

# FREE NUTRITIOUS MEALS AS A STRATEGY FOR INCLUSIVE GREEN DEVELOPMENT: SYNERGY OF NUTRITION POLICY, HUMAN RESOURCE DEVELOPMENT, AND POVERTY ALLEVIATION IN INDONESIA

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## Abstract

Nutritional inequality and poverty remain structural problems that impact the quality of human resources and sustainable development in Indonesia. The Free Nutritional Meal Program (PMBG) is a strategic government policy aimed not only at improving the nutritional status of the community, particularly children and vulnerable groups, but also at supporting the development of high-quality and competitive human resources. This study aims to analyze the role of PMBG in improving community nutritional status, encouraging human resource development, and realizing synergies between nutrition policies, poverty alleviation, and inclusive green economic development. The research method used is a qualitative approach through literature review of various scientific studies, policy reports, and international publications. The results show that PMBG has great potential to improve the quality of community health and cognition, increase future workforce productivity, and create an economic multiplier effect through the involvement of MSMEs and the sustainable local agricultural sector. However, the implementation of this program also faces challenges, such as budget constraints, cross-sector coordination, and the sustainability of an environmentally friendly food supply chain. Therefore, optimizing PMBG as an inclusive green development strategy requires strengthening governance, integrating cross-sector policies, and active participation of local communities and businesses to provide long-term impacts on human development and the green economy in Indonesia.

**Keywords:** *Free Nutritional Meal Program; Human Resource Development; Poverty Alleviation; Inclusive Green Development; Sustainable Development*

## 1. Background

Indonesia currently faces multidimensional development challenges, encompassing issues of public nutrition, human resource quality, and structural poverty. These three issues are interrelated and are determining factors in the sustainability of national development. Nutritional issues, particularly among school-age children and low-income families, remain a significant challenge, directly impacting health, learning capacity, and future workforce productivity. This situation has implications for the low competitiveness of Indonesia's human resources in the face of an increasingly competitive and knowledge-based global economic transformation. Furthermore, poverty alleviation efforts in Indonesia are inextricably linked to an inclusive and sustainable development approach. Poverty is understood not only as limited income but also as limited access to basic services, including nutritious food, education, and healthcare. Unequal access to nutritious food reinforces the intergenerational cycle of poverty, with children from poor families at risk of malnutrition, which can have long-term impacts on their cognitive abilities and future economic productivity. The Free Nutritious Meal Program presents a public policy strategy with the potential to address this issue in an integrated manner. This program not only aims to improve the nutritional status of the community but also serves as a strategic instrument in developing quality and competitive human resources. Adequate and balanced nutritional intake plays a crucial role in improving learning concentration, reducing school dropout rates, and fostering a healthy and productive

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generation. Thus, nutrition policy is no longer viewed solely as a health intervention, but rather as a long-term investment in human development. Furthermore, if designed and implemented using an Inclusive Green Development approach, the Free Nutritious Meals program can have sustainable economic and environmental impacts. Utilizing local food ingredients, empowering small farmers, fishermen, and food MSMEs, and implementing an environmentally friendly supply chain can encourage inclusive green economic growth. This synergy enables job creation, increases local incomes, and reduces dependence on imported food, while maintaining the sustainability of natural resources. However, the main challenge lies in how to synergize nutrition policies, human resource development, and poverty alleviation strategies effectively and sustainably. Without integrated planning, the Free Nutritious Meals program has the potential to become merely a short-term, consumptive policy, without generating structural impacts on improving human quality and community well-being. Therefore, a comprehensive study is needed to understand the strategic role of this program within the framework of inclusive green development, as well as to formulate a policy implementation model that is able to provide social, economic, and environmental benefits simultaneously.

