towards excitement and other positive feelings on the ideas’ implication on their context.
ASEAN ICT Exchange Visit Programme 2013, Philippines
After the group discussion, the group break out according to their respective affiliations for the formulation of the action plan/re-entry plan. The group was divided according to the Fisheries sector in Indonesia, the Ministry of Agriculture in Indonesia, agricultural extension in Thailand, ICT unit of Malaysia, LGU’s in the Philippines and the e-extension group of the Philippines. The groups were given the whole afternoon to work on their re-entry plan.

**Action Plans**

1. **Indonesia: e-Learning and e-Extension for Marine and Fisheries**  
   Implementation Period: 2014 – 2018
   
   The Fisheries sector of Indonesia, presented by Dr. O.D. Soebhakti Hasan of Agency for Marine and Fisheries Human Resources Development, focuses on the objective scaling knowledge, skill and attitude of fisherman and fish farmer for to promoting brighter future. The programs identified are conceptualized along the main focus, e-Learning and e-extension. The programs mentioned are (1) education (formal education for citizen); (2) training in the areas of basic application of ICT, technology, management, marketing and environmental safety; and continuance of P2MKP and Safari Training; and (3) extension in the area of Minapolitan Program, PUMP, PUGAR (General activities suport), Information and Communication Facilities Gerakan Masyarakat Peduli Industrialisasi Kelautan dan Perikanan (Gempita) and PLIK dan MLIK.

2. **Indonesia: Dissemination of Information through Cyber Extension Web**  
   Implementation Period: Jan – Dec 2014
   
   The re-entry plan of Bureau of Agricultural Extension conceptualized by Mr. Yusuf Darwin, ST. and Ms. Inang Sariati, S.Pt.. They identified their objectives as support to their four main targets for agricultural development (1) Achieving and sustainability of food self-sufficiency; (2) Enhancing food diversification; (3) Increasing added value, competitiveness and exports; and (4) Improving farmers' welfare. Their main activity is optimizing extension implementation arrangement by providing agricultural extension material in various media, holding of development forums agricultural extension services at central, provincial and district / city; and encouraging development of cooperation and networking of agricultural extension with relevant agencies within and outside the country.

   Implementation Period: Jan – Dec 2014
   
   Mr. Ishak Pandak, Deputy Director of Technology and Information Management Unit, Planning and ICT Division, Department of Agriculture, and Mr. Akramin Abdullah, Assistant to the Director, Extension Section, Agricultural and Agro-based Industries, prepared their re-entry plan with the brand *My E-Extension* meaning *Malaysia E-Extension*. Their main objective in the plan is to develop online application on
agriculture e-extension services to the farmers, clientele and players in agriculture sector. The activities set to meet this objective are: (1) awareness of e-extension encompassing the historical background of extension, the present situation and the future expectation; (2) AS IT that comprises the following areas: (a) conduct the evaluation of the present existing situation: study and identification/needs, (b) human capability/resource, (c) application & system existing, (d) infrastructure establishment, (e) hardware & software and (f) operational level; (3) What To Be that covers the scope of improving the system concerning e-extension and e-farming.

4. **Thailand: Action Plan: Applying ICT to Agriculture Extension**
   Implementation Period: October 2013 to September 2016

   The re-entry plan conceptualized for the Department of Agricultural Extension, Thailand, comprising of Mrs. Siriwan Wungdee, Chief of Training Technology Development Group and Mr. Pornchai Turach Statistician, focuses on the promotion of the use of Information and Communication of Technology in agriculture to knowledge transfer to extension workers and farmers and creation of a network for development of agricultural extension by using electronic systems. The action plan is composed of four parts: (1) developing a system, (2) extension by ICT, (3) monitoring, evaluation and conclusion and (4) reporting. The first part is composed of collecting information and content knowledge in agricultural extension, analysis and design of Extension Systems for knowledge transfer to officers and farmers and Establishment of the Agricultural extension support by Electronic Network Center. Past 2 comprises of interaction between extension workers and farmers – the process of introducing the ICT and constant evaluation of the program.

