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2008

ANNUAL REPORT

***Making Agriculture and Fishery
Profitable through R&D***



BUREAU OF AGRICULTURAL RESEARCH

The **Bureau of Agricultural Research** (BAR), a bureau of the Department of Agriculture (DA), was created by virtue of Executive Order 116 signed in 1987 to ensure that all agricultural researches are coordinated and undertaken for maximum utility to agriculture. Further, Executive Orders 127 (1999) and 338 (2000) reinforced and expanded the functions of BAR in the central coordination and management of agriculture and fisheries R&D programs.

With its ISO-certified management system (ISO 9001:2000), it is committed to consolidate, strengthen, and develop the agriculture and fisheries R&D system for the purpose of improving its effectiveness and efficiency by ensuring customer satisfaction and continuous improvement through work excellence, teamwork and networking, accountability and innovation.

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About the Cover:

BAR highlights the vital role of farmers in agriculture and fishery research and development (R&D) specifically, the marginalized sector including women. Promoting and marketing of agri-fishery products is one researchable area where gender and development (GAD) issues and concerns are studied in relation to social and economic community improvement.

In the photo is *Lola Inkang* of Bontoc, Mountain Province; taken during the Lang-ay Festival held at the capitol grounds and major thoroughfare showcasing a variety technologies and activities that depict the rich and diverse technological breakthroughs of the Bontoks tribe.

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BUREAU OF AGRICULTURAL RESEARCH
2008
ANNUAL REPORT

*“Making Agriculture and Fishery
Profitable through R&D”*



REPUBLIC OF THE PHILIPPINES
Department of Agriculture
BUREAU OF AGRICULTURAL RESEARCH
Visayas Avenue, Diliman, Quezon City 1104
PHILIPPINES



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Our vision

BAR assures the future of the Filipino people through research excellence in agriculture and fisheries.





DA-BAR



DA-RFU 02

Title : Introduction, Promotion and Efficient Seed Support System of ICRISAT (Asha) Peanut Variety in Region 02, Philippines

Date Started : A

Date of Completion : A

Implementing and Cooperating

Lead Agency : DA-R

Cooperating Agency : ICRIS

Implementing Agency : DA-

Sabela

Funded by : DA-Bureau o

Dr. Rosemary Aquino (left), focal person of Asha peanut production in the Philippines, introduces the variety to a CPAR farmer-cooperator in Reg 2.

Note from the Director

I remember a play I read when I was in college and its title got stuck in my mind because of its symbolic representation. The title is: *Jacques Brel is Alive and Well and Living in New York*. Allow me to borrow two words from this title and claim that agriculture is not only alive and well; it is, at the same time, vibrant, dynamic and competitive.

This is reflected in the achievements of BAR for 2008. Its accomplishments span the total landscape of agriculture. It was able to take full advantage of the interaction and complementation of basic, applied and action-oriented research and development (R&D).

Truly, the achievements of BAR reflect and capture the dynamic relation between data, information and knowledge. A careful review of its major activities for year 2008, readily reveal the real function of BAR as a service agency concerned with bringing technologies to address the challenges on poverty and food security.

Our achievements reflect our commitment to people empowerment. Our researchers have ably demonstrated the way to achieve the greatest impact of our technologies and this is through action research. The importance of community participation in innovative production management was instituted by our researchers.

Our accomplishments, more than ever before, reveal the understanding and commitment of our researchers to make agriculture business and at the same make our farmers become sensitive to the value of information.

We can proudly claim that through our investments in R&D, BAR has deliberately laid down the foundation for an information-driven production management system. Our achievements have erased the common rhetoric on the competitiveness of agriculture.

Our researchers have ably shown through their results the central role of information to decision-making without which innovative management of production cannot be realized.

Our accomplishments in 2008 stand witness to the birth of the new agriculture which is information-driven and therefore, business.

Allow me to recognize the roles of our partners as they are properly acknowledged in this annual report. BAR cannot do the job alone. The active participation of the various stakeholders made our work timely, relevant and focused on creating new opportunities for income and welfare most especially for the marginalized sector.

Together, we can claim that our partnership has truly made a difference and made agriculture alive, well, vibrant, dynamic and on its way to competitiveness.



NICOMEDES P. ELEAZAR, CESO IV
Director



“ Our accomplishments in 2008 stand witness to the birth of the **new agriculture** which is **information-driven** and therefore, **business.** ”



Farmers in Region 5 are planting rice in time for the harvest season.

Introduction

Like most other organizations, year 2008 had been challenging for the Bureau of Agricultural Research (BAR), a period of turbulence around the world due to the global financial meltdown and the food price crisis. Against this backdrop, BAR together with its partners in the agriculture and fishery R&D sector, strived to continuously improve and innovate in its major programs and activities to accomplish what had to be done.

Keeping in mind the premise of AFMA (Agriculture and Fisheries Modernization Act) to promote a technology-driven approach to modernize the Philippine Agriculture and the goals of MTPDP (Medium Term Philippine Development Plan) to boost the country's economic growth through agribusiness development, BAR adopted a modern management principle harmonizing initiatives and programs that are geared towards "making business out of agriculture".

Given such policy orientation, the bureau refocused and aligned its Research Development and Extension (RDE) initiatives giving significant emphasis on process rather than on output. This is best reflected in the FIELDS (Fertilizer, Irrigation, Extension, Loans, Dryer, Seeds) Program of the Department of Agriculture (DA), which is a strategic support system for meeting the goals of agribusiness development. In so doing, BAR strengthened further its involvement at the grassroots' level by bringing significant research results out of the shelves and into the farmers' field.

For BAR, this is best realized through the implementation of its two strategic banner programs, namely: Community-based Participatory Action Research Program (CPAR) and National Technology Commercialization Program (NTCP). Vital to these efforts is the emphasis placed on processes necessary to attain the goals of DA.

Furthermore, to address the major changes in global realities and respond to the issues of rural poverty and food insecurity, RDE areas such as biofuels, biotechnology, organic agriculture, promoting indigenous vegetable production were given high priorities.

Given the rapid population growth and the declining land resource, any increase in income can originate only from productivity growth. For agricultural production to grow, there must be full support for RDE activities and programs. As the saying goes, it is only through strong RDE activities that a business can stay profitable and competitive. While it is true that the cost of R&D is high, the return to such investment is always positive. This remains to be a critical challenge given the productivity slowdown in Philippine agriculture in recent decades.

With the aim of achieving productivity growth, BAR implemented various programs and projects aimed at increasing farm output. These include, but no limited to varietal and cultural practices improvements, projects that support productivity enhancement from production to post-production stage. Also, collaborative projects involved DA concerned agencies, Regional Field Units (RFUs), local government units (LGUs), and the private sector. This modality promotes awareness of development projects among stakeholders and the beneficiaries, farmers and fisherfolk. Furthermore, it promotes synergy through concerted efforts in achieving the goals, objectives, and vision of the Department.



SUPPORTING RESEARCHES THAT MATTER:

Addressing Food Security and Rural Poverty

FUNDING RDE PROJECTS

The perennial issues of rural poverty and food security have always been the concern of the Department of Agriculture (DA). The Philippines is predominantly an agricultural country where two-thirds of the country's population still depends on farming for their livelihood. Harnessing the untapped potentials of the agriculture sector remains to be the most practical way to cope with the burden of rural poverty and food security in the country.

Keeping true to its mandate of coordinating and funding of agricultural research and development activities, BAR through its Program Development Division (PDD), funded 75 projects in 2008. This marked an increase of 25% over than the 60 projects supported by the bureau in 2007. Both applied and basic researches are being supported by BAR for the enhancement of productivity and profitability in agriculture and fisheries. In 2008, 43 new and 13 on-going projects were funded. Majority of the projects funded were from the SUCs and RIARCs/RFRDCs of the DA (Table 1).



Table 1. Number of BAR funded projects according to agency.

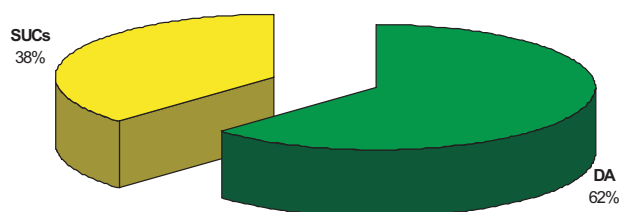
Agency	No of research projects
SUCs	24
RIARCs/RFRDCs	20
DA-attached bureaus and agencies	8
Private sector and NGOs	4

Support to basic research

Basic researches are carried out to increase understanding of fundamental principles. Eight basic researches were funded by the bureau last year (Figure 1). Though the knowledge from basic researches does not have immediate commercial use, the bureau continuously supports this type of research as it lays the foundation to new knowledge and insights, which may later lead to breakthrough and innovative technologies as we respond to the needs of our times.



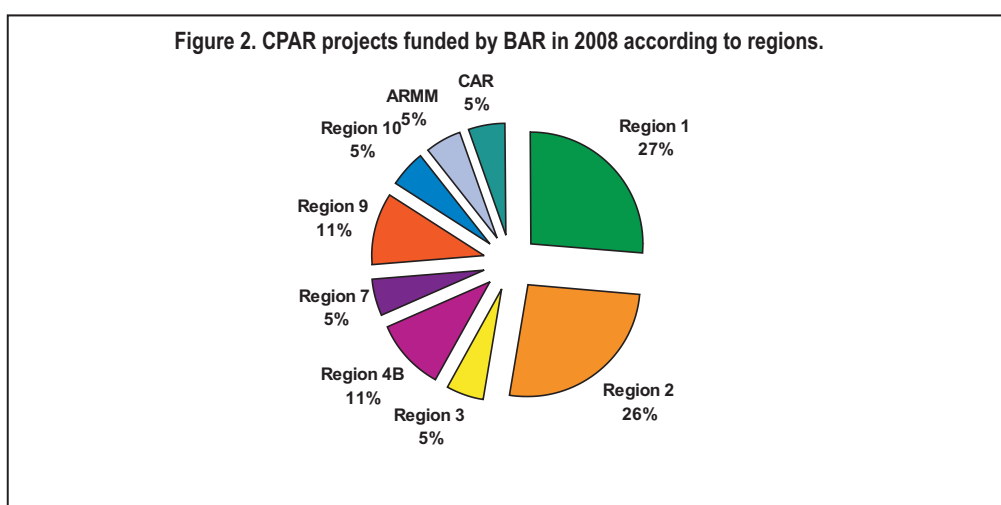
Figure 1. Basic researches funded by proponent/implementing agency



Community-based initiatives

The Community-based Participatory Action Research (CPAR) aims to address the weak research-extension linkage with the ultimate goal of increasing total farm productivity and income in the context of a sustainable production system following the farming system approach. It serves as a platform for technology assessment involving the active participation of the community, together with experts and researchers in identifying the most appropriate technologies to meet the community's priority needs.

Nineteen CPAR projects were funded in 2008 by the bureau, about half of them coming from Regions 1 and 2 (Figure 2).



Being part of the two banner programs of the bureau, the implementation of CPAR was expanded in 2008 by opening it to the Local Government Units. Since its announcement, four LGU-led CPAR projects were funded on 2008: three from Isabela and one from Ifugao (Table 2).

Table 2. LGU-led CPAR projects funded by BAR in 2008.

PROJECT TITLE	COMMODITY/ SECTOR	IMPLEMENTING AGENCY
Community-based Participatory Action Research on Vegetable Organic Farming in Kiangán, Ifugao	Vegetables	Provincial Agriculture, Environment & Natural Resources Office (PAENRO), municipality of Kiangán
Community-based Participatory Action Research on Crop-Livestock Farming System in Ngarag, Cabagan, Isabela (formerly Mabangug)	Crop-Livestock	MLGU-Cabagan, Isabela
Community-based Participatory Action Research in Corn-Based Farming Systems in Sto. Tomas, Isabela	Corn	MLGU Sto. Tomas, Isabela
Community-based Participatory Action Research in Rice-Based Vegetable and Livestock Farming System" of Annanuman, San Pablo, Isabela	Rice, Vegetable and Livestock	MLGU San Pablo Isabela

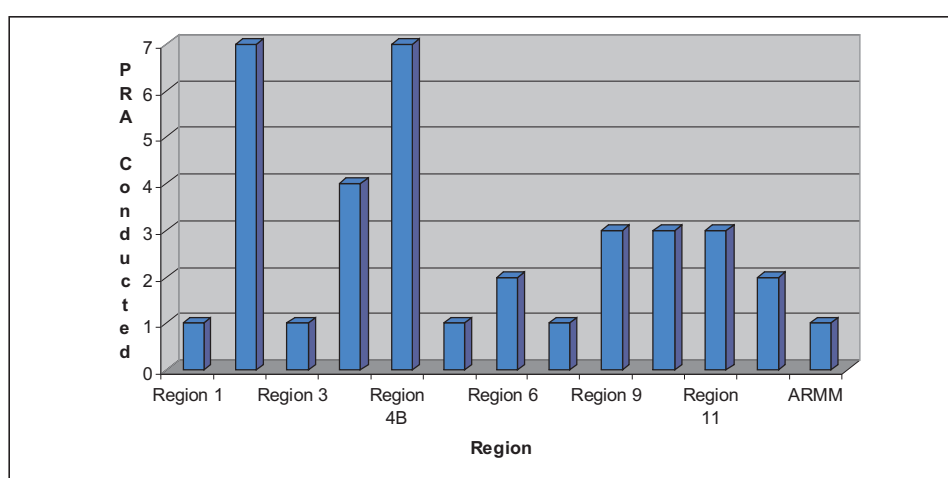
Farmers' participation in assessing their needs

Participatory Research Appraisal (PRA) is viewed as an important prerequisite to a CPAR project. The PRA involves full participation of the farmers in identifying their needs as they are in the best position to determine them in relation to their farms and which can be answered through research.

The PRA activities kicked-off in February 2008 in Negros Occidental spearheaded by the Central Visayas Integrated Agricultural Research Center (CENVIARC). This led to other PRAs conducted all over the country in 2008 totaling to 36. (Figure 3)



Figure 3. Number of PRAs conducted according to region.



PIMs and Implementation meetings

BAR conducted 23 pre-implementation meetings (PIMs) for 28 newly funded projects. The PIM is conducted prior to the implementation of newly approved project to fine-tune the proposal's methodology, logical framework, work plan, budget and other important details of the project.

Also, the parameters for monitoring and evaluation of the project are identified during the meeting.

BAR also conducted six implementation meetings for the 13 newly funded CPAR projects of the DA RFUs/BFAR ROs and LGUs. Implementation meetings are conducted prior to full implementation of the CPAR projects to discuss the activities of the project, the roles and responsibilities of the project implementers and collaborators, and the scheme of monitoring and evaluation of the project.



Review of completed BAR-funded projects

To facilitate selection of commerciable technologies, dissemination of research outputs, and identification of emerging researchable areas, the bureau conducted a review of BAR-funded completed projects implemented by SUC partners.

During the first quarter of 2008, two completed projects implemented by the Zamboanga State College of Marine Science and Technology (ZSCMST), were reviewed. The first project entitled “Enhancing Sustainable Fisheries through Improved Marine Fishery Reserves (MFRs): Investigation of the Short Range Effects of MFRs,” was recommended by the evaluators to be continued in order to monitor the initiatives done by the project in enhancing fisheries management.

For the other project entitled “Assessment of Commercially Important Invertebrates of Inter-island Waters (Sulu),” it was suggested that the scope and coverage of the study be reviewed and linked with the other studies on invertebrates done in Luzon and Visayas to come up with comprehensive information for the whole country.



PACKAGING RESEARCH FOR LOCAL AND FOREIGN FUNDING

In addition to funding and coordinating research projects, the bureau also packages proposals for local and foreign funding.

For the year 2008, BAR, through its PDD, submitted 10 proposals and concept notes to DA for possible financial assistance from local and foreign institutions. Of these, two were submitted to the Government of China-Millennium Challenge Corporation (MCC), two to the Netherlands Business Council (NBC), three to the US Department of Agriculture (USDA), Government of Canada, one each to the Millennium Challenge Corporation, the Agricultural Competitiveness Enhancement Fund (ACEF), and the Department of

Science and Technology- Science Fund (DOST). (Table 3) The CPAR proposal submitted for ACEF funding support is already in the pipeline for review by the National Technical Committee and later by the DA-Executive Committee. Likewise, the proposal submitted to DOST under the Php 3.0 billion-grant was prepared for presentation and further evaluation.

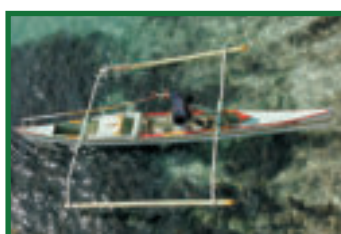


Table 3. Summary of proposals submitted to different foreign and local funding institutions.

Funding Agency/Institution	Proposal
Foreign funding/ collaboration	
China; MCC	Developing Agricultural Areas into Agro-ecotourism Sites for the Utilization of Tourism Benefits
	Sustainable Conservation and Utilization of Philippine Indigenous Crop Species
NBC	Pesticide Residues on Selected Export Crops for Policy and Regulations
	Integrated Program for Sustainable Floriculture Industry of the Philippines (Development of Tropical Floriculture Center with Focus on the Rich, High Value Endemic Ornamental Plants of the Philippines) <i>(prepared in collaboration with UP Los Baños)</i>
USDA; Government of Canada	Capability Building in Intellectual Property (IP) based Technology Transfer of Research Result through Promotion and Commercialization
	Training on Seafood Safety (Hazard Analysis Critical Control Point)
	Training Program on Biotechnology for DA Research and Development Agencies –
MCC	Revitalization of Agricultural Research, Development and Extension for Farmers and Fisherfolk Education <i>(submitted in collaboration with ATI)</i>
Local funding/ collaboration	
ACEF	Expanding Community Participatory Action Research (CPAR) for Selected Crop-Based Farming Systems
DOST- PhP3.0 Billion Grants	Modernizing Agriculture and Fisheries through Research, Development, and Extension for Increased Productivity and Profitability Program



straight paddies in Tacloban



Basidio Marine Sanctuary, Bohol



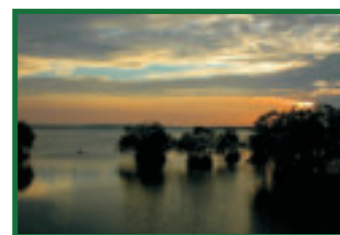
Brookspoint Farm, Baguio City



bahay kubo demo farm in Cotabato



Malinao Dam, Pilar, Bohol



mangroves in Pangangan Is, Calape, Bohol



Bulusan Lake in Sorsogon



strawberry farm in La Trinidad, Benguet



Developing agricultural areas into agro-ecotourism sites for the utilization of tourism benefits

IMPLEMENTING FOREIGN-ASSISTED PROJECTS

Seven Foreign Assisted Projects (FAPs) were coordinated by BAR in 2008. Most FAPs are focused mainly on increasing food production and alleviating poverty, especially in the rural areas.

1. Improving Knowledge Exchange and Decision Making among Rice Stakeholders

To help improve farmers' productivity by improving their access to and application of rice and other related knowledge, through the use of alternative models of technology transfer combined with relevant ICT, the project "Improving Knowledge Exchange and Decision Making Among Rice Stakeholders Through ICT-based Technology Promotion and Delivery Systems" program was launched in 2006.

Through the combined efforts of the International Rice Research Institute (IRRI) and the Philippine Rice Research Institute (PhilRice), the effectiveness of the Rice Knowledge Bank (RKB)—a repository of extension and training materials related to rice and rice production—and other knowledge systems that utilize ICT and innovative technology promotion approaches in selected pilot sites all over the Philippines (Laguna, Quezon, Nueva Ecija, Pampanga, Negros Occidental, Davao, and North Cotabato) will be enhanced through the use of alternative models of technology transfer combined with relevant ICT was institutionalized.

During the first quarter of 2008, a review and on-site monitoring of the IRRI-PhilRice Cyber-Village Project was conducted in the project's pilot sites (Davao del Sur, Davao del Norte, Davao Oriental and North Cotabato). The installed cyber units were meant to be useful for the farmers and LGUs on rice farming. More training will be conducted for the farmers particularly on the cyber unit troubleshooting and the use of the database to translate RKB into local dialects and convert it to video compilations/clips.



RKB database translated in Vietnamese

2. Enhancing Adoption of ICRISAT Legume Varieties and Technologies

Implemented by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the project aims to increase food production by introducing and fine-tuning intensive crop-based farming systems, dissemination to farmers of selected peanut, chickpea and pigeon pea technologies, and strengthening of research capacities of local R&D institutions.

Although completed in August 2007, expansion of R&D activities and support services to other regions for increased and sustainable levels of productions of legumes as well as other crops including livestock are also planned.



3. Rural Enterprise Development through Innovative Goat Production Systems

Spearheaded by the International Livestock Research Institute (ILRI), the project's primary goal is to contribute to the Philippine government's bid to alleviate poverty in rural areas by transforming goat raising from a subsistence type of farm activity into a viable small animal business enterprise.

The experiment was conducted to assess the carcass and meat characteristics of native, upgraded and Three Way Crossbred (TWC) goats. On 12 June 2008, the terminal review of the project was conducted wherein it was reported that TWC had better advantage over upgraded and native goats with regards to slaughter and carcass yield, comparable carcass quality and composition to upgraded goats. TWC goats therefore will command higher selling price. Furthermore, slaughtering the goats could give additional income compared to selling them on per head basis. The evaluators recommended conducting further studies and research on the topic, and sharing the project results with other concerned agencies.



4. Introduction, Promotion, and Efficient Seed Support System of ICRISAT "Asha" Peanut Variety in Region II, Philippines

Asha is a large seeded variety of peanut introduced in the country on 2005 through a partnership program between BAR and ICRISAT in cooperation with DA-RFU 2. Activities under the project which aimed at developing and facilitating the transfer/promotion of suitable peanut variety/technologies to improve peanut productivity in the country (variety introduction/testing and development of POTs, on-farm and on-station seed production, cluster/commercial production and trainings/capacity building) were completed in March 2008.

The project was able to introduce, produce and promote the confectionary peanut variety in the country specifically in Region II. *Asha* is now a preferred variety in the region due, not only to its high yield and big seeds but also because of its high market acceptance. The project attracted the interest of the LGUs and other funding agencies to invest in the "Peanut Agri-based Community Industry." Thus, there is an increasing demand on *Asha* peanut requiring a more sustainable commercial seed production program and strengthened promotion activities.



The Diversified Farm Income Market Development Project (DFIMDP) is a World Bank (WB) Sector Investment and Maintenance (SIM) Loan, designed to rationalize, give proper direction and set a time-bound implementation plan for the transition of DA into a service-oriented agency, as envisioned by the AFMA and as articulated by DA in its own strategic plan.

Launched in 2004, the primary goal of DFIMDP is to stimulate rural growth and farmer incomes by enhancing the competitiveness of Philippine agriculture and fisheries through market-oriented private sector-led investments. One of the components of the project is the Technology Development Cluster wherein BAR was tasked to lead in the implementation of activities with BPRE and ATI as member agencies.



A total of 58 projects were supported under DFIMDP in 2008: 32 for research and development projects and 26 for the technology commercialization of market-oriented technologies/ product. Most of the projects funded are geared towards technology generation, technology development, technology dissemination, product development, handling and packaging operations, and postharvest technologies. To validate and monitor the progress of projects under DFIMDP, site-visits were arranged by the bureau for the World Bank Review Mission Team last December 2008.

One of the covenants agreed under DFIMDP is the Competitive Research Grant Manual (CRGM). The CRGM is a manual that aims to improve the effectiveness of the R&D grant system of BAR and ensure the relevance of research activities to the needs of the agriculture sector. In order to encourage wider participation of the LGUs and private sector in the conduct of R&D, the PDD conducted five CRGM orientations for CY 2008 for the LGUs and private sector in Regions I, IV-A and IV-B, VI, VIII and IX. Each orientation was attended by an average of 35 participants.

6. Impact Assessment of ACIAR's Grain Storage Pest Control Research

The "Impact Assessment of ACIAR-Funded Research on Pesticide Use and Grain Storage in the Philippines" is a study conducted to assess the impacts of the series of pesticide research as a follow through of earlier assessment studies, in the context of the guidelines on impact assessment recently developed by the Australian Center for International Agricultural Research (ACIAR).

In collaboration with ACIAR, a leader in detailed impact assessment undertakings, DA-BAR co-supported and led the conduct of the study. The participation of BAR in the actual conduct of the study was also a way of strengthening its capability in conducting impact assessment studies and integrating impact assessment activities into its accountability and decision-making systems.

Results of the study showed that the benefits realized from the adoption of ACIAR technologies on stored grain pest management were quite large, pointing out that the investment in R&D of the ACIAR technology is worth pursuing.

The study was supported by ACIAR and jointly implemented by four research organizations from the DA, namely: BAR, Bureau of Agricultural Statistics (BAS), Philippine Rice Research Institute (PhilRice), and Agricultural Policy Credit Council (ACPC). BAR was the executing agency. The project was completed in December 2008.



7. Strengthening Partnerships in Aquaculture and Fisheries Research in the Philippines



This project is a newly-approved proposal of the World Fish Center (WFC) aimed at providing capacity building support for aquaculture and fisheries research in the Philippines. Through this project the exchange of scientists between DA and other research institutions in the country and WFC will be facilitated.

