



Policy Brief

Transforming the Food System through Reinforcing Local Food Diversity for Public Health Resilience and Excellent Generation of Indonesia

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

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Executive Summary

- **Indonesia continues to face unresolved public health issues that have not yet been effectively addressed**, with a high prevalence of infectious diseases such as pulmonary tuberculosis, malaria, and helminthiasis at national and regional levels.
- **The prevalence and incidence of malnutrition**, specifically protein-energy malnutrition, stunting (chronic malnutrition), and micronutrient deficiencies, remain alarmingly high.
- **The national prevalence of overweight and obesity among adolescents has shown a concerning increase of 48% in young adolescents (aged 13-15 years) and 85% in older adolescents (aged 16-18 years) over five years.** Notably, areas with high prevalence are not limited to urban locations such as Jakarta (20.9%) but also extend to remote rural areas in Papua (19.4%).
- **The causes of undernutrition and overnutrition are complex and multifactorial**, encompassing various factors such as inadequate diets that do not meet nutritional needs, unhygienic and unhealthy lifestyles, and family parenting styles.
- **Solving nutrition problems is highly reliant on the food system**, both at national and regional levels. A functional and effective food system requires good governance, encompassing supply-demand and accessibility-affordability aspects, and recognizing the importance of local foods scientifically proven to have biological functions (functional food) in optimizing public health. Addressing these issues requires a high level of harmonization and synergy among government, academia, business and industry, and society.
- **Maximizing the potential of youth groups as 'game changers'** is crucial in achieving the convergence of food and nutrition in Indonesia.

Background and Challenges

Indonesia continues to grapple with significant public health challenges persistently and consistently. The eradication of infectious diseases, including acute and chronic infections like pulmonary tuberculosis, remains incomplete¹. Additionally, the country is burdened with a rising prevalence

of non-communicable diseases such as metabolic syndrome, cerebro-cardiovascular diseases, neoplasms, and autoimmune diseases²⁻⁴.

Indonesia faces the challenge of a triple burden of malnutrition, which includes a high prevalence of protein energy malnutrition, stunting (chronic malnutrition), micronutrient deficiencies, and obesity.

According to the 2018 Basic Health Research (*Riskesdas*), the prevalence of stunted children was 30.8%, and anemia in pregnant women was 48.9%⁴. The Indonesian Nutritional Status Survey (SSGI) revealed that the prevalence of stunting declined from 24.4% in 2021 to 21.6% in 2022, with the most significant reduction observed in South Kalimantan, North Kalimantan, and South Sumatra provinces⁵. However, this prevalence rate remains significantly high compared to the 20% stunting prevalence threshold set by the World Health Organization (WHO). Resolving malnutrition and infectious diseases requires a high level of harmonization and synergy among government, academia, business and industry, and society, as these issues mutually impact each other.

Obesity is a global problem prevalent in many countries, including Indonesia. Over five years, the national prevalence of overweight and obesity in adolescents has increased significantly, with rates as high as 48% among young adolescents (13-15 years old) and 85% among older adolescents (16-18 years old)⁷. High prevalence rates of obesity are not limited to urban areas like Jakarta (20.9%) but also exist in remote regions like Papua (19.4%). Obesity is associated with various health risks and comorbidities, such as cardiovascular disease, hypertension, hyperlipidemia, type 2 diabetes, and certain cancers. The underlying factors contributing to obesity are multifactorial and include nutrient deficiencies, bad dietary habits, poor hygiene, unhealthy lifestyles, and family parenting styles. Therefore, it is crucial to understand the specific risks to design effective interventions contextually. Furthermore, efforts to educate the population about the importance of diversified and balanced nutrition are critical in addressing the issue of obesity.

The most recent and impactful lesson learned from Indonesia's public health problems is the Covid-19 pandemic, which began in March 2020. The country has experienced a massive surge in Covid-19 cases during 2020 and 2021, which has severely strained the national health system at central and regional levels. These include high morbidity and mortality rates, hospital bed occupancy ratio (BOR) exceeding 100%, shortages in oxygen supply, a critical breathing aid substance, and the unfortunate loss of health workers who are crucial in handling Covid-19 cases. As a result, the Covid-19 vaccination program has emerged as the most

important preventive measure to boost immunity against potential Covid-19 infections in response to the pandemic. However, implementing a massive and rapid vaccination program in an archipelagic country like Indonesia has been challenging. Moreover, despite the efforts, the progress of vaccination achievements is still catching up with the transmission power of the SARS-CoV-2 virus.

