Merging indigenous practice and CPAR...from page 15

CPAR farmer cooperators in Tubtuba

technology," said Fermin during a site visit in the area.

Mang Paulo is a member of the Dilong Farmers Association which consists of 25 members, four of whom are CPAR farmer-cooperators. As a project cooperator, he received 2,000 tilapia fingerlings and five sacks of feeds.

He reported that from the initial 1,000 fingerlings he was able to harvest 20 kilos for the first season, which he sold at Php 150.00 a kilo. This gave him a Php 3,000.00 profit for his initial harvest alone. He explained that he harvests his tilapia on a staggered or instalment basis and usually only if there are orders from buyers.

"Eighty percent of my harvest is marketed, the remaining 20 percent serves as our food," Mang Paulo explained.

When asked about the changes when he became a CPAR cooperator he said that, "For one thing, my sources of income increased that I was able to pay for the studies of our children. This also provided me extra money to expand my pond and buy additional gears and equipment," he added.

Another positive turnout was that Mang Paulo served as a model fisher for his fellow fisherfolk in the community. He mentioned that his fellow fisherfolk saw the benefits of applying the technology introduced in CPAR, and so, after a while, they got interested as well.

Now, from the initial four CPAR cooperators, they became 14 with the additional 10 farmers who got encouraged by Mang Paulo. ###

For more information, contact:
Ms. Lois June B. Fermin
Research manager
BFAR-Cordillera Administrative Region
Telephone no.: (074) 445-8499
Email: *balagtey@yahoo.com.ph*

Officials from Bhutan's...from page 9

Technology Commercialization Division; Ms. Iluminada Ching and Mr. Upjohn Rivera of the Institutional Development Division; and Ms. Cherry Ann Barrientos of the Information Management Unit.

Mr. Patrick Raymund Lesaca of ACD facilitated the briefing. On behalf of the visiting delegation, Ms. Kinley Pelden acknowledged and thanked the bureau for the warm reception and expressed her appreciation to BAR's efforts in promoting R&D development in the country as well as enhancing viable technologies that will increase production, enabling farmers and fisherfolk to be competitive.

The MoAF was established in April 1985. In 1993, the research and extension services were combined together and the Department of Agriculture (DoA) was renamed as Research Extension & Irrigation Division. DoA is one of the biggest departments under the MoAF. Like the Philippines, Bhutan is also an agricultural country with approximately 80 percent of the population involved in this sector. Among its major staple crops are rice and maize which account for 43 percent and 49 percent, respectively.

The study tour was initiated by Mr. Paul Reyes and Mr. Ian Marcelino of Paibare, Inc., an organization involved in training programs and project development. Paibare also serves as a venue for training, research and technology. ### ***(Patrick Raymund A. Lesaca)***

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BAR scholars Mr. Roden Carlo M. Lizardo (2nd from left, 1st photo) and Mr. Mark Paul Rivarez (2nd from left, 2nd photo) earn the merit of *Magna Cum Laude* for BS Agriculture and BS Agri-Biotechnology, respectively. Awarding them during the UPLB-CA Breakfast Reception are BAR Director Nicomedes Eleazar (4th from left, 1st photo) and DA Undersecretary for Policy, Planning, Project Development, Research and Regulations Segfredo R. Serrano (3rd from left, 1st photo). PHOTOS:MVALDEABELLA

2 BAR undergrad scholars graduate Magna Cum Laude from UPLB

BAR takes pride as two of its undergraduate scholars graduated *Magna Cum Laude* during the 42nd Commencement Exercises of the University of the Philippines Los Baños (UPLB) held on 26 April 2014.

"I am personally filled with joy as these two students, our first graduates, showed utmost excellence and diligence. They did not fail the Department of Agriculture (DA) in investing in their education," said Dr. Nicomedes P. Eleazar, director of BAR, during the UPLB-CA Breakfast Reception held at the Agronomy-Soils-Horticulture Lobby, College of Agriculture, UPLB.

Mr. Roden Carlo M. Lizardo and Mr. Mark Paul Rivarez earned the academic merit of *Magna Cum Laude* for BS Agriculture and BS Agri-Biotechnology, respectively. The two were the only ones in junior standing when the scholarship grants were awarded—making them the first of their batch to graduate. The two did not only graduate on time but also showed utmost excellence, proving them worthy of the support that DA has given them.

To personally award and congratulate the BAR scholars, a team from the bureau, headed by Dir. Eleazar, attended the breakfast reception to congratulate and honor them. Also present during the event was DA Undersecretary for Policy, Planning, Project Development, Research and Regulations, Dr. Segfredo R. Serrano. It may be recalled that the DA-BAR Undergraduate Scholarship Program was the result of a suggestion and recommendation of DA Usec. Serrano.

Dr. Domingo E. Angeles, dean of the UPLB-College of Agriculture (UPLB-CA), formally welcomed the guests, graduating students and their parents, officials of UPLB, academicians, and faculty members to the event. In his welcome remarks, he urged the 212 graduating students to "create a difference, create unique stories that will bring honor to your family and your university." This, according to him, is "the most important payment that you will give to us [the university]."

UPLB Chancellor Rex Victor Cruz posed greater challenges to the graduates as he laid the university's expectations. According to him, the university expects the graduates to be models of: 1) "submission to and respect for laws and authority; 2) better decision makers who will make science and conscience the basic foundation of your decision-making process;

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IN THIS ISSUE...

Eleazar encourages QSU graduates to take proactive action

Dr. Nicomedes Eleazar, director of BAR, emphasizes on the role of the graduates in ensuring the country's food security and sufficiency in the face of climate change.

"In every commencement address that I give, I always make sure that I am able to open and influence young minds to take proactive action not only for the good of themselves but also for others, especially their fellow Filipinos, who unlike them are not given the privilege to study and have a degree. I encourage graduates to have a wider sense on how they can better utilize what they have learned in the university for a noble cause and for the good of the nation," said Dr. Nicomedes P. Eleazar, BAR director and keynote speaker, during the 2nd Quirino State University (QSU) Commencement Exercises held on 4 April 2014.

In his address, Dir. Eleazar enjoined the graduating students and their parents, faculty members, and key officials of the university to celebrate not only their success inside the university but also the growth and excellence that the university has achieved. He applauded QSU for constantly striving to grow as an institution not only of higher education but also of leadership and excellence.

The bureau chief focused on the role that the graduates can play in the country's quest for food security and sufficiency in the face of climate change. In his words, "as climate change continues to affect more on a greater scale, we also need to be more prepared and equipped. To do that, we enjoin you, new graduates, to share your creative minds. We need your intuitiveness and your insights. We need you to work with us in this quest towards a more resilient and climate change-ready nation. We need you to take proactive actions and become torchbearers towards attaining progressive communities. We need you to take a stand not only for today but for the future."