A pre-implementation meeting was already conducted for the project. As an initial activity, four DA technical personnel (2 from BAR, 1 each from DA-RFRDC 1 and 5) attended the strategic planning and visit to the WorldFish Center in Penang, Malaysia to identify common interests and develop collaborative work that can be pursued with the various research institutions working on fisheries.

To strengthen the collaborative work among the research institutions involved and to ensure the sustainability of the project, areas of collaboration for 2009 were developed. Those include the conduct of partners meeting, governance project, capacity building project, short-term projects, i.e. impact assessment, project packaging, research on vulnerability assessment, and suitability mapping training.



ENHANCING INSTITUTIONAL CAPABILITY AND HUMAN RESOURCE

For an organization to successfully attain its goals, it should have the human resources necessary to perform its task. In R&D and its rapid development, it is crucial that continuous training for its management be pursued to enable it to cope with the challenges brought about by recent developments in agricultural R&D.

Being at the forefront in R&D coordination in the country, the bureau recognizes the importance of building the capacity of the members of the DA R&D system. It acknowledges that human capital investment is the element that gives fluidity, flexibility and functionality to an organization enabling it to adapt to changing needs of the population that it serves.

Human Resource Development

Among the core tasks of BAR is the development of and implementation a manpower development program for R&D staff and researchers. Hence, three programs to support the training and development of a critical mass of research staff in the Department of

Agriculture and partner institutions under the NaRDSAF are offered by the bureau: 1) DA-BAR NaRDSAF Degree Scholarship and Thesis/Dissertation Assistance Program, 2) Non-Degree Assistance Program, and 3) Productivity Enhancement Program.

DA-BAR NaRDSAF Degree Scholarship Program

The DA-BAR NaRDSAF Degree Scholarship Program is a facility that may be tapped by Research and Development staff to pursue higher studies. The program provides financial support for the pursuit of M.S. or Ph.D degrees in accredited universities.

In 2008, two (2) DA-BAR NaRDSAF scholars obtained their Masters and Doctorate degrees from Visayas State University (VSU) and University of the Philippines Los Baños (UPLB), respectively. (Table 4)



Table 4. DA-BAR NaRDSAF scholars in 2008.

Name	Agency/Institution	Course/University
Joel A. Cantoneros	DA RFU VIII	MS Agronomy/VSU
Maria Lourdes Moreno	ERDB-DENR	PhD Community Development/ UPLB

Meanwhile, three new scholarships (2 MS and 1 MA) were awarded for CY 2008-2009. This year's scholars were enrolled in the fields of Environmental Science (MS), Animal Science (MS), and Public Administration (MA). (Table 5)

Table 5. New DA-BAR NaRDSAF scholars for SY 2008-2009.

Name	Agency/Institution	Course/University
Karl Vernon G. Tamban	DA-RFU IV-B	MS Environmental Science/UPLB
Flomella A. Caguicla	BAI	MS Animal Science/UPLB
Lamberto dela Cruz	DA	MA Public Administration/ UP Diliman

In 2008, there were 18 scholars under the DA-BAR NaRDSAF Degree Scholarship Program.

Assistance was also provided to researchers undertaking graduate studies related to requests for renewal of contracts of service, scholarship extension, thesis/dissertation allowance, budget realignment, refund payment of scholarship expenses of delinquent scholars, evaluation of thesis proposal, and liquidation of book allowance.

Tuition Fee Assistance Program

To provide additional assistance and to accommodate other deserving applicants who cannot avail of the Degree Scholarship Program, the Tuition Fee Assistance Program was established and implemented effective first semester SY 2008-2009. Under the program, qualified employees from different R&D units from DA bureaus studying on part-time basis may reimburse their tuition fees subject to qualifications and requirements prescribed under the prescribed guidelines. For its initial implementation, three (3) grantees (DA-BAR- 1; DAF-ARMM - 2) were able to avail of tuition fee assistance.

Thesis/Dissertation Assistance Program

The Thesis/Dissertation Assistance Program (TDAP) provides support to agricultural R&D personnel who are pursuing graduate studies for the conduct of their thesis or dissertation studies that address major problems and concerns in agriculture and fisheries.

The program aims to support in the conduct of their thesis/dissertation. From January to December of 2008, a total of 15 applications were received and evaluated and 11 were approved.

DA-BAR Non-Degree Assistance Program



The DA-BAR Non-Degree Assistance Program provides financial assistance to NaRDSAFA researchers and scientists to participate in specialized training (locally or abroad), or and represent the country in collaborative R&D undertakings or present research papers in international scientific fora (conferences, seminars, or symposia). Financial assistance is also granted to scientists or research personnel who wish to engage in short-term basic research through post-doctoral or fellowship awards.

The program aims to enhance the skills and update the knowledge of R&D personnel in specific professional, technical, and scientific areas in agriculture and fisheries, locally and abroad. It works to bring the capability of researchers and support staff to a higher level needed in the development of highly competitive technologies and approaches in agriculture and fisheries.

In collaboration with the UPLB College of Public Affairs (CPAf), BAR conducted a training program on research project management in Los Baños, Laguna. A total of 48 participants, in two batches, from different DA Regional Field Units (RFUs), staff bureaus, and BAR staff attended the “Training Program on Research and Development Proposal Preparation” conducted from May to June 2008.

Fifty-six grantees (1 local and 55 foreign) were provided financial assistance for their attendance to various trainings, seminars, conferences and study visits. BAR support was in the form of any of the following: airfare, registration fees and daily subsistence allowances.

Financial assistance was also given to DA R&D units for the conduct of trainings, workshops, and conferences as follows:

1. Regional Workshop on Climate Change and Food Security, Global Drivers of Change for Improving the Competitiveness of Fisheries and Fisheries Based Products in the Region; WorldFish Center; SEARCA
2. Training Workshop on Statistical Procedures for Agricultural Research; DA-RFU IV-A
4. Training in the Use of the Harmonized Gender and Development (GAD) for Project Development, Implementation, Monitoring and Evaluation; DA-BFAR V
5. Farmers' Field Day and 17th DA WESMIARC Anniversary; DA-RFU IX
6. Refresher Course on Proposal Preparation and Technical Writing; DA-BFAR III
7. Planning-Workshop and Consultative Meeting; PCA
8. Re-Echo Training Workshop on Goal-Oriented Project Planning Focusing on Logical Framework for R&D Projects; DA-RFU X
9. 2nd National Conference on Harmful Algal Blooms; UP-MSI
10. Strategic Planning and Visioning Workshop for ARMMIARC R&D Programs; DAF-ARMM
11. 18th National Convention of PHILARM; Legaspi City

Productivity Enhancement Program

The Productivity Enhancement Program provides assistance for corporate planning workshops and incentives for researchers. The program also aims to promote the DA's scientists and give recognition to their outstanding achievements through incentives. It also supports policy studies related to position, salary and other benefits of research staff or research institutions.

Through the PDD, BAR has actively participated as coordinator and secretariat in the selection of Outstanding Agricultural Scientist (OAS) under the DA Annual Search for Achievers in Agriculture and Fisheries.

For the year 2007-2008, the award was given to Dr. Louella Rowena A. de Jesus, Officer-in-Charge, Research Division, DA RFU IV-B in recognition of her significant contribution to the mango industry in the country in her pioneering research work on the biology, behavior, ecology, and control of the mango pulp weevil (*Sternochetus frigidus*) which reduced the magnitude of disease infestation in Palawan and controlled its potential spread to other mango-growing areas of the country. Her mango cultural management recommendations helped uplift the socio-economic conditions of disadvantaged Palawan mango growers.



Dr. Louella Rowena A. de Jesus, Officer-in-Charge, Research Division, DA RFU IV-B checks mangoes for pulp weevil.

Post-Doctoral and Senior Scientist Research Fellowship Program

The Post-Doctoral and Senior Scientist Research Fellowship in Basic Research for Agriculture and Fisheries provides opportunities for scientists and researchers to conduct basic researches in natural sciences for agricultural modernization in the country with financial assistance from the BAR and the use of facilities at the Natural Sciences Research Institute, UP Diliman in the conduct of research.

Under the program, Dr. Ronaldo T. Alberto, CLSU, was awarded a fellowship for his project titled, "Molecular Studies of *Collectrichum gloeosporoides* Affecting Onion Production in the Philippines".



Dr. Ronaldo T. Alberto of CLSU during a seminar at BAR.

R&D Facilities Development

The R&D Facility Development and Maintenance Program of the bureau provides support to national, regional, and provincial RDE centers through its Institutional Development Grant (IDG) to strengthen institutional R&D capacity in the acquisition of scientific equipment, renovation and construction of research facilities, preparation of the master station development plan, and other critical needs of R & D centers.

Institutional Development Grant Program

From the 37 IDG proposals that the bureau received for 2008, 19 were approved. Eleven upgrading and/or equipping projects of R&D centers were likewise supported. The following R&D centers are recipients of the Institutional Development Grant Program: BPI-Davao, DA-ILIARC, DA-WESVIARC, DA-RFRDC 2, DA-RFRDC 6, DA-RFU 4A, DA-RFU 5, BPSU, CSSAC-Calabanga Campus, and UPLB.

Master Development Plan

Master development plans (MDPs) are a useful tool for both developers and planners to reach consensus and agreement about how an area should be developed. It depicts the larger planning horizon as it describes, in narrative and with maps, an overall development concept. The bureau assisted four R&D centers in the preparation of their master station development plans. The master station development plans of BFAR-3, 10, 11, 13, and DA-CLIARC and CEMIARC were also reviewed and evaluated.



BPSU Tissue Culture Lab inside the Abucay campus.



The newly-reconstructed WESVIARC building.



The newly rehabilitated RFRDC Region 5 building inaugurated in August 2008.



Seed storage facility and greenhouse at LGNCRDC restored and rehabilitated through BAR's IDG. They are now being used for the center's germplasm collection and breeding.



INITIATIVES IN SUPPORT TO RDE PROGRAMS

20th National Research Symposium

With the chronic issues of poverty, uncertain food security, and malnutrition that seemingly defy solution, it is important that the R&D focus and tackle these challenges to improve the lives of the people, especially of those in the rural areas. This was reflected in the 20th National Research Symposium (NRS) of BAR as it carried out the theme "Mula sakahan patungong hapagkainan: Bringing the benefits of agricultural R&D closer to the people".

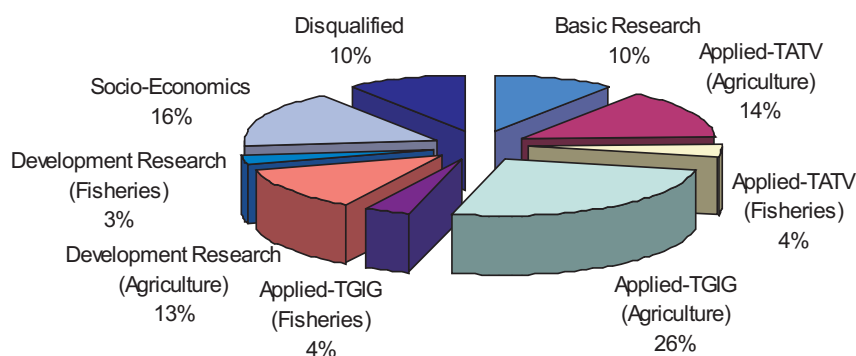
A year after the establishment of BAR, the NRS was institutionalized to promote excellence in R&D. From then on, NRS became a venue for disseminating new technologies and knowledge beneficial to the modernization of agriculture of fisheries, with participation from scientists from SUCs, attached agencies and bureaus of DA, and agriculturists from LGUs. It is also during this event that the notable accomplishments of researchers in agriculture and fisheries are given due recognition.

In 2008, a total of 79 entries from different R&D implementing agencies were entered into the NRS. The entries were categorized into agriculture and fisheries, competing based on four sub-categories, namely: basic, applied, socio-economics and development research. Applied research was further sub-divided into technology generation/information (TG/IG) and technology adaptation/technology verification (TATV).

Majority of the entries were under the Applied Research-TGIG category (Agriculture), covering 26% of the total entries (Figure 3). RIARCs and RFRDCs had the most number of entries (26 paper entries) for the symposium.



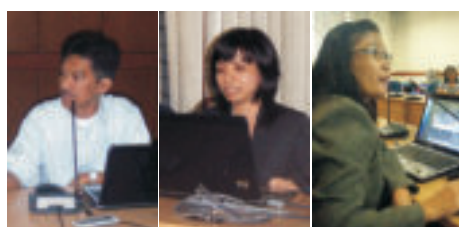
Figure 3. Entries for the 2008 NRS according to category



From the 79 entries, 42 papers qualified from which 20 were invited to present to a panel of experts for the final evaluation on 2 October 2008 at BAR. The 18 winners were announced during the awarding ceremony held on 3 October 2008 at the Fernando Hall, BSWM. Representative Salvador H. Escudero III of the First District of Sorsogon served as the guest speaker at the awarding ceremony. (Table 6)

Table 6. No. of entries for the 2008 NRS by agency

Category	SUCs	DA attached agencies and bureaus	DA RFUs, RIARCs/ RFRDCs	LGU	Private/ NGO	Other (SEAFDEC)
Basic Research	2	2	1	-	-	3
Applied Research-TATV (Agriculture)	1	5	4	-	1	-
Applied Research-TATV (Fisheries)	1	-	2	-	-	-
Applied Research-TGIG (Agriculture)	8	9	4	-	-	-
Applied Research-TGIG (Fisheries)	2	-	1	-	-	-
Development Research (Agriculture)	-	4	6	-	-	-
Development Research (Fisheries)	-	-	2	-	-	-
Socio-Economics	7	3	2	1	-	-
Disqualified	4	-	4	-	-	-
TOTAL	25	23	26	1	1	3



Basic research



Development research



Socio-economics research



Applied research (TA/TV) agriculture



Applied research (TG/IG) agriculture and fisheries

28th NRS Presenters





DA Usec Segfredo R. Serrano delivers his keynote message.



BAR Dir. Nicomedes P. Eleazar welcomes participants and attendees.



Participants from the DA regions.



Participants and attendees listen to Usec Serrano's message.



Edgar Orden and Emilio Cruz of CLSU receive their award.



(L-R) Dir. Eleazar, DA Usec Serrano and BAR Asst. Dir. Teodoro S. Solsoloy.



Director Eleazar smiles as the NRS presenters were announced to be acknowledged.



Anita T. Asuncion of Region 2 receives the AFMA R&D Paper Award for their study.



20th NRS Opening Program



DA Sec Arthur C. Yap highlights the importance of R&D in the agriculture sector. He is one of the honored guests during the awarding ceremony.



Members of the audience present during the awarding of 2008 Best AFMA R&D Papers held at the BSWM Convention Hall.



Severino Magat of PCA receives the Best AFMA Paper for applied research (TG/IG) agriculture.



Melinda Calumpit of DA-ILIARC bags the development research (agriculture).



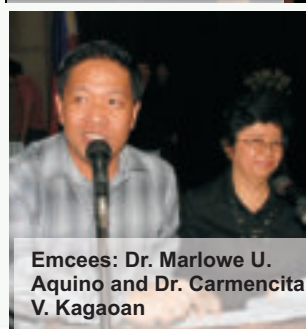
Teresa Mangili of BPI-BNCRDC wins applied research (TA/TV) for the agriculture division.



Edgardo Tulin of VSU is first prize for the basic research category.



Manolito Bulaong of BPRE receives AFMA Best Paper.



Emcees: Dr. Marlowe U. Aquino and Dr. Carmencita V. Kagaoan



Rep. Salvador H. Escudero III of the First District of Sorsogon was one of the guests of honor during the awarding.



Winners pose for their group photo with the VIPs.

20th NRS Awarding Program

Indigenous Plants for Health and Wellness RDE Program

Launched in 2007, the “Indigenous Plants for Health and Wellness (IPHW) RDE Program” was developed in response to Proclamation No. 1280 that declares October as National Health and Wellness Tourism Month. Since then, BAR has been actively supporting activities and projects that promote the use of indigenous plants for human health and wellness.

To identify possible areas for RDE on indigenous plants, a series of meetings was conducted by BAR with the pool of experts of the IPHW program composed of BAR, UPLB, and BPI to identify relevant R&D activities. As an offshoot of the meeting, several projects on indigenous plants were supported by BAR, specifically on *Moringa* (malunggay).

The Bicolandia Greenfields Development Corp., Inc. is the proponent of a study entitled “Studies on the adaptability and survival performance of *Moringa oleifera* from different parts of Camarines Sur”. This was funded by the bureau in

2008. The study aims to successfully grow *Moringa oleifera* under large-scale cultivation in Camarines Sur, Region 5 (in preparation for the next phase of this study, i.e. production of seeds for seed oil extraction). Specifically, the study intends to collect and conduct adaptability trials of *malunggay* strains intended for large scale cultivation and generate packet of technologies (POTs) for the successful cultivation of *moringa* trees (intended for large scale plantations for seed oil production).

The commercialization of the different products from moringa was also supported by BAR. The Bicol Integrated Agricultural Research Center (BIARC) started to produce different commercial lines of



products from *malunggay* such as *malunggay* tea, *malunggay* polvoron, *malunggay* cookies, and *malunggay* surprise. This was made possible through the project “Development of promising value-adding technologies for pili, queen pineapple, and selected vegetables as banner commodities of Bicol.”

Aside from *malunggay*, the uses of other species of indigenous plants are being looked into. For instance, the entry of indigenous plants in the spa industry as noted in the increasing popularity of spa nowadays. In this connection, a visit to a spa (Total Image Day Spa) was done to observe the actual use of indigenous plants and other herbs in the spa industry, noting the increasing popularity of spa nowadays. The visit was facilitated by Ms. Marjorie Lopingco, president of the Spa Association of the Philippines, Inc., who is also a member of the pool of experts for the IPHW program.

Seminars that tackled the importance of indigenous plants were conducted on several occasions to promote and disseminate information with speakers also coming from the IPHW program pool of experts (Table 7).

Table 7. Seminars conducted on the promotion of indigenous plants

PRESENTER/ SPEAKER	TOPIC	VENUE
Ms. Marjorie Lopingco, President, SAPI	Prospects of Spa Industry Using Indigenous Plants in the Philippines	6th BAR Seminar series, RDMIC building, Diliman, Quezon City
		Agriculture and Fisheries Technology Commercialization Forum and Exhibit, Mega Trade Hall, SM Mega Mall, Mandaluyong City
Dr. Evelyn B. Rodriguez, Professor, Institute of Chemistry, UPLB	Food Plants as Source of Nutraceuticals and Cosmeceuticals Ingredients	6th BAR Seminar series, RDMIC building, Diliman, Quezon City
	Indigenous Plants for Health and Wellness	7th Philippine Food Expo, Mega Trade Hall, SM Mega Mall, Mandaluyong City Agriculture and Fisheries Technology Commercialization Forum and Exhibit, Mega Trade Hall, SM Mega Mall, Mandaluyong City
Dr. Lourdes Cardenas, Institute of Biological Sciences, UPLB	Indigenous Plants for Health and Wellness	7th Philippine Food Expo, Mega Trade Hall, SM Mega Mall, Mandaluyong City
		Agriculture and Fisheries Technology Commercialization Forum and Exhibit, Mega Trade Hall, SM Mega Mall, Mandaluyong City

O! May Gulay Cooking Contest



To encourage households in the urban areas to cook affordable and nutritious food using local agricultural products, a cook fest conducted by DA through BAR was initiated. Launched in 2007, the O! May Gulay Cooking Contest is designed to develop vegetable recipes that are original, easy to prepare, affordable, and delicious. The contest is open to public high schools in Metro Manila, with each school submitting one entry and represented by two students. In

From the semi-final round, six schools entered the final round, which was conducted during the 2008 AgriLink program at the World Trade Center, Pasay City. The actual preparations of the dishes were demonstrated by the representative students of each school that made it to the final round.

The healthy and innovative “Imbutidong Papaya at Malunggay” dish was judged the winner among the 6 finalists of the O! May Gulay Cooking Contest. The recipe was prepared by two students of Dr. Arcadio National High School in Paranaque City.

The “Fresh Lumpia in Pumpkin and Sauce” by the Manggahan Memorial High school in Pasig City was declared first runner-up. Meanwhile, the “Vegetable wraps” of the Jose Abad High School tied up with the “Kala-Malu-Tahong Rolyo Con Blanco Sarsa” of the Science Technology High School in Quezon City for the second runner-up position (Table 8).

2008, the schools were grouped into 6: PaMaMARIsan (Pasig, Mandaluyong, Marikina, San Juan), MuntiParLas-TaPat (Muntinlupa, Paranaque, Las Piñas, Taguig, Pateros), CaMaNaVa (Caloocan, Malabon, Navotas, Valenzuela), Manila, PaMa (Pasay and Makati), and Quezon City.

Eighteen schools were selected in the semi-final round at BAR last year, from September 10-12. Sample dishes of their submitted recipe were brought by the student representatives for judging. The prepared dishes were judged according to the following criteria: palatability, nutritional value, visual appeal, creativity/originality, and affordability.

The winners received certificates and cash prize. Moreover, the grand winner and the first runner-up were awarded with exposure trips to Baguio City and Tagaytay City, respectively.

Table 8. Summary of 2nd O! May Gulay Cooking Contest

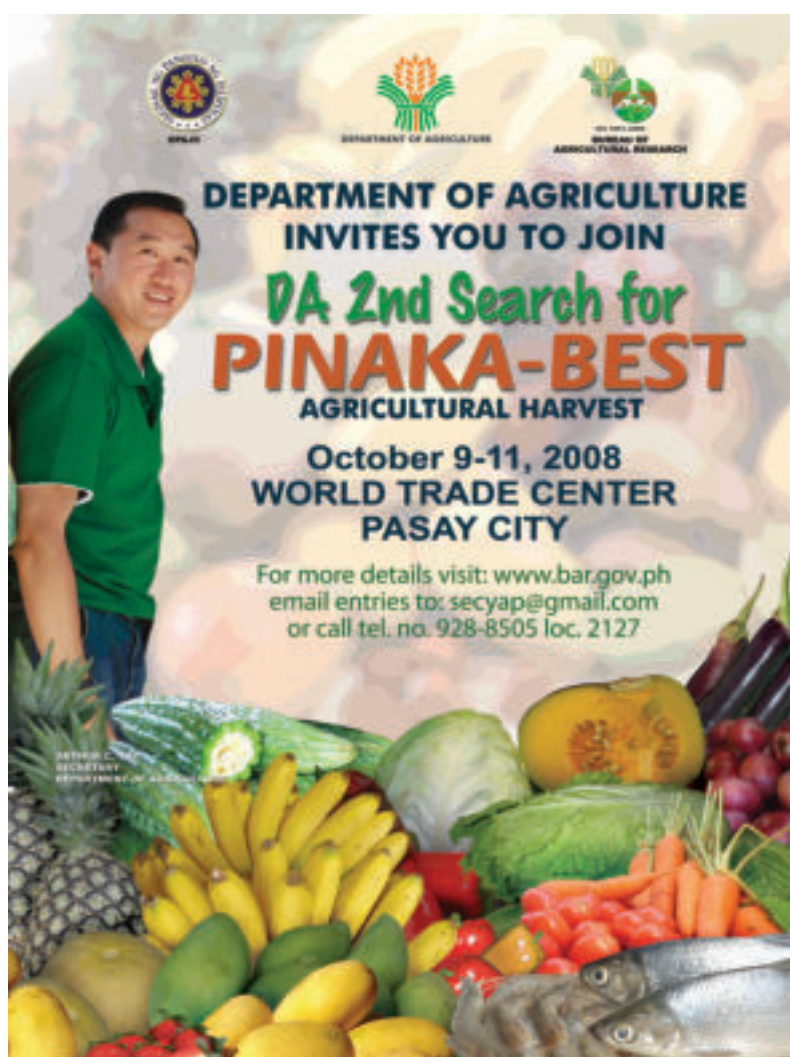
NAME OF RECIPE	PARTICIPATING SCHOOL	AWARD
Imbutidong Papaya at Malungay	Dr. Arcadio Santos National High School	Grand winner
Fresh Lumpia in pumpkin wrapper and sauce	Manggahan High School	1st runner up
Vegetable wraps	Jose Abad Santos High School	2nd runner up
Kala-Malu-Tahong Rolyo Con Blanco Sarsa	Don Alejandro Roces, Sr. Science-Technology High School	2nd runner up
Vegetable and malunggay balls with sauce	Ramon Magsaysay High School (Cubao)	3rd runner up
Veggie on the go!!!	Malabon National High School	4th runner up

Search for Pinaka-Best Agricultural Harvest

Following its successful launching in 2007, BAR through PDD once again spearheaded the “PinakaBest Agricultural Harvest: Beat the Record” in 2008. The contest intends to give due recognition to farmers and fisherfolk who raise and produce the biggest commodities and yet of good quality. In the 2008 contest, a twist was introduced where the entries had to beat the record of previous year’s grand winners to be awarded as the PinakaBEST.

A total of 38 entries on different commodities were received by BAR from the 16 regions in the country. The commodities were judged according to weight, length and overall appearance, and then compared to the usual size of the commodity when grown in the usual production management practices of the crop and developed within the culture period in enclosed or developed facilities.

