

Research & Extension:

Key to *Sustainable Development*
in the **ASEAN**



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Biggest

Challenge of Philippine Agriculture:

GLOBAL COMPETITIVENESS

Rank	Country/Region	Expenditures on R&D (billions of US\$, PPP),	% of GDP PPP	Expenditures on R&D per capita (US\$ PPP),	Year
1	United States	473.4	2.742%	1,442.51	2013
2	China	344.7	2.046%	270.56	2014
3	European Union	334.3	1.94%	657.48	2014
4	Japan	170.8	3.583%	1,344.31	2014
5	Germany	106.5	2.842%	1,313.46	2014
6	South Korea	91.6	4.292%	1,518.47	2014
7	France	58.4	2.256%	914.54	2014
8	India	47.9	0.82%	39.37	2011
9	United Kingdom	43.7	1.701%	677.44	2014
10	Russia	42.6	1.187%	290.21	2014

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Source: Wikipedia

R&D Expenditures of ASEAN Countries

Rank	Country/Region	Expenditures on R&D (billions of US\$, PPP),	% of GDP PPP	Expenditures on R&D per capita (US\$ PPP),	Year
25	Singapore	8.7	2%	1,608.86	2013
26	Malaysia	7.6	1.13%	256.92	2012
34	Thailand	3.6	0.39%	52.67	2011
48	Vietnam	0.87	0.21%	9.91	2011
52	Indonesia	2.0	0.08%	8.09	2013
60	Philippines	0.48	0.11%	5.4	2007

No available data for Brunei, Laos, Myanmar and Cambodia



Philippine R&D Investment



2nd to the lowest

GERD (Gross Expenditure for R&D)
as a percentage of **GDP** among
Southeast Asian countries
(at the same level as Vietnam and Myanmar)

2003, GERD was **0.14 %** of GDP

2005, GERD was **0.12 %** of GDP

2007, GERD was **0.09%** of GDP

UNESCOs
recommended GERD

1% of GDP



Role of **Science, Technology & Innovation**



Market and environment
considerations are driving the
innovation process

Innovation is **creativity**
and **entrepreneurship**
combined



AFMA mandates

- ❖ RDE network system to **enhance, support and promote RDE** to ensure food security, alleviate poverty, promote people empowerment, agricultural productivity and develop globally competitive agribusiness and fishery sector.
- ❖ **Modernize the agriculture and fisheries** sectors by transforming these from a resource-based to a technology-based industry
- ❖ RDE must be **focused, coherent and timely**
- ❖ **Leadership in R&D** shared by DOST-PCAARRD and DA-BAR
 - Control public investments in agricultural R&D



Current scenario & Way to go

“Institutional innovation in system organization and management will be critical to the success of Asian research and extension systems.”

A major challenge faced by RDE:

Rapid changes in the external environment

- ❖ Climate change
- ❖ Globalization
- ❖ Trade liberalization
- ❖ Intellectual property rights
- ❖ Appearance of many players in agricultural Research and Development (R&D) including the private sector, NGOs and civil societies changed the perspective on agriculture

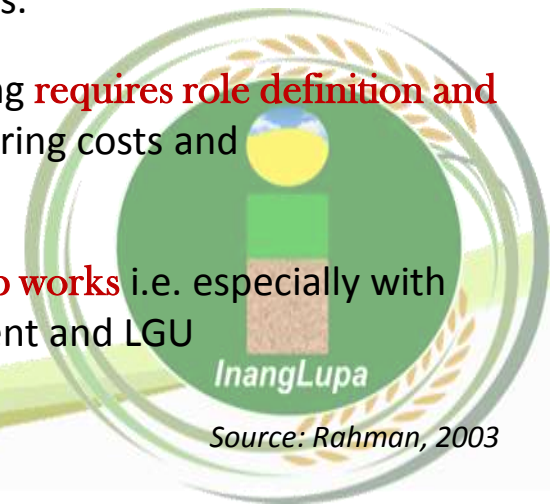
Agriculture turned more competitive with product quality improvement becoming equally important as production.