5. **Philippines: Municipal e-Extension Enhancement Plan**
   Implementation Period: 2014

   The LGU based participants come together to materialize the objective behind the re-entry plan: help farmers, AEWs, Extension agents to use ICT tools and strategies in implementing/ promoting agriculture programs. There are seven activities conceptualized to dal with the main objective: (1) capability enhancement for all AEWs on ICT, (2) conduct of advocacy campaign (IEC) which promotes the existing programs such as Intermediary Program (Magulang ko, Sagot ko), Techno Gabay programs and services, E-learning, Use of FCC, Knowledge bank and NM Rice; (3) Development and production of IEC materials in multi-media format; (4) Upgrading of interconnectivity (through improvement of internet connection and procurement of smartphones); (5) development and updating of municipal agricultural profile; (6) Procurement of additional computer to cater e-learning programs; and (7) Facilitate enrollment of AEWs/clients to e-learning courses.

6. **Philippines: Integrating ICT Modalities In Agricultural Extension**
The group of e-extension coordinators agreed upon a main objective of the action plan – to enhance extension delivery to clientele particularly farmers through ICT. The action plan is composed of four main activities: (1) ICT Exchange Visit to ASEAN Member country for e-Extension Coordinators (2 batches, 15 pax per batch); (2) Pilot ICT Modalities Integration at the LGUs; (3) Monitor & Evaluate the Action Plans of LGUs covered and (4) Feedback/re-echo of learnings/insights during the Annual Assessment of ATI.

The panel of reactors for the action plans were composed of Ms. Antonieta J. Arceo of ATI-Knowledge Products Management Division, Dr. Arlene S. Flores and Mr. Cristino Balancio of ATI-Regional Training Center in Cordillera Administrative Region. Generally, the critics commended the participants for their action plans. Most questions were directed towards the plausibility of the said plan (such as timeframe, tasking and budget) and clarification on some activities presented.

September 29, 2013

CITY TOUR

1. Field visit to Tam-Awan village

The participants visited the Tam-awan village and were immersed in the cultural heritage of the Igorot tribe of the Cordillera Administrative Region. Tam-awan which means “sight-seeing” is a model village that features different reconstructed houses of the Ifugao and Kalinga. As part of the village tour, the participants were able to familiarize with some of the houses that were exhibited such as “Luccong” of Kalinga and Daklingan of Ifugao. Also part of the tour was a demonstration of the different gong playing of the provinces of Cordillera and a hike on the Tam-awan’s eco trail.

2. Farm Tour to The Master’s Garden

The Master’s Garden, a 3,000 sq. m. land, is the first accredited organic farm in Cordillera by the Organic Certification Center of the Philippines (OCCP). Mr. Pat Acosta, the farm owner, said that he has partnered with the Agricultural Training Institute (ATI) for 10 years now as an accredited learning site. During the farm tour Mr. Acosta discussed his various farm practices and organic agriculture principles that he advocates. To wit:

- The compost consists of all-natural
substrates like grass but manure-free. The IMO solution that enhances the compost consist of one table spoon of forest top soil, one table spoon of molasses and one liter of water fermented for seven days. After fermentation, the solution is then diluted into 16 liters of water. This can be applied on one ton of shredded grass. The process of composting only takes 14 days.

- Mr. Acosta endorses the purchase of the best seed quality possible, even if it is expensive; the seed will be more productive, disease resistant and will germinate faster.
- Transplanting of seeds from trays into smaller pots before being moved into the field is done to minimize stress on the plants. By doing this plant mortality is decreased and after 35 days the plants can be harvested.
- In the farm nursery one of the practices is to cover the germinated seeds or put into a cabinet to prevent birds from eating the seeds.
- Mr. Acosta is currently conducting an experiment on the use of Nitrogen-fixing bacteria as microbial inoculants that will increase the per unit weight of the crops. This is essential in convincing other farmers to convert into organic fertilizer.
- Use of shelter to protect the crops from rain as well as constructing plant box to prevent the fertilizers from transferring into the canals.
- Developed a system wherein planting and harvesting time per plant bed has been programmed in such a way that they can harvest almost daily.

The group then visited the Philippine Military Academy and the Mines View Park as part of the tour in Baguio City.

**September 30, 2013**

**CLOSING PROGRAM**

The group had a formal closing program in Manila graced by Assistant Secretary for Policy and Planning of the Philippine Department of Agriculture and at the same time, ASEAN SOM-AMAF Leader from the Philippines.

Dr. Asterio P. Saliot, Director IV of ATI, confirmed the graduates of the Programme and delivered his closing remarks.
Beatriz A. Yanga

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