From the national screening conducted last September 30, 2008, 8 PinakaBEST commodities emerged. The champions for crops were papaya (Region 10), sweet potato (Region 7), cabbage (Region 4A), and corn (Region 2). It was bangus (Region 1), carp (Region 4A), sugpo (Region 1), and ulang (Region 1) that were the winners for fisheries (Table 9). The farmer/fisherfolk with the winning entry received a cash award of PhP 10,000.00, while the region of the winners each received PhP 5,000.00.



The winning entries were exhibited during the 2008 AgriLink Celebration last October 9-11 at the World Trade Center, Pasay City.

Table 9. Summary of 2nd PinakBEST Agricultural Harvest winners.

COMMODITY	REGION	FARMER	ADDRESS	WEIGHT (KG)	LENGTH (CM)
GRAND WINNERS					
Papaya	X	Mercedes Rosalita	Valencia, Bukidnon	7.25	52.00
Sweet Potato	VII	Lucio Amondoron	Dalaguete, Cebu	2.50	20.00
Cabbage	IV A	Oliver Britiller	Liliw, Laguna	1.90	63.00*
Corn	II	Alfredo N. Taipan	Maddela, Quirino	0.40	23.00
Bangus	I	Marcelino D.S. Fernandez	Dagupan City	6.70	98.00
Carp	IV A	Francisco Ceremonia	Binangonan, Rizal	8.02	62.12
Black Tiger Shrimp (sugpo)	I	Chrisanto A. Cantong	Binmaley, Pangasinan	0.17	24.00
Freshwater Shrimp (ulang)	IV A	Lenoardo E. Matienzo	Tanay, Rizal	0.50	29
SPECIAL AWARD					
Banana (Cardaba)	III	Reggie Mallari	Mexico, Pampanga	0.37	19.00
Pineapple	V	Dominador B. Gonzales	Malilipot, Albay	4.50	25.10
Eggplant	II	Vicman Duque	Rizal, Cagayan	0.50	35.00
Lapu-Lapu	IV A	Alexander Amorin	Mauban, Quezon	6.30	62.23

National Dryland Agriculture RD&E Conference



Research Institute (PhilDRI), was put forward by the participants.

PhilDRI will be organized to coordinate, strengthen, and unify all dryland agriculture and biofuel researches and technologies to improve the livelihoods of resource-poor dryland communities. The institute is envisioned to serve as the venue for relevant, timely and proactive modern agricultural research for development. PhilDRI will be the country's proactive response by developing cutting edge technologies and innovations against the vagaries of drought and climate change.

An Executive Order (E.O.) on the establishment of PhilDRI was drafted and refined during the conference. Among the key issues addressed and discussed were: R&D requirements, communication and social mobilization for establishment, and organization and management scheme for PhilDRI.

The conference, which was held on 17-18 April 2008 at the Clark Special Economic Zone, Pampanga, was attended by over 100 participants from various government agencies, SUCs, representatives from regions identified with dryland, and invited experts from ICRISAT and the Central Research Institute for Dryland Agriculture (CRIDA) of India.



In 2007, the Ilocos region experienced extreme drought along with other provinces in Luzon. Only 50% of the total acreage devoted to rice were cultivated due to unfavorable planting conditions. Shortage of water for irrigation was experienced and the scorching heat from the sun dried up almost every farm. Losses amounting to millions of pesos were incurred, leaving most farmers empty handed for the next cropping season, and their farms non-arable.

Dryland ecosystems are the consequences of the increase in the average temperature of the earth's near-surface air and oceans. Drylands are considered areas with limited water resources because of rainfall variability, recurrent but unpredictable droughts, high temperature, and low soil fertility. These lands are distributed all over the world, accounting for roughly 47.2 percent of the global land surface, of which roughly 60-70 percent are said to have undergone some level of desertification.

Despite these conditions, drylands are habitat and source of livelihood to a large fraction of the earth's population, most of whom suffer extreme poverty. In the country

alone, an estimated three million hectares of dryland are distributed in Northern Luzon, Central Visayas, and Southern Mindanao. These areas are said to have about five million households. Farmers are at risk as they are vulnerable to drought, pest infestation, poor and degraded soil, and lack of physical infrastructures and social services.

To address this emerging event, BAR partnered with the ICRISAT to conduct a "National Dryland Agriculture Research and Development and Extension Conference".

With the theme "Energizing Research, Development and Extension for Sustainable Dryland Agriculture Philippines", the conference assessed the situation of the drylands in the country, which will serve as a benchmark for setting a national RDE agenda for dryland agriculture.

Consequently, after formulating a national RD&E agenda for dryland agriculture, the establishment in the Philippines of the first ever dryland R&D institute in the country, the Philippine Dryland

DA-SUC-LGU Collaborative Extension Service



extension activities in their respective clusters or coverage areas. LGUs, on the other hand, provide support by allowing their agricultural extension workers to help the Department boost farm production. This partnership underscores

attached agencies/bureaus, DA RFUs Regional Executive Directors, Regional Integrated Agricultural Research Center (RIARC) Managers, DA Bureau of Fisheries and Aquatic Resources (BFAR) Regional Directors, SUC Presidents and its Extension Directors, and experts from different partner R&D agencies/institutions.

As follow-up activities, seven DA-SUC-LGU Collaborative Extension Service Planning Workshops were organized to prepare the Regional/Provincial Agriculture Plan and Program of different regions and to agree on the specific working relationship and division of labor of the partnering institutions on extension service. The planning workshops were attended by the participants and representatives from the DA national and regional offices, SUCs, and LGUs. The workshops were conducted on the following dates and locations:

The 2008 rice crisis —problems in rice production, exponentially increasing price, alleged hoarding of rice, problems in distribution—was indeed a blow to country's population. In response, DA resolved that the best way to put an end to the rice crisis is to work closely and establish strong partnership at the local, provincial, regional, and national levels through a collaborative extension program. Hence, collaboration among the DA, SUCs and LGUs in the country was forged.

The DA-SUC-LGU Collaborative Extension Service operates through a unique partnership of the DA, the local government units, and the state universities and colleges. SUCs are tapped to establish and/or utilize their extension offices and staff to assist the DA in providing technical assistance, training and other

the fact that extension operates on the basis of multi-faceted shared responsibility involving DA, DENR, DAR, DOST; LGUs; SUCs, Farmers' Organizations and private sector.

As the lead agency for R&D, the Bureau of Agricultural Research was tasked to coordinate the DA-SUC-LGU Cooperative Extension Service at the national level and with the DA-Regional Field Units at the regional level. The first in a series of consultative meetings spearheaded by BAR was conducted on 21 May 2008 in Mandaluyong City.

The effort is a response to the need to hasten transfer of technologies and educate and equip farmers with knowledge for effective access and use of information that would lead to improved agricultural productivity and competitiveness. Participants included the DA Secretary, Directors and Administrators of the DA

1. Mindanao Cluster - 04 July 2008 at the Grand Men Seng Hotel, Davao City
2. Region I and CAR – 24 July 2008 at the Microtel Inn and Suites, Baguio City
3. Region III – 30-31 July 2008 at the RET Amphitheater, CLSU, Muñoz, Nueva Ecija
4. Region IV-A, IV-B and V – 15 August 2008 at the Splash Mountain Resort and Hotel, Los Baños, Laguna
5. Region VII – 18 September 2008 in Golden Prince Hotel, Cebu City
6. Region VI – 23 September 2008 in Amigo Terrace Hotel in Iloilo City
7. Region VIII – 21 November 2008 in Hotel Alejandro, Tacloban City



COORDINATING RESEARCH FOR SMOOTH IMPLEMENTATION:

Forging Strong Collaborative Efforts
with the Regions

STRENGTHENING COMMUNITY-BASED INITIATIVES THROUGH CPAR

Over the years, BAR provided technical and financial assistance, and the needed coordination with its partner agencies particularly the national research institutions and regional research centers together with their clientele. These are in the forms of financial support to basic/strategic and applied/adaptive researches, support services to enhance institutional capability and capacities, and improvement of the information and knowledge management systems for timely and appropriate utilization and application. Among these is the DA's CPAR program which is being implemented by BAR. However, it was the nationwide implementation of CPAR that has resulted to much positive effect on the people and communities.

Undeniably, CPAR projects illustrate the role of the rural folks as active participants in the planning of action research while refining the technologies introduced or modified by the regional CPAR team to address concerns in the improvement of the quality of life of farmers and fisherfolk. The projects work to

increase production and profit and at the time, organize groups for location-specific and commodity enterprises in farming and fishing activities were mobilized. These activities have helped shape the conditions of the communities such that they are now more attuned towards development characterized as secure and sustainable.

Within the year, several CPAR projects were implemented by our

partners in the field, particularly the RIARCs, in partnership with the local government units and the farmer/fisherfolk organizations and associations. These show success stories of community mobilization and organization, participation, leadership and development which highlight this year's accomplishments as indicative of a balance of research direction, delivery of services, and development orientation.

CPAR projects illustrate the role of the rural folks as active participants in the planning of action research while refining the technologies introduced or modified by the regional CPAR team to address concerns in the improvement of the quality of life of farmers and fisherfolk.



Implementing CPAR



Confronting the multifaceted issues of agricultural development, BAR took the pivotal role to use research and development as a vehicle to improve the lives of the rural people, particularly the farmers and fisherfolk and their families. This was done over the years with the refinements introduced by BAR to improve the concept of farming systems research and development on which CPAR is based. Through continuous interventions, BAR was successful in its on-farm activities and incorporated participatory approaches for its clientele to be actively involved to meet their needs, identify their requirements and mobilize resources for maximum use. These initiatives started the formalized implementation of the CPAR. Today, CPAR has expanded its features to include strategies of enterprise development anchored on perspectives and concepts of participatory approaches and business management.

Presently, CPAR projects are implemented in the 16 regions of the country that have set the trend in strategic participatory process in the coordination and management of regional researches in agriculture and fisheries. BAR is instrumental in this aspect having espoused CPAR as one of its banner programs. A key feature is that efforts are closely facilitated and monitored by the key players including stakeholders, because CPAR is viewed as an approach to

address the weak research-extension linkage in the country.

Through BAR's coordinative role in CPAR implementation, it supports the DA's development pillar programs which presently exists as six major development service components under the DA *Ginintuang Masaganang Ani* for rice, corn, high value commercial crops, livestock and poultry, fisheries and other support services. Specifically, with the bureau's lead role in R&D, through CPAR implementation at the local level supports the F-I-E-L-D-S Program of the DA.

In recognition of the complementation among DA programs, CPAR is designed to implement an integrated production

management system at the community level. National and regional priority commodities were used, vis-à-vis, the technologies being introduced to elicit positive changes in the farmers/fisherfolk and their communities as self-reliant and empowered people.

Furthermore, it enhances the role of R&D in technology transfer, especially in production and processing management systems, and marketing initiatives. On top of this, CPAR institutionalizes the active involvement of communities in the overall management of farm and coastal resources, and develops strategies for the effective integration of support services for enterprise and agribusiness development.



CPAR Beneficiaries

Since the pioneering groundwork in 1999, a total of 89 CPAR continuing projects have been implemented in the different regions. These were expanded to further improve stable communities which encouraged complete participation in farm and fishing activities. Indicators of the success of participation include enhanced farmer/fisherfolk capability, proper utilization of scarce family and community resources, addressing of the unstable farm produce and market prices, intensification of the organization of farmers' and fishing groups, and strengthening of the weak partnership among local agencies and key players in agricultural and fisheries development.

Out of the 89 CPAR projects, 16 are in Cagayan Valley Region, Eastern Visayas with 13 projects and the rest are distributed ranging from two to eight projects in the rest of the regions. Cagayan Valley regional CPAR projects showed steady success indicators which proved to sustain their contribution especially to the province of Isabela due to well-supervised and coordinated project on rice-mungbean cropping system.

Farmers of Ilagan, Isabela used to have a net income of Php 10,000/ha before the CPAR was introduced. When they participated, in the DA-Cagayan Valley Integrated Agricultural Research Center (CVIARC) CPAR project, the farmers were gained a net income of Php 68,422.00 from the production of rice and mungbean. CPAR interventions led to the increase in production and, therefore, profit.

Other notable CPAR projects supported by BAR are in DA-ILIARC on CPAR on goat production-Agri-business Development Projects in Pangasinan and La Union through the Integrated Goat Management Technology – Farmer Field School Approach.



Also, the CPAR banana production in Sarangani under the orchestration of the DA-CEMIARC was expanded and spun off into banana chip processing for another farmer's cooperative. DA-EVIARC worked on corn and peanut which increased the production of St. Niño and Visares Multi-purpose Cooperative in Capoocan, Leyte.

Similarly, DA-NOMIARC was successful in the coordination of the CPAR on potato production using the rapid multiplication technique in the province of Bukidnon which helped eradicate and control the prevalence of potato late blight disease and production of viable seed potato planting material. Finally, DA-CENVIARC CPAR on ubi production and processing management systems increased its production until smallholder processors were integrated to sustain the production of ubi powder from quality raw materials obtained from farmers involved in the CPAR sites.

As of December 2008, a total of 299 CPAR project sites or barangays were coordinated and managed by the different RIARCs. Regions IVA and I registered more than twenty sites in a single CPAR project.

Based on the registered sites, a total of 3,100 farmer cooperators are actively participating and involved in the 89 CPAR projects. Most of the farmers are regularly obtaining technical assistance from the RIARCs throughout project implementation especially during farmers' classes, field days, and farmer visits.

Farmers' experiences were documented by DA-RFUs and BAR. These were featured in collaboration with NBN Channel 4 TV program, *Mag-Agri Tayo*, aired every Saturday from 9:00 am to 10:00 am. Others were highlighted in regular BAR publications, *BAR Chronicle* (monthly) and *BAR R&D Digest* (quarterly). Brief descriptions and successful stories of CPAR in particular communities were written to share their stories and encourage further involvement of communities were shared to encourage further participation.

Farmer's participation in farmers' classes and field days including their daily operations were shared with other farmers and this snowballed into much technology sharing. Notably, a number of farmers who were into the



mainstream of CPAR implementation, made their own innovations and interventions to suit their needs and availability of resources. Thus, farmers themselves were transformed into successful advocates of improved production management systems and became farmer or fisherfolk leaders as the CPAR expanded its operation in nearby barangays and other communities with similar agro-climatic conditions.

CPAR has created a spillover effect especially among farmers who were not directly involved in the project. These farmers eventually became farmer adopters of technologies they observed in nearby CPAR farmer partners. As of 2008, a total of 3,946 farmers were recorded as successful adopters. Based on

this figure, recorded testimonies described farmer adopters as willing and able because the introduced technologies require low-input and ease in operation and management activities. At the same time, the availability of raw materials in their locality encouraged farming to produce and sustain the required volume for the local markets.

There are now 7,235 farmer groups, associations and cooperatives in the 89 CPAR projects which are being strengthened through the efforts of DA-BAR and the different DA-RIARCs. Continuous provision of technical assistance in the form of training, organizing, and linking these forging of groups with other cooperatives for better interaction and relationships, and partnerships

with the local government units for other support services, and provision of financial assistance in order to sustain the CPAR efforts.

As an off-shoot of the increasing success of CPAR at the local level, BAR explored the possibility of enhancing its relationship with local government units (LGUs) allowing LGU access to grant system, thus ensuring stronger partnerships. To date, there are four on-going BAR-LGU projects in the provinces of Ifugao (1 CPAR project) and in Isabela province (3 CPAR projects). Previously, these projects utilized the traditional monocrop rice and corn cropping systems. The implementation of CPAR in these areas provided viable and sustainable agriculture and fishery technologies and improved their lives in the process.



Counterpart support

BAR's role is not limited to providing necessary financial support but also in capacitating project implementers on proper management of resources. Under the direct supervision of the different research centers of the DA regional field units, tie-up activities at the farmers' and fisherfolk levels are jointly supported by local government units and farmer/fisherfolk organization counterparts. These counterparts are in the form of support activities like community mobilization and organization to areas without established and organized groups or cooperatives, community education to share the positive effects and results of utilizing feasible and viable technologies through action research; and conduct of participatory rapid appraisal as basis for the development of a workable CPAR project through visioning exercises, validation, and action planning, and intensive capability building activities for farmer and fisherfolk partners at the local level. All of these activities ensure community participation and people empowerment for effective and efficient resource management.

The continuing activities in the implementation of CPAR activities at the regional and local levels have also led BAR to provide development support activities for program effectiveness and efficiency. The regional and zonal networking grant program guarantees that the regional RDE networks can continue to serve as an avenue to systematically develop and organize key players and stakeholders to be active players in research and development activities through proper monitoring and evaluation of agriculture and fishery projects and other activities outside of the regional CPAR financial assistance. These programs likewise enhanced the capabilities of involved research staff to efficiently and effectively perform their work for a more unified and coordinated regional work.

Agribusiness initiatives

In support to other regional projects, BAR, through the different RIARCs, established ADPs in underutilized agricultural lands or fishponds in the stations.

The ADPs serve as a mechanism to demonstrate feasible and viable technologies that can generate income for the research activities of the RIARCs. It supports the CPAR projects as a technology demonstration area for farmers who are not directly involved but are interested to know more about particular technologies of the priority commodities in the region concerned. In a way, it serves as a learning laboratory and at the same time serves as an income-generating and self-liquidating project. It also serves as a venue to showcase new technologies generated out of R&D activities and farming systems for agribusiness enterprises.

The income derived from the ADPs is plowed back to the project for sustainability, project expansion, and support to other R&D activities of the centers and stations. The "plow back scheme" is an intervention developed by the different regions to support and enhance the management of the ADP. While not all centers and stations can utilize the income generated because of some restrictions, nonetheless, it is a very laudable approach to improve and sustain the operations of the DA regional research centers and stations especially because of limited financial resource.



One of the newest ADPs is the bio-organic fertilizer production project (BOFPP) conducted in the different RIARCs in support to the FIELDS program of the government which promotes the use of organic fertilizers in the area. A total of 19 bio-organic fertilizer projects are implemented in the 16 regions. Out of this number, Cagayan Valley, Bicol Region and Southern Tagalog Region – CALABARZON have two BOFPP while the rest of the regions have one project each.

Majority of the projects makes use of locally available raw materials like rice straw, cow manure, grasses, corn stalks, chicken manure, ipil-ipil leaves, sawdust and other farm by-products to produce the organic fertilizers. These materials are further decomposed with an activator and then distributed to communities that need them. Because of this project, other regions started massive production and dissemination to farmers. At the same time, hands-on-trainings were provided to stakeholders which eventually became an income-generating activities of the stations and the farmers.

Overall, the BOFPP aims to strengthen the capability of the RIARCs strategy of

teaching by example and demonstrating the technology to interested end-users in order that these can become a revolving fund that supports the operation and activities of the station and centers.

Another project which was derived out of an initiative of BAR for rural communities is the use of the Site-Specific Nutrient Management (SSNM) technology on corn. Concepts of SSNM were first developed for irrigated rice in Asia, but its principles are generic and applicable to other cereal crops like maize. The SSNM approach strives to enable farmers to adjust fertilizer use to fill the deficit between the nutrient needs of a high-yielding crop and the nutrient supply from naturally occurring indigenous sources, including soil, crop residues, manures, and irrigation water. SSNM does not specifically aim to either reduce or increase fertilizer use. Instead, it aims to apply supplemental nutrients from fertilizer at optimal amounts and times to match the needs of the crop.

SSNM provides guidelines and tools for site-specific management of N, P,

K – the major nutrients needed by the crop, as well as other essential elements. One of the tools available for managing N is the leaf color chart (LCC). The LCC is a plastic ruler-shaped strip containing four or more panels ranging in color from yellowish green to dark green. It is used to assess the crop's need for N based on the color of the leaves. Plants with dark green leaves indicate little or no immediate need for N. Yellowish green leaves indicate a relatively higher and urgent need of the crop for N fertilizer. Originally developed for rice, the LCC is also suitable for maize providing farmers with a good diagnostic tool for detecting N deficiency during the season.

As of 2008, eleven regions were actively involved in the SSNM project and the remaining four regions will implement their project in 2009. The success of the different SSNM project activities of the region are shared regularly through monitoring and evaluation activities and project review for all implementing regions. These are further highlighted in BAR's regular publication and documented activities.





ENHANCING THE COMMERCIAL VALUE OF TECHNOLOGIES FROM R&D:

Making the Agriculture and Fishery
Sector Profitable

FUNDING COMMERCIALIZABLE PROJECTS

A relatively new unit, the Technology Commercialization Unit (TCU) was created when the National Technology Commercialization Program (NTCP) was institutionalized as the other banner program of BAR in 2006.

NTCP was created through the partnership of BAR with various DA agencies and its stakeholders from various sectors to ensure the commercialization of emerging technologies on agriculture and

fisheries derived from research. BAR, as a funding and coordinating agency for R&D, is reinforced by TCU's role as a facilitator of funding for the development and promotion of commercializable technologies on agriculture and fisheries.

The support is centered on uplifting the livelihood of farming families and encouraging the growth of agribusiness enterprise in the country. This is an important and influential role as it stretches across technologies on crops, livestock,

fisheries, and other sub-sectors in agriculture and fisheries. It likewise deals with concerns on good agricultural practices, organic agriculture, sustainable biofuel production systems, climate change, and health and wellness, among others.

From 2005 to 2008, BAR through NTCP has approved 92 projects for funding. Of this number, 25 projects are completed while the remaining 77 projects are still on-going. Of the 92 projects, 26 were approved for funding in 2008.

Commodities Supported

NTCP is supporting the commercialization of lesser known or under emphasized commodities in agriculture and fisheries with important market potentials. For the purpose of illustrating the recent accomplishments, this section highlights TCU-assisted efforts for selected commodities, in no particular order of importance, that have shown good results from some of the on-going or completed projects funded through NTCP.



SWEET SORGHUM

Re-introduction of the crop

The passage of the Biofuels Act in 2006 empowered the country to step up its efforts towards energy independence and the promotion of renewable sources of energy. Several possible sources of alternative energy identified by the government are solar, wind, and geothermal power as well as biomass. In the agriculture sector, fortunately, sources for biomass are abundant. As early as 2005, BAR through NTCP was already supporting the R&D and initial production of sweet sorghum in Ilocos through the Mariano Marcos State University (MMSU).

Sweet sorghum (*Sorghum bicolor* L.), a not-so-popular crop in the Philippines but is ranked in the world as the number 5 most important cereal next to wheat, oats, corn, and barley, was introduced by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) based in India. An ICRISAT study shows that as a biofuel source, sweet sorghum has a wider range of adaptability, more rapid growth, and higher sugar accumulation and biomass production potential on a yearly basis than sugarcane.

Feasibility study conducted

In 2006, BAR tapped the International Society for Southeast Asian Agricultural Sciences (ISSAAS), Inc. led by Dr. Roberto F. Rañola Jr. to conduct a feasibility study and found that using sweet sorghum as feedstock is comparable, if not better, than sugarcane for ethanol production. The study was concluded prior to the enactment of the Biofuels Law.

The feasibility study was able to detail several advantages to

growing sweet sorghum for biofuel. First, it is drought-resistant and can endure storms and flooding. Second, yield of bioethanol from sweet sorghum is comparable to that of sugarcane and better than cassava. The cost of producing a liter of ethanol from sweet sorghum is lower than that from sugarcane molasses. This is because sweet sorghum is sweeter, having 23% sugar content as compared to sugarcane's 14%.

Moreover, since planting season of sweet sorghum is only three to four months, it can be grown for two cycles in a year and can serve as secondary crop for rice.

Furthermore, both the crop's grain and stalks can be used as feedstock for bioethanol production and sold at reasonable prices.

National RDE Conference on Sweet Sorghum

As the designated focal agency of the DA on biofuels R&D, BAR plays a critical role in the coordination and management of researches which involves the preparation of unified biofuel plans and programs. In connection with this, and to harmonize the efforts of various sectors that support sweet sorghum as a profitable and sustainable crop for food, feed, and fuel, the bureau sponsored and co-organized the "First National Sweet Sorghum RDE Review and Planning Conference" on 12-14 March 2008 at MMSU, Batac, Ilocos Norte. The event was co-sponsored by partner agencies, namely, MMSU, Commission on Higher Education (CHED), Department of Science and Technology-Philippine Council for Agriculture, Forestry and Natural Resources



Research and Development (DOST-PCARRD), DA-Philippine Agricultural Development and Commercial Corporation (PADCC), Department of Energy (DOE), and ICRISAT.

Presented in the conference were in-depth reports by various stakeholders on the different aspects of sweet sorghum production from breeding to variety and adaptability trials, incidence of pests and diseases, harvesting and postharvest processing, development of technology protocol, and commercialization. These reports were culled from various studies conducted and funded either by DA agencies and field units, state universities and colleges (SUCs), or private sector organization. The conference, which was also attended by farmers and officials of local government units (LGUs), featured the formal launching of sweet sorghum as



viable feedstock for bioethanol production.

Adaptability Trials

TCU facilitated the funding of the Sweet Sorghum Regional Adaptability Trials for 2007 and 2008. The five varieties planted were NTJ 2, SPV 422, ICSV 700, ICSV 93046, and ICSR 93034 which were evaluated and found by MMSU as the best among the initial varieties. Preliminary results are available for Regions IVA, V, VI, X, XI, and CAR which show that the varieties are well-adapted in most of regions where the trials were done.

