FARM INTEGRATION, INTENSIFICATION, AND DIVERSIFICATION IN THE PHILIPPINES

Virgilio T. Villancio, PhD

Science and Technology Policy Forum organized by the National Academy of Science and Technology, 8 March 2016, Acacia Hotel Manila, Alabang, muntinlupa city, Philippines

DEFINITIONS
FRAMEWORKS
INSIGHTS

FARM

- a single, identifiable operational unit that manages natural resources such as water, forests, and other lands to provide food, feed, fiber, ornamentals, energy, and a range of environmental and other services.
- Every farm is embedded within a temporal and spatially dynamic context (environment) and interacts with the geophysical, biological, economic, and social variables of that environment.
- Farms employ a wide range of production techniques and strategies known as “farming practices.” Farms also use marketing techniques and strategies.

FARMING SYSTEM

- the **mix** of crops or animal components, or some combination thereof in a farm, their **arrangement** over space and time within the farm, the **resources and technologies** used in their management, and the nature and effectiveness of **hierarchical relationships** both within the farm and with the ecological, social, economic, and political environments within which it operates.
- The farming system thus includes community linkages, market integration, labor relationships, and interaction with a wide array of other influencing factors.

AGRICULTURE

- encompasses the entirety of the system that grows, processes, and provides (*produces*) food, feed, fiber, ornamentals, and biofuel for the nation.
- includes the management of natural resources such as surface water and ground water, forests and other lands for commercial or recreational uses, and wildlife; the social, physical, and biological environments; and the public policy issues that relate to the overall system.
- All activities, practices, and processes of the public and private sectors involved in agriculture and forestry are contained within the system.

AGRICULTURAL SYSTEMS

a complex entity of interacting components that operate together for the production and utilization of food, feed, fiber, fuel and other agricultural products

AGRICULTURAL INTENSIFICATION

- refers to the use of a greater amount of non-land resources (labor, inputs, etc.) for a given land area, so that a higher output is produced (Hussein and Nelson1999).
- It generally focuses on the increased production of crops and agricultural commodities best suiting the agro-ecological conditions of the region and the farm and existing market outlets.

RURAL LIVELIHOODS DIVERSIFICATION

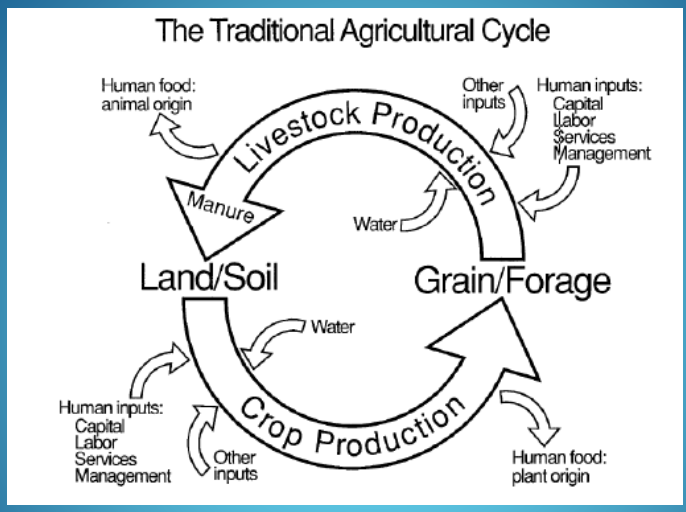
- has generally occurred as a result of an increased importance of off-farm wage labor in household livelihood portfolio or through the development of new forms of on-farm/on-site production of non-conventional marketable commodities.
- In both cases, diversification ranges from a temporary change of household livelihood portfolio(*occasional diversification*) to a deliberate attempt to optimize household capacity to take advantage of ever-changing opportunities and cope with unexpected constraints (*strategic diversification*).