Leading the commencement exercises was Dr. Samuel O. Benigno, QSU president, along with the faculty members and officials of QSU. Also showing his support to the university as well as his admiration to the graduates was Governor Junie E. Cua.

For the past years, BAR has been one of the active supporters and partners of QSU in implementing various research and development programs and projects. One noteworthy project is on the "Technology Utilization and Promotion of Tissue Cultured Banana" funded under the National Technology Commercialization Program of BAR. Dir. Eleazar awarded a check for the full release of the project's budget to QSU President Benigno.

Prior to the ceremonies, Dir. Eleazar visited the "Ecological Solid Waste Management Building" which is funded under the bureau's Institutional Development Grant. The building serves as the production area of organic fertilizer in the province of Quirino.

I encourage graduates to have a wider sense on how they can better utilize what they have learned in the university for a noble cause and for the good of the nation. - Dr. Eleazar

(Mara Shyn M. Valdeabella)

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This publication provides regular updates on DA-BAR's activities as the country's national coordinator for agriculture and fisheries R&D. It also highlights features and news articles concerning NaRDSAF-member institutions.

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Adviser:	Dr. Nicomedes P. Eleazar, *CESO IV*

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For subscription and inquiries, please contact us at: Tel. Nos: +63 (2) 928-8505, 928-8624, 920-0234 local nos. 3012, 3025, 3323 Fax No. +63 (2) 927-5691 Email: *acd@bar.gov.ph*
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the central market area for Tubo," said Fermin.

As part of the environmental practice of the *lapat* system, fish farmers in Tubo, Abra grow tilapia through the raceway system. The raceway system is implemented along the riverbanks. It divides a portion of the river where commercial tilapia are raised but not fed with commercial feeds, relying only on the available natural food. The fisherfolk pile stones to divide the river into terraces which act as barriers to prevent the escape of the fishes. This type of operation can be done by individuals, household or a group of farm fishers, stocking fish in the raceway that feed on existing food in the environment such as *bagiw* or *lumot* (algae) and phytoplankton.

As part of sustainable fishing, the *lapat* system prohibits and discourages the use of destructive fishing gears, chemical spraying near water bodies, and catching the young of fish species, and promotes the observation of close season or no fishing on specific periods of time. This kind of system enables the continuous reproduction of fish species, addresses resource degradation, and enhances the adaptive capacity of the ecosystem.

Part of the intervention of the CPAR project is the introduction of the fishpond culture technology. "The fingerlings are stocked in the *lapat* raceway in the river in November or December. These are harvested before the rainy season to prevent the fish from being carried away by strong rains," explained Fermin. She added that because most of the fishponds are small, the fishes get crowded when they grow thus they are returned to the raceway after the rainy season. "In April or May, they are transferred again to the fish pond until they reach their marketable size," she furthered.

Through the project, BFAR provided a micro-hatchery in Tubtuba which became the source of tilapia fingerlings for the CPAR sites in Tubtuba and Dilong, Tubo, Abra.

Paulo Pacdiw, CPAR cooperator in Dilong, in his fish pond

Mang Carlos, a *lapat*-CPAR practitioner

One fish farmer that adopted the merging of the Lapat system and the CPAR intervention is Mr. Carlos Paliwag, 63, a fisher-cooperator in Brgy. Tubtuba, Tubo. He is a member of the Tubtuba Farmers Association which, to date has 70 members, 15 of whom are CPAR cooperators.

Mang Carlos has been a farmer ever since he got married and owns a land approximately less than a hectare. He is into integrated farming system growing rice and vegetables and tilapia. "I learned about the CPAR project when I was still a barangay captain. At that time, fishing was just an additional source of my income," he said.

"When I learned about the technology introduced in CPAR, my production grew. Not only did it provide additional income but it also became my family's source of food. I don't need to buy from the market as I can get the fish from my own pond," he further explained.

As a CPAR cooperator of the project, Mang Carlos was provided 1,000 tilapia fingerlings and eight sacks of feed for his pond. They were also trained by BFAR on tilapia pond culture to ensure a good harvest. " I stocked the fingerlings in the *Lapat* for four months and then transferred them to the pond, keeping them for eight months before I harvested them," Mang Carlos said.

Carlos Paliwag, CPAR cooperator in Tubtuba, shows his harvested tilapia.

As part of the *Lapat* principle, Mang Carlos practices the indigenous way of harvesting tilapia using *Tabokol* (casting net) and *Lumtep* (submersion).

Given the demand for commercial fish species like tilapia, Mang Carlos markets his harvested tilapia within the community and neighboring barangay. "I market 50 percent of my harvest and we consume the remaining half," he said.

When asked about his returns from the project, he reported that from the 1,000 tilapia fingerlings, he was able to harvest an initial 100 kilograms. A kilo of tilapia (3-5 pieces) costs Php 150.00. This earned him Php 15,000.00 for this harvest.

The repayment scheme is being handled by the association wherein all farmer-cooperators are required to repay the inputs given to them to the community. This scheme is being implemented in every CPAR project to sustain the project. Mang Carlos gave 250 fingerlings to other members of the association as a start-up.

Mang Paulo, responding positively to change

Another CPAR cooperator who chose to be open to new ideas and opted to respond positively to change is Paulo Pacdiw, 54, a fisher-cooperator in Dilong, Tubo. He owns around 500 sqm of land which is occupied by his five tilapia ponds.

"Unlike farmers in Tubtuba, farmers in Dilong were less receptive to CPAR. Only a very few responded to be a cooperator of the project. Mr. Pacdiw was one of the first four cooperators that adopted the

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Merging indigenous practice and CPAR ensues improved productivity for Abra fisherfolk

Story and photos by Rita T. dela Cruz

In today's fast-changing times wherein knowledge has become vast and information can be accessed anytime, anywhere, it's easy to discount the importance of indigenous knowledge and practices. The risk that much of our indigenous knowledge may be lost along with the valuable practices it has on living sustainably is becoming more evident.

One indigenous practice that has survived through time is the *lapat* system of the Maeng Tribe in Tubo, Abra. *Lapat*, which literally means "to prohibit" or "to regulate", is a century old system of regulating the use of natural resources and its biodiversity. The *lapat* system has three underlying principles: 1) stewardship, 2) communal ownership and collective responsibility, and 3) sustainability. The system is enforced by the *Dap-ay*, a system of governance of the Maeng tribe for managing and directing the socio-economic, cultural, political and spiritual life of the people of the community. They are mainly consisted of elders.

