

Leveraging Innovation to Feed the Future Mekong- Lancang Region

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Future Food Situation in ASEAN

- The ASEAN Post (May 2019) quoted the World Resources Institute (2019): food insecurity will increase to more than 10%; while an increasing affluent population will require carbon- and land-intensive high meat diets.
- By 2050, the world must feed many more people. More appropriate agricultural technology must be available:
 - more nutritious food, in less arable land and less fresh water
 - effective poverty reduction through inclusive economic and social development,
 - reducing GHG emissions, loss of habitat, freshwater depletion and pollution, and other environmental impacts of farming.
- “Pursuing any one of these goals to the exclusion of the others will likely result in failure to achieve any of them.”

More innovations in agricultural and fishery production are being addressed.

- Notably by the current move in the USA by the USDA, National Science Foundation, and research universities;
- By scientific organizations in various countries;
- By the concerted efforts put together by the World Bank, initiated by the most recent World Resource Report 2019:
 - For tackling acute food shortages in the short term, future research may pursue quantitative estimates of agricultural freshwater use.

Issues for innovations

- **More investment in a new agriculture and fishery research to increase productivity sustainably, nutritiously, and economically.**
- **Improve research capacity. Support for university and research institutions in developing countries is critical to innovations that work in the local context.**
- **Design more appropriate research on climate change.**
- **Popularize nutrition-sensitive programs in backward remote regions.** Nutrition should be a key priority to combat chronic malnutrition.
- **Reduce food waste.** Innovations for reducing food waste are vital to help offset the production needed to meet increased demand.

Case studies from Viet Nam: Rice



- Rice production: innovations in research for better rice varieties:
 - Short duration: 85-100 days
 - More nutritious: appropriate genes for good taste; organic and biofertilizers to keep out insects and diseases.
- Mechanized system of production
- Sharing with food deficit countries.

References

- World Resources Institute. 2019. Creating a Sustainable Food Future. https://wrr-food.wri.org/sites/default/files/2019-07/WRR_Food_Full_Report_0.pdf
- SHEITH KHIDHIR. 2019. Building a Sustainable Food Future. *The ASEAN Post*. 18 May 2019. <https://theaseanpost.com/article/building-sustainable-food-future>

Case studies from Viet Nam: Rice-Fish system



- Rainy season: growing high quality rice
- Dry season: after harvesting rice, saline water allowed to come in then shrimp fries are introduced into the field.

Abundance of Mekong Resources



Seasonally, the Mekong system offers hundred of species of fishes, fruits, medicinal and functional plants that need to be processed into nutritious, hygienic, and convenient foods.



Case study: Cá linh (*Henicorhynchus*)



- Originate from Tonle Sap lake
- At the onset of annual flooding period, the fingerlings spread profusely downstream.



- Fishermen flock in
- Billions of fishes are caught and must dispose of them within hours before they spoil.

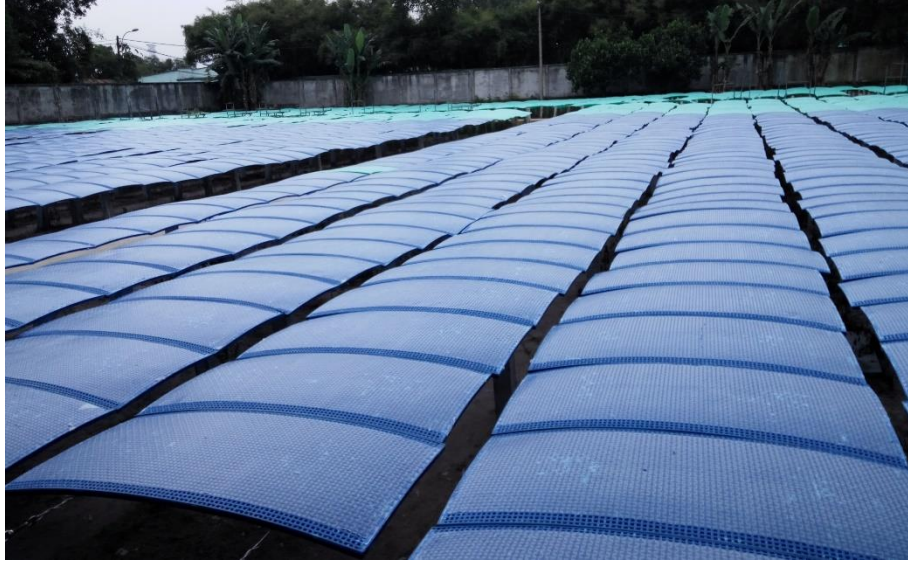
Fish processing

- Traditional drying
- Smoking
- Traditional fermenting
- Canning

Traditional sun drying – poor hygiene



Traditional sun drying – poor hygiene



Solar Dryer for Tilapia



COMMERCIALIZATION NEEDED

Solar Dryer for Tilapia type II



COMMERCIALIZATION NEEDED

Solar Dryer for Fruits (Banana, ect.)



COMMERCIALIZATION NEEDED

Prototype Solar Dryer, co-axial, for Fruits and Fishes



COMMERCIALIZATION NEEDED