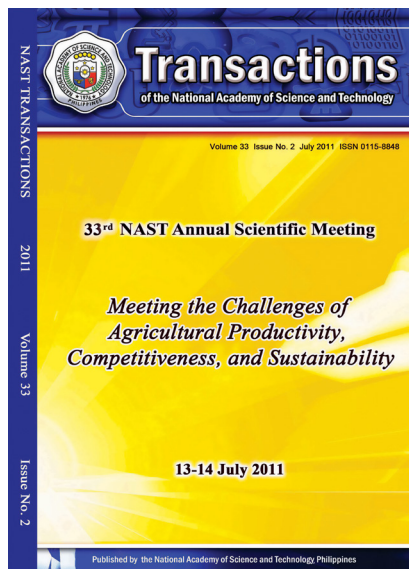


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Imperatives of Extension, e-Information, Communication and Statistics in Agricultural Development

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¹ A plenary paper presented during the 33rd National Academy of Science and Technology (NAST) Annual Scientific Meeting on 13-14 July 2011 at the Manila Hotel, Manila Philippines.

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IMPERATIVES OF EXTENSION, e-INFORMATION, COMMUNICATION AND STATISTICS IN AGRICULTURAL DEVELOPMENT¹

**Marlowe U. Aquino², Virginia R. Cardenas³, Asterio P. Saliot⁴, and
Libertado C. Cruz⁵**

Executive Summary

The Philippine agricultural landscape is so dynamic that several processes and systems are needed to address the requirements of its key actors, players and stakeholders. Because of this, agricultural development programs must be appropriate and responsive to the needs of the farmers and fisher folks. Also, the programs must be continuously anchored on areas particularly in food security, global competitiveness & profitability, environmental integrity, poverty alleviation and social equity.

The role of agricultural research and extension including e-information, communication and statistics is very critical in attaining the outputs and achieving the desired outcomes of development. There is still the reality, however, about the weak research and extension linkages, and this limits the full implementation of successful agricultural development efforts. Recognized as such, the Philippine agriculture development must view agricultural extension, together with strong research base, as crucial for more effective and efficient technological and sociological interventions. Agricultural stakeholders must also define the research and extension efforts for development.

Over the years, agricultural extension in the country has been affected by the implementation of the Local Government Code (Republic Act 7160), although its relevance has been emphasized in the Agriculture and Fisheries

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Modernization Act of 1997 (Republic Act 8534). It brought back the importance of the dynamic interplay of influencing factors in development affecting the farmers and fisher folks, including the local government units and the different institutions enhancing the provision and delivery of extension services.

Rural development goals through effective and efficient agricultural extension should consider the following: a.) Enhance access to knowledge information and technologies, products and services to allow farmers in the value chain deal with changing markets; b.) Enable farmers to understand new challenges arising due to climate change and their vulnerabilities; c.) Support communities to manage their natural resource endowments effectively; d.) Assist farmers make optimal use of their resources to ensure food for the household.

In relation to these goals, there are four reality concerns in agricultural extension and development which need to be addressed. These are the following; 1) Agriculture is changing: global, regional, and country forces; 2) Clientele are changing and their needs are becoming more complex and varied; 3) Social institutions are changing; and 4) The money situation is changing. Given these realities, there is a need to change the direction of agricultural extension from mere provision and delivery of technologies and services to management of knowledge behind the system, structure and processes of technologies and services for agricultural clientele. Agricultural extension must depend on sociological interventions particularly behavioural outcomes toward improved productivity and profitability. These can be done through enhancing capabilities, improving the clientele access to agriculture and fisheries data, information and knowledge, enhancing governance of agriculture and fisheries extension, and improving partnerships in information, education, communications and statistics (IECS).

Furthermore, agricultural extension must also consider the following strategic shift in order to realize the changes towards more dynamic and systematic development.

- **Decentralization.** The LGUs shall serve as the frontline agency to provide services aimed at empowering the farmers and/or producers and their organizations for global competitiveness.

