Mandatory Food Fortification and Stunting Reduction: A Strategy to Improve Indonesia's Human Resources Towards a Golden Indonesia 2045

The Indonesian government's commitment to improving the quality of Indonesia's human resources is unquestionable. This is stated in Agenda 3 of the 2020-2024 RPJMN (National Medium-Term Development Plan). However, to achieve the golden Indonesia of 2045, Indonesia is still faced with various challenges, one of which is the triple burden of malnutrition. Currently, Indonesia is not only faced with the problem of undernutrition and overnutrition but also with the problem of micronutrient deficiencies. This certainly affects the quality of Indonesian human resources. Therefore, for improving Indonesia's human resources in Agenda 3 of the 2020-2024 RPJMN, 3 of the seven aspects to be improved are closely related to the contribution of food and nutrition.

Accelerating stunting reduction is one of the government's priority programs. The Indonesian government has also demonstrated its commitment to addressing the problem of stunting since 2018 through the launch of the National Strategy for Accelerating Stunting Reduction by the Vice President. In 2021, the President has also stipulated Presidential Regulation No. 72 of 2021 concerning the Acceleration of Stunting Reduction as a joint reference to strengthen further efforts to accelerate stunting reduction and also strengthen the intervention framework that must be carried out and its institutions. However, Indonesia's stunting prevalence in 2022 according to the SSGI (Indonesian Nutrition Status Survey) is still quite high at 21.6%. Therefore, more attention is needed to reach the national target in 2024 (stunting prevalence to 14%).

Efforts to accelerate stunting in Indonesia are carried out based on **five main pillars** as stated in Presidential Regulation Number 72 of 2021, namely to increase leadership commitment, communication of behavior change, **convergence of specific intervention and sensitive intervention activity programs,** improving food security and nutrition, and strengthening systems, data information and innovation.

Stunting is a multifactor problem. Therefore, efforts to overcome stunting also need to be carried out in a multi-stakeholder and multidisciplinary manner. Based on pillar 4, efforts to reduce stunting require specific nutrition and nutrition-sensitive interventions. Specific nutrition interventions include various programs that aim to tackle the direct causes of stunting. In contrast, nutrition-sensitive interventions are a group of programs that aim to tackle various indirect problems of stunting. The direct causes of stunting are nutritional status and health status. Meanwhile, indirect causes can come from various factors such as food security (availability, affordability, and access to nutritious food), social environment (norms, infant and

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young child feeding, hygiene, workplace education), health environment (access, preventive and curative services), and residential environment (water, sanitation, and building conditions). Based on the indirect causes of stunting, one of the efforts that can be made to reduce stunting related to food security factors is to increase the availability, affordability, and access to nutritious food. This can be done through stunting reduction and mandatory food fortification strategy.

Although there are no studies on the effectiveness and efficacy of food fortification programs in addressing stunting, food fortification programs are the most far-reaching programs and can penetrate various age groups and populations throughout the country as long as there are no distribution and purchasing power disruptions. One of the main contributing factors to stunting is the socioeconomic status of households. Food fortification can reach lower socioeconomic groups if integrated in social assistance or with government subsidy interventions that will keep the price of fortified food affordable. Food fortification is also known as a *"silent intervention"* in which socialization to the target is not the most important factor for this program to succeed, so the scope of this program will be very broad. All age groups need food fortification to cover micronutrient deficiencies in their diets, and it is crucial in the first 1000 days of life, especially for pregnant women and the first two years of life when diets are still very limited. Other nutritional problems, especially stunting, can be prevented if this can be achieved.

Comprehensive efforts through a food system that connects agriculture, food, nutrition, and health, including food biofortification, one of which is inpari forti-zinc rice, have also been implemented and included in the design of The Ministry of National Development Planning (Bappenas) in the 2020-2024 RPJMN. Food fortification was the most cost-effective method, with an estimated health benefit-cost ratio of USD 17 for every USD 1 invested. The cost of food fortification in various countries is generally less than 0.5% of the product price, with no additional costs for distribution to consumers because food distribution follows normal channels as usual.

Food fortification, an effort to increase the nutritional value of a type of food by adding one or several specific nutrients through the application of food industry processing technology to improve people's nutrition, has been proven effective in reducing hidden hunger and cost-effective. Food fortification is not new to all of us. So far, the Government of Indonesia has established mandatory food fortification programs to address iodine deficiency disorder (IDD) through salt fortification, iron deficiency anemia (IDA) through flour fortification, and cooking oil fortification with vitamin A to address vitamin A deficiency (VAD).

The issue of food fortification is a matter of policy-making accuracy and favoritism to poor households and vulnerable groups, not a technological issue because the technology needed is, in principle very simple and already available. Therefore, to have a broad impact, the government is advised to implement mandatory fortification so that all food in circulation can be fortified and everyone can feel the benefits. In certain foods that are difficult to implement compulsorily in the national or

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regional scope, the implementation of fortification for special groups and certain commodities based on market mechanisms can also be done.

In its implementation, mandatory food fortification faces challenges, as discussed in the WNPG *(National Food and Nutrition Multi-stakeholder Forum)*, namely as follows.