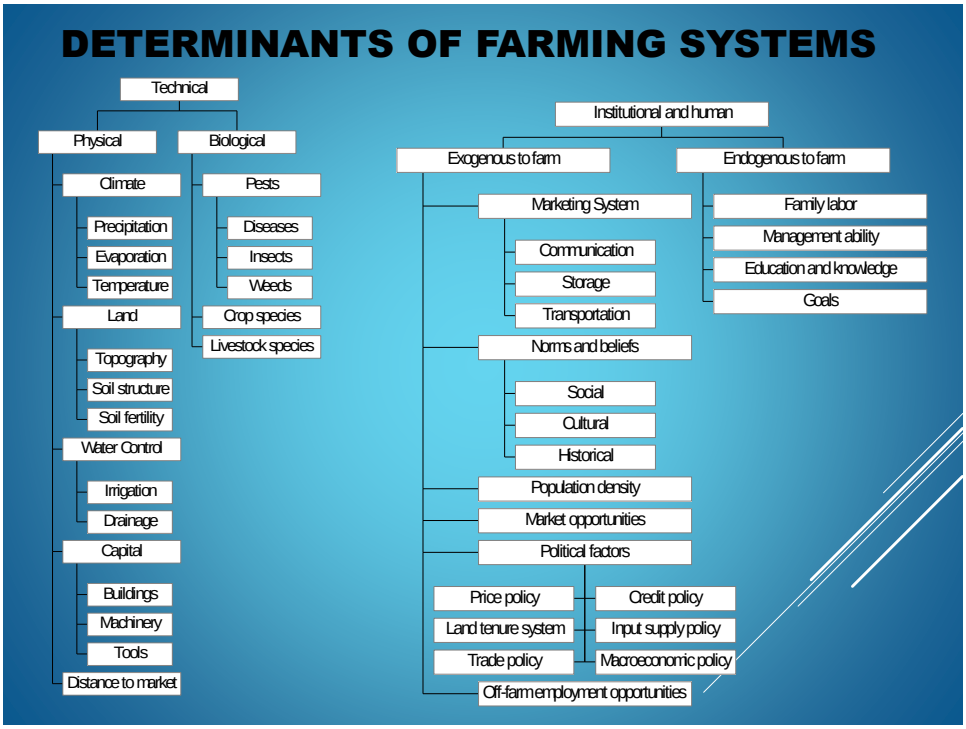
SUSTAINABLE FARMING SYSTEMS

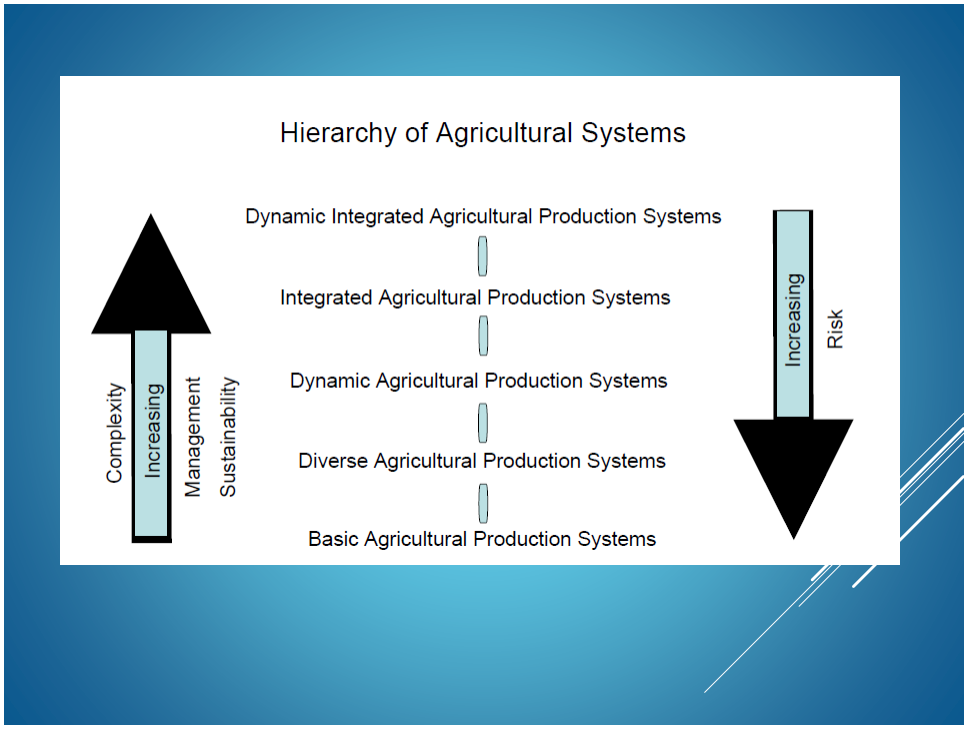
an integrated system of plant and animal production practices having a site-specific application that will, over the long term: satisfy human food and fiber needs; enhance environmental quality and the natural resource base upon which the agricultural economy depends; make the most efficient use of non-renewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls; sustain the economic viability of farm operations; and enhance the quality of life for farmers and society as a whole.