- **Strong private sector role.** The private sector shall play a pivotal role in linking the farmers to the global market and in the provision of private extension goods and services.
- **Market-led.** Clients shall be capacitated to enable them to take advantage of the market to attain higher profit and income.
- **Total farm, total technology approach.** The unit of intervention is the total farm; the intervention must draw from the best knowledge and technologies available towards optimum profitability.
- **Inclusive development.** The projects and programs shall employ participatory approaches in planning, implementation, monitoring and evaluation. It shall focus on the whole household and all clients along the value chain. The livelihood projects must meet environment and sustainable development objectives.
- **Value chain orientation.** To achieve optimal efficiency of the system so that products reach the consumers at the highest quality at least cost, extension shall focus on the “seed-to-shelf” principle. This means that extension will focus on the whole value chain and deal with all the clients along the chain i.e., from the producers to the consumers.
- **Total community approach.** To achieve economies of scale, the project shall aim to involve the whole community of farmers to attain the volume required by the buyers. At the same time, motivate the target communities through their LGUs to provide the appropriate physical and social infrastructure support to the project.
- **Timely provision of best technical advice & increased access to data and information.** Through the use of ICT, the project shall link the farmers to the best technical advice, data and information available in the country and the world to address production and marketing problems.
- **Three Dimensional.** The direct outcome of agriculture extension services are behavioural changes in the three domains: knowledge, attitudes, and skills or KAS. Therefore, the AF extension services

shall use a variety of proven methods and practices towards the achievement of the desired behavioural outcomes.

- **Comprehensive Capability Building.** Human resource in agricultural extension development and stakeholders must be instituted in all educational and training institutions for clientele development. It must also reflect the need and competencies of stakeholders who would like to gain knowledge, enhance skills and change attitude for the better.
- **Institute Strategic partnerships.** Agriculture and fisheries should be encouraged. It must have strong government support and active participation on the private sector agricultural extension system for increased agricultural productivity, competitiveness and sustainable development.

Strategic Paradigm Shift of Agricultural Extension and Development

In order to operate and institute reforms in agricultural extension, it should consider a major paradigm shift by enhancing and supporting agriculture and fisheries into a business endeavour. It should consider the appropriate extension models for change to transform farmers and fisher folks as well as communities. Making business in agriculture is the ultimate result of extension intervention which highlights the acceptability, utilization and application of technologies.

In so doing, key actors, players and stakeholders must understand that all efforts in agricultural development should be information-sensitive and information-oriented. Likewise, resource management for assured, sustainable and quality agriculture and fishery products for global competitiveness is needed. Similarly, a unified development modality and program should be utilized to enhance the delivery of accurate agriculture and fisheries information to users for appropriate decision making and business development.

Introduction

The entry of development efforts in communities especially in agriculture and fisheries and in science and technology have been highly

recognized by individuals and institutions. They have placed these two sectors as the pillars of social and economic growth and development which are observed globally. In the Asia-Pacific region, agriculture including fisheries is vital to development. This is the very reason why individuals and institutions especially on agricultural research, development, extension, and training placed the sector as the center piece of economic and technological development (Aquino 2010)⁶.

According to Maru and Singh (2007)⁷ nearly 60% of the region's population derives its livelihood from agriculture which is now gradually increasing because new direction is emerging as enterprise development and business ventures shape into mainstream agricultural development (Dar and Bonifacio 2007)⁸. This could be attributed to the programs of agricultural research, development and extension (ARDE) including its systems, structure and key actors that made agriculture and its industries what they are today. However, it was not only on these aspects that led to the new trend in development. There were also changes in the introduction, acceptability, utilization and application of knowledge, management aid in agricultural productivity, profitability, security and sustainability.

The Philippine agricultural landscape is so dynamic that several processes and systems are needed to address the requirements of its key actors, players and stakeholders. Because of this, agricultural development programs must be appropriate and responsive to the needs of the farmers and fisher folks. Also, the programs must be continuously anchored on areas particularly on food security, global competitiveness & profitability, environmental integrity, and poverty alleviation & social equity.

The role of agricultural research and extension including e-information, communication and statistics is very critical in attaining the outputs and achieving the desired outcomes of development. There is still the reality,

⁶ Aquino, MU 2010. Recent Development Trends on the Application of Knowledge Management in Reshaping the Agriculture RDE:

The e-AgriteK Innovative Strategy. APO Training on Agricultural Knowledge Management in Research and Extension held in New Delhi, India. September 2010.