Based on the available results, SPV 422 shows the most promise for grain production for flour-making or

production of animal feeds. NTJ 2 shows most promise for bioethanol production being the highest juice yielder. This is true for Regions IVA, V, VI, X, and XI.

For CAR however, the highest grain producer is ICSR 93034 followed by NTJ 2, highest juice yielder is NTJ 2 followed by SPV 422. ICSV 700 has zero percent germination in the area. There is no significant difference among the varieties for fodder production in all regions. Lodging is most evident in ICSV varieties.

While there are still no distilleries for bioethanol from sweet sorghum, the commercialization of sweet sorghum includes the development of village-level technologies to

process sweet sorghum juice and grains into food products and the grains and stalks as animal feed. Farmer beneficiaries of BAR-funded projects in Region V, CAR, Isabela State University (ISU), and Pampanga Agricultural College (PAC) are now using their harvested grains and stalks to produce processed food products. The grains are processed into flour which in turn is used to make products such as cookies, macaroons, polvoron, and porridge. The kernels can be made into pop sorghum which is similar to popcorn. The juice from the stalk can be served fresh as a refreshing drink and can also be processed further into jaggery (a kind of molasses), wine, and vinegar.



Sweet sorghum is a promising cereal crop that could address problems on malnutrition and dwindling supply of alternative source of flour, an answer to the increasing cost of wheat flour.

It is higher in protein and lower in fat than corn. The mineral composition differs only slightly from corn and vitamin content is similar to that of white corn. A 200-g of cooked sorghum grain is a rich source of protein, vitamin B1, B2 niacin and iron, a good source of zinc, and provides 14 g of dietary fiber.

PIGEON PEA

Uses and benefits

Pigeon pea (*Cajanus cajan*) is considered both a food and forage crop. It is grown most abundantly in India but can also be found in some regions of Africa, Central America, Australia, and Asia. Because it is a small, round, off-white vegetable grown in a pod similar to a pea or bean, it is often used as an alternative to the lima bean. Traditionally, in India and Pakistan, pigeon peas are cracked and made into “dhal”, a type of purée that is used as a base for many dishes. The pods and leaves of the pigeon pea are consumed as vegetables. Pigeon pea greens, as well as the peas themselves, are also used to feed animals. The woody stems of pigeon peas are used as firewood or fence.

Besides its dual purpose, pigeon pea is likewise grown to control erosion which is particularly done in the hilly slopes of Southern China. Pigeon peas are also very drought-resistant and can be grown in areas with very minimal annual rainfall. Moreover, pigeon peas are considered as an important crop for producing green manure to add nutrients and organic matter to the soil. As a medicinal crop, the Hamdard Publication 'Dehati Muallij' from New Delhi, India says it is useful in remedying the swelling of internal organs like the stomach, liver, and intestines. Because pigeon pea contains high levels of Vitamin B, protein, and amino acids such as methionine, lysine, and tryptophan, it makes for a well-balanced human food.

Local adaption

Pigeon pea was among the crops introduced in the Philippines by ICRISAT. In 2006, the Philippine

Association of Agriculturists, through Dr. Herald Layaoen, embarked on a project funded by BAR, the “Pigeon Pea Commercial Production and Utilization Program”. The two promising varieties found to be suitable in the country are ICPL 88039, a short duration variety that is a good crop after rainfed rice; and ICP 7035, a medium maturity variety, which is good in marginal and rolling areas.

The Bungon Seed Producers Multipurpose Cooperative (BSPMC) was tapped to develop a village-level seed production system. According to Dr. Layaoen, 4087 kg pigeon pea seeds were produced but only 1835 kg of these were accepted as SeedGrade. Two private firms, Seed World and Harvest Agribusiness Corporation, were tapped to help in marketing the seeds nationwide.

To familiarize farmers and other stakeholders in the crop's cultural management and pest control, several seminars and trainings were conducted at different locations where collaborating agencies such as the Department of Agriculture Regional Field Unit (DA-RFU) 1, 2, 3, and CAR; Department of Agrarian Reform (DAR) offices in Ilocos Norte, Isabela, and Zambales; MMSU; Ilocos Sur Polytechnic State College; Tarlac College of Agriculture; Ramon Magsaysay Technological University; and the local government units (LGUs) in Regions 1, 2, 3, and CAR are located.

Product development

Pending the establishment of a *dahl* mill, the village-level processing of pigeon pea seeds into flour was initiated. The flour from pigeon pea was used to fortify cookies and biscuits

as a protein-rich food products. Housewives and out-of-school youth in Batac, Ilocos Norte were trained to produce these products. The flour made from pigeon pea seeds are also roasted, milled, and used in making beverage similar to coffee. Currently, Dr. Layaoen is developing a blend of sweet sorghum and pigeon pea beverage.

Expansion to Region 2

The Isabela State University (ISU), with funding support from BAR, embarked on a two-year project, “Technology Upscaling Program for Sweet Sorghum and Pigeon Pea in Isabela”. The project adapted improved varieties of sweet sorghum and pigeon pea that were earlier found suitable in MMSU and PAC. The program aims to demonstrate and promote the production of sweet sorghum and pigeon pea to increase the productivity and income of farmers





not only in Isabela but in other provinces of Region 2 as well.

The project will put up five-hectare technology demonstration farm per crop and conduct field days to fast track the adaption of sweet sorghum and pigeon pea in the region. They are also incorporating technical assistance on marketing to create a demand for the commodity.

To emphasize the prospects of developing rural small enterprises, the program is promoting the production of organic food products from sweet sorghum such as vinegar, wine, and jaggery while waiting for the establishment of a distillery by private sectors. The program leaders reported that actual jaggery and vinegar production have already been conducted in trade fairs they have participated in the region. On pigeon pea, the program leaders said that it is best eaten as fresh vegetable while the grain could be sold as feed substitute for cowpea.

According to the proponents, the encouraging initial findings of the study on the control of stemborers with the use of predatory earwigs and bio-nutrient extracts will be integrated into the package of technology for the on-farm trials being conducted by 10 farmer-cooperators in San Pablo, Tumauni, and San Mariano in Isabela. Vermicompost is used for the balanced fertilization in the production of sweet sorghum and pigeon pea.

ASHA PEANUT

Asha peanut, which is almost double the size of the local groundnut variety, was also introduced to the Philippines by ICRISAT through BAR. The variety was initially pilot-grown in Cagayan and Isabela for possible commercial production. Initial studies indicate that the *Asha* peanut variety is commercially viable in the Philippines. *Asha* (2.96 t/ha) gave 41-77 % higher pod yield than farmers' varieties (UPL Pn 10, Namnama and BPI Pn 9) in the Cagayan Valley region in the wet season of 2005.

The Research Outreach Station (ROS) in Sorsogon, under the supervision of the Bicol Integrated Agricultural Research Center (BIARC), is now evaluating the performance of *Asha* peanut (CV Pn-1) to promote the commercialization of the technology to farmers in the province. The performance evaluation and promotion of *Asha* peanut variety

under Sorsogon condition is being funded by BAR through NTCP.

Development of the Peanut Roadmap

In a bid to resuscitate the dying peanut industry in the Philippines, BAR has initiated in October 2008 the drafting of a national commercialization program for high-yielding peanut varieties such as *Asha* after peanut was identified in the Philippine Agriculture (PA) 2020 as an important crop that needs a good boost.

BAR Director Eleazar together with TCU and technical experts from the Cagayan Valley Integrated Agricultural Research Center (CVIARC) in Region 2 discussed and refined the draft roadmap made by CVIARC. According to Ms. Rose Mary Aquino, focal person

for peanut in CVIARC, the major peanut processors are greatly dependent on imported peanut. In fact, we are importing 80 percent of our peanut from China. In the early 1990s, Region 2 used to maintain an average yield of 0.65 ton/ha in about 22,000 hectares planted with peanut. This production hectareage dropped to almost 70 percent when the hybrid yellow corn was heavily promoted.

Mr. Orlando Lorenzana, CVIARC manager, provided updates on the status of the peanut industry in



Region 2 which is one of the largest peanut-producing regions in the country. According to Lorenzana, the five major peanut processors in the country are more than willing to source their peanut requirements locally which are fresh unlike those coming from China which have been stocked for several months to years in some cases. Aquino added that, a big opportunity for peanut producers is the selling of shelled and pre-graded peanuts which is a value-adding activity. Processors usually require shelled and pre-graded

peanut which local producers do not meet at present.

While waiting for the approval of the roadmap by the government and industry stakeholders, BAR has funded research activities on peanut in different locations. Besides the performance evaluation of Asha in the Bicol Region, BAR likewise funded the technology promotion of promising varieties of peanut under coco-based areas in Sorsogon. In Region 2, the Isabela State University's (ISU) project proposal on the adaptability and



commercialization of processing groundnut varieties in Cagayan Valley was likewise supported as well as the DA's RFU 2 project on technology commercialization of Asha Peanut.

CACAO

Cacao industry gets a lift in R&D

Now that the coffee industry in the country has been revived, the local cacao industry is waiting for the much needed boost for it to become competitive in the local and international markets for cacao's famous by-product, cocoa. According to the cacao industry situationer posted by the High-Value Commercial Crops (HVCC) Program of the Department of Agriculture (DA), the industry took off in the 1980s particularly in Mindanao, as more investments were poured in commercial farms and on grinding facilities before cacao production dwindled in the 1990s.

To renew the interest of farmers and stakeholders in planting cacao, BAR hosted in August a consultation meeting with the private sector and DA units concerned in crop R&D to discuss the status of the cacao industry in the country and explore possible areas of collaboration.

Cacao is now part of the commodities prioritized by the GMA-HVCC Program because of its market potentials and the thrust of the program to shift to other

commodities that will help start new industries. Ms. Josephine Ramos, field operations manager, Cocoa Foundation Philippines, Inc. (CocoaPhil), presented the proposed strategic action plan on the Philippines Cacao Roadmap. The plan is to intercrop coconut at least 50 million cacao trees, thereby producing at least 100,000 metric tons of export-quality cacao beans. If this happens, a P60,000 to P80,000 additional annual income per hectare can be gained from cacao harvest.

BAR Director Eleazar expressed the bureau's enthusiasm to support the revival of the cacao industry in the country. The bureau is seeking the involvement of other concerned agencies from the different stakeholders to integrate all R&D efforts for cacao. The opportunity of growing cacao organically is also considered to appeal to the market better and maximize the gains from the crop. BAR is also part of the Cocoa Industry Development Sub-Committee under the DA-NAFC. Integrated RDE Program

The biggest cacao-producing area in the country is Southern Mindanao, particularly Davao, followed by CALABARZON

(Cavite, Laguna, Batangas, Rizal, Quezon), particularly Quezon and Cavite. Recognizing the potential of the industry's growth in the country, BAR is funding the Integrated RD&E Program for Cacao from 2008 to 2012 to be implemented by the Southern Mindanao Integrated Agricultural Research Center (SMIARC). Cooperating agencies from different sectors in this project includes the University of Southern Mindanao (USM), Department of Environment and Natural Resources (DENR), Bureau of Plant Industry (BPI), University of Southern Eastern Philippines (USEP), provincial local government units (PLGUs), and CocoaPhil and its partner organization, Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance (ACDI/VOCA).



Cacao rehabilitation and expansion

BAR, through NTCP, funded the Sustainable Cacao Production System implemented by the DA's Quezon Agricultural Experiment Station (QAES) in Tiaong, Quezon under the DA-RFU IVa office. The project is being tied up with LGUs and farmer-cooperators in Quezon Province. The proponents target to increase crop productivity by at least 30 percent through improved farm management and plant at least 50 hectares to cacao within the four target sites in Quezon Province in three years. The target sites are the Municipalities of Tiaong, Dolores, San Antonio, and Tagkawayan. The proponents have started to plant new cacao trees and rehabilitate two areas within QAES for the establishment of the two-hectare technology demonstration farms for the project. The proponents are targeting to produce 15,000 quality grafted seedlings of cacao at QAES to make it available to farmers and interested stakeholders.

The smallscale processing site located within QAES as part of the project was built and is almost ready for use. According to Ms. Lani A. Averion, one of the proponents for both cacao and mango projects, this is where the beneficiaries could process their raw cocoa produce which they can pool together to give them a leverage in bargaining for a good price for their product. Moreover, a business kiosk was also established at the main entrance of the station to promote and market the products developed by QAES.



FRUIT WINES



The project, "Technology Commercialization and Packaging of Wine from Selected Local Fruits" is being implemented by the Food Science Cluster, College of Agriculture, University of the Philippines Los Baños. The proponent, Dr. Erlinda I. Dizon, started the project in 2007 to showcase the appropriate packaging and technology of quality wine from selected local fruits. Specifically, she would like to achieve the following: 1) validate the process for commercial production of wine from *bignay* and mango; 2) improve packaging design that will meet both product stability and market viability; 3) assess the market potentials of the products; and 4) enhance the capability of the end-users of the technology with regards to wine processing.

In August 2008, Dr. Dizon served as one of the resource speakers for the seminar series held during the BAR Technology Commercialization Forum and Exhibit held at the Mega Trade Hall in SM Mega Mall. She discussed the need for appropriate processing and packaging of fruit wines as well as the end product such as *bignay* and mango wines that she developed through the BAR-funded project. Dr. Dizon also works in collaboration with multi-awarded fruit wine exporter Mr. Elbert Pigtain whose fruit wines have received rave reviews from wine experts around the world. To commercialize the product, the UPLB Food Science Cluster accepts requests to conduct hands-on seminar and training which are frequented by interested students and entrepreneurs from all over the country.

UBI

The bureau, through TCU's coordination, funded two projects on the commercialization of ubi in powdered form to cater to the demand in the food processing industry. One of the projects, which also comes from the Food Science Cluster of UPLB, which is the "Technology Commercialization and Packaging Development of Ubi Powder" conducted by Ms. Teodora M. de Villa and Ms. Marife T. Ombico.

For this particular project, the proponents are set to validate the process and provide technical data for the establishment of quality standards for ubi powder; develop a quality control monitoring system for ubi powder; assess the profitability of the technology and develop the market for ubi powder; and enhance capability through technology transfer to end-users.

During the product exhibit at SM Mega Mall, the ubi powder developed and packaged through BAR's funding, as well as the fruit wines developed by Dr. Dizon, were recognized by no less than

Agriculture Secretary Yap as promising products with high market potential are worthy of BAR support.

Both projects are scheduled to end early next year. The funds were released by BAR to the Food Science Cluster through the University of the Philippines Los Baños Foundation, Inc. (UPLBFI). The two projects are also among the first to be assisted by TCU in the preparation of their financial analysis for both the proponent and investor sides.

The second project on ubi is the "Technology Promotion, Utilization and Commercialization of Ubi for Development in Central Visayas" conducted by DA-CENVIARC. The bureau funded the project to accelerate the promotion, utilization and commercialization of ubi in Central Visayas for agricultural development; and to increase the level of awareness and appreciation of ubi production, processing and marketing. Moreover, it was



implemented to strengthen partnerships of key players and stakeholders in the development of the ubi industry. The project is implemented by DA-CENVIARC Central Experiment Station in Bohol with selected LGUs, ubi farmer groups and organizations, and private sector.

TOMATO



BAR funded the study, "Commercialization of Postharvest Technologies for Off-Season Supply of Tomato" conducted by the Postharvest and Seed Sciences Division, UPLB, to confirm the feasibility of postharvest technologies used in tomatoes and conduct full-scale tests for its commercialization.

These technologies include the storage of tomato in moist coconut coir dust (spongy, peat-like residue from the processing of coconut husks) and an evaporative cooling chamber (low-cost alternative to refrigerated air conditioning) for high humidity storage also from the BAR

funded-study on Postharvest Systems Improvement and Quality Assurance for Tomato in 2000 to 2003 conducted by the same center. The study was conducted in Liliw, Laguna for the testing of coconut coir dust storage; and in Manaoag, Pangasinan for the storage trials using fabricated evaporative cooling chambers.

Results

After one month, data analysis showed higher recovery of good quality, marketable tomatoes using wooden crates with or without polyethylene (PE) bags as liner for tomatoes held under coir dust



cooling chamber and a drop of 4 to 6 degrees Celsius from ambient temperature can be achieved. These conditions resulted in maintaining the quality (no shriveling) of tomatoes over two-week storage durations inside the chamber set-up in Pangasinan. The researchers also used pallet wraps to delay warming and results showed that faster warming rate was

storage. According to the researchers, the advantage of using PE bags in conjunction with coir dust storage can be two-fold: 1) delaying ripening and minimizing moisture loss and shriveling as a result of active gas modification inside the bag, and 2) absence of coir dust clinging onto the fruit surface making the fruits look clean.

Meanwhile, the results of tests conducted over a four-day period showed that humidity levels of 94 percent to 99 percent can be maintained inside the evaporative

exhibited by samples wrapped under 10-mm PE foam due to its thickness.

Cost-benefit analysis

From their partial budgeting results, the researchers concluded that high net benefit is attained when tomatoes are packed in PEB first before laying them onto the moistened coir dust. Moreover, greater net benefit could be realized if the tomatoes are withdrawn on the fourth week of storage. However, the researchers

indicated that the net benefit from the technology could be made higher if the chamber is utilized throughout the year as storage and ripening chamber for other crops such as eggplants and leafy vegetables. This is because operating a storage chamber solely for ripening tomatoes would result in a net loss since it is usually done only once or twice a year during a period of glut.

Potential users

The researchers identified farmers and farmer cooperatives, traders, wholesalers, and retailers as the potential beneficiaries of the technologies they have tested. Furthermore, they expect the tested storage methods to cater only to local markets. The general aim of the researchers was to commercialize the village-level storage technologies that increase the shelf-life of tomatoes over a longer period of time after the peak harvest season and facilitate the transfer of these postharvest technologies through the farmer-scientist tandem approach.

RUBBER

As part of the inter-agency collaboration that initiated the 10-year National Rubber Development Program (NRDP), the bureau is supporting the programs of the DA and its partner institutions to boost the development of rubber plantations nationwide.

Currently, the Mindanao region is the major producer of rubber with more than 85,000 hectares. Zamboanga Sibugay has the largest area planted to rubber trees, followed by the provinces of North Cotabato and Basilan. Based on suitability maps generated by BAR using the geographic information system (GIS), rubber can be planted not only in Mindanao but also in various

provinces of Luzon and Visayas.

Projects supported since 2005

Since NTCP's institutionalization in 2005, BAR has so far funded eight projects devoted to R&D and commercialization of rubber tree production and harvesting all over the country. Through BAR's funding, the research centers of DA's Regional Field Units tested the suitability and productivity of planting the recommended rubber clones in Palawan, Quezon, Pampanga, Tarlac, and Zambales. In Mindanao, North Cotabato and Davao also benefit from the rubber projects supported by BAR. The bureau has likewise funded the establishment of



budwood gardens, nurseries, and technology demonstration farms for the recommended rubber clones, namely: RRIM 600 (Rb-99-01), RRIM 712, RRIM 901, PB 217 (Rb 99-04), PB 235 (Rb 99-02), PB 260, USM 1 (Rb 99-03), PB 311, and RRIM 628.

For 2008 alone, BAR funded four projects on rubber development, namely: 1) Rubber Development Program for Southern Mindanao: A Support Program towards the Revival of the Natural Rubber Industry through DA-SMIARC; 2) Promotion of Plantation Establishment Technologies for Rubber towards Commercialization in Luzon through Don Mariano Marcos State University; 3) Commercialization of Rubber in Central Luzon through DA-CLIARC; and 4) Development and Promotion of Rubber towards Commercialization in Oriental and Occidental Mindoro through DA-RFU MIMAROPA.

International rubber conferences

BAR was one of the sponsors of the locally-held ASEAN Rubber Conference at the Crowne Plaza, Manila on June 5-7, 2008 organized by the DA through the National Agribusiness Corporation (NABCOR) and in cooperation with the private organization, Philippine Rubber Industries Association (PRIA). The event was a unique platform for over 25 rubber-producing countries to meet and network while reviewing the rubber price outlook and discussing the economic and commercial aspects of the rubber industry.

About 17 speakers from rubber-producing countries all over the world presented current developments, trends, and prospects aimed at further developing the industry for both natural and synthetic rubber in their

countries. A pre-conference study tour to a cutting-edge tire manufacturing facility, the Yokohama Tire Plant in Clark Freeport Zone, was likewise arranged to explore investment opportunities and discuss government incentives.

Given the large market offered by the global rubber industry, the DA is mindful of challenges that the Philippine rubber industry must overcome in order to sustain its profit. Some of these were enumerated by DA Usec. Jesus Paras when he delivered the message of Secretary Yap as keynote speaker in the ARC 2008. Thus:

- most of our existing trees are now either senile or nearing their maximum productive years;
- most rubber plantations are in Mindanao, which are burdened with security and peace and order issues;
- growers are burdened by high production expenditures due to rising costs of labor and other inputs;
- difficult access to sustainable credit and loans; and,
- the need to strengthen the national research, development and extension system from which future advances and development must be anchored.

During the event, BAR has set up its own booth in the exhibition area to showcase the R&D projects supported by the bureau. Most of the visitors to the booth were local and foreign businessmen as well as foreign delegates who were interested in the potential of rubber in the country and the possibility of collaborating with the bureau to explore economic opportunities. BAR is currently supporting the technology commercialization of 10

recommended rubber clones in the country through technology promotion and demonstration in suitable rubber areas nationwide.

As the official representative of the Philippines to the International Rubber Research and Development Board, BAR sent TCU's Mr. Rodolfo Galang, coordinator for rubber, to the 2008 IRRDB International Rubber Conference and Annual Meeting in October in Selangor, Malaysia. IRRDB is an R&D network which brings together natural rubber research institutes from the rubber-producing countries which together account for 95 percent of world natural rubber production.

Capability building

Besides R&D, BAR is actively supporting extension activities in rubber commercialization for farmers and interested agribusiness entrepreneurs. After finding that rubber trees could also thrive in parts of Luzon, the bureau sponsored the conduct of the "Hands-on Training on Bud-Grafting of Rubber Seedlings for Luzon Plant Propagators" held in DA-CLIARC, Magalang, Pampanga on August 26-28, 2008.

The training was conducted with the end goal of addressing one of the most pressing problems in natural rubber propagation which is the lack of quality budded rubber



seedlings ready for planting. Thirty participants from the Luzon cluster benefitted from the training which was designed to enhance the bud-grafting skills of rubber plant propagators.

Two professors from the University of Southern Mindanao (USM), Dr. Romulo Cena and Prof. Rogelio Testado, served as resource persons in the training to give lectures on the Physiology, Seedling Propagation, and Budding; and the Nursery Establishment and Management. Hands-on exercises came after the lectures.

The participants consisted of project implementers and plant propagators from the Bureau of Plant Industry (BPI, Quezon City), Don Mariano Marcos Memorial State University (DMMMSU, La Union), Southern Luzon State University, (SLSU, Quezon), DA-Central Luzon Integrated Agricultural Research Center (DA-CLIARC), DA-Cagayan Valley Integrated Agricultural Research Center (DA-CVIARC), representatives from the different offices of DA-Regional Field Unit 4B (MIMAROPA), University of

Rizal System (URS, Rizal), and LGU Kalinga Province.

After the training, participants formed the Luzon-wide Rubber Propagators Association and elected a set of officers. The primary objective of the newly formed association is to promote the continuous exchange of information among members and be represented in the different programs and activities of other agencies and institutions concerned with rubber R&D, extension, and education.

OREGANO

In the Philippines, oregano is cultivated for the fresh herb market mainly for gourmet restaurants and are popular to many as a herbal medicine for its antioxidants and antiviral properties, to name a few of its benefits. But more than these uses, oregano is now being commercialized as the main ingredient for wine, juice, tea, and vinegar. This new development was made possible through the project on the "Development of Special Product Lines from Philippine Oregano" by Dr. Estela C. Taño and her colleagues in the Quezon Agricultural Experiment Station (DA-QAES) in Tiaong, Quezon.

The BAR-funded project explored the potential of the oregano-based products through a careful research and technology documentation effort mainly to develop innovative products from indigenous plants and create a market to generate income for communities. The appropriate postharvest and processing procedures for the development of oregano products in this project were developed to achieve the optimum product yield and quality. Samples of the products were also screened by independent laboratories recognized by the government. Prior to the development of these novel products, BAR through NTCP also funded the establishment of oregano plantations in Quezon Province.

The products from oregano has been showcased already in various trade fairs and exhibitions such as the bureau's Technology Commercialization and Exhibit 2008 where Dr. Taño presented the oregano product lines during the seminar series and the Agrilink trade fair organized by the DA.



CASSAVA

Defined simply, a feasibility study is a study undertaken to determine a project's viability. For any organization going into a new and unfamiliar venture, that should be an imperative. This need becomes all the more essential when the project is as novel and debatable as bioethanol production from cassava.

Feasibility study completed

BAR funded the recently completed feasibility study of bioethanol production from cassava in the Philippines which was undertaken by the International Society for Southeast Asian Agricultural Sciences (ISSAAS).

The comprehensive study covered all important aspects that need to be considered in producing bioethanol from cassava from its agricultural production, to its postharvest, processing, marketing, organization and management, and, most important, financial aspect.

For its financial analysis, the study considered three cases of investors who would likely go into, namely, corporate- and joint venture-run cassava plantation; ethanol processing (primary and secondary); and integrated cassava plantation and ethanol production. The researchers assumed that the equity of investor for the three cases is 20 percent of the initial capital investment. They likewise considered loaning the remaining capital requirement from the Development Bank of the Philippines (DBP) at 9.75 percent interest payable in seven years with a grace period of three years.