WHAT ARE THE CHARACTERISTICS OF PHILIPPINE AGRICULTURE ?

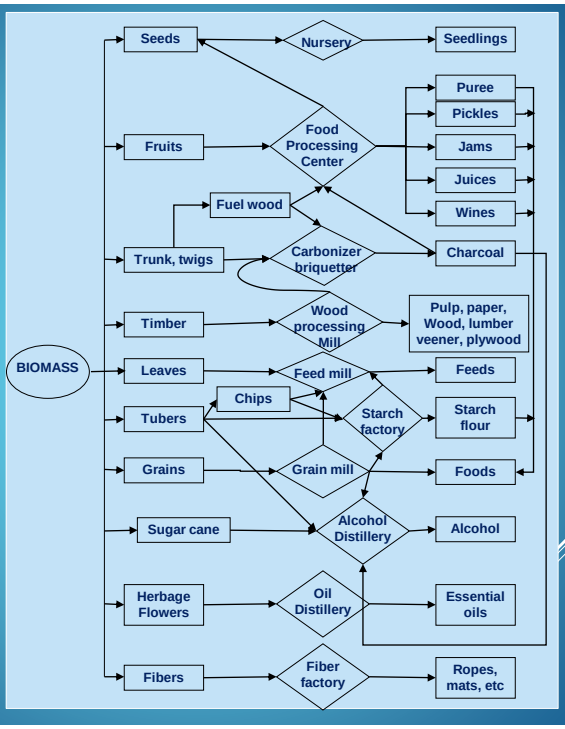
- Small landholdings
- Poverty/Low income
- Limited access to market
- unfavorable bio-physical and socio-economic environment
- Subsistence farming
- Resource-poor
- Low capital