⁷ Maru, A. and Singh S. 2007. ICT/ICM Sensitization and Awareness Building Workshop for NARS Leaders and Senior Managers – Background document presented on 30 August 2007 at DOST- PCARRD, Los Baños, Laguna, Philippines.

⁸ Dar, W.D. and Bonifacio, M.F. 2007. Globalization of Agriculture and the Crisis in the Delivery of Extension Services in Food and Agri Business Monitor. Center for food and Agri Business, University of the Asia and the Pacific, Ortigas Center, Pasig City. Volume 13 Issue Number 9. Pages A1 to A5 and 11.

however, about the weak research and extension linkages, and this limits the full implementation of successful agricultural development efforts. Recognized as such, the Philippine agriculture development must view agricultural extension, together with strong research base, as crucial for more effective and efficient technological and sociological interventions. Agricultural stakeholders must also define the research and extension efforts for development.

The objectives of this paper are the following: 1) provide a description and contextualization of the Philippine agricultural extension, 2) discuss institutional transformation and reforms affecting agricultural development, 3) identify and describe agricultural extension strategies, and 4) encourage exchange of ideas and insights toward an effective and efficient program implementation of agricultural extension and research interventions at all levels and key actors from the government organizations, non-government organizations, private sector, civil society and other interest groups.

The Philippine Agricultural Extension

The Philippine agricultural extension has taken a major step in improving the condition of the farmers and fisher folks in the rural areas. Specifically, it has emphasized on the delivery of technologies and services that affect the value chain of agricultural commodities. Because of this, extension service is slowly making waves and now adjusting to the requirements and situation of our country as well as the encountered phenomena the world is facing such as climate change and globalization.

In addition, there are several realities affecting the management of extension development in the country. Over the past decade, there is still a manifestation of weak linkage between research and extension. This could be attributed to the outputs of research (technologies) which are not properly translated or utilized based on the needs and available resources of the farmers and fisher folks. In relation to this, there were different strategies used by the local government units and private sectors with respect to the promotion of production technologies. Furthermore, there is limited complementation on extension activities at the ground level especially on crop, livestock and fisheries processing and marketing initiatives. On the other hand, the local government code should be revised to place agricultural

extension towards a demand-driven orientation for better program implementation.

Moreover, the agricultural sector is becoming a great challenge to our government because there are constraints that limit its mainstream development. Take the case of its decreasing importance in national economy. Recent studies show that a number of farmers are no longer engaged in farming because they are getting older and their children do not like to work in the farms. The younger generation prefer to work outside the farm and deal with other industries which require minimal manual labour such as call center agents, merchandizers in supermarkets, waiters and food attendants in fast food chains. These reasons have influenced the agriculture sector to be the last priority of the younger generations. Agriculture is no longer viewed as an exciting source of livelihood. However, the government is still steadfast on working for the betterment of the key players of agriculture.

It is in this area that agricultural extension and research must be the primary focus of the government in order to bring back its glory as the main propeller of development in the country especially in the countryside. These questions now remain; – *How can agriculture change the condition of our farmers? Can extension solve this? How about research?* Numerous questions were raised, but let us look at the present situation of agricultural extension.

Situation of the Agricultural Extension System

In the realm of globalization, it was observed that the agricultural extension system is no doubt separated in the discussion of issues and concerns in agricultural research and development (Dar and Bonifacio 2007)⁹. Accordingly, agricultural extension in the current road map of agriculture is not in any way seen as a separate entity but rather closely tied with research. This is common to most Asian countries which depend on agriculture for its livelihood and economic growth and development. However, it is the service to clientele that is viewed and believed that differentiate the conditions in agricultural system.

⁹ Ibid.

In the Philippines, agricultural extension service was devolved to local government units through the Local Government Code of 1992. The devolution process affected mostly the delivery of basic agricultural services in rural communities. Some claim that this move was the greatest improvement of decentralization. But on one hand, it is the farmers or fisher folks that are mostly affected especially in the provision of agricultural technologies for better farming and fishing practices.

The extent of damage at the local levels brought serious disadvantage because a lot of changes were done to adjust and restructure the system and operation at local level. Even the skilled workers in agriculture were replaced by unfamiliar agriculturally trained individuals who provided the needed services like crop production, integrated pest management, animal husbandry, animal health and nutrition, fishing ranching and aquaculture.

