

# **JIRCAS'S APPROACHES TO NUTRITION: THROUGH INTERNATIONAL AGRICULTURAL AND FOOD RESEARCH**

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# ABSTRACT

Nutritional issues are one of the highest-priority global challenges and have been rapidly drawing international concern in recent years. For example, Japan mentioned the importance of nutrition at the TICAD VI meeting in Nairobi last summer, and subsequently, an Initiative for Food and Nutrition Security in Africa (IFNA) and a Nutrition Japan Public-Private Platform (NJPPP) were launched.

JIRCAS is a national research and development agency which covers a broad range of issues regarding agriculture, forestry and fishery in developing regions. Until not long ago, the main approach of JIRCAS was on producers' perspectives such as productivity increase. However, in its current fourth medium- to long-term plan that started in 2016, JIRCAS has also focused on the various systems starting from the production side to consumption side, including human nutrition.

Malnutrition is complex as it includes not only energy deficiency but also micronutrition deficiency and obesity. Despite its complexity and multisectoral characteristics, we have to find an approach to fight against malnutrition. Agriculture plays a key role in nutritional supply as it produces food, which is the main source of nutrition. In reality food is not always available because of the changes in climate, weather, season, or lack of access. In addition, food availability does not automatically translate into adequate nutritional intakes for consumers due to lack of nutritional knowledge, intrahousehold allocation, etc. Agricultural and food research is expected to contribute to solving these problems.

Out of several nutrition-related projects ongoing in JIRCAS, three projects are introduced in this presentation. The first project is an evaluation of global food supply-demand and nutritional balance (J. Furuya). Using a global food supply-demand foresight model incorporating the effect of climate change, he makes a long-term outlook for changes in food supply-demand and corresponding nutritional balance. The second project is, in contrast, a regional-level research on local food utilization in Lao PDR (K. Hasada et al.). They carry out close monitoring to evaluate individual nutritional supply focusing on protein supply throughout the year. Combining food processing technology applicable to various local food resources such as fish and soybeans, they aim to propose a way for improving stable nutritional supply in the region. The third project is a mixture of macro- and micro- analysis in Madagascar (S. Shiratori). From national-level food supply data, she evaluates the excess or deficiency of nutrients and identifies each food category's contribution to the nutrient intake. She also collects information on food consumption and anthropometry by conducting household surveys, and seeks for a realistic solution to meet the nutritional requirements of consumers.

## KEYWORDS

developing countries, food supply-demand model, JIRCAS, local food, nutritional balance

## REFERENCES

This presentation refers to the JIRCAS projects below (researchers in charge of nutritional aspects are indicated in parenthesis).

- Evaluation of global food supply-demand and nutritional balance (J. Furuya and S. Shiratori)
- Multiple use and value addition of regional resources for improvement of sustainable productivity in semi-mountainous villages of Indochina (K. Hasada, K. Fujita, and J. Marui)
- Development of sustainable technologies to increase agricultural productivity and improve food security in Africa (S. Shiratori)

**JIRCAS**

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Introduction: Nutrition and Agriculture

**Malnutrition**

- Food is not always available
- Food availability does not automatically translate into nutritional adequacy

Agriculture plays a key role in nutritional supply

- “food”: main source of nutrition
- Agricultural and food research is expected to contribute to nutritional improvement of consumers

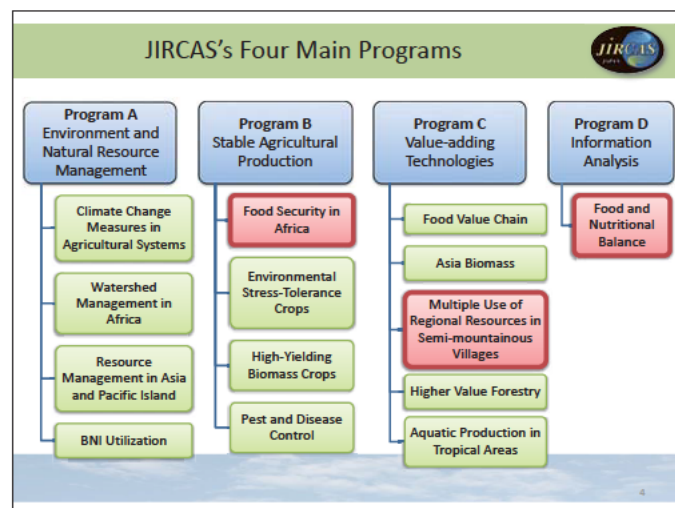
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JIRCAS's Current Approaches to Nutrition