Harmonizing old and new practices

In a place as distant and remote as Tubo, Abra, where the people are bound by their instinctive desire to conserve and protect their natural resource, introducing a technology that is different from their usual practice of farming and fishing, seemed a far-fetch idea. That was likely the case when a Community-based Participatory Action Research (CPAR) was introduced in the area. CPAR is a location-specific research *cum* extension activity that aims to improve the productivity and profitability of farmer-beneficiaries by applying effective total farm productivity within the context of a sustainable production and farming system approach. It is a flagship program of the Bureau of Agricultural Research and is being implemented nationwide for both the agriculture and fisheries sectors.

Led by the Bureau of Fisheries and Aquatic Resources-Cordillera Administrative Region (BFAR-CAR), the "CPAR on Tilapia Production in Fishponds" was implemented in the two barangays of Tubo, Abra, namely, Tubtuba and Dilong. For this CPAR project, 70 fish farmers were chosen as project cooperators.

"Initially, we introduced the concept of CPAR in Tubo, Abra with the aim of improving their existing culture of tilapia following a semi-intensive culture system. We would like to introduce an intervention that will not contradict their indigenous practice, which in this case, it's the *lapat* system," explained Lois June B. Fermin, research manager of BFAR-CAR and CPAR project leader. She added that, since CPAR is a research activity, the project aimed to institutionalize participatory approaches in the conduct of research and extension, and encourage and enhance the development of enterprises and agribusiness ventures through enhanced tilapia production in the area.

Applying the *lapat* system and CPAR in tilapia production

In Tubo, Abra, aquaculture is a promising industry.

Given the difficulty of buying fish, due to the area's remoteness and the land barriers surrounding the community, people are learning to culture commercially demanded fishes like tilapia. They grow tilapia both as a source of food and as a livelihood, making aquaculture an important sector in the municipality. "They market tilapia in the adjacent communities and trade in the Poblacion which is

turn to next page

PHOTO:MVALDEABELLA

BAR director keynotes SLSU commencement exercises

The Southern Luzon State University (SLSU) celebrated its 32nd commencement exercises on 10 April 2014 with Dr. Nicomedes P. Eleazar, director of BAR, serving as keynote speaker. Graduates, parents, members of the faculty, and key officials of SLSU, headed by President Cecilia Gascon joined in the ceremonies.

Dir. Eleazar, in his address, recognized SLSU's contribution in advancing the country's agriculture research and development through the programs and projects that it is implementing through BAR. With this, he highlighted the BAR-initiated *Yamang Lupa* Program, where SLSU serves as the lead implementing agency for Quezon.

The bureau chief pointed out that whatever the government and its partners such as SLSU have accomplished needs to be sustained. According to him, this is where the graduates can take part. "The government cannot do this alone. We need innovative and aggressive young minds that will serve as the vanguard of our national effort to organize, convey, and preserve knowledge. We need your fresh ideas in creating new knowledge in the vital fields of agriculture and fisheries. I believe the university has empowered you with knowledge and capacities to make a difference. You have acquired the ability to generate and disseminate information that our nation can use for the benefit of its people. With your creativeness and intuitiveness, I firmly believe that you can become steadfast partners in creating strategies and generating innovative technologies that can pave way to more opportunities for our people," Dr. Eleazar said. ### ***(Mara Shyn M. Valdeabella)***

GROUNDBREAKING CEREMONIES FOR SLSU'S RESEARCH LAB HELD

BAR, in its continuous pursuit to capacitate and to strengthen the regional research stations and partner state universities and colleges, awarded an Institutional Development Grant (IDG) to the Southern Luzon State University (SLSU). To formally commence the construction of the facility, the "Groundbreaking and Cornerstone Laying Ceremonies of the SLSU's Integrated Research Laboratory" was held on 10 April 2014 at SLSU-College of Agriculture (CA) in Lucban, Quezon.

Dr. Cecilia N. Gascon, president of SLSU, welcomed the attendees as she, on behalf of SLSU, expressed her gratitude to BAR for its continued support and trust to the university.

The grant was sealed by the signing of a Memorandum of Agreement between BAR and SLSU. It was followed by the symbolic groundbreaking and cornerstone laying ceremonies led by Director Eleazar and President Gascon.

Dir Eleazar likewise expressed his gratitude to SLSU for being one of the bureau's partners in advancing research and development for the agriculture sector. "With their [SLSU] expertise, we have trusted the university with this grant, among many other projects that made a great impact not only to the institution but to the community as a whole," he said. ### ***(Mara Shyn M. Valdeabella)***

BAR Director Nicomedes Eleazar (left) and SLSU President Cecilia Gascon (right) lead the groundbreaking ceremonies of SLSU's research laboratory. PHOTO:MVALDEABELLA

BAR intensifies INSTITUTIONAL DEVELOPMENT PROGRAMS to capacitate NaRDSAF

BAR key officials and staff members together with the workshop's resource persons and pool of experts. PHOTO COURTESY OF MVALDEABELLA

To assess and to update the existing guidelines and criteria of its Institutional Development Programs, BAR, through the Institutional Development Division (IDD), conducted a consultation workshop on 22-25 April 2014 in Baguio City.

Leading the workshop was BAR Director Nicomedes P. Eleazar. He emphasized in his address the bureau's goal of increasing the number of takers in each program while ensuring that the programs are still in line with the thrusts and mandates of the agriculture department. He referred to the workshop as a "very much needed" activity especially with the current challenges facing the agriculture sector. "We need to continuously capacitate and provide opportunities that will pave the way to a more learned and knowledgeable members of the National Research and Development System for Agriculture and Fisheries (NaRDSAF) community. As we continue to strive for growth within the sector, we need our researchers and scientists to be competitive and resilient," said Dr. Eleazar.

Ms. Digna L. Sandoval, OIC of the IDD, provided a background and a brief discussion on the existing programs under the Institutional Development Program. She was followed by Ms. Iluminada M. Ching, technical staff, BAR-IDD, who presented the Human Resource Development Programs (HRDP). Topics discussed under the program were: 1) Productivity Enhancement Programs, which include the Gawad Saka Search for Outstanding Agricultural Scientist and Gawad Saka Search for Outstanding Agricultural Reseacher; 2) Degree Scholarship Program; 3) Non-degree Scholarship Program; and 4) Thesis/Dissertation Assistance.

Ms. Elvira S. Rapada, technical staff, BAR-IDD, presented the R&D Facilities Development Program, which supports the acquisition of equipment, establishment and renovation of R&D facilities, and the basic R&D support facilities of NaRDSAF-member institutions.