In Asia and the Pacific, **Organization & Management of RDE** is critical



- ❖ **Demands considerable improvements** in governance and management of the new systems, partnerships and networks due to new direction of research and extension
- ❖ **Decentralization does not automatically ensure farmer empowerment and their participation** in research planning, implementation and evaluation of results. It does not automatically enhance partnerships with farmers and actors without building a constituency among farmers and different actors.
- ❖ Partnership building **requires role definition and mechanisms** of sharing costs and responsibilities.
- ❖ **Making partnership works** i.e. especially with national government and LGU



Source: Rahman, 2003

In Asia and the Pacific, **Organization & Management of RDE** is critical



- ❖ **Requires strong central institutions** to create the policy framework and strong local institutions and mechanisms to govern and manage decentralized development efforts. It also requires strong local government leadership and a pool of administratively and technically skilled people.
- ❖ **Increased investment and fiscal decentralization** where policies are essential requirements for decentralization.



- ❖ **Information networking and management** is an important component of a decentralized operation.



“

In the Philippines,

Congressional Commission
on Agricultural Modernization

(Agricom) identified

RESEARCH-EXTENSION

ORGANIZATIONAL LINKAGE

as a **critical part** of the total structural reforms
required in the agriculture bureaucracy.

(Ponce, 2003)

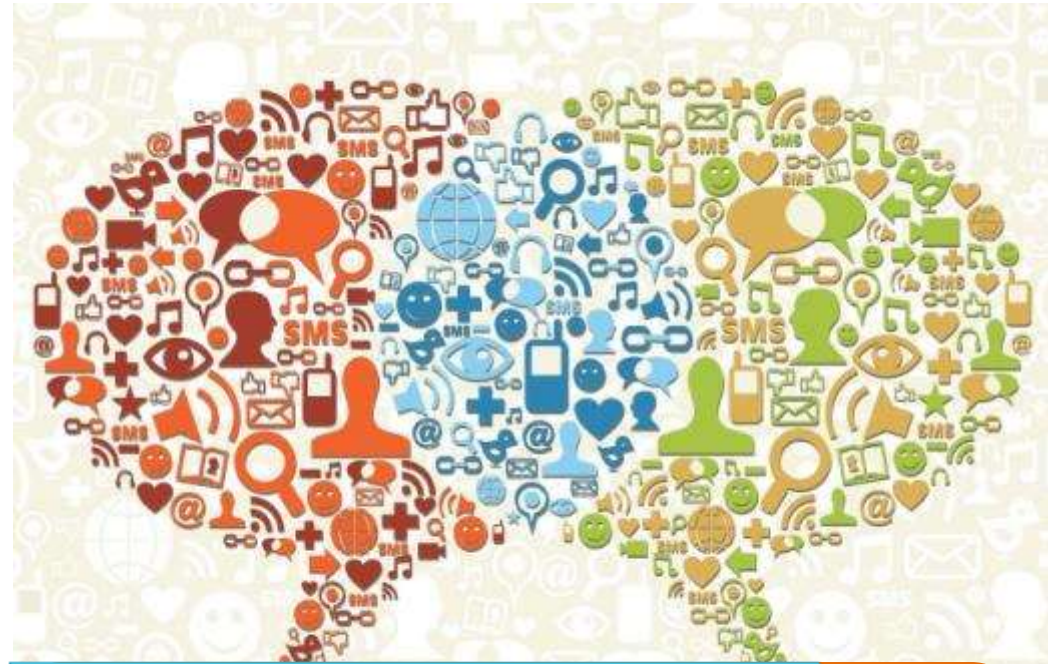
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a. Research-Extension Linkage

Three assumptions:

- 1** **Client-oriented and industry-responsive** agricultural system must focus on the needs of farmers and fisherfolks communities
- 2** Technologies & information generated by research should be able to **reach the greatest number of farmers/fisherfolks** if the extension system is to effectively disseminate these
- 3** Ability of the extension service to **provide timely feedback** to research and the ability of the research system to **transfer new knowledge to the extension system** depend on the research-extension linkage



Issues and problems:

- ❖ Organizational structure of both the R&E systems
- ❖ Organization's orientation and quality of human resource
- ❖ Effective functioning of the transfer mechanism

b. Research Reality

Issues and problems:

- ❖ Inadequate structure of the R&D system
- ❖ Lack of strong research centers
- ❖ Weak research extension linkages especially between the research institutions and the extension system which have affected the transfer of knowledge to the farming/fishing community and the latter's feedback to research.