Based on 4th Medium- to Long-term Plan (2016-2020)

- Various systems including human nutrition
- Technology development and dissemination
  - For stable production of agricultural products
    - High-yielding crops adaptable to adverse conditions
  - For high value-added products
    - Nutritional value measurement, Product quality improvement
- Socioeconomic research
- Collaboration and alignment with various initiatives
  - Initiative for Food and Nutrition Security in Africa (IFNA), Nutrition Japan Public-Private Platform (NJPPP)

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1 Global Nutritional Balance (Program D)

“Food and Nutritional Balance” (J. Furuya)

- Measure future impacts of climate change on nutrient supply
  - Global long-term food supply-demand foresight model
  - Effect of climate change
  - Food → converted into nutrient supply
- World Food Model
  - Simulation with several parameters
  - Continuously refined
  - 140 countries and regions
  - 4 crops and 5 animal products

Relationship between temperature and yield (Japonica rice in wetland)

N 165, HI 0.3, LAI 6.0, bc 231, bc 442, Rg 15Mm<sup>-2</sup>

Furuya JARQ (2015)

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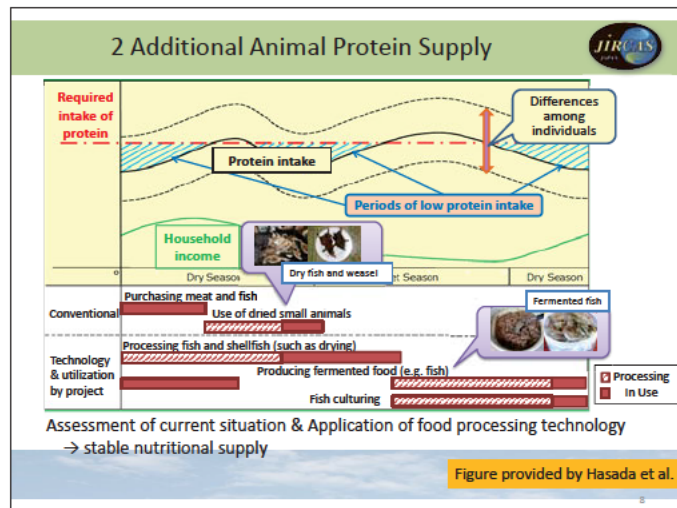
2 Local Food Utilization in Laos (Program C)

“Multiple Use of Regional Resources in Semi-mountainous Villages” (K. Hasada, K. Fujita, and J. Marui)

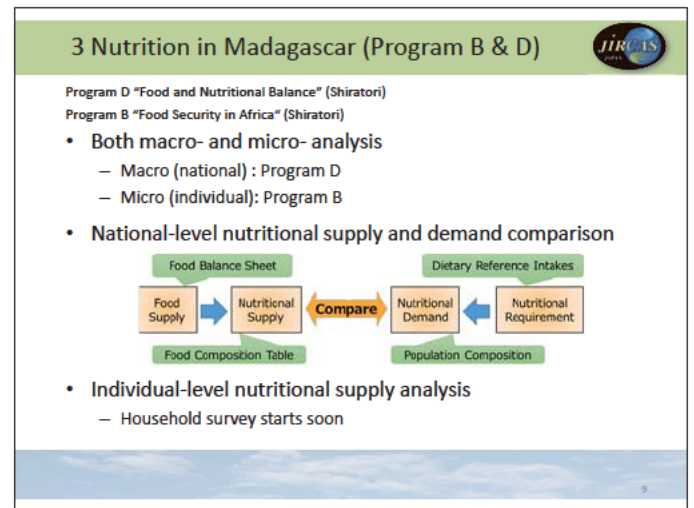
- Close monitoring to evaluate individual nutrient supply
  - Focus on animal protein
  - Seasonal change

Figure provided by Hasada et al.

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## Thank you!

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