Drs. Edralina Serrano and Enrico Supangco of the University of the Philippines Los Baños (UPLB) and Ms. Virginia Agcopra, BAR technical expert, served as the resource persons and experts during the workshop. They, together with Dir. Eleazar and Asst. Director Teodoro Solosoloy, thoroughly deliberated and evaluated each of the presented topics based on the current scenarios and needs of researchers and scientists.

BAR Asst. Director Solsoloy concluded the workshop and congratulated the experts and the entire team of IDD for a productive and fruitful workshop.

The IDD serves as the bureau's coordinating division in implementing programs aimed at enhancing the capabilities of NaRDSAF-member institutions. The bureau sees this program as its way of capacitating the NaRDSAF community towards a more effective implementation of R&D programs and projects in the agriculture and fisheries sector. ### ***(Mara Shyn M. Valdeabella)***

2 BAR undergrad scholars graduate...from page 1

3) individual who is an expert of his discipline but is very much conscious of the bigger picture and the many members of that picture; and 4) resilience."

Ms. Ma. Olivia Panaligan-Puentespina, UPLB-CA alumna and managing director of Malagos Food, Inc., Agdao in Davao City, in her keynote address, enjoined the graduates to give honor back to farming and to embody a true agriculturist.

The Breakfast Reception, which was done to honor its graduating students, was attended by the graduating students and their parents and the UPLB-CA Cluster directors, UPLB vice chancellors, national scientists, former deans of UPLB-CA, and UPLB professor emeriti.

Also present were BAR Asst. Director Teodoro Solsoloy; Ms. Digna Sandoval, OIC, BAR-Institutional Development Division (IDD); Ms. Marjorie Mosende, technical staff of BAR-IDD; and Ms. Mara Shyn Valdeabella, executive assistant for communications, BAR-Office of the Director.

The DA-BAR-UPLB Undergraduate Scholarship Program started in June 2012 with 12 B.S. Agriculture students as its first batch of scholars. For the following year, another 12 BS Agriculture students were given the grant along with 12 BS Agriculture-Biotechnology, a recently-instituted course in UPLB. ### **(*Mara Shyn M. Valdeabella)***

pagtatanim ng kahit anong gulay. Natutunan ko rin kung paano ang tamang paglalagay ng abono sa gulay," [I learned a lot in growing any kind of vegetable. I also learned how to apply the right fertilizer in the vegetable] he shared.

In 2013, he harvested 1,150 kilos earning him a net income of Php 32,000 for squash alone. He also plants carrots, cauliflower, stringbeans, and tomatoes to which he gets a fair share of profit. Every week, he transports his produce to a local market in Cebu.

From hundreds to thousands

When we talk of a champion farmer, we look into many aspects that make him/her one. In the case of CPAR, it is generally weighted on the effectivity of the technology that boosts the productivity of the farmer cooperator. Julie Lapingcao is just one of the many who can attest to this.

A "regular corn farmer" as she used to call herself, Julie earns a meager income of Php 200.00 from her corn harvest. "Nagtatanim ako ng mais para may pangkain lang kami. Yung konting sobra, binebenta ko sa mga kapitbahay ko dito, kumikita naman ako ng mga pa-isa-isa o dalawang daang piso. Yun naman gagamitin ko para may pambili kami ng iba pang pagkain namin," [I plant corn mainly for food. The surplus, I sell to my neighbors from which I earn a hundred or two hundred pesos. I used this to buy our food] she said.

> "*Sa CPAR, ang laki ng pagkakaiba ng kita ko, naming mag-asawa. Isipin mo, mula sa dalawang-daang piso, **kumita ako ng higit tatlumpung-libong piso sa mais pa lang 'yon.***"

The farmer-trainer

Mansueta Villegas, a native of Brgy. Balao in Barili, considers herself a trainer to other farmers who are interested in adopting the technologies that were introduced through CPAR. She eagerly shared her knowledge to other farmers. "Maganda na malaman din ng iba kung paano kami umasenso. Kaya ako, dahil alam ko na ang mga teknolohiya na itinuro sa amin sa CPAR, hindi ko hahayaan na hindi ko ibahagi ito sa mga kabarangay ko," [It's good that the others will know how our lives improved. Since I know the technologies that were taught to us in CPAR, I share these to my fellow farmers] she said.

Bell pepper is so far her 'champion commodity.' With 1,200 plants in one-fourth hectare area, she harvested 650 kilos which she sold at Php 70 per kilo. This gave her a profit of Php 45,500 in one commodity alone. She also manages to plant corn and squash to maximize the full potential of her farm. For her, CPAR has truly helped in relieving poverty in the community level. For this, she wanted to be part of spreading the good news to other farmers.

> "*Sa isang taon, kumikita ako ng **Php 50,000 simula nang maipakilala sa amin ang CPAR.***"

She never looked at corn the same way. In less than a hectare of planting area, she harvests around 17 bags (1 bag = 35-40 kilos average), and sells them at Php 50 per kilo. She also earns profit from planting other commodities including peanut and bitter gourd.

From *kapitbahay* fair to the Carbon Market

Benedicto Cameros, a resident of Brgy. Butong, Argao, is one of the farmer-cooperators who is keen on practicing organic farming. With the learnings he acquired through the trainings that were provided to them, he opted to practice healthy farming. "Importante na malusog tayo, kaya gusto ko na talagang mapagpatuloy itong organic [farming] na itinuro ng CPAR. Sa ngayon, natutunan ko na kung paano ang gumamit at magpalaki ng mga pananim gamit ang organic seeds at fertilizer," [It is important that we are healthy, that is why I want to really continue organic farming that was taught in CPAR. Right now, I learned how to grow crops using organic seeds and fertilizer] he said. Among the vegetables he plants are cabbage, cauliflower, eggplant, and hot pepper.

On average, he harvests four times per year, and his produce is marketed in the biggest public market in Cebu, the Carbon Market. "Sa isang taon, kumikita ako ng Php 50,000 simula nang maipakilala sa amin ang CPAR," he shared. This is more than a 100 percent increase in his Php 20,000 income prior to CPAR intervention.

CPAR is holistic in nature. It targets the totality of the 'farm life'—from the farmers' family, community, technology, to the production and market—which is why it becomes successful. It creates rippling effect that benefits the majority of the farmers. ###


Danilo Zamora

Mansueta Villegas

Cebu farmers prove PROFIT-EARNING potentials of CPAR

Story and photos by Daryl Lou A. Battad


Julie Lapingcao

Benedicto Cameros

Over the years, new agricultural interventions have been developed and introduced to farmers to boost production. Providing them options and capacitating their potentials, farmers will adopt a technology that will not only boost their production but importantly, increase their income.