Because of this, certain restructuring and reprogramming on agricultural extension programs were done. This highlighted and incorporated specific aspects in agricultural production system in addition to the information and communication technology management to be attuned to the requirements of the key players and stakeholders in agricultural development.

In 2000, the creation and establishment of the Open Academy of Philippine Agriculture (OPAPA) and the restructuring of the Agricultural Training Institute (ATI) under the Department of Agriculture (DA) led to the new direction of agricultural extension in the Philippines. Structures, systems, operations, management, programs and activities became more client-oriented by the use of state-of-the-art technologies and improved strategies in the delivery of extension services.

At the time, there was a massive re-orientation and retooling (training) of agricultural extension workers on the new paradigm and trends in the fields including the application of knowledge management concepts and perspectives in agricultural development. Information on agriculture became more visible via different media because knowledge management was revolutionized in the social and economic development of Philippine agriculture. It was strongly supported by in-depth and appropriate research and development programs, projects and activities.

Based on the different situations and conditions of agricultural extension in the country, it can be emphasized that agricultural extension is still focused on clientele-orientation, and services are provided by the government or private organizations with direct involvement in farming, fishing or processing activities. Key actors use several strategies to effect change and improvement on agricultural production systems. Also, it is noted that our farmers and fisher folks are now slowly shifting from the traditional practice to a combination of new trends by incorporating the use of information technology and proper communication management. In a way, it is the new direction of knowledge management in agricultural development that is emerging and evolving for productivity, profitability, security and sustainability.

Issues and Concerns in Agricultural Development and Extension System (AFMA Evaluation Team 2009)

(Note: Based on a study on the Evaluation of Philippines Implementation on AFMA of 1997)

- Presently, in the region, agriculture is not attractive to young people as a means of earning a living. It has been said that steps must be taken to attract young farmers to agriculture. This appears to assume that, to begin with, agriculture is attractive. To a substantial degree, this is not the case.
- It is rather with a sense of urgency that the present state of agriculture must be turned around and made attractive to young people.
- Rural poverty remains high.
- Agriculture and fisheries are in crisis. Their overall organization and management are in disarray.
- The current state of regional agriculture and fisheries can be best understood by looking into the way a community is managing its resources.
- Many of the problems encountered by individuals and institutions in agriculture could have been easily avoided if only more attention was given to processes involved in production and processing.
- Regardless of the state of production, it must always be assessed in terms of management.
- The social aspect of production management must be given major attention.

- When one talks about paradigm shift in production, one cannot escape the social structure of production. To talk about paradigm shift, one must likewise talk about changing mind-set.

In addition, DA-ATI extension evaluation (2011) identified the following as issues and concerns which limit the full implementation of extension service in the country. These include 1) extension funds are not sustainable at all levels of implementation, 2) lack of systematic institutional monitoring and evaluation across the system, 3) lack of systematic and comprehensive human resource development plan and program for extension workers, and 4) lack of database on extension interventions including profile of extension workers around the country.

The Latest Agricultural Extension Challenges

Today, Philippine agriculture is faced with several challenges. In this prepared paper, agricultural extension is highlighted in view of its changing roles in development. The following are the identified challenges which could be immediately addressed by policies, research and development including system and structural reforms:

- Decreasing importance of agriculture in national economy
- Changing aspirations – most children of farming families do not prefer farming; there is a decrease of enrollment and few younger individuals study agriculture and its related fields
- Changing demographics and increasing urbanization
- Limited capabilities of rural LGUs engaged and work on agricultural extension
- Inclusion of knowledge management in agricultural development highlighting business perspective and entrepreneurship
- Farmers are becoming aware of the dynamic processes of strategic management through information and communication technologies
- Adverse impacts of climate change
- Increasing agricultural globalization and competitiveness
- Influence of systematic public-private partnership at all levels of agricultural development

Given these challenges, it is but appropriate and necessary that the new direction of agricultural extension system be viewed on the value of

information and knowledge circulated within the system and processes of implementation. This is noted within and among the key players and stakeholders of agricultural development. The key to the new extension system must combine the positive impact of information and knowledge management to attain the goals of enhancing the business management skills of farming communities towards agricultural business development. In so doing, the creation and establishment of a new innovative strategy combining the agriculture production system, business management and information technology and communication management must be done.