Cassava's edge

With regard to its cultural management, the study says cassava needs only minimum crop maintenance, responds well to fertilization, is typhoon- and drought-resistant, and can be harvested year-round in areas with an evenly distributed rainfall. According to the study, the very high starch-to-sugar

conversion ratio of cassava means that a high percentage of sugar can be converted from it, and which, in turn, is needed to produce biofuel. The study likewise heralded it as one of the cheapest feedstock among the major starch-based feedstock for ethanol production.

Sensitivities

Part of a feasibility study is a sensitivity analysis on the financial viability of a project. In this particular study, the researchers pointed out sensitivities of cassava's bioethanol production depending on the prevailing price of tubers, changes in yield levels, variation in overall production, and total production cost.

Generally, the study's computation reveals that an increase in tuber yield by 10 percent will increase the average net income by 32.5 percent. On overall production, slight reductions of at least five percent in production cost will increase average net income by 10.1 percent, return on investment by 2.3 percent, and shorten the payback period by 0.3 years.

Production

The study strongly recommends that the production site be located in areas with uniform rainfall distribution to ensure constant and uniform supply of the feedstock all year round for the distillery plant. Doing this, the study says, would ease the burden of planting and harvesting the feedstock in an exceptionally vast production area in a very short period of time. Moreover, according to the study, more uniform year round harvesting is advantageous for primary processing operations as it reduces the need for larger processing equipment and storage facilities.

Key factors

In designating plantation areas, the study recommends that it should be



near where the produce will be conveyed for processing. The study says that primary processing centers should be established in selected strategic sites so that harvested tubers may be processed without delay. Doing this would likewise facilitate inbound logistics to minimize costs of transport to the distillery site. This goes without saying that road infrastructure connecting the plantation sites, primary processing facilities, and the distillery plant is critical.

Moreover, contract arrangements between the distillery company and the farmer-landholder are found to be necessary to assure the continued supply of feedstock to the processing plant. The study likewise concedes to the fact that the estimated area of 10,000 ha required to generate feedstock for the full production of the distillery is sizeable. Furthermore, the study states that the duration of time required to meet the target production area is consistent with projected time needed to build distillery plant.

Potential areas

The study specifically identified the provinces of Saranggani, South Cotabato, Sultan Kudarat, Misamis Oriental, General Santos, and Zambales as target sites for cassava production while the potential areas can be found in Bukidnon, Negros, North Cotabato, and Davao where sugarcane plantations are mostly located.

The study also named four companies which have signified intention or are producing cassava already as feedstock for bio-ethanol production. These companies are Eastern Petroleum, Robson Agro Ventures, Alsons-Saranggani, and Alsons-Cagayan de Oro.

MANGO

Reputed to be the best tasting, the Philippine mango is probably the fruit that makes every Filipino proud. It remains one of the most important commodities and an export earner for the country. Nevertheless, the standards and sanitary measures implemented by importing countries are getting stricter over the years especially for fresh produce. This prompts us not be complacent on the superiority of our fruit as the commodity's shelf-life is imperative at the bottom line.

For BAR, supporting mango's R&D is always a worthy endeavor. To date, there have been four R&D projects involving mango funded by BAR. Two are on-going projects and include the "Scale-up and Commercialization of the PHTRC Hot Water Tank for Heat Treatment of Carabao Mango" through UPLB, and the "Utilization and Processing of Mango for Mango-based Tart" through DA-QAES. Moreover, the private-led project on "Enhancing Global Competitiveness of Agricultural Produce through Product Diversification: Commercial Production of Dried Fruit Products Using German-Based Fabricated Drying System" through the Pangasinan Tropical Multi-purpose Cooperative (PTMPC) was completed in 2008.

Meanwhile, Dr. Dizon's project on fruit wines mentioned earlier includes mango as one of the fruits processed into wine.

Mr. Lito Arenas of LA Trading, the successful mango exporter from Pangasinan, is also behind the project on the production of dried fruit products (mainly mango) using a fabricated drying system. The story of Mr. Arenas, the mango picker turned profitable farmer-entrepreneur, counts as one of the most successful achievements BAR has played a part of. BAR funded his valuable market reconnaissance to Europe when he joined experts from UPLB, DA-AMAS, and TCU to identify and link with potentially profitable markets for Philippine fruits and vegetables as well as study the transactions and requirements needed to successfully enter in these markets. Through the BAR-funded project on the Good Agricultural Practices (GAP) conducted by UPLB, Mr. Arenas was able to avail of much needed technical assistance to grow his business.

His project on the drying system for fruits particularly mango was coursed through the cooperative he belongs to in order to spread the benefits to other farmers and entrepreneurs like him. The project commercialized the production and marketing of dried



mango specifically to test the technical efficiency of a locally-fabricated German-based drying system on a commercial scale starting in Pangasinan where mangoes abound.

On the other hand, the project on hot water treatment for mango conducted by UPLB is being carried out to refine the extended hot water dip (EHWD) as a quarantine treatment for mango fruits exported to China specifically. Furthermore, BAR funded the study on the processing of mango as tart and into other product lines after QAES found a glut in Indian mango supply in Quezon Province which is being sold fresh without much profit and reportedly has no products yet derived from the variety before the project.

GARLIC

The Ilocos region leads in the production of garlic and onion in the country. However, since the country's supply is not enough to meet domestic consumption we are constrained to import tons upon tons of this crop annually. Moreover, although we herald our native garlic as having the best aroma and flavor in the world, its smaller size compared to the garlic produced and exported by other

countries makes it less attractive.

Hence, in 2006, BAR funded the project, "Garlic Technology Commercialization in Region I" implemented by DA-ILIARC and MMSU. The project, which was completed this year, was conducted in the towns of Pasuquin and Vintar, Ilocos Norte and hurdled four stages



of commercialization: pre-implementation; implementation; community organization and legalization; and enterprise development and marketing.

As a successful outcome of the project, the Siwawer Garlic Products Association (Rural Improvement Club), a 35-member group of housewives, was established. The association is engaged in processing products from garlic such as pickled garlic (most profitable), garlic peanut adobo, and garlic powder. Through BAR's support on garlic's commercialization, the housewives were able to avail of trainings on garlic processing and value-adding; and garlic products packaging and labeling.

DA-ILIARC's Wilhelmina P. Castañeda and her colleagues also introduced the use of using processed chicken manure (PCM) with gibberellic acid (GA3) to increase the yield, quality, and size of garlic bulbs.



SWEET TAMARIND

More than 700 people, mostly farmers, benefitted from the commercialization of sweet tamarind in the province of Zambales. This was achieved through the commercialization project funded by BAR to promote sweet tamarind production in the province. The Pampanga Agricultural College (PAC) embarked on the project after its R&D produced the "Aglibut Sweet", a variety of sweet tamarind developed by its scientists.

Sweet tamarind, which commands a higher price than that of the sour variety, has a big market potential in the country as we are still continuously importing them

particularly from Thailand to meet our domestic demand. To jump-start its commercialization, PAC, through BAR's funding, promoted and distributed seedlings of sweet tamarind in various farms and backyards in Zambales. PAC led the training and provision of technical support to interested farmers and tamarind growers. The training course included cultural management practices, postharvest handling, and marketing techniques. PAC likewise provided loans payable within a year in three installments at 10 percent annual interest to selected farmer-beneficiaries.

Implementers of the project included the DA-RFU III, DA-CLIARC, and local government units (LGUs) of Zambales. The Ramon Magsaysay Technological University (RMTU) was also tapped to promote sweet tamarind. At the end of the project, PAC reported that the project and the potentials of the crop encouraged majority of the municipalities in Zambales to establish their respective scion groves and to eventually venture into seedling production for their local needs.



HIGH VALUE CROPS

Two LGU-led projects on high-value crops promotion and commercialization were recently completed through the counterpart funding provided by the local governments of Ormoc City and Biliran Province and BAR through NTCP. The two projects were conducted separately by the two LGUs through the City Agricultural Services Office in Ormoc and the Office of the Provincial Agricultural Services in Biliran, respectively.

The Ormoc Project

The Ormoc project, led by the City Agriculturist, had the Ormoc Federation of Vegetable Growers as its farmer-beneficiaries. Through this project, the federation was able to establish a “bagsakan”/trading center that caters to the vegetable demand of Ormoc City. They are also aiming to supply the vegetable demand outside Ormoc such as Tacloban City, other parts of Leyte, and possibly Cebu. The City Agriculturist specifically attested to the success of a former overseas worker who decided to get into vegetable production through this project and is now making a profitable business venture out of it.

The Ormoc Federation of Vegetable Producers, composed of 76 farmer-cooperators from 21 barangays, participated in the season-long (4 months) technology demonstrations conducted in Brgys. Dolores, RM Tan, and San Jose. The proponent tapped East West Seeds Company to provide technical support on the production management of the promising lines of vegetables such as ampalaya, tomato, eggplant, and sweet pepper. The seeds used for the project were also sourced out from the company.

The Biliran Project

In a separate project, the LGU of Biliran, through the Office of the Provincial Agriculturist, implemented a project on the promotion of sustainable agricultural development in four selected municipalities in Biliran which the LGU considers as agricultural development zones.

The three main components of the project include the establishment of a nursery and scion grove, high-value vegetable production, and cutflower production. Of the three activities, the external evaluator tapped by DA-BAR to review the project saw the establishment of the provincial nursery and scion grove as having the most impact for Biliran in general. The project leader for that component was grateful that the project pushed through because now the farmers could finally avail of quality grafted planting materials without having to source it from other provinces.



The proponents of the two projects are expected to come up with production management guides and other informative materials to aid the commercialization of technologies, that they disseminated to their farmer-beneficiaries, to still more farmers in their respective provinces.



OTHER NTCP INITIATIVES

Profitability Analysis of Technologies

The end of the year makes it automatic for most organizations to reflect on what it has achieved so far. Milestones are given such a premium and are brandished grandly in annual reports. For R&D organizations such as the Bureau of Agricultural Research (BAR), it is not any different. But how do we measure accomplishments? More important, how do we support our claims of making a positive impact to the lives of our stakeholders and beneficiaries?

Both urgent and important

For BAR's part, its latest endeavor to strengthen the capacity of its project proponents may only be the beginning of a feat, but it could mean probably be considered a quantum leap for the receiving organization and its stakeholders.

In November, about sixty proponents of BAR-funded projects through NTCP and a handful of BAR technical and senior staff were trained on determining the profitability of new production and processing technologies. The training was conducted by the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) in partnership with BAR.

It was a short and basic course on financial viability but it nevertheless answered two important concerns: educating project proponents on how to present an accurate estimate of the profitability of projects they wish to pursue; and enabling potential investors, funding agencies, and policymakers, to

easily determine if the project is worthy to support or not.

Consequently, two significant outcomes from the project proponents are likely: scarce resources are spent wisely; and projects with the highest benefits and real economic potential are explored and prioritized.

Experts pooled

BAR Director Eleazar and Dr. Mercedita Sombilla, SEARCA's Consulting Services Manager, closely collaborated on making the capacity enhancement training possible by combining their resources. Respected professors who are experts on agricultural economics at UPLB were tapped as the key resource persons.

Dr. Corazon T. Aragon, who is a full-pledged professor and consultant to different government agencies and international funding organizations such as the World Bank acted as the over-all training expert. Dr. Aragon, with Dr. Cesar B. Quicoy, Prof. Alessandro Manilay, and Prof. Antonio Jesus Quilloj, patiently and enthusiastically trained two batches of trainees conducted over two consecutive weeks in Los Baños, Laguna.

The training flow for both batches consisted of long but practical laboratory exercises per topic to make sure that the participants could follow and apply everything that was taught to them in the lectures. The participants were basically taught the fundamentals in four topics as follows: Cost and Returns Analysis and Income Statement Analysis, Partial Budget

Analysis, Break-even Analysis, and Financial Cash Flow Analysis.

Students again

For many of the participants, the training was "like going back to school". The training was started with a pre-test to determine the existing knowledge of participants before the training and was ended with a post-test to measure how much they have learned from the lectures and exercises. The training was an eye-opener not only for the participants but its organizers as well.

For participants who have little or no knowledge in proper profitability analysis, it made them realize what they were doing wrong in preparing the budget and in computing the profitability of their projects. Moreover, they learned that it is actually more difficult to be conscientious in properly identifying the items that should be reflected in their profitability analysis than computing the figures that they came up with.

For the organizers, it made them realize how significant the training was for all its proponents. More than striving for achieving a standard for reflecting the budget framework and financial viability of projects, it was obvious that selling the idea on the significance of the training and getting them to re-echo what they learned to other proponents in their respective organizations are most critical. After all, for determining the impact of R&D projects, passing and nurturing knowledge could probably count as a milestone.

Climate Change

According to the World Health Organization, the impact of climate change will adversely affect the most fundamental pillars of health which are food, air, and water. "The warming of the planet will be gradual, but the frequency and severity of extreme weather events, such as intense storms, heat waves, droughts, and floods could be abrupt and the consequences are fatal," WHO Regional Office for South East Asia said in its publication.

The Department of Health (DOH), in collaboration with the World Health Organization (WHO), organized the "Multi-sectoral Forum on the Impacts of Climate Change to the Environment, Agriculture, and Health", held at the Lung Center of the Philippines, Quezon City, 25 June 2008.

The forum was organized as one of the activities for the celebration of the World Health Day with the theme, "Protecting Health from Climate Change". The theme's objective is to raise the awareness on the emerging threat of climate change to health security and the global community. It also aims to establish linkages and attract concerted actions for reducing the threats of climate change in the country.

Attendees included members of the Presidential Task Force on Climate Change (PTFCC) created through Administrative Order 171 in 2007 and included government agencies such as the DOE, DOST, DILG, DA, DOH, and two representatives from the private sector/civil society.

For its part, DA, through Dr. Manuel Bonifacio, BAR's technical adviser, presented the initiatives of BAR to address climate change. His presentation was essentially based

on inputs from TCU. The presentation highlighted the following projects:

- 1) **Biogas Technology from Animal Wastes.** In 2005, BAR, in coordination with the Bureau of Animal Industry (BAI) funded the project on biogas technology using animal wastes from swine farms. Methane from animal waste is the primary effluent that increases greenhouse gases. Biogas technology captures methane and transform it into usable energy source such as for cooking, lighting, etc.
- 2) **Good Agricultural Practices (GAP).** BAR is coordinating the conduct of GAP and Good Manufacturing Practices (GMP) for agricultural production. GAP will minimize the "kaingin system" and use of fertilizers and chemicals as this will result to less pollutants in the atmosphere.
- 3) **Establishment of PhilDRI.** BAR, in collaboration with the International

Crops Research Institute for the Semi-Arid Tropics (ICRISAT), is supporting the creation of an institution – Philippine Dryland Research Institute (PhilDRI) – to facilitate researches on heat-tolerant plants for food, feed, and biofuels in a bid to address climate change.

- 4) **Development of Biofuel Feedstock.** In 2006, RA 9367 or Biofuels Law was enacted to replace diesel by 1%-2% biodiesel blends, and fossil fuels with 5% to 10 % bioethanol. DA was mandated to ensure the availability of feedstock for the production of biofuels. BAR is currently engaged in various research and development, and commercialization of viable biofuel feedstock for bioethanol such as sweet sorghum and cassava, and jatropha for biodiesel, among others. Biofuels are clean sources of energy that will minimize pollution from fossil fuels while providing livelihood to rural farmers.



The impact of climate change will adversely affect the most fundamental pillars of health which are food, air, and water.

Good Agricultural Practices

Enhancing exports of fresh fruits and vegetables

In March 2008, the BAR-funded project, "Enhancing exports of fresh fruits and vegetables:

Implementation of Good Agricultural Practices and Application of Postharvest Technologies", was completed. The project's proponent is Dr. Edralina P. Serrano of the Postharvest and Seed Sciences, UPLB and implemented by UPLB, DA-AMAS, DA-BAFPS, DA RFU I, and DA RFU V.

In general, the objective of the project was to enhance the profitability of horticultural enterprise through the export of fresh produce. Specifically, the program aimed to:

- establish and implement the Codes of Practice for production

and handling of tropical fruits (mango, calamansi, Queen pineapple, rambutan, lanzones) with export potential to EU and other markets;

- improve postharvest technologies and logistics to maintain and enhance the quality and increase the shelf-life of fruits for export to EU;
- conduct handling and marketing trials to potential export markets; and
- establish the quality assurance program (QAP) from production to marketing for each of the test fruit.

To meet quality and safety requirements of export markets, capability building was provided in the form of conducting awareness training about GAP as well as hands-on training on production, postharvest handling practices, and

technologies (hot water treatment protocol and modified atmosphere storage). Technical assistance about record keeping was extended to cooperators of the project from different parts of Luzon.

As an offshoot of reconnaissance activities, linkages were forged between producers and markets in Kuwait, Saudi Arabia, Hong Kong, Belgium, and UK. Although there no legal agreements made yet with the identified market outlets, future transport and marketing trials have been agreed upon.

Several information materials have been prepared for dissemination to various clients. These include commodity profiles that can be used as promotional materials during export marketing, and tips and checklists in the preparation for export.

Biofuel

While the adverse effects of biofuel crops as these affect the country's ability to produce its own food are still being debated, BAR focuses its R&D programs to support valuable crops that could be sustainable sources of biofuel particularly bioethanol.

Beside its activities and projects on the development of feedstock for bioethanol, such as from sweet sorghum and cassava, in November, the TCU also started to create the biofuel website, Biofuel Information, a project with BAR's IMU. Included in the website are the policies and roadmaps that govern the biofuel industry as well as the programs of different agencies involved in biofuels as per RA 9367, or the Biofuels Act of 2006.

Biofuel Information contains extensive information on each feedstock's production such as recommended varieties and cultural management as well as processing to biofuel and other derived products. For bioethanol, we have information on Sweet Sorghum, Sugarcane, Cassava and other potential sources. For biodiesel, we have information on Coconut, Jatropha, and other potential sources. Farmers and other investors who are interested in growing biofuel crops and producing biofuel will find this section useful.

Also included in the website are the profiles of the biofuel industry's top players for the

reference of feedstock producers as well as investors. Researchable areas are also identified for the reference of the R&D researchers and the academe. We can also find in the website the latest news, upcoming events, issues, and other concerns for the benefit of everyone interested. The website is set to be launched next year.



Health and Wellness

In February 2008, BAR hosted a meeting regarding its program on Indigenous Plants for Health and Wellness RDE launched in 2007 with scientists from different government institutions such as UPLB and DA-BPI and the Spa Association of the Philippines, Inc. (SAPI). The meeting was held to identify researchable areas on indigenous plants. Essentially the discussion was aimed at a more in-depth study of the country's indigenous plants for various purposes such as functional food, herbal medicine, and as raw material for pharmaceutical and cosmeceutical products.

In support to the health and wellness industry, the TCU has coordinated projects on:

- Pilot Commercial Production of Medicinal Plant Extracts- NABCOR
- Establishment of a Pilot Tissue Culture Laboratory for the Rapid Clonal Propagation of *Moringa oleifera* – UPLB-BIOTECH
- Development, Utilization and Commercialization of Pigeon Pea and Sweet Sorghum Nutri-based Food Product - ISU
- Commercialization of Moringa: An Industry Investment and Development Program – PAC



Partnership Approach

TCU could not have achieved its accomplishments alone. Internally, it works in partnership with BAR's other divisions and, units and externally, it coordinates with other DA agencies, units, and research centers as well as with other government agencies, state universities and colleges (SUCs), local government units (LGUs), non-government organizations (NGOs), private sector, and some international research organizations.

This partnership approach is demonstrated in many ways. These include consultations regarding the worthiness of project proposals for funding submitted to TCU. This includes, monitoring and evaluation as the projects funded progress and come to an end. Implementation by partners of projects funded, planning of commodity-focused industry roadmaps, mobilization of different sectors to boost the commercialization of appropriate technologies, capability building, co-organization and co-sponsorship of various local and international events held locally, and most important, securing of counter-funding for projects approved under NTCP particularly from NAFC, GMA-HVCC, and AFMA were undertaken



Forums and Exhibits

In performing its role, its major activities include organizing technology fora and exhibits to bring technologies closer to potential users and beneficiaries.

Before TCU was officially created, the BAR team tasked to handle NTCP was still working on fine tuning the processes involved in the program and was only starting to accept project proposals from different agencies for evaluation. Thus, many of the technologies presented in the fora were not BAR-funded. Later on, TCU was showcasing a mix of BAR-funded and non-BAR funded projects with promising and appropriate technologies on agriculture and fisheries. By then, the TCU began to organize separate events with similar format for different clusters in Luzon, Visayas, and Mindanao regions. These fora and exhibits were usually held within DA compounds or in locations where only a few invitees from different sectors had the privilege to join.

For this year, BAR opted to organize one big event at SM Megatrade Hall at SM Megamall in Ortigas, Madaluyong City. This venue is often used by different public and private organizations to

hold various events and trade fairs to accommodate a lot of visitors. To reach out to a much bigger audience from all walks of life and showcase the prospects of going into agribusiness, TCU organized the Agriculture and Fisheries (A&F) Technology Commercialization Forum and Exhibit 2008 at the SM Megatrade Hall 2, SM Megamall on 21-24 August 2008. The event had the theme, "Kabuhayan, Kaalaman, Kaunlaran sa Makabagong Agrikultura" and coincided with BAR's 21st Anniversary Celebration. Guests of honor were Agriculture Secretary Arthur C. Yap and Senator Edgardo J. Angara.

Eighty-three exhibitors from DA agencies, SUCs, and the private sector from all over the Philippines participated in the exhibition. From these exhibitors, TCU was able to secure 21 sponsors. There were likewise 21 topics and speakers for the seminar series held during the four-day event that attracted visitors interested in agribusiness. TCU also hired the services of Exist Exhibit Systems Technology Corp. to help organize the event which was a successful milestone for TCU and NTCP.





INTENSIFYING INTERNATIONAL RELATIONS:

Building Strong Partnership for Research

KEEPING IN TOUCH WITH THE WORLD

For an R&D coordinating body such as BAR, keeping in sync with the world is important. No self-respecting research organization anywhere in the world exists in isolation. More than anything else, globalization means information explosion and indeed this has revolutionized the pace of research. Access to information also means broadening the base of networking and linkages. A country's agriculture can only compete if and only if it has access to the knowledge and the answers to the new challenges in agricultural development. It has to know the path being pursued by other countries. Clearly, globalization means avoiding redundancies in information generation and management. Building a more humane society means sharing ways of making a living, optimizing the agricultural potential, and improving justice and equity, and the overall quality of life.

BAR is conscious of its commitment and obligations to harness the full potentials of research and development for the benefit of society. This includes harnessing knowledge generated outside the country.

The bureau, through its International Relations Unit (IRU) is actively linking and networking with other research organizations mainly to keep in step with major developments in agriculture. It takes advantage of opportunities to actively work with other research organizations and R&D systems through the various mechanisms of sharing and exchange programs. In fact, such sharing has enriched its research and development programs, and enhanced the capabilities of its staff. It has incorporated into its activities the most recent and innovative ways of charting the directions of research in agriculture to promote human welfare.



No self-respecting research organization anywhere in the world exists in isolation. More than anything else, globalization means information explosion and indeed this has revolutionized the pace of research.

Philippine Contribution to CGIAR



At the onset of 2008, IRU was tasked with negotiating with the Department of Foreign Affairs (DFA) for an increase in the annual Philippine unrestricted contribution to the Consultative Group for International Agricultural Research

an associate CGIAR member. With that, the unit prepared a cost-benefit analysis (focusing on the benefits that the Philippines received versus the unrestricted grants that the DFA has remitted to the CGIAR). Giving consideration to

(CGIAR), from the International Commitments Fund (ICF), to the level (US\$.5M) where the Philippines would qualify as a regular rather than as

the central role of agricultural research in developing food production technology for crisis conditions, the DFA-ICF Panel was convinced that it is worth increasing the contribution. However, the Panel also decided that the additional amount shall be channeled as restricted grants to fund local R&D activities of the International Rice Research Institute (IRRI), one of the international agricultural research centers under the CGIAR umbrella. From previous Philippine contributions to CGIAR and IRRI, amounting to P9.6 M, an additional P12 M has been guaranteed, for at least, year 2009.

International Collaborations and Liaison

The DA, through BAR, relates with CGIAR, the CG centers and other international agricultural research centers (IARCS) that operate in the country. In connection with this, IRU liaised with IRRI on specific proposals that the restricted grants from the DFA-ICF shall support in 2009. The unit also prepared BAR's inputs to executive surveys regarding the External Programme Management Reviews of CGIAR, IRRI and the International Crops Research Institute in the Semi-Arid Tropics (ICRISAT). Along with representatives of other BAR units, IRU staff met with Ms. Guat Hong Teh of the CGIAR Central Advisory Service on Intellectual Property (16 December 2008) who discussed with BAR staff the significance of regional networking on Intellectual Property for agricultural research.