Table 1.1 Child Nutritional Status (Stunting) in Indonesia

Indicator	2023	2024	National Target	Information
National prevalence of stunting in toddlers (<5 years)	21.5%	19.8%	14.2% (2029 RPJMN)	Decreased, but still relatively high
Number of stunted toddlers	–	± 4.48 million toddlers	–	Demonstrates a national scale chronic malnutrition problem
WHO standards for stunting	< 20%	< 20%	< 20%	Indonesia is just approaching the threshold
Distribution between regions	Uneven	Uneven	Even & decreasing	Some provinces are still above the national average

Data from the 2024 Indonesian Nutritional Status Survey (SSGI) shows that the national prevalence of stunting in children under five years of age decreased from 21.5% in 2023 to 19.8% in 2024. This decline reflects progress in national nutrition improvement efforts and demonstrates the initial effectiveness of various government interventions in health and nutrition. However, this achievement still falls short of the national medium-term development target of reducing stunting to 14.2% by 2029, as stipulated in the National Medium-Term Development Plan (RPJMN). Although the national stunting prevalence rate has fallen below the 20% threshold set by the World Health Organization (WHO), the absolute number of children under five experiencing stunting remains very high, at approximately 4.48 million children in 2024. This condition indicates that chronic nutritional problems in Indonesia have not been fully resolved and remain a serious challenge to human resource development. Stunting not only impacts children's physical growth but also affects cognitive development, learning abilities, and future economic productivity. Furthermore, the uneven distribution of stunting prevalence across provinces indicates unequal access to nutritious food, health services, and socioeconomic conditions. Regions with high poverty rates and limited food infrastructure tend to have a higher prevalence of stunting than other regions. This inequality indicates that nutritional problems cannot be separated from the issues of structural poverty and development inequality.

In the context of this research, these data reinforce the urgency of implementing the Free Nutritious Meals Program as a strategy that focuses not only on improving children's nutritional status but also as an instrument for inclusive and sustainable development (Inclusive Green Development). This program has the potential to break the chain of stunting and intergenerational poverty by providing equitable access to nutritious food, especially for vulnerable groups. Furthermore, when linked to human resource development and sustainable use of local food, the Free Nutritious Meals policy can contribute to improving human resource quality while encouraging inclusive green economic growth.

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Table 1.2 Nutritional Inequality and Poverty in Indonesia

Indicator	Value / Condition	Year	Main Description
Prevalence of stunting in quintile 1 (poorest)	± 29.8%	2024	Far above the national average
National stunting prevalence	19.8%	2024	Shows nutritional disparities between economic groups
Number of poor people	± 23.8 million people	March 2025	Still a big challenge for development
National poverty rate	± 8.47%	March 2025	The decline is relatively slow and uneven
Poverty–stunting relationship	Strong positive	–	Poverty increases the risk of malnutrition

Nutritional inequality in Indonesia is closely linked to poverty. Data shows that the prevalence of stunting in the lowest economic group (quintile 1) reaches approximately 29.8%, significantly higher than the national stunting rate of 19.8%. This disparity reflects structural inequities in access to nutritious food, healthcare, and a decent living environment. Children born and raised in poor families are at greater risk of chronic malnutrition due to limited purchasing power, poor food quality, and limited access to basic services. On the other hand, poverty in Indonesia remains significant. In March 2025, the number of poor people was recorded at approximately 23.8 million, or approximately 8.47% of the total population. Although the poverty rate shows a downward trend in percentage terms, the absolute number of poor people remains very large and unevenly distributed across regions. This situation demonstrates that poverty alleviation efforts have not fully guaranteed the fulfillment of basic community needs, particularly in terms of quality nutrition. The link between poverty and stunting forms a mutually reinforcing cycle. Poverty limits families' ability to provide nutritious food for children, while stunting in children has the potential to reduce cognitive capacity, productivity, and future income. This cycle ultimately perpetuates poverty across generations and hinders the achievement of sustainable human resource development.

In the context of this research, this situation confirms that nutritional issues cannot be addressed sectorally alone, but rather require an integrated policy approach that encompasses nutrition, human resource development, and poverty alleviation. The Free Nutritious Meal Program is relevant as a strategic instrument capable of directly reaching the poorest community groups, thus potentially reducing nutritional inequality while also serving as a form of social protection. If implemented with the principles of Inclusive Green Development, this program will not only improve the nutritional status of children from poor families but also encourage economic inclusivity through the utilization of local food and the empowerment of small economic actors.