Transformation and Reforms Necessary for the Philippine Agricultural Extension

In the last two decades, agriculture including fisheries is placed in the core of Philippine economic development. This was shown in the implementation of the Agriculture and Fisheries Modernization Act of 1997 (AFMA) or the Republic Act 8435. Several key players and stakeholders have assumed key roles and shifted their responsibilities to address development of the agricultural sector. The major shifts resulted to transformation and structural reforms at all levels of implementation. For example, the agricultural research and development and extension (RDE) made a drastic move and made research, development and extension the focus of rural development. The R&D approach of one program-one system and the unification of extension services for local development ensured that the programs and services are utilized to the fullest. These were observed in the RDE institutions and partner agencies from the national to local levels especially on how the policies, programs and activities were developed, implemented and evaluated by the agricultural stakeholders.

Specifically under the AFMA, the agricultural research, development and extension instituted areas on complementation and collaboration. The Department of Agriculture (DA) together with state colleges and universities shall assist in the LGU's extension system by improving their effectiveness and efficiency through capability-building and complementary extension activities such as provision of technical assistance; support training of LGU extension personnel; improvement of physical facilities; conduct of extension cum research; and enhancement of information support services. At the same time, the intensification of public-private partnerships was done to ensure that extension services are maximized. In view of this, the introduced

reforms provided an area of innovative processes to effect agricultural growth and development. While the idea of change is paramount in the overall strategies of extension, it must be recognized that a reorientation of strategies is in order.

Development of New Extension Framework

The new extension framework must be focused on the overall management of community resources. These resources are easily divided into social, technological, economic, ecological and political units. These resources are interactive and complementary. The cutting edge of farming as business is responsible management of community resources. As such, the new framework of action must be embraced by those involved in agriculture. It is the responsibility of new extension to develop core competencies basic to farming as business. These competencies are focused on Commitment, Responsibility, Accountability, Trust, Efficiency, and Discipline (CRATRED). Making business out of agriculture is an organized activity involving networks and relationships.

Furthermore, the extension system is responsible for the initiation and development of such a framework. To institutionalize and enhance the structure and performance of networking, a unified framework using resource management must be agreed upon. With the use of a unified framework, the new extension system will be able to design an efficient and effective monitoring and evaluation schemes. With the adoption of a unified framework the overall performance of the extension system is readily amenable to evaluation.

In view of the complex nature of agriculture, the new extension system must be conscious of the indispensability of complementation and networking. Working with the local government units, civil society groups, non-government organizations, farmers' groups and private sectors is imperative but only within the context of an agreed upon framework.

As such, the real essence of the new extension is truly holistic and systems oriented. A holistic orientation is imperative giving due attention to systems and relations. Meaning – there is no other way!

Instituting Agricultural Knowledge Management

Knowledge management is the new and emerging direction of agricultural extension. Since extension must begin from where the farmers are, then the correct management of resources must begin from knowledge management. Instead of extension given substantial attention to technology transfer, its new orientation must be focused on information management. The most important aspect of agriculture as business is information management for effective decision-making. Extension must be recognized that information is inherently social and social in its consequences. Information is only meaningful when taken in the context of the farmers and their communities. Information must, therefore be seen always in terms of its most appropriate context. Hence, information management and knowledge management are the new mind-set.

As such, the creation of new knowledge system is needed to make business out of agriculture. In relation to this, the new extension worker must be an information manager who is adept at linking information to knowledge. It is important for extension to be sensitive to farmers' access to information and how it is being used in the management production. The success of farming as business is information dependent.

Furthermore, the management of knowledge and the management of market strategies are basic as market driven farm business. Market driven farm business must demonstrate strength in managing the demands of local market first and second, international market.

Operationalization of Agriculture Business Enterprise

Making business out of agriculture of all key players and stakeholders at all levels of implementation must be viewed holistically by providing a new perception of the agricultural environment. Extension must improve its orientation from resource-based to technology-based to output-based to process-based. Processes are best understood in terms of improvement, innovation and change. They go together to effect change especially on the farmers and fisher folks who are responsible for appropriate decision making in farming and fish production and processing management systems.

Also, the developed extension modalities must be in line with the new trends of agriculture as a business activity for farmers and fisher folks wherein they can make use of all their resources to the fullest and the agricultural partners can provide the necessary assistance at the right time and place.