BAR's interaction with other international organizations that involved IRU consisted of meetings with Dr. Clive Williams of the International Service for the Acquisition of Agri-Biotech Applications (ISAAA) on the growing significance of biotechnology in the development of crop varieties for developing countries and the need to address

issues that hinder local biotechnology research (12 February 2008), a delegation from the World Organization for Animal Health or OIE for a consultation on Philippine livestock R&D (16 May 2008), Mr. Nobuki Toyooka from Japan International Cooperation Agency (JICA) on BAR and the DA's R&D system (31 July 2008), and AVRDC Director General Dyno Keatinge on the importance of continuing the good relations between the Center and the Philippines (8 September 2008).

Bioversity International was a source of banana R&D information particularly on the appearance in the country of a particularly virulent strain of *Fusarium wilt* and control measures for the *bugtok* disease of *saba* and *Cardaba* varieties. BAR through IRU also took part in the terminal report presentations of ICRISAT on its peanut and pigeon pea R&D program and the International Livestock Research Institute (ILRI) on its goat improvement outreach project which were funded under BAR's restricted grants to CGIAR.



ICRISAT Dir Gen William Dar with BAR Dir. Nicomedes P. Eleazar and PDD Head Carmencita Kagaoan.



CABI CEO Trevor Nicholls with BAR Asst. Dir. Teodoro Solsoloy.



AVRDC Dir. Gen. Dyno Keatinge with BAR-IRU Head Vic Guiam.

Information Exchange Through International Correspondence

IRU corresponded through e-mail with foreign institutions and individuals for particular concerns. This included responding to Dr. Rodel Lasco of the International Center for Research in Agro-Forestry (ICRAF) on funding provided by DFA and BAR to CGIAR and Dr. Mercy Sombilla of Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) for updates on the Association of Southeast Asian Nations Technical Working

Group (ASEAN-TWG) on Agricultural R&D, and assisting Ms. Christine Herzog of Switzerland on Philippine seed laboratories and Ms. Saskia van Miltenburg of the Netherlands on the possibility of doing research in the Philippines.

On international donors, IRU reviewed the current thrusts and preferences of those that were known to be active in Philippine agriculture and which potentially could provide assistance to BAR and

the DA. Unfortunately, the information that IRU obtained shows that donor interest for agricultural research and to government offices (outside of official development assistance) has dwindled drastically. On the other hand, it was indicated that assistance and funding support opportunities is relatively vast for non-government organizations and institutions and LGUs that could potentially help sustain or expand existing R&D partnership project.

Meetings with International Partners

IRU participated in BAR meetings with other local organizations that had international R&D inputs which included the meeting on Agrobiodiversity (22 May 2008) with the Department of Environment and Natural Resources-Protected Areas and Wildlife Bureau (DENR-PAWB), 3rd Banana R&D Review & Planning Meeting (26 June) at the Philippine Council for Agriculture,

Forestry and Natural Resources Research and Development (PCARRD), and a discussion-meeting with Dr. Eugenio Alcala of the University of Southern Mindanao (USM) on international rubber R&D and rubber quality control in the Philippines. IRU Head, Victoriano Guiam, represented BAR Director in a United Nations Development Programme (UNDP)

interview/screening of candidates for the position of national coordinator of the Philippines UNDP-Global Environment Facility (UNDP-GEF) Small Grants Programme in the Philippines (4 March 2008), and meetings of the UNDP-GEF Small Grants Program Steering Committee where BAR sits as one of the government agency representatives.



Foreign visitors from international R&D institutions...



Director General Dyno Keatinge of The World Vegetable Center-AVRDC



Researchers from the Indonesian Agency for Agricultural Research and Development (IAARD)



Experts/scientists from the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)



Journalists from South Korea



Researchers from The WorldFish Center based in Malaysia



MANAGING INTELLECTUAL PROPERTY FROM RESEARCH:

Transforming Products of the Intellect to
Tangible Opportunities

TURNING IDEAS INTO OPPORTUNITIES WITH IPR

Transforming products of the intellect into tangible opportunities can result to endless possibilities. Products of the intellect or intellectual properties (Ips), like any other assets when properly managed and protected can encourage foreign investments, create jobs, empower entrepreneurs, generate tax revenues, and promote the development of locally-based businesses. However, these benefits can only be fully achieved if innovators are aware of the importance of Intellectual Property Rights (IPR).

Innovators which include scientists, researchers, and inventors involved in painstaking R&D endeavors are the subject of IP protection as a compensation for the time, money, dedication and effort they invested to come up with ideas of cutting-edge results. Through IPR, innovators are acknowledged, rewarded, and protected giving them full ownership of their innovations.

The Philippines is still relatively new to Intellectual Property, but it is learning and advancing at a pace matching the demands of the rigorous and intricate world of IP. Since the time that laws enforcing IP protection were signed in the country, IP awareness has been increasing. Through massive campaigns on IP awareness, the Philippines can be *at par* with other IP advanced countries.

The BAR-Intellectual Property Rights Office (IPRO) is a prime mover in the DA in its efforts to reach out to allied agencies in highlighting the importance of protecting the outstanding results of long and tedious R&D outputs of scientists, researchers, and

inventors, and more importantly, their right to putting a seal to their inventions.

Four years since its inception, BAR-IPRO succeeded and continues to uphold IP awareness, not only in the institutions and agencies under the umbrella of the DA, but also in the state universities and colleges (SUCs) and members of the private sector which are now working in close coordination with BAR-IPRO on their IP needs.

The accomplishments of BAR-IPRO in 2008 testify to its adherence to the mandate that the unit has been entrusted to execute. Year 2008 could be considered a fruitful year for IPRO as it served as a conduit for bringing to the attention of innovators the importance of IP management and protection as shown by its major programs and activities this period.

Among the assistance it provided to its clients were: 1) evaluation of inventions, technologies, processes, products of completed and ongoing projects and new proposals from DA-BAR funded or partly-funded R&D activities for their IP potential; 2) provision of direct assistance to IP right holders in the preparation and submission

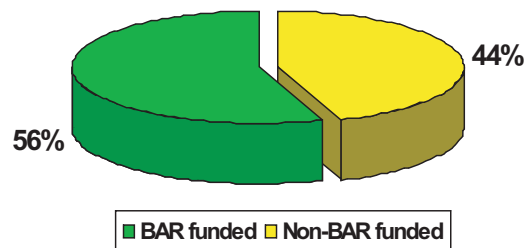
of all necessary supporting documents for IPR application; and 3) initiation and sustenance of awareness on IP of BAR staff, project partners/researchers through trainings and seminars.

IPRO facilitated requests from innovators seeking direct assistance for conducting prior art search and documentation, claim drafting, legal counsel, IP Policy formulation, consultations, meetings, and coordination with the scientists/researchers in the preparation, submission of application papers and fees to IPO Philippines.

In its bid to create IPR awareness in the DA system and its partner institutions in the NaRDSAf, the IPRO responded to request for trainings by five member agencies, two of which were state universities (CLSU and CavSU), a consortium in Region 2 (CVARRD), CHED in ARMM, and BFAR in Region 5. Further, IPRO attended two project reviews conducted in Zamboanga and UPLB in February and October, respectively.

Nine terminal reports and two proposals fully- and partially-funded by BAR were evaluated by

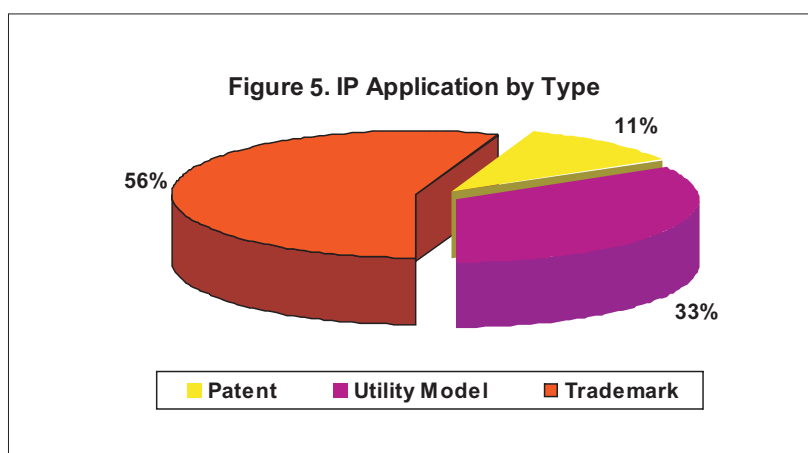
Figure 4. Projects With and Without BAR Support Tracked with IP Potential



IPRO for their IP potential from which five were earmarked for possible IP protection. In addition, five other research outputs not funded by BAR were also assessed upon request by innovators to determine the appropriate IP protection to apply for of which four qualified for IP application. In all, nine were candidates for application to IPO Philippines (Figure 4). Segregated according to IPR type, 11% was found suitable for patent, 33% for utility model and 56% for trademark (Figure 5).

Patents are granted to inventions that have passed the criteria of novelty, had an inventive step, and had industrial applicability. *Novelty* is met when an invention is an inventor's original work and does not form part of the existing state of the art in technology. The *inventive step* is the component or feature of an invention that is not obvious to a person skilled in the art while the *industrial applicability* refers to an invention that can be manufactured or used in industry

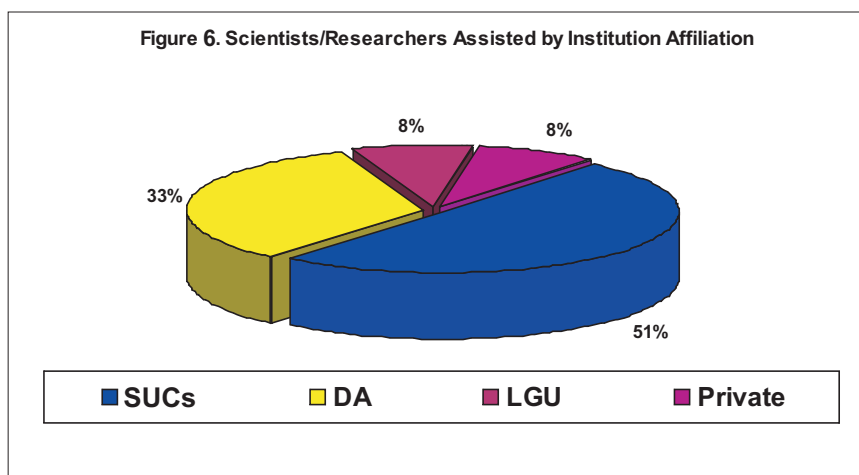
of any kind, including agriculture. When an invention lacks the inventive step, the utility model can supplement the patent system. On the other hand, a trademark is a distinctive sign that identifies certain goods or services from those produced or provided by a specific person or enterprise. It helps consumers identify and purchase a product or service due to its nature and quality.



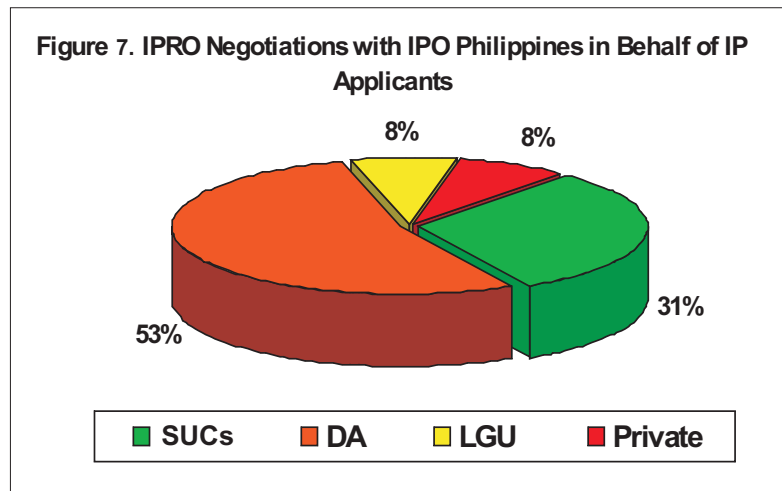
The number of scientists and researchers assisted by IPRO in 2008 was 33% higher than 2007. Classified according to institution affiliation of the scientists and researchers who benefited from IPRO assistance, 51% were from SUCs, 33% from DA, and 8% each from LGU and the private sector

(Figure 6). The scientists and researchers assisted were Dr. Renato Reyes (CLSU), Dr. Rodolfo Demo-os (TCA), Dr. Primitivo Jose Santos (UPLB), Dr. Jose Peralta (UPVisayas), Ms. Elena Tabora (private sector), Dr. Leni Quirit (UPDiliman), Dr. Florentino Sumera (UPDiliman), Dr. Jovita Datuin (DA

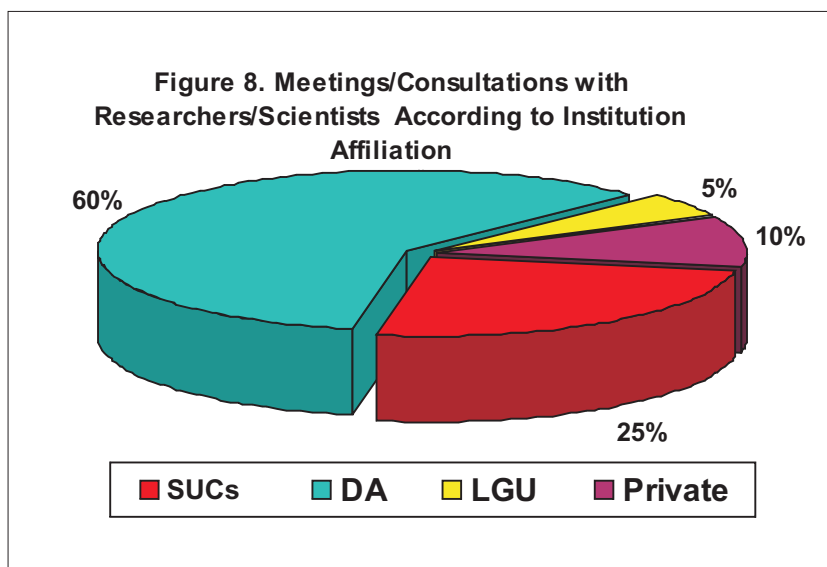
Reg 1), Dr. Rachel Cadeliña (DA Reg 7), Engr. Villamayor and Ms. Dina Masa (PCA), Ms. Erlinda Gadon (DA Reg 9), and Ms. Gladdys Repusa (LGU Bataan). The first four scientists were provided continuous assistance to date since their applications for patent have to undergo a long tedious process.



As part of its program, IPRO served as the representative of IP applicants to IPO Philippines. IPRO processed application documents, filed requests for formality and substantive examinations, complied with paper requirements and other IPR related transactions. About 53% of these transactions were for clients from DA and 31% from SUCs (Figure 7).



Of the 20 meetings held with the clients, 60% were consultations provided for DA researchers and scientists, 25% for SUCs, 10% for private and 5% for LGU. These meetings covered exploratory discussions where the scientist or researcher requested for a briefing on IPR, the benefits and advantages in applying for IP protection, the appropriate type of IP to apply for their technology, request for assistance in facilitation of application documents, updates on the status of application, and other IP issues and concerns (Figure 8).



From the above figures, the IPRO's performance for 2008 serves as testimony of the Unit's dedication to uphold the delivery of BAR's services to its clients and to efficiently perform its mandate and effectively achieve its goals.



ESTABLISHING STRONG POLICY RESEARCH:

Addressing Immediate Concerns of the Sector

KEEPING UP WITH THE LATEST TRENDS IN THE SECTOR

At BAR, policy research is regarded as the application of social research in policy advocacy and directions in agriculture and fisheries development. Results of such research provide information on how farmers and fisherfolk perceive a development program in terms of its impact on the community, or why they adopt or not adopt a specific technology being introduced.

The Agriculture and Fisheries Policy Research Unit (AFPRU) is tasked

with monitoring and evaluating the latest trends and events in relation to agriculture and fisheries (AF) research and development. The unit drafts policies and pertinent documents addressing emerging issues and concerns in the AF sector. Using the latest relevant empirical data and statistics from the sector, the unit processes and analyses information to craft policy recommendations for BAR management and the DA as a whole.

In addition to its role as a policy-recommending unit, the AFPRU coordinates the conduct of impact assessment studies and socio-economics research in AF, the outputs of which aid in the efficient allocation of funds for agricultural research and better prioritization of R&D programs. It is also the task of the unit to assist management in seeing to it that all agricultural researches are coordinated and undertaken for maximum utility to the AF sector.

Major Activities and Accomplishments

The activities that AFPRU focuses on are three major areas of concern, a) *impact assessment and focus* - deals with research and study on the ramifications of major R&D programs of the Department of Agriculture on farming and fishing communities and other

stakeholders; b) *policy research and analysis* – focuses on continuous research and gathering of information on the latest trends in agriculture and fisheries R&D and providing valuable inputs of decision making to the BAR and the DA; and *R&D Governance and Quality of*

Science – sees to it that agriculture and fisheries R&D is aimed at the intended beneficiaries such that these will have the most impact. R&D prioritization is much needed due to the limited resources yet the demand for food security and poverty alleviation is high.

Impact Assessment and Focus

For 2008, under the BAR-PhilRice-SEARCA Collaborative Project, *Productivity Growth in Philippine Agriculture (PGPA)*, unit staff attended the project planning workshop at SEARCA, Los Baños last February 29-March 1, 2008 and the 2nd Steering Committee Meeting last November 19, 2008 held at BAR. The unit facilitated the provision of research funds to SEARCA in the amount of PhP 2,000,000 for year 1 implementation of activities of the project. The goal of the project is to address the decades' long problem of a declining agricultural productivity in the country.

The ACIAR-DA Collaborative project *Impact Assessment of ACIAR-Funded Research on Pesticide Use in Grain Storage in the Philippines* was a coordinated effort between the unit and the PDD. The team was composed of staff from various DA agencies, spearheaded by Dr. Sergio Francisco of DA PhilRice. The group met at BAR several times to discuss activity schedules and the results of the field surveys. The DA team also met with Dr. John Mullen, ACIAR consultant to discuss initial results and get the expert's comments and suggestions. The team carried out field surveys in Nueva Ecija, Isabela, Metro Manila, Davao Del Sur, Davao Del Norte

and Davao Oriental. Prior to submission of the first draft of the final report, the team conducted a workshop in Tagaytay last May 10-11, 2008 to finalize all information for compilation.

The unit facilitated the provision of research grants for two projects – *2008 National Nutrition Survey: Individual Food Consumption* to be implemented by the DOST-Food and Nutrition Research Institute with funding for activities at PhP 4,978,600; and the project *Integration and Packaging of Available Statistics on Corn* to be implemented by BAS with an approved amount of PhP 500,000.

Policy Research/Analysis

The unit collected and compiled data for a report, *Selected Major Commodity Production Sufficiency in 2007*. Data profiles on the ten poorest provinces in the Philippines were also gathered as inputs to policy studies and concept papers. The unit now has a compendium of the latest 2008 data on the agriculture and fisheries sector.

The unit was involved in the BAR-CAPSA Collaborative project, *Adding Value to Fresh and Processed Produce Through Product Certification*. The goal of the project is to study and identify specific benefit from the rapid growth of the dynamic market, in particular from the product certification perspectives, that can be tapped by secondary crops farmers, specifically those living in medium altitude areas. The initial

output of the group was an inception report and review of literature on product certification. The team conducted field surveys, interviewing farmers, traders, buyers and other stakeholders in the fresh semi-temperate vegetables in the Philippines last July 14-18 (Benguet and Mountain Province); October 20-24 (Region 10 and points); September to November 2008 (major Supermarkets in Metro Manila). Product certification requirements by the retailers and best practices on product certification by the various producers and processors from farms to retailers together with their respective price premium or added value was studied, analyzed and collated. The results of the study were presented in a report and the first draft was submitted to CAPSA last November 14, 2008. As part of the terms of reference of the

study, a workshop on *Adding Value to Fresh and Processed Produce through Product Certification* was conducted last December 17-18, 2008 at EDSA Shangri-la Plaza Hotel, where the results of the Philippine and Indonesian studies were presented by the respective country study leaders. The workshop served as a venue for the various stakeholders of the vegetable industry in the Philippines to identify issues and concerns and develop policies and programs to address the said problems. Dr. Ronnie Natawidjaja presented the Indonesian case, while Ms. Josefina Lantican presented the Philippine Experience. The activity was graced also by Dr. Togar Napitupulu, Senior Economist of UN CAPSA and Dr. Agbessi Amewoa, UN CAPSA expert.

R&D Governance and Quality of Science

As member of the BAR Technical Evaluation Committee (TEC), the unit evaluated applicants for BAR Thesis/Dissertation Assistance Program and provided comments on the CLSU proposal *Why Rice Farmers Are Poor: Problems and Opportunities to Improve Their Well-Being* submitted by the Central Luzon State University and the request of DA-RFU IX WESMIARC for financial assistance for the conduct of Farmer's Field Day and 17th DA-WESMIARC Anniversary Celebration.

The unit served as Secretariat for the DA Committee on the Review and Proposal of Amendments to the Magna Carta for Scientists,

Engineers, Researchers and Other S&T Personnel (R.A. 8439). It coordinated a series meetings at BAR and provided technical support during the meeting with Assistant Secretary Carol Yorobe to discuss proposed amendments to the Implementing Rules and Regulations to RA 8439 last June 16, 2008 at the Department of Science and Technology, Bicutan, Taguig.

The unit assisted in facilitating and provided secretariat functions during the National Dryland RD&E Conference. As a follow-up, the AFPRU prepared pertinent documents (conference presentation and materials, workshop outputs, and statement of support) for submission to the Secretary of DA

for consideration and review.

AFPRU served as Secretariat for the National Technical Committee (NTC) for the search for the 2008 Gawad Saka Outstanding Agricultural Scientist. The team conducted field validations in Isabela last May 18-20, 2008 and Palawan last May 25-27. The final results of the search were presented during the National Technical Committee presentation last May 30, 2008 at the NAFC conference room. The unit also provided assistance in the preparation of materials for the 2008 Board of Judges (BOJ) meeting for the Gawad Saka Search for Outstanding Agricultural Scientist.



CONNECTING OPPORTUNITIES THROUGH ICT:

Delivering Comprehensive, Real-time Information

RESPONSIVE ICT PROGRAM FOR R&D

The critical and important role of information exchange in the lives of people has been one of the foci in the agriculture and fisheries sector. In this globally competitive world, the roles of technological innovations play their parts with information increasingly at their core.

Information is an important component of the different projects, programs, and activities geared towards the overarching goal of the DA. ICT tools render information generated better organized and accessible. People in the global

age can now easily respond to technological improvements.

Information disseminated can lead to greater impact on community development and in the lives and ways of farmers, fisherfolk, academicians, stakeholders, and government agencies. R&D activities, with respect to information dissemination and knowledge sharing, help make possible the realization of the goals of the DA to alleviate hunger and eradicate poverty.

Setting-up a responsive ICT



program positively affects the development of the community, creating a venue for change and technological innovations which can transform the life situations of farmers and fisherfolk. These shall, in turn, lead to a sustainable and globally competitive agriculture and fisheries sector.

System Administration, Development, and Maintenance

With these in mind, BAR intensified its ICT program in 2008. BAR developed and is continuously managing the computerized information system (CIS) of the AF research, development and extension (RDE).

BAR, through its Management Information Systems Division-Information, Communication, and Technology Section (MISD-ICTS), established the Information, Communication, and Technology Program. Under this program, BAR gives emphasis to smooth coordination with other government agencies, partner-institutions, private sector, and state, colleges and universities. The collaborative efforts is an assurance for a strong and responsive R&D information system for agriculture and fishery sector. Continuous maintenance of the BAR website through AF R&D knowledge management is conducted, contributing to the effectiveness of the program.

A total of 16 BAR Information

Systems are being maintained under full operation and utilization by the different BAR technical divisions and units. Some of these information systems were modified, revised, and provided with content build-up. These include the Research Development Monitoring and Information System (RDMIS), ICT Tracking System, Intellectual Property Monitoring Information System (IPMIS), Proposal Tracking Monitoring Information System (PTMIS), BAR Library Information System, Payroll System (BARLib), and Electronic Daily Time Record System (eDTRS).

For a clear understanding and to provide a guide for end-users on the various CIS, eight Users' Manual on BAR's Information Systems (Payroll, eDTRS, RDMIS, IHRMIS, VDTMS, DTS, BARLib, and SEMS) were prepared and packaged.

Seven databases were made available to 24 BAR end-users for effective and efficient RDMIS use. Under the program, the database of

the RDMIS is regularly updated together with the BAR Online and AgriTech Online. The latter serves as a knowledge and information portal for farmers, fisherfolk, and other agriculture and fishery stakeholders.

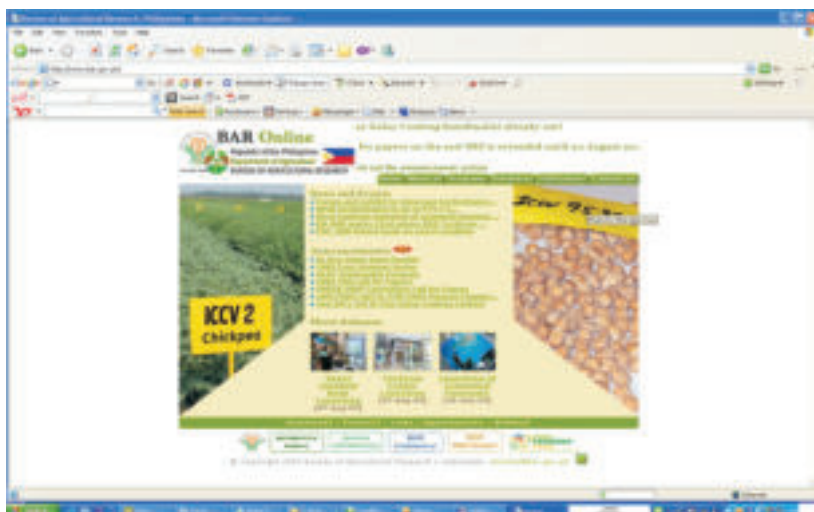
The BAR Online, serving as the official website of the bureau, is also regularly maintained and updated. It also contains an archive of the different electronic information of BAR's regular publications (e.g. BAR Chronicle, BAR R&D Digest), news and events, and photo releases.