This is the basic premise of the Community-based Participatory Action Research (CPAR), one of the banner programs of BAR. CPAR targets a suitable package of technology in a specific community to harness the potentials of farmers and fishers while improving and sustaining their way of living.

For the past years, since it was first implemented, CPAR has been making a profound mark in uplifting the socio-economic condition of many CPAR farmer-cooperators across the country. Two of these projects are being implemented in Cebu focusing on the development of corn-based and vegetable-based farming systems.

Before CPAR was introduced in the sites, farmers were engaged into the traditional way of farming which meant very little to no knowledge on proper soil and water conservation, integrated nutrient management, and other related technologies on corn- and vegetable-based farming systems. Most of the farmers concentrated on simply "cultivating food for family consumption." After CPAR, their stories have changed.

Knowledge is truly power

For CPAR farmer Danilo Zamora of Brgy. Linut-od in Argao, appropriate knowledge on total farm management enabled him to be more productive in the farm. Before CPAR, he admitted that he lacks knowledge on vegetable farming which limited his production and income.

Trainings are part of implementing any CPAR project. They serve as an empowering tool to equip farmers with the right information ranging from soil and water conservation and farm planning, integrated nutrient management, animal health care and management, technologies on farming systems, to postharvest technologies, data gathering and farm record keeping. Danilo valued these new learnings that he immediately put them to use in his farm during the next cropping season. "Marami akong nalaman sa

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PHOTO: ABRION

BAR leads assessment of 36 OA projects

BAR, as the lead agency for the research and development (R&D) component of the Organic Agriculture (OA) Program of the Department of Agriculture, spearheaded the "National OA R&D Assessment and Planning Workshop" on 8-10 April 2014 in Clark, Pampanga. The precursor of the event stemmed from the two activities when the bureau spearheaded the "National Review and Assessment of OA Research, Development and Extension (RDE) Projects and Programs" in October 2012 followed by the "Stakeholders' Consultative Workshop" in September 2013. The activities were necessary in strategizing the Organic Agriculture RDE Agenda and Action Plan for 2012-2016.

In 2014, the OA R&D assessment cum planning workshop provided guidance to address the efforts of the national government and its stakes to ensure food security and sufficiency. "We view this exercise as a means to strengthen the R&D aspect of organic agriculture wherein it is one of the key components for the effective implementation of a comprehensive program embodied under Republic Act 10068, also known as the Organic Agriculture Act of 2010," BAR Director Nicomedes P. Eleazar articulated in his keynote address.

The activity aimed to: 1) review and assess the status of OA R&D projects and how these are being implemented in terms of socio-economic benefits across the value chain; and 2) asssess further the gaps in the implementation of the OA RDE Agenda and Action Plan for 2014 and beyond.

Dr. Ben Ladilad, president of the Benguet State University and academe representative at the National Organic Agriculture Board (NOAB), presented the workshop output on the RDE being implemented by various state universities and colleges. Mr. Johnny Ramos of the Bureau of Agriculture and Fisheries Standards presented the macro overview and current thrusts of the National Organic Agriculture Program (NOAP) while Mr. Joell Lales, division head of the BAR-Planning and Project Development Division (PPDD) and also BAR's OA focal person, presented the R&D component of NOAP in terms of the agency's R&D thrusts and agenda.

The updates on OA R&D facilities development was presented by Ms. Digna Sandoval, OIC head of the BAR-Institutional Development Division. She mentioned that BAR met with BAFS on the establishment of the centers in five DA pilot regions (1, 4A, 8, 9, and 12). Meanwhile, Mr. Anthony Obligado, chief of the BAR-Technology Commercialization Division, presented the potential technologies for OA and the initiatives in promoting the said technologies.

Serving as evaluators were Dr. Luis Rey Velasco, Dr. Enrico Supangco, and Dr. Blesilda Calub from the University of the Philippines Los Baños; Dr. Chito Medina and Dr. Jose Balaoing from the NOAB; Dr. Gina Nilo from the Bureau of Soils and Water Management; and Dr. Nelson Lopez from the Bureau of Fisheries and Aquatic Resources. Also present were Ms. Josephine Ramos and Ms. Rosemarie Aquino from BAR's pool of experts.

Highlights during the first day included plenary presentations featuring the OA directions and initiatives followed by the status reports of various BAR-funded OA projects. There were 36 OA R&D projects subjected for review and assessment, 25 of which are on applied research, 6 are on R&D facilities, and 5 are on technology commercialization.

After the presentations, participants were grouped by subsectors (crops, livestock and poultry, and fisheries) and simultaneously conducted the workshops to refine the RDE Agenda and Action Plan. Each group discussed the workshop parameters as formulated by BAR in consultation with the NOAB. Outputs of the workshop were presented afterwards.

The outputs will be consolidated to update the Roadmap and the Action Plan for the Organic Agriculture R&D 2014 and beyond, which will provide priorities to organic RD&E activities both at the regional and national levels.

Ms. Maylen Villareal of BAR-PPDD concluded the three-day event articulating on the intensified role of BAR in implementing the OA R&D projects in the country. She also echoed her appreciation to the participants, experts, zonal representatives, R&D implementing agencies, and presenters who made the event possible. ### ***(Patrick Raymund A. Lesaca)***

CLSU's first IPR certification received through BAR's assistance

CLSU President Sevilleja & CLSU Professor Renato Reyes receives the Utility Model (UM) Certificate of Registration for their research on mushroom cultivation. PHOTO:MEAQUINO

The Central Luzon State University (CLSU) received its first-ever Intellectual Property Rights (IPR), in the form of a Utility Model Certificate of Registration for the research titled, "Production of *Schizophyllum* commune mycelia and schizophyllan".

As part of its advocacies to protect the various R&D projects that it supported, BAR established its IPR Office in 2004 to ensure that researches, technologies, and other works generated within the Department of Agriculture and National Research and Development System for Agriculture and Fisheries (NaRDSAF) system are given proper IP protection.

Not limiting its function to BAR-funded or commissioned researches or projects, the bureau extended its services to other R&D institutions in the country. This included the conduct of IP awareness training workshops to regional field units, state universities and colleges, and local government units.

Realizing the importance of IP in his research work, Dr. Renato Reyes, professor at CLSU, through the assistance of BAR IPR Office, applied his research on mushroom cultivation. The application served as an offshoot of an IP awareness training conducted at CLSU.

In response, BAR immediately studied the submitted report. Dr. Andrea B. Agillon, a Patent Agent Qualifying Exam (PAQE) passer, drafted the patent application and assisted CLSU and the inventor with the necessary requirements needed and provided technical assistance.

"The application went through the usual prosecution process for patents. Revisions were made to comply with the examiner's findings that coconut water is not a novel media anymore for mushroom cultivation. Production of *Schizophyllan* is not a novelty. Its use for other mushroom species culture negates the inventive step and the findings are fatal for a patent application," Dr. Agillon shared.