Research by Rajagukguk, Arifin, and Harahap (2025) confirms that the success of sustainable innovation within a green economy framework is not solely determined by technology or capital, but is also heavily influenced by leadership and human resource management. These findings are relevant to this study, which positions the Free Nutritious Meal Program as part of the Inclusive Green Development strategy. Implementing a national-scale nutrition program requires not only policy support but also sustainability-oriented leadership and human resource management capable of translating the policy vision into effective operational practices. In this context, the principles of green leadership and sustainable human resource management are essential foundations for ensuring that the Free Nutritious Meal Program is not merely consumptive, but is also able to encourage social innovation, local economic empowerment, and the utilization of environmentally friendly food resources. Research by Rajagukguk *et al.* (2025) strengthens the argument that the success of inclusive and sustainable development strategies, including national nutrition policies, is highly dependent on the quality of leadership and human resource management.

Research by Harahap, Rajagukguk, and Arifin (2025) shows that green policies and environmentally friendly supply chain management have a significant influence on the competitive advantage of manufacturing companies through the adoption of green technology as an intervening variable. This finding confirms that the implementation of environmentally oriented policies not only impacts operational efficiency but also encourages sustainable technological innovation and increases organizational competitiveness. The relevance of this research to the study of Free Nutritious Meals as an Inclusive Green Development strategy lies in the important role of green policies and sustainable supply chain systems in ensuring the effective implementation of large-scale public

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programs. The adaptation of green technology in food supply chain management from production, distribution, to serving can increase efficiency, reduce environmental impacts, and strengthen the sustainability of national nutrition programs, thereby supporting the goals of human resource development and inclusive poverty alleviation. Research by Harahap, Rajagukguk, and Arifin (2025) demonstrates that public policy has a positive and significant impact on achieving a circular economy, both directly and indirectly through the mediating role of green technology and blue innovation implementation. This finding confirms that the success of the transformation towards a sustainable economic system is highly dependent on the quality and consistency of public policies that encourage the adoption of environmentally friendly innovations. The relevance of this research to the study of Free Nutritious Meals as an Inclusive Green Development strategy lies in the strategic role of public policy as the primary driver of the integration of environmental, social, and economic aspects. In the context of the national nutrition program, policies that support the implementation of green technology and sustainable innovation in food management, distribution, and waste reduction can strengthen the program's sustainability while encouraging the creation of an inclusive, efficient, and environmentally friendly circular economic system. Given these conditions, this research is crucial in assessing how Free Nutritious Meals can be optimized as an Inclusive Green Development strategy through synergy between nutrition policies, human resource development, and poverty alleviation in Indonesia. This study is expected to provide conceptual and practical contributions to the formulation of more integrated, sustainable public policies oriented toward improving the overall quality of life for the community.

## Identification of problems

Based on the research background, empirical data, and literature review that has been described, several main problems can be identified as follows:

1. The persistently high prevalence of stunting and nutritional inequality in Indonesia, particularly among low-income groups, indicates that access to nutritious food is not yet evenly distributed despite the implementation of various intervention programs.
2. Structural poverty remains a dominant factor limiting the ability of poor households to meet their nutritional needs, thus reinforcing the cycle of stunting and intergenerational poverty.
3. National nutrition policies have not been fully integrated with human resource development and poverty alleviation strategies within an inclusive and sustainable development framework.
4. The Free Nutritious Meal Program has the potential to be consumptive if it is not designed with a long-term approach that links nutritional aspects, human resource productivity, and local economic empowerment.
5. The utilization of Inclusive Green Development principles—such as the use of local food, environmentally friendly supply chains, and reducing food waste—has not been optimized in the implementation of the national nutrition program.
6. The limitations of academic studies that comprehensively analyze Free Nutritious Meals as a public policy instrument that is not only oriented towards health, but also towards green development, economic inclusiveness, and increasing human resource competitiveness.