Establishment of Sustainable Partnership

The environment under which extension operates has changed substantially and the traditional modality of extension service needs to be changed. Complementation and partnership are the two influencing factors for effective management. There is a need to forge stronger linkage and establish networks between the government and non-government organizations and private sectors in the implementation of agricultural extension programs and activities. The end result is an effective and efficient agricultural knowledge system that requires institutional action needing the involvement of a team approach.

Agricultural Research and Development Sensitivity

In order to ensure that the results of agricultural research and development are properly utilized and applied by farmers and fisher folks through extension, research process must view the total farming and fishing conditions and incorporate the conditions and competencies of the end-users. It is only in this area that research results will be fully utilized. In relation to this, it is quite urgent that research must develop an integrated body of information useful to farmers engaged in farming as business. The new farmer must no longer be viewed merely as producer but more of a decision-maker who must have direct access to information. The utility of information for decision-making must be organized with a framework that jibes with the framework used by the farmers.

Professionalization of the Agricultural Extension

There are a number of professional organizations, associations and societies that recognize the importance of agricultural extension. These entities place under their care how extension professionals would be at par in terms of effectiveness and efficiency on roles and responsibility in the field. Based on this, agricultural extension is now part of the professional list of

technical capacitation and development of the Professional Regulatory Commission (PRC) of the Philippines. Extension professionals are recognized as contributors in the development of agricultural development. They are equipped with competencies that reflect responsibility and accountability. With this reform, agricultural extension can be viewed as an emerging and revitalized professional in agriculture and fisheries. The services these individuals provide guarantee holistic and realistic agricultural service provision at all levels.

Innovative Strategies in Agricultural Extension

Over the years, the agricultural extension strategies have been evolving from resource-based to technology-based to output-based to process-based orientation. The strategies ensure that the key players and stakeholders in agriculture are provided with the necessary support services and technologies to improve their present condition especially on production and processing activities and at the same time on their capacitation to increase their knowledge, improve their skills and change their attitude to a more acceptable one. However, it must be noted that agricultural extension strategies are guided by the following areas from the government (extension service providers at all levels) and the private sector.

Private Sector

The existence of private sector extension service has created a new direction of implementation. For most private companies providing extension service, there is a direct relationship between these companies and the farmers and fisher folks. The service includes provision of technical assistance on crop, livestock and fisheries technologies and also market assistance of specific commodities in specific location. In doing so, the following strategies are practiced and followed to effect the required support services for the end-users:

- Recognize productive partnership between the government and the private sector through shared resources and provision of technical assistance

- Introduce the extension modality shift from Production-led Extension (PLE) into Market-led Extension (MLE)¹⁰. This will support the lowering of production cost, encourage the introduction of export-oriented product and the modernization of the wholesale markets into more innovative markets
- Enhance orientation of extension system with knowledge and skills related to the market though appropriate information exchange and practice application
- Restore or build into government system capability similar to the experiences encountered during past agricultural development programs like the *Masagana 99* program¹¹
 - *Recognize reality of existing setup and build strong coordinating mechanism from central to village levels*
 - *Recognize municipal LGUs as frontline organizations*
 - *Institutionalize village-based extension workers*
 - *Build capacity in various levels while filling the gaps at the provincial level*
- Strengthen the practice of capacitating model of local government units (LGUs) or champion mayors under whom innovative schemes are piloted
- De-bureaucratize field level extension units; and privatize existing government extension workers to be paid based on outputs
- Evolve an infrastructure or mechanism for sustainable support to the Municipal LGUs and field extension workers, e.g.: *Province or district-based Agricultural Development Teams of specialists from DA, SUC and private groups that advice LGUs and support the field agents and serve as facilitators or enablers and custodians of farmers' resource book*

¹⁰ Sayoc MA 2011. Why Private-led Extension is Working. A paper presented during the roundtable discussion on agricultural extension, e-information communications and statistics during the National Academy of Science and Technology Roundtable Discussion held at the Traders Hotel, Roxas Boulevard, Pasay City on 03 May 2011.

¹¹ Sison, Eduardo 2011. Options for Strengthening Agricultural Extension Services: A Private Sector Perspective. A paper presented during the roundtable discussion on agricultural extension, e-information communications and statistics during the National Academy of Science and Technology Roundtable Discussion held at the Traders Hotel, Roxas Boulevard, Pasay City on 03 May 2011.