BAR and CLSU exhausted their efforts for the IPR to be approved and registered. After changes in claims and manner of stating them were made, substantive examination however, did not merit an award for a patent.

The team then decided to apply for conversion of the application to a utility model (UM). "With only one year left for the seven-year life of a UM, we continued our task as we deemed it necessary for conversion as the inventor is a professor, and the application is the first IPR for the university," Dr. Agillon reiterated.

With sheer determination and perseverance at the end of the inventor-researcher, the university and the IP managers, the Intellectual Property Office of the Philippines (IPOPhil) awarded the UM Certificate of Registration. "We are so thankful and glad for the outcome," Dr. Reyes said.

IPR serves as an important mechanism that provides the scientists and researchers means of controlling and protecting their works, hence, providing ways on how to be properly acknowledged, rewarded, utilized and optimized. ### ***(Ma. Eloisa H. Aquino)***

BAR participates in World Book and Copyright Day

Fight for what is right – copyright is a human right.

On 23 April 2014, readers, writers, publishers, enthusiasts, and key players from the book and publishing industry gathered at the Bonifacio High Street in Taguig City to celebrate the World Book and Copyright Day. Led by the National Book Development Board (NBDB) and the Intellectual Property Office (IPO), in collaboration with public and private organizations, this yearly activity is aimed at promoting book readership and book development, and raising awareness on the importance of copyright. Various activities were lined up for the participants including industry exhibit, creative performances, musical acts, workshops, and seminars.

One of the highlights of the event was a dialogue on creative content and copyright by Atty. Louie Andrew Calvario of the IPO of the Philippines (IPOPHL). His presentation centered on the rights of writers and relevant issues on copyright. In its simplest definition, copyright is the *legal protection*

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PHOTO:ABRION

Atty. Louie Andrew Calvario of the IPO of the Philippines talks about copyright issues.

contains more tryptophan and protein content and has more dietary fiber, minerals, and anti-oxidants than rice alone.

Realizing the huge potential of QPM in addressing malnutrition among actively growing children, Dr. Salazar and his team conducted further studies to enhance the development of better quality, genetically stable, and highly nutritious corn varieties through utilization of advanced equipment and facilities. Thus, they initiated a project titled, "Enhancing Nutritional and Grain Qualities of White Corn for Food: Updates on Promotional Activities for White QPM (Quality Protein Maize)," which was funded by BAR.

The project started in July 2011 with the aim to develop white corn open-pollinated varieties (OPV) which are high yielding and to develop improved nutritional and eating qualities. Specifically, the project aims to: 1) improve the eating quality of the present high protein quality corn by monitoring the level of different starch components using near infra red spectroscopy, 2) enhance the effectiveness of selection for higher lysine and tryptophan content in the high protein quality corn breeding population using molecular markers and near infra red spectroscopy, 3) monitor the level of different endosperm components related to nutritional feature of flint corn as food grain, and 4) develop inbred lines with improved nutritional quality using molecular markers technology.

Promoting quality protein corn

In an effort to promote the nutritional benefits of rice-corn blend as well as to identify the beneficiaries' level of acceptance, the UPLB-IPB, in collaboration with the UPLB-College of Human Ecology (CHE), conducted a series of feeding programs in public schools. Among them were: Commonwealth Elementary School in Quezon City and Bernardo N. (BN) Calara Elementary School in Los Baños, Laguna.

Feeding Program in BN Calara Elementary School started from 26 November 2012 to 18 March 2013. Participants were composed of 140 students, both male and female who are classified as malnourished. The students were divided into 2 groups: Group 1 (70 students) who were fed with rice and viand during lunch time; and Group 2 (70 students) who were fed with rice *IPB Var 6* corn, 50:50 and viand during lunch time from Monday to Friday. Before the actual feeding program and two weeks thereafter, weight, height and Mean under Arm Circumference (MUAC) were measured. Meals were also measured and served in terms of its content and calorie value. The activity was supervised with the help of B.S. Nutrition graduates from UPLB. According to Dr. Salazar, students' academic performances and active participations were also checked and monitored by the school teachers.

Significant findings of the feeding program included higher weight gains in children fed with rice composites compared with rice alone. Further, higher weight increases were more significant among younger children specifically from Kindergarten to Grade 4.

The group fed with pure rice-corn blend gained an average of 1.82 kilograms compared to the 1.49 kilograms of the group fed with pure rice only. Also, rice-corn blend/rice composite with 50:50 ratio is indeed acceptable by the children. To date, this activity has been continually supported not only by barangay officials but also by Parent-Teacher Association (PTA). BN Calara Elementary School has been continuously conducting the feeding program and is managed by the PTA President. According to Mrs. Lita C. Cortez, PTA president, the students who joined the feeding program have increased their weight. "Meron ngang iba, nag-overweight pa," Mrs. Cortez testified. Another relevant feedback was the consistent initiative and cooperation among PTA members wherein mothers with healthy child are also actively helping during the feeding program. Also, the PTA president said that they are going to distribute the remaining packs of *IPB Var 6* corn varieties to students on their Recognition Day.

Due to this popular and successful promotional activity, Dr. Art and the rest of his team are planning to extend the coverage of the feeding program. "We are planning to implement the feeding program in Los Baños, Laguna or even nationwide," he said. ###

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Students in BN Calara Elementary School eating rice that are blended with corn grits during one of the feeding programs organized by UPLB.

Rice blended with grits of *IPB Var 6* corn variety which is used in feeding programs led by UPLB.

Promoting the nutritional benefits of QUALITY PROTEIN CORN

Story and photos by Liza Angelica D. Barral

Malnutrition continues to be a public health issue in the Philippines affecting infants and school children. In a national survey conducted in 2008 by the Food and Nutrition Research Institute of the Department of Science and Technology (FNRI-DOST), approximately 3.35 million (26.2 percent) infants and children ages 0-5 years old are underweight, while 3.57 million (27.9 percent) are underheight. Meanwhile, around 2.58 million (25.6 percent) and 33.34 million (33.1 percent) children ages 6-10 years old are underweight and underheight, respectively. The increasing prevalence continues unless the issue of malnutrition has been fully addressed.

Corn as highly nutritious staple food

Corn has always been tagged as "poor man's rice" due to its popularity as an alternative staple food for Filipinos. Although seen as food for the less privileged, corn has high nutritional value. It is rich in protein, fat, fiber, and other essential vitamins and minerals including folate, iron, niacin, phosphorus, manganese, magnesium, copper, and zinc. Corn also contains two essential amino acids, lysine and tryptophan, which provide numerous health benefits.