## Formulation of the problem

Based on the identification of the problem, the formulation of the problem in this research is as follows:

1. How do the conditions of nutritional inequality and poverty in Indonesia affect the quality of human resources and the sustainability of national development?
2. What is the role of the Free Nutritional Meal Program in improving the nutritional status of the community and supporting the development of quality human resources?
3. How can synergy between nutrition policies, human resource development, and poverty alleviation be realized through the Free Nutritious Meal Program?
4. How can the Free Nutritious Meal Program be optimized as an Inclusive Green Development strategy that takes into account social, economic, and environmental aspects in an integrated manner?
5. What factors pose challenges and opportunities in implementing the Free Nutritional Meal Program to provide a sustainable impact on human development and the green economy in Indonesia?



## **2. Results and Discussion**

### **2.1 The conditions of nutritional inequality and poverty in Indonesia affect the quality of human resources and the sustainability of national development.**

Nutritional inequality and poverty are two interrelated structural problems that have a significant impact on the quality of human resources (HR) and the sustainability of national development in Indonesia. Although various macro indicators show progress in development, unequal access to nutritious food remains a fundamental problem, particularly for low-income groups. This condition is reflected in the high prevalence of stunting among the lowest economic groups, which far exceeds the national average, indicating unequal development outcomes in health and social welfare. Poverty limits the ability of households to meet basic needs, including access to nutritious food, health services, and quality education. Limited purchasing power causes poor families to tend to consume foods with low nutritional content but high calories, which ultimately contributes to chronic malnutrition. Children growing up in these conditions are at risk of stunting, which not only impacts physical growth but also hinders cognitive development, learning ability, and future competitiveness. Thus, nutritional inequality plays a direct role in shaping the quality of Indonesia's human resources.

The impact of nutritional inequality on human resource quality is long-term and cross-generational. Individuals who experience malnutrition during childhood tend to have lower work productivity and lower incomes as adults. This condition reinforces an intergenerational cycle of poverty, where poverty gives rise to nutritional problems, and nutritional problems ultimately perpetuate poverty. This cycle is a major obstacle to achieving sustainable and equitable national development. From a national development perspective, the quality of human resources is the primary capital for driving economic growth, innovation, and national competitiveness. Unoptimally addressed nutritional inequality and poverty have the potential to reduce the effectiveness of investments in education and health, as well as weaken the state's capacity to achieve long-term development goals. Furthermore, this inequality also increases the state's fiscal burden due to high health costs and low labor productivity.

Therefore, efforts to address nutritional inequality and poverty need to be positioned as an integral part of sustainable development strategies. The Inclusive Green Development approach emphasizes the importance of development that is oriented not only towards economic growth, but also towards equitable distribution of welfare and environmental sustainability. In this context, nutrition policies integrated with poverty alleviation and human resource development are crucial to ensure that the benefits of development can be felt by all levels of society. Thus, the conditions of nutritional inequality and poverty in Indonesia are not only health and social issues, but also strategic issues that determine the quality of human resources and the sustainability of national development. This issue serves as an important foundation for this research to examine the role of the Free Nutritious Meal Program as a public policy instrument that has the potential to break the cycle of poverty and nutritional inequality, while supporting inclusive and sustainable human development.

Nutritional inequality and poverty are interrelated, multidimensional issues that have serious implications for the quality of human resources (HR) and the sustainability of national development in Indonesia. According to Ayuningtyas et al. (2022), there are significant geographic and socioeconomic disparities in the prevalence of malnutrition, including stunting, across Indonesia, reflecting unequal access to nutritious food and basic health services. This disparity is evident not only between provinces but also between economic groups, with poor households tending to have a higher prevalence of malnutrition than higher-income groups. Bima (2025) similarly emphasized that the high prevalence of stunting in Indonesia is an indicator of chronic malnutrition rooted in long-term inadequate nutritional intake, particularly during a child's first 1,000 days of life. This stunting directly impacts children's cognitive development and learning capacity, which in turn impacts the work productivity and competitiveness of the younger generation as part of the national human resource.