The ICTS ensures a 24/7 smooth operation of the existing BAR servers for the different programs and activities of the different divisions and units. The unit also strives to provide a 24/7 operation of the BAR networks (internet and intranet services).

It was also this year, that the ICTS reprogrammed 98 (locals) phone lines through the PABX system.

Localizing IT Exchange

Through the years, BAR's strategy to make R&D information available is anchored on research-farmer/fisherfolk relationship. BAR's revitalized and relevant information and technology-related activities have created a new breed of information-sensitive users. In their work performance through exchange of information and technologies who are active in the exchange of information and utilization of technologies. A key factor is the management and maintenance of a CIS of agriculture and fisheries research and development for efficient and effective monitoring and evaluation. The CIS was the platform for the development and packaging of information that were translated into publishable materials circulated to individuals and institutions as well as the use of the BAR's website (www.bar.gov.ph) for immediate acquisition and feedback.



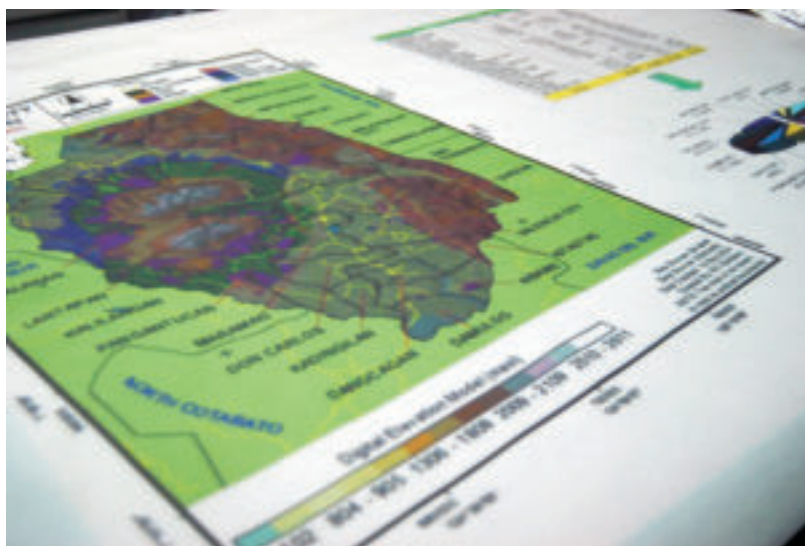
BAR's official website: <http://www.bar.gov.ph>

A total of sixteen (16) information systems are managed and maintained to operate and provide support to the different divisions and units of the Bureau as well as its partners for first hand and latest information from the field such as R&D priority agenda and programs for national and regional levels, financial and technical support for

basic/strategic and adaptive and applied researches, support services on intellectual property management, scientific publication grants, knowledge management and e-library services.

In addition, the bureau through its BAR-SAIL provides updated digitized and thematic maps, including suitability maps, on priority commodities required for research and development program and project implementation. At the same time, these generated maps provide appropriate decision-making initiative as to where and when these commodities are to be planted and or introduced in new agricultural lands or rehabilitated fishing areas for development.

This support activity assists research institutions and centers in properly identifying and locating potential areas for expansion and enhancement of research and development activities. Generated maps support the DA-High Value Commercial Crops Program which, incidentally, has provided a financial support to prepare and process digitized maps of commercial crops. To date, these maps are available upon request.



The bureau through its BAR-SAIL provides updated digitized and thematic maps, including suitability maps, on priority commodities required for research and development program and project implementation.

Monitoring and Evaluation

In 2007, BAR collaborated with Optiserve Technologies, Inc. (Optiserve) on an IT project, *Establishment of the e-Pinoy Farms for a Sustainable and Profitable Agriculture and Fisheries Community-based Initiatives in selected Pilot Regions*, commonly known as *e-Pinoy FARMS®*. The *e-Pinoy FARMS®* use mainly lies in improving the documentation primarily of the monitoring and evaluation purposes of BAR's CPAR program for successful decision making for community-based activities. The implementation shall enable BAR to strategically institutionalize CPAR and empower the targeted beneficiaries with information generated by R&D.

Under its Phase II (2008), the team deployed 16 servers to respective pilot regions. These include the initial three servers deployed in the pilot regions (Phase I). The system has been further tested, evaluated and revised for maximum utilization.

The ICTS, RCD, and Optiserve conducted briefings and consultations (scoping sessions and meetings) to prepare the monitoring and evaluation format/reports. At the middle of the year, BAR held its scoping session and hands-on training for the Luzon Cluster. This is to arrive at consensus on the details of utilization and application of *e-Pinoy FARMS®* for CPAR. That for the Visayas Cluster concluded in July.

One of the highlights of the operationalization of *e-Pinoy FARMS®* is the launching held in Pangasinan which drew about 1,000 participants. This served as the kick-off activity for the nationwide implementation of CPAR integrating the use of the monitoring system. Also, together with Optiserve, a training activity was conducted to further introduce and equip local onion growers and stakeholders under the project

titled *Onion Production Resource Management System (OPREMS)*.

OPREMS is a custom-designed software application for the onion sector and was developed for a community-based resource management system based on the proprietary *e-Pinoy FARMS®* platform. The objective is to provide a unified information system applicable for multi-stakeholder development projects in a cross-functional environment.

Specifically, OPREMS aims to develop and institutionalize an information-sensitive management platform to encourage proactive participation of onion farmers. The team also solicited inputs and information from the onion growers to be able to integrate these data in the current body of knowledge in onion production system for strategic decision-making.



Collaborative Works on AFRDIS

In 2008, BAR strengthened the Agriculture and Fisheries R&D Information System (AFRDIS), a project component of the ICT program. AFRDIS is a comprehensive information system for R&D, it is a partnership among research institutions and the National Research and Development System for Agriculture and Fisheries (NaRDSAF) members for efficient and effective information exchange and immediate technology sharing and transfer.

AFRDIS has five (5) components, namely: R&D financial Management Information system, R&D Management Information System, R&D Manpower Management Information System, Geographical Information system for R&D.

As support to the development of a unified information and knowledge management, ICT assessments of 16 national and regional AFRDIS partner agencies were conducted. This is in line with the Department's plan to unify all efforts on ICT.

On Geographical Information System (GIS) for R&D, BAR continuously managed the operation of the BAR-SAIL (Spatial Analysis and Information Laboratory). This serves as a learning laboratory for GIS technology for BAR and its clientele.

Through its BAR-SAIL, BAR developed and digitized 259 maps, particularly thematic and base maps, and also refined spatial database for research purposes.

A series of training programs on GIS were conducted throughout the year for the Luzon, Visayas, and Mindanao Clusters. The training series is a follow-up activity of

BAR's previous capability building activities in line with the AFRDIS. The clusters prepared completion training reports that included summary of exit plans for consolidation and integration.

The training is also the support to the implementation of the CPAR Program. This aimed to enhance the capability of RIARCS and SUCs on correct handling, processing and analysis of data necessary for AF development.

A total of 35 crops have Suitability Mapping. These were identified by the different DA GMA Banner Programs through 55 shape files and 88 map layouts.

In support to the FIELDS Program of Secretary Arthur C. Yap, BAR established the AgFishTech Online at the last quarter of the year. The AgFishTech Online is a website that contains information on production of the flagship commodities of the DA. This was designed for farmers and stakeholders and for individuals who want to go into farming as business.

In support to AgFishTech Online, a Technical Working Group (TWG) in the bureau was organized to facilitate the data gathering for each commodity. The TWG was divided into 3 sectors, namely: crops, livestock, and fisheries. At present, 40 commodities have been encoded. The website has undergone improvements and

development based on the suggestions and comments of TWG members.

BAR, through its various ICT program, shall continue to intensify ICT exchange between and among key R&D players and stakeholders. R&D breakthroughs shall be efficiently and effectively disseminated through ICT.

In mid-September of 2008, the MISD was restructured and divided administratively. The ICTS was then transformed as the Information Management Unit (IMU) under the Office of the Director still maintaining the functions of its previous form.





MANAGING KNOWLEDGE FROM RESEARCH:

Communicating RDE Information and Technologies Effectively

INSTITUTIONALIZING INFORMATION-SENSITIVE AGRICULTURAL DEVELOPMENT

Information plays an important role in development. It provides the direction for people and their community to follow and realize the changes occurring in the name of development. Being on top as the country's agriculture and fisheries R&D manager, BAR's pivotal role is to make its key R&D players and clientele well-informed and receptive to and use research-generated outputs to the fullest.

Making appropriate and timely dissemination of information and technologies in agriculture and fisheries aids farmers and fisherfolk, together with their communities, by creating access to latest and state-of-the-art technologies and helps them make informed decisions as to their respective farming or fishing operations including adapting of viable and innovative interventions. BAR's strategy then is to institutionalize an information-sensitivity framework in R&D to



ensure better productivity and profitability derived from priority commodities, and to promote efficiency in BAR's operations for community development.

In the past two decades, shifts from resource-based to technology-based development marked the response of BAR to changing approaches for agricultural development. For two

straight years now, the information-based development strategy implemented by BAR has contributed to the improvement of its knowledge management programs and services. Information obtained and technology derived from exchanges under two banner programs, CPAR and the NTCP, continue to improve and shape the lives of the farmers, fisherfolk and their communities.

Setting the Goal

BAR's primary concern is to provide appropriate and relevant information and technologies to its clientele and end-users. BAR's partner agencies have constantly been the source of these information and technologies translated into usable materials which can effect changes in the quality and condition of lives of all sectors. BAR has set the trend in making technologies work for agriculture, fisheries, people, communities, and industry in more participatory, dynamic, interactive, and systematic manner.

This year, BAR did an overhaul of its activities with regard to the inclusion of farmers, fisherfolk and

communities as part of the community-based initiatives and technology commercialization projects around the country. BAR's ultimate consideration was making people aware of available agriculture and fisheries technologies on the different priority commodities at the regional and national levels that are ready for adoption, utilization, and application.

Overall, the goal is to infuse sensitivity factor with flexibility in its intervention schemes in order for

end-users to make wise decisions in farming and fishery production, and develop management operation systems that encourage partnerships, increased production and profit, and improve the lives of people through competitive and quality products of research and development. We remain guided by the working philosophy – *“Teamwork + Good Leadership and Discipline with Responsibility and Accountability = Commendable Accomplishment and Excellent Performance.”*

BAR's primary concern is to provide appropriate and relevant information and technologies to its clientele and end-users.



Knowledge Products and Services

Our quest and desire to provide good products and services to our clientele motivate us to be more creative, artistic, skillful, dedicated, responsible, and accountable. With these, we have accomplished and provided our clientele with quality products and effective delivery of services.



BAR, through its Applied Communication Division (ACD) prepared, processed, packaged, published, and distributed R&D materials which were derived from the different Community-based Participatory Action Research (CPAR) projects of our regional partners, technology commercialization programs, and other R&D-related projects and activities that our agency implemented in partnership or collaboration with other agencies.

Specifically, we have published 12 issues of the BAR Chronicle for CY 2008 plus a special issue to coincide with our anniversary, four issues of the BAR R&D Digest for CY 2008, 2008 R&D highlights from the National Research Symposium, a special publication on the BAR-initiated Vegetable Cookfest – *O! May Gulay* in celebration of the 2008 Agrilink, Aqualink and Fishlink Exhibition.

Furthermore, we have reprinted several BAR brochures and exhibit materials that give prominence to our mandate, vision, mission, goals and highlight activities that build and enhance BAR's corporate image. In addition, we have prepared information and promotional materials that support the intention of the DA as well as BAR for our clientele to be well-informed and be aware of such programs and activities that will improve their farming and fishing condition through R&D activities.



Moreover, BAR in partnership with national media outfits – NBN Channel 4's *Mag-Agri Tayo* TV Program and DZRB Radio Program – worked together to feature 45 documented success stories of CPAR and TechCom programs which encourage information and knowledge acquisition. The *Mag-Agri Tayo* TV program has a format that appeals to people who eventually are encouraged to engage in farming and fishing activities with the aid of relevant and tested technologies in the field. The radio program works through phone patch interviews of key BAR officials who discuss significant events and activities of BAR. These two engagements support the delivery of information and services in a more interactive manner that guarantees faster access.

Aside from these activities, BAR installed an electronic library service that caters to users on various fields in AF. To date, BAR has 594 library information and knowledge collections and 1,489 AF-related news and clippings of interest. The service can generate research trends including data for storage, processing and interpretation to enhance and support R&D related activities in program planning, policy development and advocacy, development communication, community development, knowledge management and technology transfer.

The BAR's library service is open to all individuals and institutions who are into AF R&D management. Because of this, BAR is continuously collecting and sourcing out documents and materials. This year, we have acquired 120 books, 100 serials, 8 theses/dissertations, 6 CD on various topics, 10 research reports and research papers, and 50 vertical files in sustainable agriculture and fisheries development.

With these services, BAR's information and knowledge management have served well its target clientele and growing end-users. Phone calls, walk-in visitors, and email messages are received from people of all walks of life and BAR has welcomed this opportunity of developing a well-informed clientele. Continuous efforts are on-going to make them attuned to local, national and global conditions for effective localized development.

Information Sensitive to the Clients' Needs

What lies ahead of AF development is anchored on the kind, type, relevance and appropriateness of information shared with our clientele and end-users. Most often, information prepared and packaged for publication were carefully researched so as to provide timely and appropriate information and technologies that can uplift the present condition of people, communities, and industries, albeit, in a passive way. However, changes constantly occurring compel BAR to be proactive. Thus, responsiveness and openness have been added as key factors to all our efforts. Since the needs and conditions of the times change, so too should our information and the ways we disseminate them.

Given this responsibility, BAR will continue to improve its products and services in AF R&D management making these information-sensitive to the needs of the people, particularly the farmers and fisherfolk, and the researchers and managers who work for the development of the agriculture sector. Enhancing and strengthening our clientele and end-users'

capability goes beyond being just a BAR concern but it is also the bureau's responsibility to make them aware and understand the realities, challenges, opportunities, and threats brought about by forces beyond their control. What really matters is the right kind of information, one that empowers our clientele, most especially the farmers and fisherfolk, in protecting, conserving, managing, developing and using their resources for community development. It is information that they can be proud of.

The difference that BAR would like to share is that the use of information or knowledge for development. This is really at the core of the active roles and responsibilities of government and non-government organizations including private sector in supporting and sustaining agriculture and fisheries development. As the setter of the trend, BAR must always be information-sensitive and information-oriented, one that regards information as a major resource. When this resource is properly managed, it can make happen assured, sustainable and quality agriculture and fishery products for local and global competitiveness.

BAR in the News



ANNEXES

Organizational profile
Awards and recognitions
Local trainings
International trainings



The Bangui Windmills in Ilocos Norte is helpful in reducing the emission of harmful greenhouse gases causing global warming .



ORGANIZATIONAL PROFILE

The role played by R&D affects the lives of people across the country. But beyond the task of transforming ideas into significant research result, R&D has taken the lead in enabling people improve the way they live. This is the challenge that the Bureau of Agricultural Research (BAR) has taken in a heartbeat.

Mandate, mission, and vision

BAR was created in 1987 through Executive Order (E.O.) 116 to ensure that all agricultural research is coordinated and undertaken for maximum utility to agriculture. It is mandated to tap farmers, farmers' organizations, and research institutions, especially the state universities and colleges (SUCs), in the conduct of research for the use of DA and its clientele particularly the farmers and fisherfolk.

In 1997, the role of BAR in agriculture and fisheries R&D management was strengthened and affirmed through the enactment of the Agriculture and Fisheries Modernization Act of 1997 or AFMA (Republic Act 8435), a landmark law that tasked BAR with orchestrating the National Research and Development System in Agriculture and Fisheries (NaRDSAF) developing new modalities in R&D. NaRDSAF is a system that is strengthened through an organized partnership and collaboration among government agencies, state colleges and universities, the private sector, and industry.

Further, Executive Orders 127 (1999) and 338 (2000) reinforced and expanded the functions of BAR in the central coordination and management of agriculture and fisheries R&D programs. The objective is to help bring about an optimized R&D system, manned by adequate and trained scientists, that will enable the agriculture and fisheries sectors to compete in the global market.

As the lead government agency for agriculture and fisheries R&D, the Bureau works to consolidate, strengthen, and develop the agriculture and fisheries R&D system for the purpose of improving its effectiveness and efficiency by

ensuring customer satisfaction and continuous improvement through work excellence, teamwork and networking, accountability and innovation.

BAR envisions a stable and progressive future for the Filipinos through excellence in research and development in agriculture and fisheries. Basically, it seeks to transform the agriculture and fishery industries from a resource-based to a technology-based industry. In doing so, BAR has taken on the tasks of developing knowledge, methods, and technologies that can make the sector more competitive and efficient.





ORGANIZATIONAL PROFILE

R&D Thrusts

BAR adopts the four R&D thrusts:

1. **Productivity and profitability through production base enhancement**

The Bureau shall enhance productivity and profitability in agriculture and fisheries through research and development, particularly in the generation of information and technologies on genetic improvements in crops, livestock, and fisheries, as well as better production and management practices, market accessibility, and marketing efficiency.

2. **Resource sustainability and protecting biodiversity**

The Bureau shall support innovative agricultural and fisheries research programs by tapping the full potential of the natural resources and promoting sustainability from these environmental gains. The Bureau shall likewise work for the conservation and protection of the country's plant and animal germplasms, biodiversity, and other natural resources in agriculture and fisheries.

3. **Global competitiveness**

The Bureau shall support research and development programs on export crops and products from agriculture and fisheries while at the same time improving on existing products for global markets. Such programs shall include establishing and improving quality standards.

4. **Poverty alleviation and people empowerment**

The Bureau shall support R&D programs that will generate investments for agribusiness ventures, thereby generating employment in the rural areas. The Bureau shall also support programs on improving agricultural and fisheries supply chains to assure lower costs and lower prices and nurture a knowledge and information system to promote people empowerment through accelerating the use of productivity-enhancing and sustainable technologies in agriculture and fisheries and providing easy access to technology and information on agribusiness, and at the same time encouraging utmost participation of stakeholders.



ORGANIZATIONAL PROFILE

Banner Programs

BAR's response to global competitiveness, poverty alleviation and people empowerment is anchored on its dynamic, responsive and relevant programs. These are the Community-based Participatory Action Research (CPAR) and the National Technology Commercialization Program (NTCP).

CPAR is a platform for technology assessment that involves the participation of the community together with experts and researchers in identifying the most appropriate technologies that would help the community meet its

priority economic needs. It addresses farmers' priorities, strategies, resource allocation, and the biophysical and socioeconomic characteristics under which the farm household operates.

Established in 2005 in coordination with ATI, NTCP gives emphasis to R&D breakthroughs and mature technologies generated and developed by research institutions. It serves as a vital ingredient for the development of enterprises and the improvement of agriculture and fisheries-related industries through appropriate activities that include technology transfer, promotion, adoption, utilization and

commercialization.

CPAR and NTCP were conceptualized to support and enhance the capability of people and their communities in using information and technologies to bring about location-specific development. Likewise, commodities are produced and processed based on their economic importance and social relevance to people, markets, and industries. These programs support the pronouncement of DA in making agriculture business and thus, BAR's contributions in attaining and making this goal a reality.





ORGANIZATIONAL PROFILE

Other Initiatives and R&D Areas of Concerns

In the pursuit of its vision, mission and mandate, BAR sets the following R&D initiatives and areas of concerns with the aim of contributing to the development of the country through the conduct of R&D:

1. Establishment of Agribusiness Development Projects

ADPs are on-station researches implemented by the DA Research Stations in all the DA-Regional Field Units (RFUs) to showcase new or advanced technologies that will enhance the profitability of farming and fishing enterprises. It is an income-generating activity that aims to strengthen the strategy of teaching by example, demonstrating the profitability of new/ appropriate technologies that are suited to the conditions of the region, to the farmers, and then transferring these new technologies to rural communities served by the Regional Integrated Agricultural Research Centers' (RIARCs) and Research Outreach Stations' (ROSeS).

2. Support to Basic and Strategic Research

Basic researches are experimental or theoretical work undertaken primarily to acquire new insights on the underlying foundations of physical and biological phenomena and observable events. Support is given to the conduct of basic or

upstream research aimed at addressing emerging issues/concerns of R&D. Current focus is on agricultural biotechnology researches covering both modern and traditional biotechnologies.

Strategic researches are those that compare the performance of promising technologies with those of the farmers' practices which are conducted in their own farms. Support is likewise given to the conduct of on-farm researches to verify developed agricultural technologies and help in hastening the process of technology transfer in a specific area.

3. Institutional Development Program

IDG is divided into two: Human Resource Development (HRD) and R&D Facilities Development, both cater to NaRDSAF-member institutions which include DA National (staff bureaus/attached agencies) and Regional R&D centers (DA-RIARCs/BFAR-RFRDCs), national and regional SUCs, and Provincial Technological Institutes for Agriculture and Fisheries (PTIAF's).

4. Knowledge Management Program

The KM program enhances information flow from stakeholders in the R&D system to the policymakers, research administrators, extension specialist, general public and most especially, the farmers and fisherfolk.



ORGANIZATIONAL PROFILE

Other Initiatives and R&D Areas of Concerns

One of its components is the Scientific Publication Grant (SPG), which aims to support scientific and professional societies and agencies in publishing their research outputs through multimedia packages. Through the SPG, the program centers on technology updates disseminated to farmers and fisherfolk as well as to other program stakeholders.

5. Information Communication and Technology Program

ICT is the Bureau's response to AFMA's mandate to develop the R&D national information network to strengthen knowledge management in agriculture and fisheries R&D through information technology. Among BAR's ICT initiatives are: Agriculture and Fisheries R&D information System (AFRDIS), e-Pinoy FARMS, and Commodity Production Resources Management System (C-PREMS).

6. Intellectual Property Management Program

The Intellectual Property Rights Office (IPRO) of BAR is a prime mover in the Department of Agriculture (DA) in its efforts to reach out to allied agencies in highlighting the importance of protecting the outstanding results of long and tedious R&D efforts of scientists, researchers, and inventors, and more importantly, their right to put a seal to their inventions.

7. Agriculture and Fisheries Policy Research Program

BAR implements/coordinates with researchers/scientists of leading SUCs and other concerned institutions in the conduct of impact assessments and policy researches pertaining to agriculture and fisheries. The Bureau collects, processes primary/secondary data and information, monitors and evaluates the country's agriculture/fisheries situation including market issues, and provides recommendations on the development of comprehensive strategies addressing emerging problems and concerns in agriculture and fisheries. It formulates policy recommendations on scientific innovations and technology use to help promote the goals of the Department of Agriculture.



ORGANIZATIONAL PROFILE

Organizational Structure

Taking the lead in providing a unified national R&D agenda, BAR continues to support and coordinate R&D initiatives with impact and benefits to the marginalized sector of the country. The Bureau works under an organizational structure that is specifically designed for smooth and easy coordination of each divisions, sections and units

The Bureau is directly under the Office of the Undersecretary for Research and Development. A director heads the Bureau and is assisted by the assistant director who is mostly concerned with the organization's research support services.

Under the Office of the Director (OD) are nine units, three (Administrative, Finance, and Internal Control Unit) of which provide administrative support and six (International Relations, Planning, Information

Management, Agriculture and Fishery Policy Research, Technology Commercialization, and Intellectual Property Rights) are technical in nature.

The Bureau is functionally structured into three divisions, Program Development Division (PDD), Research Coordination Division (RCD), and Applied Communication Division (ACD).

Under PDD are three sections: Project Packaging, Project Evaluation and Institutional Development. Under RCD are five sections: Crops, Livestock and Poultry, Fisheries and Aquatic Resources, Products Resources and Systems, and Data Management. Meanwhile, ACD is composed of three sections: Publications, Educational Communications, and Scientific Literature System.



AWARDS AND RECOGNITIONS

Bioversity, BAR, UPLB banana project wins 2008 NAST Best Scientific Poster

A joint project of the Bioversity International-Philippines, BAR, and UPLB, titled “Introduced Bananas: New Cultivars, More Options for Banana Growers” won the Best Scientific Poster Award under agricultural sciences category during the recently concluded 30th Annual Scientific Meeting of the National Academy of Science and Technology I (NAST). The annual scientific meeting is a prestigious national scientific conference that recognizes outstanding achievements in science and technology.

The poster featured the study authored by Felipe S. dela Cruz, Jr. (UPLB), Lavernee S. Gueco (UPLB), Olivia P. Damasco (UPLB), Visitacion C. Huelgas (UPLB), Fe M. dela Cueva (UPLB), Teodora O. Dizon (UPLB), Vida Grace O. Sinohin (Bioversity), and Agustin B. Molina, Jr. (Bioversity).