Lysine is important in various body functions such as production of antibodies, hormones and enzymes, bone and muscle development, tissue repair, calcium absorption, nitrogen balance and collagen formation. Tryptophan is also an essential amino acid which cannot be synthesized in the body and therefore must be part of the diet. It plays two vital functions such as in serotonin and niacin synthesis. Further, tryptophan is the precursor of the neurotransmitter serotonin which is important for brain functions and related regulatory mechanism such as those involving appetite, sleep patterns, and mood. Since tryptophan has the ability to raise serotonin levels, it is used to treat conditions like insomnia, depression, and anxiety. Just like lysine, tryptophan is also essential for normal growth and development of infants specifically in the brain maturation as well as the neurobehavioral regulations of food intake and satiation.

Combating malnutrition through quality protein corn

Dr. Artemio M. Salazar and his team from the Institute of Plant Breeding of the University of the Philippines Los Baños (UPLB-IPB) bred and developed the *QPM Var 6*, also known as High Lysine and Tryptophan Corn in 2000. According to Dr. Salazar, they have acquired Quality Protein Maize (QPM) because they have found out that it improved the nutritional status and health of poor Africans.

Based on R&D initiatives, it was found out that *QPM Var 6* contains 66.2 percent more lysine than the regular white corn. It also

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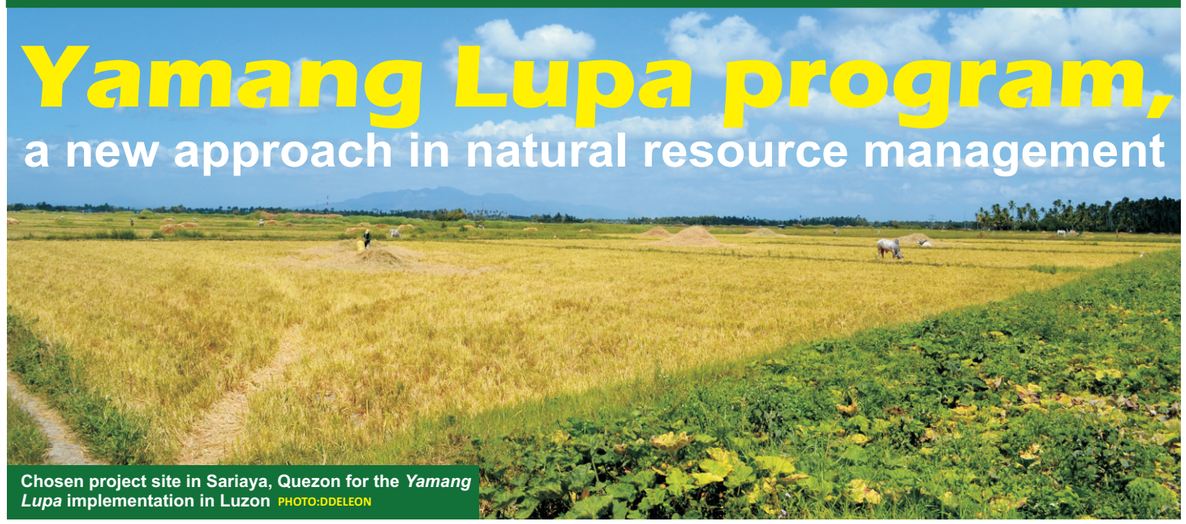
Yamang Lupa program, a new approach in natural resource management



Chosen project site in Sariaya, Quezon for the *Yamang Lupa* implementation in Luzon PHOTO:DDELEON

"The untapped potentials of rainfed agriculture is quite large and there is a need to bring in new paradigm to unlock these potentials," said Dr. Suhas Wani, scientist from the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), in a seminar organized by BAR on 11 April 2014 at the Bureau of Soils and Water Management (BSWM).

Attending the event were ICRISAT Director General William Dar and BSWM Director Silvino Tejada. Also present were the members of the *Yamang Lupa* program management group that included Engr. Samuel Contreras of BSWM, Dr. Junel Soriano and Dr. Heraldo Layaoen of ICRISAT, and representatives from the collaborating agencies, DA-regional field offices, and the academe.

The seminar is in line with the knowledge sharing activities of the *Yamang Lupa* program, an initiative of the Department of Agriculture that aims to develop rainfed areas in the country through an integrated research, development, and extension activities. It is patterned after the success of the Bhoochetana mission program in India. Dr. Dar compared it to a health and wellness program. "Like human, soil also need proper nutrition and other regimens to stay healthy which the *Yamang Lupa* program focuses on," he stressed.

In Dr. Wani's presentation, he shared to the group their experiences in implementing the Bhoochetana program in rainfed areas of Karnataka, India. The insights and lessons that they have garnered on the duration of the Bhoochetana program contributed in establishing new paradigm to unlock the potentials of rainfed agriculture. He recommended that there should be focus on the following: 1) from food production to sustainable production and enhancement of ecosystems; 2) new deal for rainfed farmers' knowledge intensive agriculture; 3) agriculture as the engine of rural growth through sustainable intensification; 4) addressing social, economic, environmental and technological constraints and; 5) well-informed policies and scaling-up of R4D (research for development).

As what was done in Bhoochetana, Dr. Wani is positive that the *Yamang Lupa* program can also replicate the same success if there is a rigorous set of activities on sustainable practices on natural resource management that will be taught to the farmers. These practices include field-based and community-based soil and water conservation such as contour cultivation, broadbed and furrow, flat on grade, conservation furrow, etc.; reduction of non-productive evaporation for higher water usage efficiency such as dry planting, mulching, intercropping, early plant vigor, agroforestry, and vegetative bunds; and ex-situ water conservation.

Another core component of the *Yamang Lupa* program is soil health improvement. Dr. Wani shared to the group the interventions that they have used in Bhoochetana pertaining to soil rejuvenation that include soil conservation, diversified farming systems with inclusion of legumes, use of organic matter, and the promotion of balanced nutrition with emphasis on addressing micronutrient deficiencies.

The other interventions that he discussed which contributed to the success of the Bhoochetana program were the use of improved cultivars; integrated pests and diseases management; markets, institutions and policy support; and most importantly community and people empowerment through heightened drive for capacity building and effective knowledge transfer and sharing.