Furthermore, research by Kustanto, Ramadhanti, and Tanjung (2024) shows that economic inequality, including structural poverty, is a major determinant of stunting, as families with limited economic resources have limited access to nutritious food and other basic services. Malnutrition due to these socioeconomic factors makes children more vulnerable to long-term health problems and hinders their ability to reach their full physical and cognitive potential. This relevance is reinforced by research by Harahap (2024), which shows that the implementation of the green economy concept significantly increases the income of MSMEs, both directly and through digital literacy as a mediating variable. These findings confirm that the quality of human resources, particularly in the form of digital literacy, plays a crucial role in optimizing the economic benefits of implementing green economy principles. MSMEs with better human resource capacity are more likely to adopt sustainable business practices, utilize digital technology, and sustainably increase income.

Based on the findings of Hastuti Handayani Harahap *et al.* (2025), the role of green technology innovation is a key element in bridging environmental policies with the direction of sustainable economic development. The results of this study indicate that green technology innovation has a significant and direct influence on national economic policy, even stronger than the influence of green policy itself. In the context of nutritional inequality and poverty still facing Indonesia, this finding is relevant because green technology innovation not only impacts economic efficiency and environmental protection, but also has the potential to improve the quality of human resources through the creation of green jobs, increased productivity of MSMEs, and access to technology that supports community welfare. Thus, strengthening green technology innovation can be a structural strategy to indirectly address poverty and nutrition issues, through inclusive and sustainable economic growth, while ensuring that national development policies are oriented not only toward growth, but also toward improving the quality of life and the competitiveness of Indonesia's human resources (Harahap *et al.*, 2025).

Thus, the persistent nutritional inequality and poverty in Indonesia have the potential to become serious obstacles to strengthening MSMEs and successfully implementing a green economy at the local level. The low quality of human resources due to nutritional issues and poverty can reduce the effectiveness of innovation adoption, including digital literacy, which is key to increasing MSME competitiveness. Therefore, efforts to improve nutrition and alleviate poverty should be viewed as strategic investments to strengthen human resources, support the transformation of MSMEs toward a green economy, and ensure the sustainability of national development economically, socially, and environmentally.

## **2.2 The role of the Free Nutritious Meal Program in improving the nutritional status of the community and supporting the development of quality human resources**

The Free Nutritious Meal Program (MBG) plays a strategic role in improving the nutritional status of the community, particularly vulnerable groups such as school-age children, pregnant women, and low-income families. Inequality in access to nutritious food has been a major contributing factor to chronic nutritional problems, such as stunting, malnutrition, and anemia, which directly impact the quality of individual health and cognitive abilities. By providing free, standardized nutritious food, this program serves as a direct government intervention to ensure the fulfillment of basic nutritional needs of the community, while simultaneously breaking the intergenerational chain of poverty stemming from health and nutritional problems. From a human resource development (HRD) perspective, adequate nutrition contributes significantly to improving an individual's physical, mental, and intellectual capacity. Children who receive balanced nutrition have been shown to have better concentration levels, academic achievement, and health resilience, ultimately improving the quality of their education and future job readiness.

In the long term, this condition will produce human resources that are more productive, innovative, and adaptive to economic and technological changes. Therefore, the Free Nutritious Meals program is not only seen as a social policy, but also as an investment in human development that provides sustainable economic benefits for the country. Furthermore, the implementation of the Free Nutritious Meals Program also supports inclusive development by strengthening the role of the local economy, such as farmers, fishermen, and food MSMEs, if the program's supply chain is designed sustainably. The synergy between nutrition policies, human resource development, and strengthening the local economy is in line with the principles of sustainable development, where improving community welfare is carried out without neglecting social and economic aspects. Thus, the Free Nutritious Meals Program becomes a policy instrument that not only improves the nutritional status of the community but also strengthens the foundation of the quality of Indonesia's human resources as a key asset in realizing competitive and sustainable national development.

According to Agustini (2024), the MBG program in Indonesia plays a strategic role in improving community nutrition and increasing student attendance and concentration, which are the main foundations for developing the quality of human resources (HR). By providing nutritious food in the school environment, this intervention not only reduces the risk of malnutrition such as stunting and anemia, but also reduces the economic burden on families in meeting daily nutritional needs, thus providing space for improving children's learning outcomes and cognitive capacity. Systematic research by Mowilos *et al.* (2023) shows that the free nutritious meal policy has a positive impact on children's nutritional status, reducing stunting rates, and increasing student engagement in school, while also providing economic benefits for families through reduced spending on nutritious food. The implementation of this program even has the potential to empower local food businesses in providing nutritious menus, thereby supporting economic growth at the community level.