The scientific foundation of vaccination or immunization is to enhance an individual's immunity (cellular and humoral) within a specific timeframe, enabling the individual to effectively combat various infectious agents such as viruses, bacteria, fungi, and parasites. However, the effectiveness of vaccination is contingent upon the individual's nutritional status. Scientific evidence demonstrates that severely malnourished individuals exhibit inadequate immune responses to vaccination, and are more susceptible to the severity of the disease when infected. Thus, optimal nutritional status is a critical preventive measure to enhance the body's resilience against infectious diseases⁸⁻⁹. Unfortunately, in Indonesia, the incidence and prevalence of malnutrition remain alarmingly high, encompassing protein-energy malnutrition, stunting (chronic malnutrition), and micronutrient deficiencies²⁻⁴. Malnutrition increases susceptibility to communicable diseases and serves as a risk factor for non-communicable diseases (NCDs).

On the other hand, addressing nutritional issues is intricately linked to the food system at the national and regional levels. A robust and effective food system necessitates sound governance, encompassing supply-demand and access-affordability aspects and embracing local foods that have scientifically proven biological functions (known as functional foods) to optimize public health¹⁰. Scientific evidence supporting the role of functional foods in reducing risk factors for NCDs has been widely recognized worldwide, and Indonesia, with its rich biodiversity, has the potential to become a leader in this area. However, during the pandemic, Indonesia's food security has declined from 60 to 29, with approximately one-third of food produced going to waste, resulting in challenges extending from production to post-harvest, storage, distribution, marketing, and consumption levels. Nevertheless, Indonesia has opportunities to address these food system issues through a national strategic approach that emphasizes community engagement, government intervention, education, and infrastructure development.

Innovating to achieve a balance between production, availability, and reduction of wasted food/processed ingredients remains a significant challenge. Therefore, it is crucial to urgently implement community food and nutrition convergence, from policy to implementation levels, to foster public health resilience and nurture a generation of skilled individuals who can contribute to Indonesia's growth and development. The youth population is a particularly strategic target group, as they represent a significant proportion of the Indonesian population and have high levels of digital literacy. Moreover, they play a pivotal role in intergenerational relations within a life-cycle approach. In addition, the adolescent girl group is future brides, mothers-to-be, siblings, and recipients of education on early marriage¹¹. Thus, young generations hold immense potential to drive the multiplier effect of education and implementation of community food and nutrition convergence, given their significant presence in the digital world and social media.

Recommendations

Considering the intricate relationship between food and community nutrition and the imperative to enhance food diversity in regions, it is crucial to establish regional modeling that adheres to the principle of "fill my plate" with a focus on local foods. The concept of 'my plate' should encompass the core principles of balanced nutrition and adequate nutrition for children, the promotion of diverse functional and local foods for public health, and the provision of food and nutrition for family health. Some of the recommended activities for achieving these objectives may include:

1. Short-term Activities

- a. **Regional model development: at the levels of province/regency**
 - Study of local food diversity, supply chain, access, purchasing power, understanding of local foods and their functionalities, and providers.
 - Study of consumption, intake of local food diversity, nutritional adequacy, promoters, and inhibitors.
 - Study of culture, mindset, behavior, inhibiting factors, and facilitators.

- Study of the transformation of the food system based on local food diversity.
- Resources study.
- Study of climate change's effect on the food system.

- b. **Mechanism of action**

- Organizing an expert meeting and dialogue with the local government and socializing the concept of "fill my plate".
- Creating a roadmap.
- Conceptualizing the model with indicators of success.
- Advocating for multiple stakeholders.

2. Middle and Long-term Activities

- a. **The activities:**

- Formulating the education strategy.
- Developing education programs.
- Developing integrated data management.
- Developing technology for upstream-to-downstream data transfer.

- b. **The objectives:**

- Developing a strategy for educating to change behavior.
- Establishing integrated data for sustainable program implementation.
- Empowering local food and technology by involving small and medium-sized enterprises (SMEs).

- c. **Targets and partners:**

- Targets: SMEs, mothers, adolescents, and millennials.
- Partners: academics, media, industry, communities, and policymakers.

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

AIPG-AIPI was established based on Law No.8 of 1990 on AIPI.

AIPG-AIPI aims to assemble leading Indonesian scientists in the field of food science and nutrition to provide opinions, suggestions, and considerations on their initiatives and/ or requests regarding the mastery, development, and utilization of science and technology, especially in the field of food and nutrition to the Government and the public to achieve national goals by always prioritizing: a) values and ideals from Pancasila and the Constitution of the Republic of Indonesia 1945; b) the value of humanity; c) awareness and ethical responsibility; d) improving the quality of human and people's lives; e) the integrity of the personality of the nation; and f) the balance of the environment in sustainable development.