

# SUSTAINABLE FOOD PRODUCTION TO SAFETY FOOD PROCESSING AND THE SUPPLY CHAIN IN INDONESIA

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## ABSTRACT

Indonesia is a tropical agricultural country with many diversity of resources for food and feed production both for domestic and export. The commodities for export, however need to be improved for better quality, quantity, continuity and the right timing of production for food security and safety. The issue of food security in Indonesia is especially concerning with high rate population on the other hand food production has been stagnant due to limited technology available for small holder farms as the major food producers.

Only few of small holder farms have some link with big agribusiness that conduct reliable post harvest technology and good management of supply chain distribution. The technology used by the most small holder farms and food home industries need to be improved to produce safety and security of food available for domestic consumption and reliable for export. Concerning with that need, the government has conducted some national and local programs.

On the farm level of food production, farmer field school program of Integrated Pest Management (IPM) have been successfully conducted to train farmer groups nationally for sustainable production of rice. In the last few years IPM farmer field school program for horticultural plants has been started. The use of chemicals in rice production has been managed for minimal application and many organic rice farmer groups have been growing. On the other hands, in the horticultural farms, chemical application need to be reduced. Several fresh vegetables include eggplant, processed vegetables, sweet potato, cassava, sago, and sesame seeds, etc. are exported to Japan.

Livestock production in Indonesia especially poultry gain quite good achievement and promising for export. Beef and milk are not sufficient for domestic consumption, however cattle population has been increasing to support organic farming and meat production. Indonesia has high diversity of endogenous animals which are able to be developed for functional novel food.

Fish is cultured in the fresh water and brackish water and also catch as marine fish. Shrimps are cultivated intensively to gain the production for export. The constrain in this area is diseases of shrimp leading to organic pollution and high application of antibiotics. There were several cases that Indonesian shrimp exports were banded due to antibiotic contamination. The application of vaccines, immune stimulant, and probiotic has been developed instead of antibiotic application. The technology of liquid smoke for fish preservation and distribution has been developed lately.

Export items of Indonesia are mostly raw food materials, however intermediate food materials like flour of several kinds of tubers (sago, cassava, sweet potato, arrowroot, amorphophallus), plantain etc as oligosaccharide and dietary fiber resources have been increasing to be produced for export. Therefore the technology with safety handling for food processing is needed.

Toward the development of food security and safety in Asia, collaboration programs on education and research are as follows :

- Education on farm level by in house training for integrated small holder farms consisting of agriculture, fishery and animal husbandry to improve the security and safety of food production leading to post harvest handling
- High education by arranging joint postgraduate research and supervision, sandwich programs, and student/professor exchange
- Bilateral or bigger research collaboration focusing on the safety food production and processing technology, and maybe including on the food supply chain management in Southeast and East Asia.