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From a public health perspective, Widyadhana and Putry (2025) state that the MBG is a national-scale food intervention designed to reduce the prevalence of malnutrition and stunting and improve the nutritional status of various beneficiary groups, including school children and pregnant women. This approach is expected to create a healthier and better-quality generation through nutritional intake that meets physical needs and cognitive development, which are important aspects in developing superior human resources. Furthermore, Putri and Wiji Utami (2025) in a policy study showed that the implementation of the MBG also has an impact on improving the welfare of the poor, because more adequate access to nutritious food contributes to household food security and reduces the risk of malnutrition severity in vulnerable communities. Thus, this program is not only related to health and education aspects, but also contributes to the synergy between inclusive social and economic development.

Research by Harahap, Rajagukguk, and Arifin (2024) confirms that green financing plays a strategic role in encouraging the implementation of a green economy in the Micro, Small, and Medium Enterprises (MSMEs) sector, particularly through the strengthening of environmentally friendly products as a mediating variable. The results of the PLS-SEM analysis indicate that MSME access to green financing not only directly influences green economy practices but also significantly improves the ability of business actors to produce more environmentally friendly products, ultimately strengthening the implementation of a sustainable green economy. These findings indicate that environmentally oriented financing support can encourage the transformation of MSME production processes towards resource efficiency, reducing environmental impacts, and increasing business competitiveness. Thus, green financing functions as an economic policy instrument that not only expands financial inclusion but also accelerates the green economy transition at the local level, particularly in North Sumatra, through product innovation and sustainable business practices (Harahap *et al.*, 2024).

## 2.3 The synergy between nutrition policies, human resource development, and poverty alleviation can be realized through the Free Nutritious Meal Program.

The synergy between nutrition policies, human resource development (HRD), and poverty alleviation can be concretely realized through the implementation of the Free Nutritious Meals Program (MBG) as an integrative, cross-sectoral policy. This program not only focuses on meeting the community's basic nutritional needs but also serves as a strategic instrument for improving the quality of health and human capacity from an early age. Adequate nutrition directly contributes to increased cognitive abilities, physical endurance, and individual productivity, which are the main foundations for developing superior and competitive human resources. Thus, nutrition policies through the MBG serve as a long-term investment in sustainable human development. Furthermore, the Free Nutritious Meals Program has significant implications for poverty alleviation efforts, particularly structural and intergenerational poverty. By reducing the burden of expenditure on nutritious food for poor households, this program increases family purchasing power and allows for the allocation of resources for education and other health needs.

This indirect impact strengthens the socio-economic resilience of poor communities and opens up opportunities for sustainable improvements in their quality of life. Furthermore, children from underprivileged families who receive optimal nutrition have a greater chance of achieving better educational outcomes, ultimately increasing social mobility and future employment opportunities. This policy synergy is further strengthened when the Free Nutritional Meals Program is integrated with local economic strengthening and sustainable development principles. The involvement of farmers, fishermen, and food micro, small, and medium enterprises (MSMEs) as suppliers of raw materials and services in the program's supply chain not only ensures the continued provision of nutritious food but also creates jobs and increases community incomes. With this approach, the Free Nutritional Meals Program (MBG) is not merely a social assistance program but also a policy ecosystem that simultaneously connects nutrition improvement, human resource development, and poverty alleviation. Therefore, the Free Nutritional Meals Program has the potential to become an inclusive policy model capable of promoting equitable, competitive, and sustainable national development.

Synergy between nutrition policies, human resource development (HRD), and poverty alleviation is a cross-sectoral approach that is crucial for inclusive and sustainable national development efforts. According to UNICEF (2024), combining nutrition interventions with social protection networks such as nutritious food programs and social assistance can simultaneously address the often mutually reinforcing issues of malnutrition and poverty, by creating a program framework that simultaneously improves nutritional status and reduces the economic vulnerability of poor families. In this context, the Free Nutritious Meal Program (MBG) is a concrete example of this policy synergy. As stated by the Coordinating Ministry for Human Development and Culture of

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the Republic of Indonesia, the MBG is designed as a comprehensive policy that not only focuses on meeting the community's nutritional needs but also contributes to improving the quality of human resources and family welfare in general. This program involves multisector collaboration to integrate aspects of health, education, local economic empowerment, and social protection, to ensure equitable access to nutritious food and the sustainability of human resource development achievements.