The project was funded by BAR presenting results of a field trial at the Central Experiment Station of the College of Agriculture involving banana hybrids introduced from the *Musa* Germplasm International Transit Centre in 2000.

Six introduced hybrids (FHIA 01, 02, 17, 18, 23 and 25), and six local cultivars (Cuarenta Dias, Cavendish, Latundan, Cardaba, Lakatan-Davao, and Lakatan -Cavite) were evaluated in terms of yield and yield characteristics, visual and organoleptic acceptability, and reaction to the banana bunchy top virus.

Another project funded by DA-BAR and implemented by UPLB and Bioveristy International, titled “Role of healthy-looking Saba and other alternate hosts on the spread of banana bunchy top disease (BBTD)” was presented during the event. The proponents of the study were FM dela Cueva, EG Dinglasan, TO Dizon, FS dela Cruz Jr., OP Damasco, LS Gueco, and AB Molina.

**INTRODUCED BANANAS:
New Cultivars, More Options for Banana Growers**

Felipe S. dela Cruz, Jr., Lavernee S. Gueco, Olivia P. Damasco, Visitacion C. Huelgas, Fe M. dela Cueva, Teodora O. Dizon, Vida Grace O. Sinohin, and Agustin B. Molina, Jr.

Introduction

More banana cultivars have been introduced and identified a number of new, high-yielding and disease-resistant banana cultivars. Through the Banana Germplasm International Transit Centre (BGITC), these improved cultivars are being made available to the planting and distribution by commercial banana growers. It is believed that the introduction of these new cultivars as an alternative to an existing crop management strategy involving the use of plant breeding materials will have a more significant impact on the production of banana in the Philippines. These cultivars are expected to be more productive, resistant to banana diseases, and suitable for export.

Methodology

The six introduced banana cultivars were grown together with six local cultivars at the Central Experiment Station at UPLB.

The performance of the banana cultivars were evaluated in terms of:

- Yield and yield components
- Visual and organoleptic characteristics
- Reaction to banana bunchy top disease

Results

Yield evaluation and reaction to banana bunchy top virus (BBTV)

Cultivar	Height at harvest (m)	Bunch weight (kg)	No. of fingers	No. of fingers per bunch	Bunch weight (kg)
FHIA 01	2.00	22.33	9.56	10.00	22.33
FHIA 02	2.00	20.00	8.00	10.00	20.00
FHIA 17	2.00	20.00	8.00	10.00	20.00
FHIA 18	2.00	20.00	8.00	10.00	20.00
FHIA 23	2.00	20.00	8.00	10.00	20.00
FHIA 25	2.00	20.00	8.00	10.00	20.00
Local cultivars	2.00	20.00	8.00	10.00	20.00

Summary of conclusions

- Local cultivars, Lakatan-Cavite and Cavendish, are preferred to other and existing cultivars, particularly over the introduced cultivars.
- FHIA 01 is better than other cultivars compared to Cavendish.
- FHIA 02 and FHIA 17 are preferred to other cultivars.
- FHIA 18 and FHIA 23 are preferred to other cultivars.
- FHIA 25 is preferred to other cultivars.

Conclusion and Recommendation

- FHIA 01, 02, 17, 18 and 25 produced heavier bunches than the highest yielding local cultivars (Cavendish and Cavendish), while FHIA 01 and 02 produced the heaviest individual bunches. Recommendation: cultivars FHIA 01 and 02 are preferred to other cultivars based on yield.
- While the selected introduced cultivars may not be preferred by the local consumers as overall bananas, the potential of these cultivars may be in strengthening industry, particularly in the production of banana chips.



AWARDS AND RECOGNITIONS

BAR-supported book on post harvest technology is 2008 NAST Outstanding Book

The book, "Post harvest Technology for Southeast Asian Perishable Crops" edited by Drs. Ofelia K. Bautista and Elda B. Esguerra of the University of the Philippines Los Baños (UPLB) won the 2008 Outstanding Book during the 30th Scientific Meeting of the National Academy of Science and Technology.

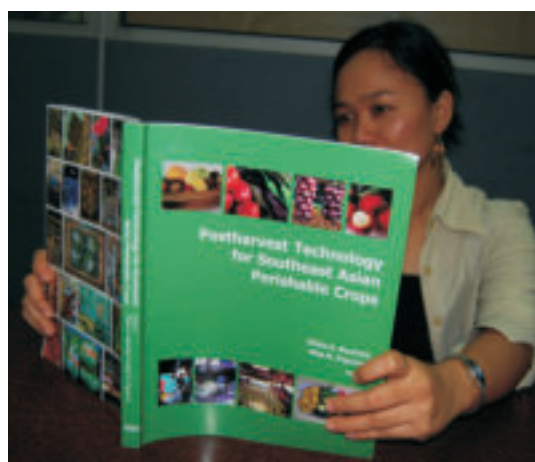
The book, published by UPLB and BAR, is a follow-up to the first edition of Dr. Ofelia K. Bautista's "Postharvest Technology for Southeast Asian Perishable Crops" published in 2000, which serves as a well-recognized reference material for agricultural universities and colleges that offer courses on post harvest. The second is an updated edition of the first featuring the latest technologies in post harvest handling and was expanded to cover eight sections: overview of post harvest handling (section 1), basis of post harvest technologies (section 2), harvesting and modifiers of quality before harvest (section 3), technologies (sections 4-7), and economic feasibility and social dimensions of post harvest systems improvement (section 8).

According to Dr. Bautista, "the volume is intended both as a textbook for students and a reference for professionals interested in post harvest handling of produce. She added that "the

book is based mainly on the data and information generated or gathered by the authors, thesis students, and colleagues supplemented by their experiences and insights in research, teaching, and conducting training courses, consultancies, and in meetings with policymakers and practitioners in the field here and abroad."

UPLB Chancellor Luis Rey I. Velasco in his foreword said that, "the book is one of UPLB's contributions to reducing post harvest losses, maintaining quality of fresh produce and ensuring food safety." Furthermore, he said that this book comes at an opportune time in UP's Centennial Celebration, giving back to the Filipino people such body of knowledge and building a legacy of distinct excellence in the field of agriculture.

Dr. Bautista obtained her PhD in Horticulture from UPLB and University of California at Davis as part of the joint program of the two universities. She is one of the pioneers at the Postharvest Horticulture Training Research Center (PHTRC) and an adjunct



professor of the Crop Science Cluster at UPLB's College of Agriculture. Meanwhile, co-editor, Dr. Esguerra graduated from the Kagawa University in Japan with a PhD in Post harvest Horticulture. She is a research associate professor and head of the Post harvest and Seed Sciences Division of the Crop Science cluster. NAST, the country's highest advisory and recognition body concerning science and technology, gives recognition to deserving scientists and researchers for individuals or group works that have contributed to the advancement of science in the country. These awards are given not only to recognize outstanding achievements but also to provide meaningful incentives to scientists and researchers; and in encouraging young people to pursue careers in science.



AWARDS AND RECOGNITIONS

BAR honors two R&D achievers

BAR presented citation awards to two R&D achievers, Dr. Virginia C. Cuevas of the University of the Philippines Los Baños (UPLB) and Dr. Louella Rowena A. de Jesus-Lorenzana of the Regional Field Unit (RFU) IV-B MIMAROPA RIARC as R&D Achievers during the 20th National Research Symposium (NRS) awarding ceremonies.

Agriculture Secretary Arthur C. Yap and Rep. Salvador H. Escudero III of the 1st District of Sorsogon, assisted by BAR Director Nicomedes P. Eleazar and Asst. Director Teodoro S. Solsoloy, awarded the plaques.

Dr. Cuevas, a dedicated professor for 34 years at the Environmental Division, Institute of Biological Sciences of UPLB specializing on plant and fungal ecology, is one of the Ten Outstanding Teachers of the Philippines for 2008 awarded by the Metrobank Foundation. The award-giving body was established to uplift the culture of excellence in education. Cuevas received a gold medal under the higher education category.

Cuevas was recognized in her studies in agricultural biotechnologies on rapid composting technology and the *Trichoderma*.

BAR supported a study on the efficacy of *Trichoderma* as a biological control agent of damping-off disease in lowland vegetables. The generated technologies have resulted in decreasing the dependence of farmers on agricultural inputs such as chemical fertilizers and pesticide.

Dr. de Jesus, another R&D achiever, is this year's GAWAD SAKA Outstanding Agricultural Scientist. GAWAD SAKA was established to give recognition to scientists and researchers with outstanding accomplishments in agriculture and fishery researches.

She pioneered research on the biology, behavior, ecology, and control of the quarantined pest, mango pulp weevil (*Sternochetus frigidus*). Her study resulted in the decrease in mango pulp weevil infestation in mango-growing areas of the country. Her study considerably uplifted the socioeconomic conditions of Palawan mango growers; hence, saving the mango industry. Cuevas was also a recipient of the Lingkod Bayan Presidential award and the Ten Outstanding Young Scientists award. Dr. Jesus now serves as the RIARC Manager for Region IV-B since October 2007.





AWARDS AND RECOGNITIONS

Eleazar receives Quezon *Medalya ng Karangalan* award



For his outstanding achievements in Research Management and Administration, BAR Director Nicomedes P. Eleazar was awarded the prestigious Quezon Medalya ng Karangalan, the highest award conferred by the people of Quezon Province to its outstanding citizens for their meritorious contributions to the society.

For 2008, Director Eleazar was recognized as the top candidate among the 13 awardees for garnering the highest point average as scored by the Quezon Day Awards Committee which is composed of officials from the provincial government of Quezon and respected individuals in the province. The award is given annually in time for the province's commemoration of President Manuel L. Quezon's birth anniversary.



In his acceptance speech, Director Eleazar, who was born and grew up in Tagkawayan, Quezon, recognized his fellow awardees who are highly respected in their respective fields of expertise. They were: Justice Stephen Cruz, *judiciary*; Edicio De la Torre, *theology, education, and social work*; Ramon Grimaldo, *fisherfolk leader*; Justice Angelina Gutierrez, *law*; Nelia Hizon, *public health*; Rolando Ong Bon Jieng, *herbal medicine*; Atty. Asis Perez, *environmental law*; Rebecca Ruga, *farmer leader*; Cesar Sia, *medicine*; Hobart Dator Sr., *public service* (posthumous); Conrado Dayrit Sr., *medicine* (posthumous); and Fabian Millar, *philanthropist* (posthumous).



The awarding ceremony was led by Quezon Governor Rafael P. Nantes and Senator Franklin Drilon who was invited as the guest of honor.



AWARDS AND RECOGNITIONS

Eight Outstanding BAR employees awarded

Every year, the bureau gives due recognition to outstanding employees who have shown exemplary performance and dedication in their respective duties and responsibilities.

From the 44 nominees, eight staff members of BAR were awarded the 2008 Outstanding Employee. Senator Edgardo J. Angara and Agriculture Secretary Arthur C. Yap handed-over the plaques to the winners with BAR Director Nicomedes P. Eleazar assisting them.

Aside from the plaques, all awardees received cash prizes. The winners included: Planning Unit Head Joell H. Lales (*Division/Unit Head*), PDD Assistant Head Salvacion M. Ritual (*Technical Supervisory*), BAR's head writer, Rita T. dela Cruz (*Technical Non-supervisory*), Judith A. Maghanoy of the Budget Unit (*Non-technical Supervisory*), Gretel F. Rivera of OD (*Non-technical Non-Supervisory*), Magdalena M. Calimutan of the Finance Unit (*Support Services*), Ethyl G. Bulao, of PDD (*Technical Project-based*), Gladys A. Gammad of TCU (*Non-technical Project-based*),

Asst. Dir. Solsoloy is the chair of the Search Committee with members from the Bureau's Technical Advisory Group, namely: Dr. Manuel F. Bonifacio, Dr. Santiago R. Obien, and Ms. Josefina M. Lantican.





LOCAL TRAININGS

General Subject Matter	Frequency of Participation
Taxation Training	2
Intellectual Property Rights	7
R&D Proposal Preparation	2
Auditing	1
Advance e-Learning Program Training	2
Geospatial Information Technology Seminar	2
Webpage Design	1
Profitability of New Production and Processing Technologies	11
Agriculture and Fishery Products Certification	7
Database Scoping Session and Hands-On Training	40
TOTAL	75

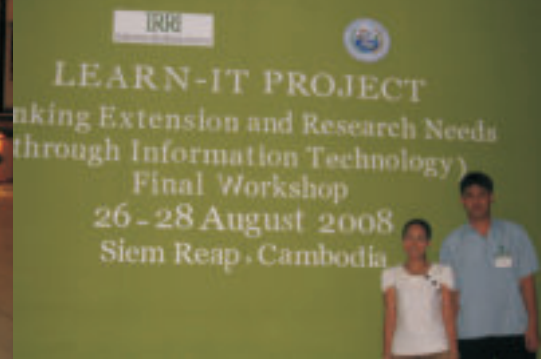




INTERNATIONAL TRAININGS

Staff	Training/Workshop	Duration	Venue
Nicomedes P. Eleazar	4th Governing Council Meeting of the Center for Alleviation of Poverty Through Development of Secondary Crops (CAPSA)	Jan 23-27	Indonesia
Teodoro S. Solsoloy	4th Session of Governing Council of the Center for Alleviation of Poverty Through Development of Secondary Crops (CAPSA)	Feb 5-6	Indonesia
Rosalia G. Maranan	International Course on Human Resource Management	Mar 13-24	Israel
Teodoro S. Solsoloy	Eliminating Rural Poverty: The Israel Development Experience	Apr 6-17	Israel
Andrea B. Agillon	Society for Technology Management (STEM)	Apr 13-16	India
Melissa A. Resma	Technical Workshop on Developing and Maintaining DE-Centralized ARD Information Resources for National Agricultural Research Information Officers and Managers	Apr 18-21	Thailand





INTERNATIONAL TRAININGS

Staff	Training/Workshop	Duration	Venue
Ethyl G. Bulao	Linking Extension and Research Needs Through Information Technology (LEARN-IT) Workshop	Aug 26-28	Cambodia
Danilo C. Santos	Linking Extension and Research Needs Through Information Technology (LEARN-IT) Workshop	Aug 26-28	Cambodia
Marlowe U. Aquino	First International Sociological Association (ISA) Forum of Sociology	Sept 5-8	Spain
Rodolfo L. Galang	2008 IRRDB International Rubber Conference and Annual Meeting	Oct 13-17	Malaysia
Joell H. Lales	10th General Assembly Meeting of APAARI	Oct 20-21	Japan
Carmencita V. Kagaoan	6th BAPNET Steering Committee Meeting	Oct 20-27	India
Teodoro S. Solsoloy	Regional Conference on Organic Asia 2008	Oct 28-31	Malaysia
Leoncía B. del Mar	Study Visit on the Financial Systems at ICRISAT	Nov 22-29	India and Singapore





INTERNATIONAL TRAININGS

Staff	Training/Workshop	Duration	Venue
Ligaya C. Santos	Study Visit to LEARN-IT Sites	Nov 16-23	Vietnam, Thailand
Rita T. dela Cruz	Study Visit to LEARN-IT Sites	Nov 16-23	Vietnam, Thailand
Judith A. Maghanoy	Study Visit on the Financial Systems at ICRISAT	Nov 22-29	India, Singapore
Carmencita V. Kagaoan	Strategic R&D Planning With the World Fish Center	Nov 24-29	Malaysia
Salvacion M. Ritual	Strategic R&D Planning With the World Fish Center	Nov 24-29	Malaysia
Teodoro S. Solsoloy	CGIAR Annual General Meeting	Nov 28-Dec 6	Mozambique
Teodoro S. Solsoloy	CABI's Executive Council Meeting	Dec 16	London





Community-based mangrove rehabilitation and management in Calape, Bohol which is one of the sites for the CPAR project in Region VII.

2008 STAFF LIST

OFFICE OF THE DIRECTOR
Dr. Nicomedes P. Eleazar, CESO IV

Executive Support Staff

Joell H. Lales
Jose Ira Archimedes D. Borromeo
Ma. Louella S. Dejelo
Gretel F. Rivera
Teresita S. Anonuevo
Rhea Aileen D. Neo
Francisto J. Grettchin
Jojit V. Velasquez

Coordinator for Research

Rolando V. Labios

Coordinator for Administrative Matters

Hamlet T. Dala, PhD

Technical Advisers (TA)

Santiago R. Obien, PhD (Institutional Development)
Manuel F. Bonifacio, PhD (Knowledge Management)
Catalino R. dela Cruz, PhD (Fisheries)
Josefina M. Lantican (Policy Research Advocacy)

OFFICE OF THE ASSISTANT DIRECTOR

Teodoro S. Solsoloy, PhD

Support Staff

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Mark M. dela Serna
Marie Loise Q. Arenas
Leonard Wyngard G. Sanidad

ADMINISTRATIVE UNIT

Rosalia G. Maranan

Personnel

Ludivina M. Pelayo
Ma. Angeline E. San Diego

Records

Melody T. Memita

Property and Supply

Rosalia G. Maranan
Alexces P. Tolentino
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The Dampalit Watershed located in Lalakay, Los Baños, Laguna is the site for the participatory upland development program funded by BAR.

ACRONYMS

ADB	Asian Development Bank
ACDI/VOCA	Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance
ACIAR	Australian Centre for International Agricultural Research
ACD	Applied Communication Division
ACEF	Agricultural Competitiveness Enhancement Fund
AFRDIS	Agriculture and Fisheries R&D Information System
ARMMIARC	Autonomous Region of Muslim Mindanao Integrated Agricultural Research Center
AVRDC	The World Vegetable Center
ADP	Agribusiness Development Projects
AFRDIS	Agriculture and Fisheries Research and Development Information System
AFMA	Agriculture and Fisheries Modernization Act
AFPRU	Agriculture and Fisheries Policy Research Unit
ATI	Agricultural Training Institute
BAI	Bureau of Animal Industry
BAR	Bureau of Agricultural Research
BAR-SAIL	Bureau of Agricultural Research-Spatial Analysis and Information Laboratory
BIARC	Bicol Integrated Agricultural Research Center
BOFPP	Bio-organic Fertilizer Production Project
BPI	Bureau of Plant Industry
BPRE	Bureau of Postharvest Research and Extension
BFAR	Bureau of Fisheries and Aquatic Resources
BSWM	Bureau of Soils and Water Management
CAPSA	Centre for Alleviation of Poverty through Secondary Crops' Development in Asia and the Pacific
CARIARC	CARAGA Integrated Agricultural Research Center
CEMIARC	Central Mindanao Integrated Agricultural Research Center
CENVIARC	Central Visayas Integrated Agricultural Research Center
CHED	Commission on Higher Education
CLIARC	Central Luzon Integrated Agricultural Research Center
CLSU	Central Luzon State University
COGENT	Coconut Genetic Resources Network
CPAR	Community-based Participatory Action Research
CPAf	College of Public Affairs
CRGM	Competitive Research Grant Manual
CSSP	Crop Science Society of the Philippines
CVIARC	Cagayan Valley Integrated Agricultural Research Center
DA	Department of Agriculture
DENR	Department of Environment and Natural Resources
DFIMDP	Diversified Farm Income Market Development Project
DILG	Department of Interior and Local Government
DMMMSU	Don Mariano Marcos Memorial State University
DOE	Department of Energy
DOST	Department of Science and Technology
DTRS	Document Recording and Tracking System
EDTRS	Employee's Daily Time Recording System
EO	Executive Order
EHWD	Extended Hot Water Dip
EVIARC	Eastern Visayas Integrated Agricultural Research Center
FIDA	Fiber Industry Development Authority

FIELDS	Fertilizer Irrigation Extension Loans Dryers Seeds
GAD	Gender and Development
GAP	Good Agricultural Practices
GEF	Global Environment Facility
GIS	Geographic Information System
GMA	Ginintuang Masaganang Ani
GMP	Good Manufacturing Practices
HIP	High Impact Projects
HRDP	Human Resource Development Program
HVCC	High-value Commercial Crops
ICRISAT	International Crops Research Institute for the Semi-arid Tropics
ICT	Information and Communication Technology
IDG	Institutional Development Grant
IDU	Infrastructure Development Unit
IHRMIS	Infrastructure and Human Resource Monitoring Information System
ILIARC	Ilocos Integrated Agricultural Research Center
ILRI	International Livestock Research Institute
IMU	Information Management Unit
INIBAP	International Network for the Improvement of Banana and Plantain
IP	Intellectual Property
IPHW	Indigenous Plants for Health and Wellness
IPO	Intellectual Property Office
IPGRI	International Plant Genetic Resources Institute
IPRO	Intellectual Property Rights Office
IPMIS	Intellectual Property Management Information System
IRRDB	International Rubber Research and Development Board
IRRI	International Rice Research Institute
IRU	International Relations Unit
ISO	International Standards Organization
ISSAAS	International Society for Southeast Asian Agricultural Sciences
ISU	Isabela State University
JICA	Japan International Cooperation Agency
KR ₂	Kennedy Reddy
LCC	Leaf Color Chart
LDC	Livestock Development Council
LGU	Local Government Units
LSU	Leyte State University
MCC	Millennium Challenge Corporation
MDP	Master Development Plan
MFR	Marine Fishery Reserves
MISD	Management Information System Division
MMSU	Mariano Marcos State University
MOA	Memorandum of Agreement
MSI	Marine Science Institute
MTA	Material Transfer Agreement
MTPDP	Medium Term Philippine Development Plan
M&E	Monitoring and Evaluation
NABCOR	National Agribusiness Corporation
NAFC	National Agricultural and Fisheries Council
NaRDSAF	National Research and Development System for Agriculture and Fisheries

NBN	National Broadcasting Network
NNC	National Nutrition Council
NIRDEAP	National Integrated Research and Development Extension Agenda and Programs
NGO	Non-government Organization
NOMIARC	Northern Mindanao Integrated Agricultural Research Center
NRC	National Research Centers
NRS	National Research Symposium
NTCP	National Technology Commercialization Program
QAP	Quality Assurance Program
OAS	Outstanding Agricultural Scientist
OFR	On-farm Researchers
PAC	Pampanga Agricultural College
PADCC	Philippine Agricultural Development and Commercial Corporation
PAWB	Protected Areas and Wildlife Bureau
PCA	Philippine Coconut Authority
PCARRD	Philippine Council for Agriculture, Forestry and Natural Resources Research and Development
PCC	Philippine Carabao Center
PDD	Program Development Division
PhilDRI	Philippine Dryland Research Institute
PHILRICE	Philippine Rice Research Institute
PLGU	Provincial Local Government Unit
PIM	Pre-implementation Meeting
PRA	Participatory Rural Appraisal
PRIA	Philippine Rubber Industries Association
PO	Private Organization
POT	Package of Technology
PTFCC	Presidential Task Force on Climate Change
PTMIS	Proposal Tracking Monitoring Information System
QAES	Quezon Agricultural Experiment Station
RCD	Research Coordination Division
RDMIS	Research and Development Management Information System
RFRDC	Regional Fisheries Research and Development Center
RFU	Regional Field Unit
RIARC	Regional Integrated Agricultural Research Centers
RKB	Rice Knowledge Bank
RMTU	Ramon Magsaysay Technological University
RRDEN	Regional Research and Development Network
ROS	Research Outreach Station
R&D	Research and Development
RDE	Research Development Extension
SEARCA	Southeast Asian Regional Center for Graduate Study and Research in Agriculture
SEMS	Scholarship Evaluation and Monitoring System
SMIARC	Southern Mindanao Integrated Agricultural Research Center
SNAP	Simple Nutrient Addition Program
SPG	Special Publication Grants
SSNM	Site-Specific Nutrient Management
STIARC	Southern Tagalog Integrated Agricultural Research Center
SUCs	State Universities and Colleges

SPPEMS	Supplies, Property, Plant and Equipment Monitoring System
TCU	Technology Commercialization Unit
TDAP	Thesis/Dissertation Assistance Program
UNDP	United Nations Development Programme
UPD	University of the Philippines Diliman
UPLB	University of the Philippines Los Baños
UPLBFI	University of the Philippines Los Baños Foundation, Incorporated
UPV	University of the Philippines Visayas
URS	University of Rizal System
USDA	United States Department of Agriculture
USEP	University of Southern Eastern Philippines
USM	University of Southern Mindanao
VDTMS	Vehicle Dispatching and Trip Monitoring System
VSU	Visayas State University
WESMIARC	Western Mindanao Integrated Agricultural Research Center
WESVIARC	Western Visayas Integrated Agricultural Research Center
WFC	World Fish Center
WHO	World Health Organization
ZRCAF	Zonal Research Centers for Agriculture and Fisheries
ZSCMST	Zamboanga State College of Marine Science and Technology



Today, BAR is **ISO 9001-2000** certified, better equipped and more determined to meet the challenges and explore the possibilities that agriculture and fishery R&D presents. The challenge **to create a unified R&D agenda**, to employ modern science in addressing the problems of the poor, the marginalized and information sensitive stakeholders.

With more than **two decades** of dedicated service, BAR continues to support programs and projects that are timely and relevant to its clients. Equipped with **able and reliable manpower**, the bureau continues to response to the needs of the sector in terms of **production cost and efficiency** to benefit consumers and increase the income of our marginalized farmers and fisherfolk.



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