



Policy Brief

Research and Education to Embrace Traditional Ethnic Food in Indonesia: Facilitating Sustainable Food Security and Healthy Dietary Resources

Indonesian Academy of Food and Nutrition - Indonesian Academy of Sciences (AIPG-AIPI)

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Executive Summary

- **Traditionally, ethnic food in a geographic area can easily meet the four pillars of food security:** availability, access, utilization, and stability.
- **The values of local wisdom, traditions, and ethnic practices have been proven to be beneficial in conserving natural environment to this day.** Furthermore, various dietary resources derived from Indonesian traditional and ethnic foods (PE-TI) play a crucial role in achieving nutritional balance and maintaining environmental sustainability.
- **The development of PE-TI can be achieved through short-term, medium-term, and long-term research and education activities.** These activities should include basic research on the nutritional, functional, and healthful characteristics of PE-TI using the latest knowledge. Additionally, it should involve the development of new PE-TI products that can be marketed at the national, regional, and global levels. To support this, market research on various types of new PE-TI variants for regional and global trade should also be conducted. Finally, empowering MSMEs is essential to promote PE-TI market development.

Background and Challenges

Food security, as defined by the United Nations Committee on World Food Security, means that all people at all times have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and needs for an active and healthy life.

Food security is based on four pillars: (a) availability, (b) access, (c) utilization, and (d) stability. Traditionally, ethnic foods in a geographic area satisfy all four pillars of food security. However, large-scale industrial and agricultural revolutions can

threaten traditional or ethnic foods by marginalizing them intentionally or unintentionally. In contrast, Indonesian traditional and ethnic foods (PE-TI) are often geographically local, environmentally friendly, and sustainable. PE refers to foods developed from a particular ethnic culture that is not always part of a ritual demand, while TI refers to traditional Indonesian foods that have been passed down from generation to generation. Many of this wisdom and values of certain local, traditional, or ethnic practices have been proven to be sustainable practices. Unfortunately, national food policies that focus only on rice and wheat have threatened the variety of

PE-TI. It is necessary to make efforts to ensure that healthy diet menus and dietary management practices of various ethnic groups in Indonesia are not completely marginalized or extinct (for example, various kinds of tubers such as certain variety of *Dioscorea sp.*, and bawang Tengger might have been gone) before the next generation learns about the important role of PE-TI in food security. In addition to macro and micro nutritional components, PE-TI also contains non-nutritional components such as flavor, color, texture, probiotics, and prebiotics that contribute to the overall happiness or well-being of individuals who consume them. In addition, PE-TI are usually generated from diverse and various seasonal produce grown in the locations where people live in Indonesia. According to the data from the Food Security Agency in 2017, Indonesia has 77 types of food crops as sources of carbohydrates, 75 sources of fat, 26 types of nuts, 289 types of fruits, 228 types of vegetables, 40 types of beverage ingredients, and 110 types of spices and seasonings.

Scientific reports have shown that the diversity of food sources derived from PE-TI is crucial for achieving nutritional balance and ensuring the sustainability of the ecosystem. Another important aspect to consider is food locality. The shorter the supply chain, the more resilient it is to crises. It also reduces carbon footprint. Several PE-TIs, including staple food groups such as cereals and grains such as sorghum (*bulgur, cantel, and jali*), millet, tubers (cassava, yam, taro), and plant sources (sago) and fruits (bananas, breadfruit, pumpkin, winter melon) are known for their nutritional benefits. Given the current threat of crises and recession, it is essential to provide more space and support for PE-TI, with the involvement of all stakeholders from upstream to downstream. The benefits of PE-TI have been widely discussed from nutritional and socio-economic perspectives. In terms of nutrition, PE-TI, particularly fruits and vegetables, are fresher, and their quality is better when consumed closer to the source due to their limited shelf life.

Numerous studies have demonstrated that revitalizing PE-TI generates more economic activity in a region than importing food from non-local sources. Moreover, it has a multiplier effect, contributing to increased employment and income for the local

community. Besides the economic benefits, PE-TI is also environmentally friendly, making it an excellent solution for mitigating climate change, preserving the ecosystem, and maintaining clean water sources. Recent research indicates that the carbon footprint of food is influenced by the distance it travels in the country of origin during transportation, leading to increased emissions (Li *et al.*, 2022).

Recommendations

Based on the description in the context and problems, it is necessary to take strategic steps in the development of sustainable future food by considering local wisdom that has been applied for generations and is able to maintain the environment until now. The recommended strategy is as follows.

1. Development of basic research related to the nutritional, functional, and healthful characteristics of PE-TI, including public health solutions, using the latest methods. In the field of education, it is expected to generate human beings who have good ethics and excel in science and technology.

Short-term Activities

- a. **Research** that focuses on the nutritional, functional, and healthful aspects of PE-TI commodities that meet the following criteria: 1) sustainability; 2) high consumption rates; 3) proven positive impacts on nutritional, functional, and healthful aspects based on previous research; and 4) distribution to areas beyond the commodity's place of origin.
- b. **Education** of PE-TI that focus on preserving PE-TI as a cultural heritage and introducing it to the outside world as an icon of Indonesian identity. To achieve this, a healthy diet guideline based on PE-TI for consumers and sustainable education materials should be developed. This will result in human resources that continue to promote the excellence of PE-TI.

Medium and Long-term Activities

A combination of simultaneous meta-analyses of relevant research databases and the implementation of educational activities in a short-term activity plan. These efforts can inform social engineering initiatives aimed at changing food patterns and promoting a holistic approach to nutrition.

2. A PE-TI-based new product development is expected to penetrate the regional, national, and global food market.

Short-term Activities

- a. Development of PE-TI based on flavoring or seasoning to target young families or millennial youth, and for fast food restaurants.
- b. Development of new technology-based PE-TI products in various “ready-to-serve” forms (frozen, pouch packaging, etc.).

Medium and Long-term Activities

- a. Transform basic research into eight trials, including communal clinical trials, aligning the development of production centers, and integrating with national and global market relations.
 - b. Analyze the potential success of commercialization and sustainable downstream activities while ensuring the availability of good production facilities. This transformation should involve the integration of research and education at various socioeconomic levels to ensure a successful outcome.
3. Development of market research on new PE-TI variants in the regional and global market.

Short-term Activities

Conducting a study on consumption patterns based on ethnic and traditional practices, such as nutrigenomics and communal eating.

Medium and Long-term Activities

Existing PE-TI market research in regional and global trade, and elaboration of supply chains and value chains in sustainable food systems.

4. PE-TI market development by empowering MSMEs.

Short-term Activities

Fostering healthy MSME entities to enable sustainable business practices (including life cycle management, strengthening human resources for MSME actors, and enhancing capital capacity and skills of the actors).

Medium and Long-term Activities

Researching the market potential to produce a variety of technology-based new PE-TI products and developing activities to elaborate supply and value chains with sustainable food systems for MSME entities that prioritize on sustainability.

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