Various studies conducted by Harahap and colleagues consistently show that the implementation of management policies, human resources, and green economic practices significantly contribute to improving organizational performance, business competitiveness, and sustainable development. A study by Harahap (2023) confirmed that clear job descriptions supported by a fair compensation system can improve employee performance, while research by Rajagukguk, Arifin, and Harahap (2025) showed that Green Human Resources (Green HR) and an environmentally friendly work environment positively influence job satisfaction in the eco-friendly hospitality sector. Furthermore, Harahap, Rajagukguk, and Arifin (2025) demonstrated that green policies and environmentally friendly supply chain management enhance a company's competitive advantage through the adoption of green technology. These findings are reinforced by research by Harahap *et al.* (2024; 2025) which emphasizes the importance of green financing, green leadership, and green and blue technology innovation in promoting a green and circular economy. In the MSME sector, Harahap (2024) demonstrated that the implementation of a green economy concept mediated by digital literacy can increase business revenues, while Arifin, Harahap, and Rajagukguk (2024; 2025) emphasized the role of green marketing, product innovation, and digital marketing in improving consumer loyalty and business performance. Overall, this series of studies confirms that the integration of green policies, human resource management, technological innovation, and financing support is a crucial foundation for driving organizational performance, community well-being, and sustainable economic development in Indonesia.

## **2.4 The Free Nutritious Meal Program can be optimized as an Inclusive Green Development strategy that takes into account social, economic, and environmental aspects in an integrated manner.**

The Free Nutritious Meal Program (MBG) has great potential to be optimized as an Inclusive Green Development strategy because it is able to integrate social, economic, and environmental dimensions in an integrated manner within a single public policy. From a social aspect, MBG ensures access to nutritious food for vulnerable groups such as school-age children, pregnant women, and low-income families, thereby contributing directly to improving the nutritional status, health, and quality of life of the community. This equitable fulfillment of nutritional needs strengthens the principle of inclusiveness in development, as it ensures that all levels of society receive the benefits of development without exception, especially those who have been marginalized due to economic limitations. From an economic perspective, optimizing the Free Nutritious Meal Program can encourage local economic growth and poverty alleviation if the food supply chain is designed sustainably and favors small businesses. The involvement of local farmers, fishermen, cooperatives, and food MSMEs as providers of raw materials and distribution services not only ensures the availability of nutritious food but also creates jobs, increases community income, and strengthens the regional economy. Thus, MBG functions as an economic multiplier that can link social policies with inclusive economic development, in line with the principles of a green economy that emphasizes resource efficiency and shared prosperity.

Meanwhile, from an environmental perspective, the Free Nutritional Meal Program can be directed to support environmentally friendly practices through the use of local food ingredients, reducing the carbon footprint of distribution, implementing sustainable agriculture, and managing food waste responsibly. The use of environmentally friendly packaging and reducing food waste in program implementation are also important components of maintaining ecosystem sustainability. Integrating these environmental aspects makes the Free Nutritional Meal Program not just a nutrition fulfillment program but also an instrument for transitioning to sustainable consumption and production patterns. By simultaneously integrating social, economic, and environmental aspects, the Free Nutritional Meal Program can be positioned as a policy strategy supporting Inclusive Green Development, namely development that pursues not only economic growth but also social justice and environmental sustainability. Optimizing this program requires cross-sector synergy, transparent governance, and long-term policy innovation. If implemented consistently and sustainably, the Free Nutritional Meal Program has the potential to become a model for inclusive green development that can strengthen the quality of human resources, reduce poverty, and maintain environmental sustainability simultaneously.