1) Challenges to iodized salt fortification include price disparity between fortified and unfortified salt, traditional salt not meeting the Indonesian National Standard (SNI), KIO3 supply, misinterpretation of excessive iodized salt intake, local regulations do not controlling the distribution and quality of iodized salt, iodized salt coverage data.
2) Challenges of wheat flour fortification include vulnerability to the issue of changes in international trade, the absence of supporting effectiveness studies to support the latest SNI 2021, the absence of an integrated monitoring and evaluation system.
3) The challenges of palm cooking oil fortification include the international trade situation, SNI (Indonesian National Standard) provisions that only apply to packaged palm cooking oil, whereas 70% of Indonesian people use bulk cooking oil. The coverage of packaged cooking oil consumption is only 30%, there is no regulatory instrument that allows mandatory fortification of bulk cooking oil, cooking oil production technology that maintains B-carotene levels is still being developed, there are no guidelines for mixing vitamin A and cooking oil, and there is no availability of *rapid test ki*t for vitamins and beta carotene to evaluate vitamin A levels in cooking oil or beta-carotene in palm cooking oil.
4) The challenges of rice fortification include a large number of rice millers but small scale, limited domestic Fortified Rice Kernel (FRK) industry, expensive imported FRK, and expensive mixing costs.

The dynamics of food fortification are related to several important issues that can act as barriers or drivers.

(1) Limitations of Empirical Evidence of Efficacy and Effectiveness.
Empirical evidence of efficacy generally still refers to other studies abroad. The effectiveness study should ideally be conducted in the implementing country so that the uniqueness of the problems, constraints, and supporting factors are properly identified according to local conditions so the program can run well. The importance of empirical evidence from the results of food consumption studies, efficacy studies, and effectiveness studies is needed in determining fortification policies, preparing fortificant doses, establishing regulations, and so on. Therefore, future policies in the field of food fortification should be accompanied by budget support to conduct reliable studies.
Empirical evidence of the efficacy and effectiveness of food fortification in Indonesia has only been conducted on oil fortification. Salam et al's, research showed the

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effectiveness of palm cooking oil fortification in reducing morbidity in postpartum women. In addition, The 2009 effectiveness study showed that vitamin A intake of school children can be fulfilled by consuming only foods processed with cooking oil and maintaining the consumption pattern according to previous eating habits. Compared to the effectiveness of social marketing campaigns for the consumption of dark green vegetables and eggs from another study in Central Java, this cooking oil fortification increased vitamin A intake more than twice. A follow-up study conducted in Tasikmalaya and Ciamis in 2013 showed that consumption of fortified cooking oil improved vitamin A status in all age groups.

(2) Weak Advocacy, and Socialization. In Indonesia, the decision to make SNI voluntary was made by the Ministry of Industry at the request of the Ministry of Health. The process is quite long involving various parties such as BSN for standard implementation, BPOM for supervision, etc. For internationally traded products, the Government must submit a notification to the WTO before mandatory fortification is implemented so that mandatory fortification is not categorized as a trade barrier. Convincing industry is one of the hardest parts. Integrating business understanding in health or other development programs requires strong advocacy.
Advocacy materials to industry must address the common goal of improving public health while increasing business profits (at least not to the detriment of the business world). This term is known as Public-Private Partnership (PPP). Intensive advocacy and involving industry from the beginning is the key to successful advocacy to industry. Therefore, mandatory food fortification does not require additional education and changes in food consumption of targeted consumers, or often referred to as "silent intervention". However, socialization to several key stakeholders is still needed even though it is not promotional in nature.

(3) Food fortification involves various parties, so conflicts of interest are inevitable. Generally, conflicts of interest are inseparable from economic, social, political and environmental interests. For foreign flour producers and/or national importers, the provision of fortification is considered an obstacle. In terms of the availability of fortificants, it must be recognized that the pharmaceutical industry in Indonesia is currently unable to develop all the necessary fortificants. This import issue is often used as an excuse not to support the fortification program. The implementation of SNI MGS requires the oil to be branded and packaged. It is estimated that every year there are about 3.5 billion new bottles of oil packaging if the assumption is that all oil is packaged in 1 liter size. Of course this will be a new environmental

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problem and therefore it is necessary to revitalize the implementation of cooking oil fortification with Vitamin A as a whole, including packaged and bulk oil.

Based on the discussions that developed above, the recommendations that have been formulated are as follows:

- Mandatory food fortification and stunting reduction can be a tandem strategy in improving Indonesia's human resources towards the Golden Indonesia 2045.
- To ensure the involvement of businesses and investors in the food fortification program, efforts are needed to ensure that the issue of Sustainable Food Fortification and Biofortification is accommodated in the 2025-2045 Long-Term Development Plan (RPJP), which is then detailed in each five-year plan of the Medium-Term Development Plan (RPJMN).
- A detailed plan, stages, targets, and timeline of Large Scale Food Fortification (LSFF) is needed to guide the implementation of the fortification & biofortification program.
- In anticipating and handling technical and non-technical issues, a *Working Group*Forum *Public Private Partnership* (PPP) is needed to coordinate the implementation of the national food fortification program, including research (product development/efficacy, effectiveness, CBA, etc.) regulation, standardization, *capacity building* (human resources, technology, guidelines), budgeting, education, advocacy, integrated monitoring and evaluation.
- Revitalize the implementation of bulk cooking oil fortification with vitamin A. It is suggested that bulk palm oil fortification can still be carried out with quality control points at the factory when the cooking oil will be distributed. To reduce environmental impacts, the government can encourage bulk oil depots in the form of mini gas stations (Pertamini) in Bandung, or toren in DKI, and so on. Besides being more environmentally friendly, retail sales in this way are relatively more hygienic and can reduce vitamin A loss.
- The need for efficacy and effectiveness studies on the fortification of wheat flour with new iron additives that need to be facilitated by the Ministry of Health, BRIN or by independent research institutions.
- Strengthening supervision and guidance on salt fortification with iodine to achieve the *Universal Salt Iodization (USI) target*.
- Development of rice fortification for special groups, commercial rice, and integrated with social assistance
- Development of domestic fortificant industry
- Development of Small Scale Fortification based on Local Food