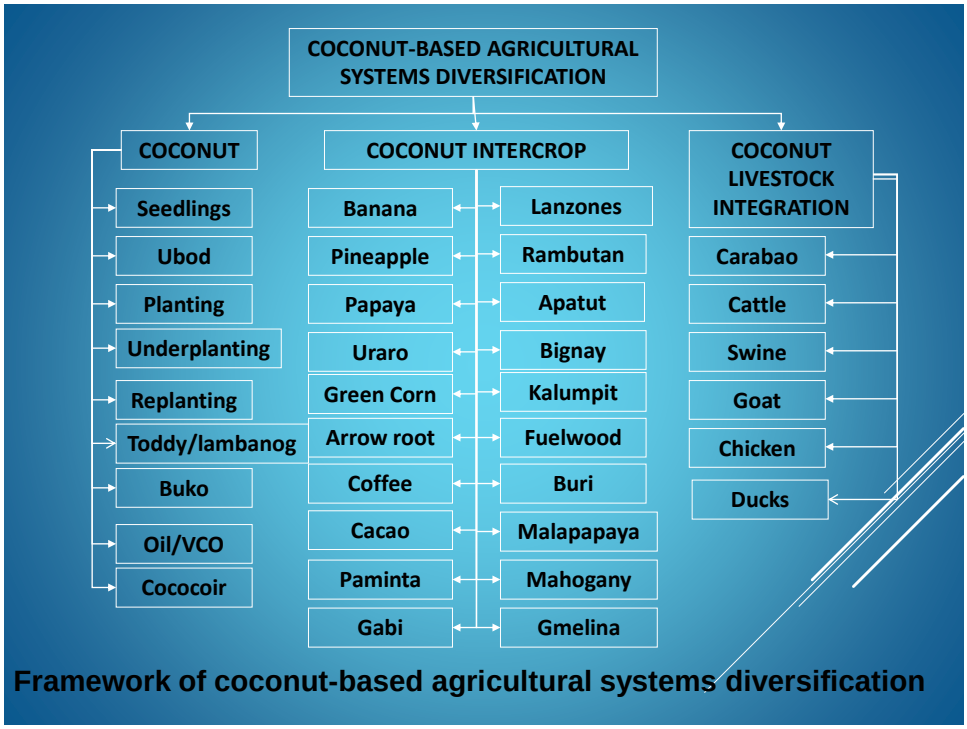

The Traditional Agricultural Cycle
Human food: animal origin
Other inputs
Human inputs: Capital Labor Services Management
Livestock Production
Manure
Water
Land/Soil
Grain/Forage
Water
Human inputs: Capital Labor Services Management
Other inputs
Crop Production
Human food: plant origin


DETERMINANTS OF FARMING SYSTEMS
Technical
Physical
Biological
Climate
Precipitation
Evaporation
Temperature
Land
Topography
Soil structure
Soil fertility
Water Control
Irrigation
Drainage
Capital
Buildings
Machinery
Tools
Distance to market
Pests
Diseases
Insects
Weeds
Crop species
Livestock species
Institutional and human
Exogenous to farm
Endogenous to farm
Marketing System
Communication
Storage
Transportation
Norms and beliefs
Social
Cultural
Historical
Population density
Market opportunities
Political factors
Price policy
Land tenure system
Trade policy
Credit policy
Input supply policy
Macroeconomic policy
Off-farm employment opportunities
Family labor
Management ability
Education and knowledge
Goals