C. Extension Reality

Issues and problems:

- ❖ Overlapping of extension functions between the national and local governments
- ❖ Weak capacity of local government units (LGUs) to plan and implement extension programs
- ❖ Lack of mechanism for regular communication between research and extension agencies
- ❖ Over-politicization of agricultural extension services at the municipal level which has stifled professional growth and development of the extension staff
- ❖ Failure to recognize research and extension as closely interdependent activities
- ❖ Weak partnership with farmer organizations, NGOs and the private sector for service delivery



d. Bridging the Gap between **Research & Extension**



As a major step towards bridging the national research and extension systems, AFMA created the **Council for Extension, Research and Development for Agriculture and Fisheries (CERDAF)**.

AFMA changed the orientation of both the research and extension systems by treating **research and extension activities as part of a development continuum** that begins and ends with the farmers/fisherfolks.

Three (3) Major

Strategies to Operationalize

the Organizational Linkages between

Research & Extension

- Bureau of Agricultural Research (BAR)

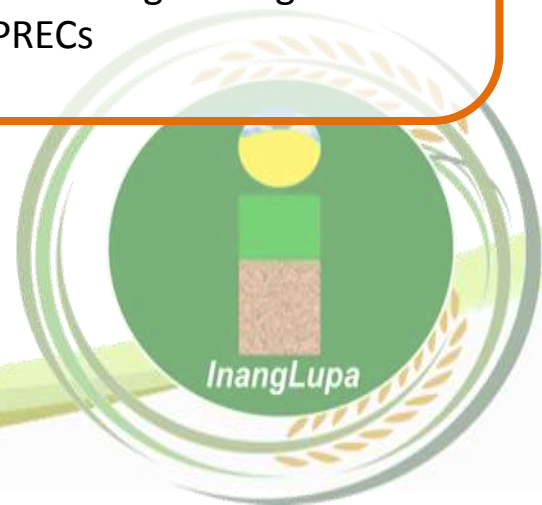


1. Formation of regional Research, Development and Extension (RDE) networks

to bring together major research and extension players to develop the regional agenda and program for agriculture and fisheries research and extension

2. **Crafting of on-farm-research (OFR) program** based on the principle of community participatory action research (CPAR) as a major vehicle to accelerate the transfer of technologies to the countryside

3. **Development of a funding facility** for the development of provincial research-extension centers (PRECs). Through BAR's Institutional Development Grant (IDG), the provincial governments are strengthening their PRECs



LESSONS LEARNED



In a national situation where research and extension belong to separate administrative structures,

- ❖ A **major national policy is important** to develop institutionalized mechanisms to link research and extension
- ❖ **Resources will have to be invested** to develop and nurture organizational linkages between research and extension
- ❖ To further nurture organizational linkages, **rewards need to be instituted** to provide incentives to players, especially, to those involved in interfacing activities.

Major Problems/Issues Related to HRD:

❖ **Over-politicization** of agricultural extension services at the municipal level stifled professional growth and development of extension staff. Extension services are operated within the municipality, hence, the chance for promotion and growth of agricultural extension employees is almost absent



❖ **Financial difficulty** and **poor quality** of agricultural extension confront many of the LGUs

❖ Policies with direct bearing on HRD



RA8435

Agriculture and Fisheries Modernization Act (AFMA)

“provide for a **program of human resources development in science and technology (S&T)** to achieve and maintain the necessary reservoir of talent and manpower that will sustain its drive for total S&T mastering”



RA8430

Magna Carta for Scientists, Engineers, Researchers and other S&T Personnel in Government

“establish, promote, and support programs such as science and engineering scholarship programs, improvement of the quality of science and engineering education, popularization of science culture, and provision of incentives for pursuing career in S&T”.





Key Message #1

More investment in agricultural research and innovation

- ❖ By 2050, more than 9 billion people will need to be fed.
- ❖ Calls for greater investment to ensure food and well-being of future generations.
- ❖ Massive under-investment that exists must be addressed to improve the agricultural research intensity that can address key hunger and poverty concerns in the Asia-Pacific region.