Another point of focus of the *Yamang Lupa* program is the strengthening and rejuvenating of the extension system by giving appropriate responsibilities and incentives to the farmers who will not only function as beneficiaries, but as extension workers as well. ###

(***Diana Rose A. de Leon***)

ICRISAT Scientist Dr. Suhas Wani talks about the Bhoochetana implementation experiences. PHOTO:DDELEON

Dr. Erwin Joseph Cruz discusses about the advantages and requirements of free-range chicken production. PHOTOS:ABRION

FREE-RANGE CHICKEN PRODUCTION
for smallholder farmers featured in BAR seminar

In line with strengthening the public-private partnership between the government and the private sector, BAR tapped the expertise of Dr. Erwin Joseph Cruz, a free-range poultry and duck specialist, and fellow of the Philippine College of Poultry Practitioners to present about "Free-range Production for Smallholder Farmers" in a seminar held on 24 April 2014 at BAR.

Dr. Cruz' presentation centered on introducing poultry farming at the lowest possible costing, and helping smallholder farmers to venture into business. He discussed about the necessary steps towards sustainable free-range farming, starting with the important first step of proper genetic selection.

According to him, free-range layer production under rural conditions is achievable if you have knowledge on the right genetic source of hens. "A sturdy, robust, and productive line that has a good ability of ranging is required for a successful free-range farming which is very similar to native production. This has a potential of producing 260 eggs per hen per year, as compared to native with only 90 eggs per hen per year," Dr. Cruz explained.

He added that there are two ways to proceed with the production: a feeds-based production and an alternative feeds-based production. The feeds-based system requires commercial feeds, thus the production is expected to result in higher production. On the other hand, the alternative feeds-based production needs fewer amounts of feeds, hence lower production cost. This is because it utilizes surplus crops as alternative feeds source such as vegetables, corns, rice middling, *kamote*, banana, *gabi*, and fruits. This will still produce eggs, but will result in lower production.

Dr. Cruz also enumerated the things to consider and to remember on basic housing requirements, and proper feeding and brooding management, among others. To conclude his presentation, he mentioned that success will depend on the attitude and motivation of the farmers. "Always put into mind that you, as industrious and hardworking farmers, are the best asset of the farming business," he said.

Over 100 representatives from attached agencies, staff bureaus, and regional field offices of the Department of Agriculture, state universities and colleges, farmers and farmers' associations, and interested individuals from the private sector attended the activity. ### ***(Anne Camille B. Brion)***

For more information, please contact:
Dr. Erwin Joseph Cruz
Free-range Poultry and Duck Specialist
Cellphone No.: 0917-895-1105
Email: *freerangepoultry@yahoo.com*

BAR participates in World Book...from page 6

extended to the owner of the rights in an original work that he has created (World Intellectual Property Organization). He also mentioned the need to protect copyright, because according to him, "we have to protect the talents of our people."

He also cited that people who are in the field of research and development (R&D) are also included in copyright protection as research works are form of expression of ideas, and therefore should still be copyright protected.

As the national coordinating agency of the Department of Agriculture, BAR gives importance to intellectual property rights through its Intellectual Property Rights Management Section (IPRMS) by helping give proper IP protection to researches and technologies being generated from agriculture and fisheries research and development. ### ***(Anne Camille B. Brion)***

For more information on intellectual property rights, visit the IPOPHL website: *www.ipophil.gov.ph* or email: *mail@ipophil.gov.ph*

Officials from Bhutan's Ministry of Agriculture and Forests visit BAR

PHOTO COURTESY OF PLESACA

MoAF officials from Bhutan and officials and staff members from BAR pose for a photo opportunity.

A contigent consisting of officials from the Ministry of Agriculture and Forests (MoAF) of the Royal Kingdom of Bhutan visited BAR on 14 April 2014 for a briefing and orientation of the bureau's Research and Development (R&D) programs and priorities. The MoAF contingent was composed of Ms. Kinley Pelden, chief quarantine officer and head of the Bhutan delegation; Mr. Chencho Dukpa, chief research officer; Ms. Sherab Chezom, marketing officer; Mr. Pema Gyaltshen, information officer; Mr. Sherab Wangchuk, planning officer; and Mr. Tshering Togbay, senior agriculture officer. The visit was part of their week-long Study Tour Program in the Philippines.

The briefing started with an audio-visual presentation of BAR highlighting on its two banner programs: the Community-based Participatory Action Research, and the National Technology Commercialization Program. After the short introduction, the discussion centered on the various interventions that the bureau is implementing on technology transfer, community-farmer participation, linkages between research and extension works, organic agriculture, and exchanges and sharing of information.

Officers and staff from various divisions of BAR provided the information during the discussions. Among them were: Ms. Julia Lapitan, head of the Applied Communication Division (ACD); Ms. Salvacion Ritual, head of the Project Monitoring and Evaluation Division; Ms. Mara Shyn Valdeabella, executive assistant for communications from the Office of the Director; Ms. Cynthia Remedios de Guia of the Planning and Project Development Division; Mr. Nathaniel John Cruz of the

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BAR, BSWM orient officials from India

Officials from the Government of Karnataka in India visited BAR and the Bureau of Soils and Water Management (BSWM) on 30 April 2014 to gain knowledge about the research and development (R&D) programs and initiatives of the two institutions.

BAR presented its primer which highlights the R&D programs of the bureau. It tells the story of how BAR was established and features its two flagship programs, the Community-based Participatory Action Research and the National Technology Commercialization Program, along with its R&D priorities, client-oriented services, and other major activities. BAR Assistant Director Teodoro Solsoloy further explained the role of BAR and the different projects and activities that the bureau has been undertaking for agriculture and fisheries R&D in the country.

Meanwhile, BSWM showed an audiovisual presentation regarding the technologies and different R&D activities that they are implementing in view of soil and water management.

Officials from India join the officials and staff members from BAR and BSWM in a group photo. PHOTO:ABRION

BSWM Laboratory Services Division (LSD) Chief Gina Nilo gave details about the agency's efforts towards the effective management of the country's soil and water resources, among others.

Dr. Heraldo Layaoen, liason officer of the India-based International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and technical adviser of BAR, also talked about the Philippines' adoption of the Bhoochetana through the *Yamang Lupa* program (YLP). The YLP is a collaborative project among ICRISAT, BAR, BSWM, High Value Crops Development Program, Bureau of Plant Industry, Agricultural Training Institute, and selected regional field offices of the Department of Agriculture, and state universities and colleges that aims to adopt the practices of the Bhoochetana in India which is anchored on soil rejuvenation to improve agricultural productivity.

The officials from India also shared their respective endeavors. H.G. Shivananda Murthy, commissioner of the Watershed Development Department, presented on the integrated watershed development program in the state. On the other hand, Dr. B. K. Dharmarajan, director of the Agriculture Department, discussed on the strategies undertaken in the Bhoochetana implementation. He highlighted the significant changes that the program was able to achieve especially in terms of enhancing agricultural productivity in Karnataka. ### ***(Anne Camille B. Brion)***