- Avail of development assistance from multi-lateral agencies to capacitate the agricultural extension system

State Universities and Colleges (SUC) Strategies

The involvement of the Commission of Higher Education (CHED) in agriculture development proved to be a very interesting area to be commended. This is especially seen during the recent CHED search for outstanding extension program from different higher educational institutions (HEIs) in the country. As a result, the University of the Philippines at Los Banos emerged the national winner and 13 regional winners were declared to support the agriculture sector.

This initiative gave the extension system a boost in terms of making and developing the appropriate technologies for farmers and fisher folks. Such initiatives enhance the capability of the end-users while providing the necessary support services through technical assistance.

As identified in the different national, regional and local agriculture-based SUCs, the following strategies have contributed to the development and enhancement of farmers and fisher folks' welfare:

- Farmer Scientist Training Program (FSTP). The FSTP is an extension program that integrates agricultural research and development to help small farmers engage in comprehensive farming for increased production and income. It was originally developed through corn-growing areas in Cebu and is now applied in all commodities where farmers and fisher folks become the center of farm/fishing activities. Across the country, this has been piloted to serve as an alternative extension service modality. Today, the UPLB scientists and researchers spearhead the program in their service area and others use regional technical staff from the different SUCs. The scheme ensures that farmers are trained to be location and commodity specific scientists and are developed to become effective farmer leaders as trainers to their fellow farmers.
- Farmer Field School (FFS). This is one of the dynamic strategic approaches in agricultural extension development. For more than two decades now, the FFS has evolved from the original Integrated Pest Management (KASAKALIKASAN) to other multi-commodity and

system approach like the integrated crop management, integrated goat management, and the integrated farm management approach using several agriculture and fishery commodities.

- *FFS is a season long activity where farmers do experiential learning on crop establishment, crop care, pest, nutrient and water management*
 - *SUC personnel are organizers, facilitators, subject matter specialists, and do monitoring and evaluation.*
 - *However, SUCs are not institutional partners for this activity.*
- Collaborative Development, Research and Extension System (CDDRES). The CDRES is the newest extension modality implemented by SUC. It was developed and is implemented by the University of the Philippines Los Banos with the support of the Bureau of Agricultural Research (DA-BAR) to come up with innovations to address the still weakening research and extension linkage. Implemented with the Department of Agriculture (DA) regional field units and research centers, the CDRES is an evolving strategy that combines technological interventions with technical assistance like pilot testing and demonstration of agricultural commodities at the local farm levels with the assistance of the local government units.
 - *Goal: Food self sufficiency and increased farmer income.*
 - *Objectives: Strengthen RDE Partnerships-DA-RFUs, SUCs and LGUs*
 - *Strategies*
 - Strengthen Agricultural Planning Capacity of Provincial LGUs;
 - Strengthen Extension Units of SUC
 - Improve seed and stock systems
 - Activities
 - Improve Provincial Rice Action Plan; conduct training on strategic planning /food security code
 - Trainings on: skills to service seed diagnostic lab, research proposal development, soil fertility assessment, seed certification and inspection/extension policy study, animal

production management, product development and marketing initiatives

- Strengthen seed growers group; put up seed diagnostic lab at the SUC, CS demo study/seed systems policy study
- Enhance capability and improve system of animal breeding and reproduction health and nutrition and other services and link with existing laboratory facilities for animal management

Department of Agriculture – Agricultural Training Institute (ATI) and its Regional Centers

Equipped with the latest system of operation, state-of-the-art equipments and delivery of services, the Agricultural Training Institute (ATI) has resulted into a more dynamic and systematic system of delivery extension services and capability building activities to its front liners and clientele¹². The extension system has developed new strategies that encourage active involvement and participation of key players and stakeholders. The use of e-extension proves to have contributed in the improvement of the farmers' condition.

Although this has been conducted and is presently being implemented, ATI continuously develop strategies and encourage the participation of all stakeholders. Among the emerging strategies developed and formulated by ATI, the clientele and development oriented ones are the most feasible for implementation. Aside from these, the following are in the pipeline for collaboration and complementation for all agricultural extension partners.