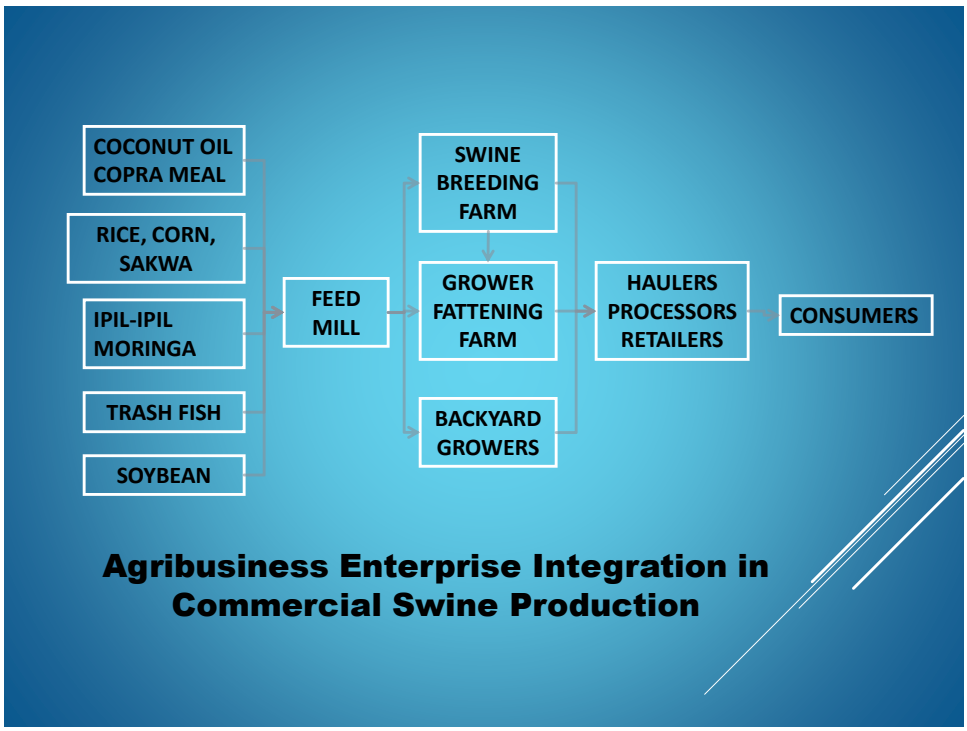


Biomass inputs, enterprises and products from agricultural systems

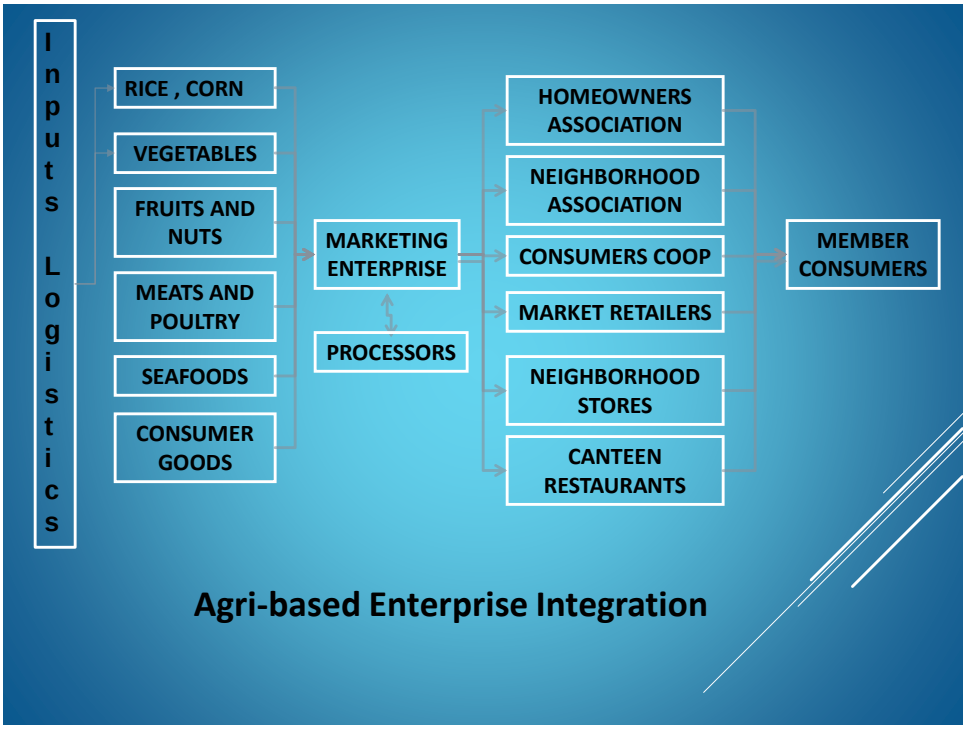




Framework of coconut-based agricultural systems diversification



Agribusiness Enterprise Integration in Commercial Swine Production



Agri-based Enterprise Integration

SUSTAINABLE AGRICULTURAL SYSTEMS

- Satisfy human food, feed, and fiber needs, and contribute to biofuel needs.
- Enhance environmental quality and the resource base.
- Sustain the economic viability of agriculture.
- Enhance the quality of life for farmers, farm workers, and society as a whole.


Farming
for
Food,
Feed,
Fiber,
Fertilizer,
Fuel, and
Fun