Estimated public and private agricultural R&D investments (2002/03)

	Expenditures			Shares	
	Public	Private	Total	Public	Private
Indonesia	177.0	41.3	218.3	81.1	18.9
Laos	12.6	0.1	12.6	99.2	0.8
Malaysia	424.3	22.4	446.7	95.0	5.0
Philippines	141.1	30.7	171.8	82.1	17.9
Vietnam	55.9	1.6	57.5	97.2	2.8

Source: N. M. Beintema and G. J. Stads, *Diversity in agricultural research resources in the Asia-Pacific region* (Bangkok and Washington, DC: Asia-Pacific Association of Agricultural Research Institutions and International Food Policy Research Institute, forthcoming 2008).



Key Message #2

Innovation needs to be central in the R&E paradigm

❖ **Innovations in partnership**

❖ **Innovation comes with risks**





Key Message #3

Agricultural research must change to address sustainability more effectively

- ❖ Not just seek for additional funding
- ❖ Researchers have to demonstrate effectiveness in implementing programs & activities
- ❖ Focus should be both on quantity & quality of research investment

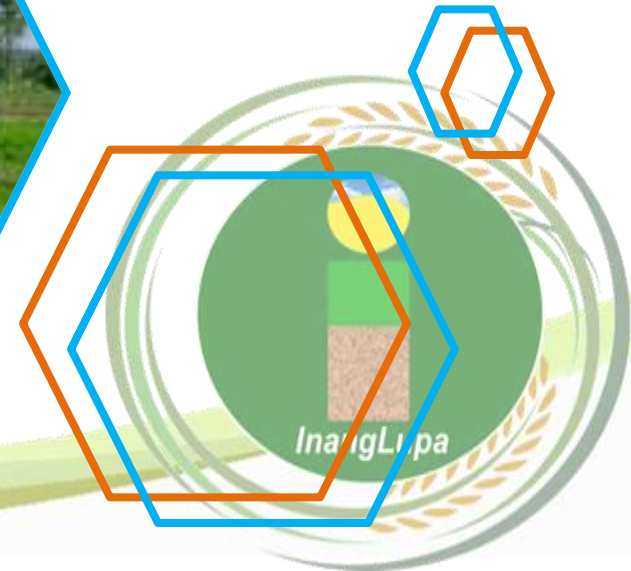




Key Message #4

Agriculture needs to focus on smallholder farmers/fisherfolks, women and **youth most especially**

- ❖ Incentives to entice youth engagement in agriculture
- ❖ Ageing population of farmers
- ❖ Average age of farmers: 57 years old





Key Message #5

**Reducing hunger and poverty
requires different partnerships**



- ❖ As agricultural research changes to address the issues of sustainability more effectively, innovation is key with new ways of doing things in different forms of partnerships than before





Key Message #6

Data, Information and Knowledge

❖ Information science (role of ICT-mediation) and biotechnology are greatly influencing agricultural research and extension.

❖ Understanding of baseline issues for better decision-making

❖ Trusted partnership as part of the knowledge continuum

❖ Support economic growth and create impact on poverty reduction





Key Message #7

Impact is the end game & capacity development is the legacy

- ❖ Research leads to productivity gain and reduces poverty
- ❖ Performance and delivery of impact pathways can be achieved in the most effective way and can build long-term capacity.



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Vision

A Modern and Industrialized Philippine Agriculture

Strategy: Inclusive Philippine Agri-Modernization and Industrialization (IPAMI)

4 Pillars

- Inclusive
- Science-based
- Resilience
- Market-oriented

4 Sustainable Development Goals

- Food Security
- Economic Security
- Nutritional
Security
- Environmental
Security

4 Major Objectives

- Productivity
- Profitability
- Competitiveness
- Sustainability

Enabling Strategies

Plans and Programs

Legislative Agenda



Thank you!

Innovation is the key driver of economic growth, source of competitiveness, and promotes well-being.

Email me at:
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Become an InangLupa volunteer, register at :
<http://inanglupa.weebly.com/become-a-volunteer.html>