- Decentralization. The LGUs shall serve as the frontline agency to provide services aimed at empowering the farmers and/or producers and their organizations for global competitiveness.
- Strong private sector role. The private sector shall play a pivotal role in linking the farmers to the global market and in the provision of private extension goods and services.

¹² Saliot, AP 2011. Agricultural Extension in 2011 and Beyond. A paper presented during the roundtable discussion on agricultural extension, e-information communications and statistics during the National Academy of Science and Technology Roundtable Discussion held at the Traders Hotel, Roxas Boulevard, Pasay City on 03 May 2011.

- Market-led. Clients shall be capacitated to enable them to take advantage of the market to attain higher profit and income.
- Total farm, total technology approach. The unit of intervention is the total farm; the intervention must draw from the best knowledge and technologies available towards optimum profitability.
- Inclusive development. The projects and programs shall employ participatory approaches in planning, implementation, monitoring and evaluation. It shall focus on the whole household and all clients along the value chain. The livelihood projects must meet environment and sustainable development objectives.
- Value chain orientation. To achieve optimal efficiency of the system so that products reach the consumers at the highest quality at least cost, extension shall focus on the “seed-to-shelf” principle. This means that extension will focus on the whole value chain and deal with all the clients along the chain i.e., from the producers to the consumers.
- Total community approach. To achieve economies of scale, the project shall aim to involve the whole community of farmers to attain the volume required by the buyers while, at the same time, provide motivation to the target communities through their LGUs to provide the appropriate physical and social infrastructure support to the project.
- Timely provision of best technical advice & increased access to data and information. Through the use of ICT, the project shall link the farmers to the best technical advice, data and information available in the country and the world, if necessary, to address production and marketing problems.
- Three Dimensional. The direct outcomes of agriculture extension services are behavioural changes in the three domains: knowledge, attitudes, and skills or KAS. Therefore, the AF extension services shall use a variety of proven methods and practices towards the achievement of the desired behavioural outcomes.
- Comprehensive Capability Building. Human resource for key actors in agricultural extension development and stakeholders must be instituted in all educational and training institutions for clientele development. Also, it must reflect the need and competencies of stakeholders who would like to have gain in knowledge, enhance skills and change attitude for the better.

- Institute Strategic partnerships. Agriculture and fisheries should encourage and must have a strong government-led and active support from the private sector agricultural extension system for increased agricultural productivity, competitiveness and sustainable development.

Future Directions for Unified and Comprehensive Agricultural Extension System

The evolving processes in agricultural development resulted to influence the dynamics and system of implementation at the national, regional and local levels. Because of this, it was observed that there should be a major effective and efficient theoretical, conceptual and methodological shift of agricultural development. This is more evident in agricultural extension where support is required to ensure the improvement of the conditions of the farmers and fisher folks.

The need for a strong government-led and actively supported agricultural extension system for increased agricultural productivity, competitiveness and sustainable development is necessary to be in placed. This could be achieved through the following:

- Strengthen decentralized system with a national lead agency that would provide strategic framework for extension personnel within the provincial units; with involvement of the SUCs and other providers.
- Extension programs will be time-bound, in the same way as research.
- Need to monitor and evaluate the extension program initiatives; this can be the best role for the SUCs.
- SUC will need a dedicated extension unit to cater to the LGU capacity building needs. CHED can influence this move.
- SUC to provide diagnostic laboratories for farmer needs.
- Build capacities at the UPLB and other SUCs for emerging agricultural related problems such as climate change (crop protection scientists, hydrologists, geophysical experts, climate risk management specialists etc).

Conclusions

With the numerous strategies and innovations developed, implemented, observed, experienced, and attained through dynamic and participatory extension service, all of us should not forget the essence of our existence, the farmers and fisher folks who rely on our appropriate and timely delivery of technologies and services for their development and improved conditions. They need us. We should constantly be sensitive and responsive to their needs, work with them and ensure that their farming and fishing activities are enhanced and supported for maximum productivity, profitability and sustainability.

We should also assure that we are equipped, competent, and capable of doing the right kind of extension work. If at the end of the day, we can say that we have done our part, then the extension we are talking about is not just a word to be argued and contextualized but a REALITY to be provided to all those who are in need – farmers, fisher folks, researchers, scientists, development workers, policy makers and administrators for the holistic development of the agriculture sector.