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The Free Nutritional Meals (FBM) Program can be optimized as an Inclusive Green Development strategy because it integrates social, economic, and environmental development goals within a mutually reinforcing policy framework. According to the UNDP (2023), the concept of inclusive green development emphasizes that sustainable development must ensure environmentally friendly economic growth while providing tangible benefits to vulnerable groups, particularly through increased access to basic services such as food, health, and education. In this context, the FBM serves as a social instrument that guarantees the community's basic right to nutritious food, thus contributing directly to improving the welfare and quality of life of the poor and vulnerable groups. From a social and human resource development perspective, the World Bank (2021) emphasizes that investing in child nutrition is one of the most effective interventions for improving human capital, as it directly impacts cognitive development, long-term health, and future workforce productivity. The FBM Program, primarily targeting school-age children and vulnerable groups, aligns with this view because it can improve nutritional status while enhancing the learning abilities and work readiness of the younger generation. Thus, the FBM is not simply a social assistance program, but a strategic investment in inclusive and sustainable human resource development.

From an inclusive economic perspective, the OECD (2022) states that green economy-based public policies will be more effective if designed to create local economic linkages, particularly by involving small businesses, local farmers, and MSMEs in the supply chain. Optimizing the Free Nutritional Meal Program through the use of local food ingredients and the involvement of food MSMEs can create an economic multiplier effect, increasing community incomes, and reducing economic inequality between regions. With this approach, the MBG contributes to structural poverty alleviation, not only through consumption assistance but also by creating sustainable economic opportunities. Meanwhile, from an environmental perspective, the FAO (2022) emphasizes that a sustainable food system must prioritize resource efficiency, reducing food waste, and environmentally friendly production practices to mitigate the impacts of climate change. The Free Nutritional Meal Program can be directed to support these goals through the use of local food ingredients, reducing emissions from the distribution chain, implementing environmentally friendly packaging, and managing food waste responsibly.

Thus, the MBG not only supports food security but also contributes to environmental protection and ecosystem sustainability. Based on the views of these experts, it can be concluded that the Free Nutritious Meal Program has great potential to be optimized as an Inclusive Green Development strategy if designed holistically and across sectors. The integration of social aspects (nutrition fulfillment and equitable access), economic (local economic empowerment and poverty alleviation), and environmental (sustainable food systems) makes the MBG a development policy model that is not only responsive to short-term problems, but also oriented towards the long-term sustainability of Indonesia's national development.

## 2.5 What factors are the challenges and opportunities in implementing the Free Nutritious Meal Program so that it can provide a sustainable impact on human development and the green economy in Indonesia?

The implementation of the Free Nutritious Meals (MBG) Program as an instrument for human development and a green economy in Indonesia faces various structural challenges while simultaneously opening up significant strategic opportunities. In terms of challenges, one of the main issues is the readiness of governance and institutional capacity at the central and regional levels. Cross-sectoral coordination across health, education, agriculture, the environment, and social sectors is often suboptimal, potentially leading to overlapping policies and implementation inefficiencies. Furthermore, sustainable funding is a crucial challenge, given the program's vast scale and the substantial budget required to ensure nutritional quality, equitable distribution, and consistent oversight. Other challenges relate to the food supply chain and environmental quality.

The availability of stable, safe, and affordable nutritious food remains a challenge, particularly in remote and island regions. If not designed with sustainability principles in mind, MBG implementation has the potential to increase the carbon footprint of food distribution and create food waste. Furthermore, differences in social, cultural, and geographic conditions across regions require an adaptive approach to ensure nutritional menus are tailored to local needs and acceptable to the community. On the other hand, the Free Nutritious Meal Program also presents significant opportunities to promote sustainable human development. Consistent nutritional provision from an early age has the potential to improve health quality, learning ability, and future workforce productivity. These long-term impacts make the Free Nutritious Meal Program a strategic investment in developing high-quality and competitive human resources. Furthermore, the Free Nutritious Meal Program can serve as an instrument for poverty alleviation by reducing the burden of expenditure on poor households and increasing intergenerational social mobility. From a green economy perspective, key opportunities lie in

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strengthening local economies and sustainable production practices. Involving local farmers, fishermen, cooperatives, and food MSMEs in the Free Nutritious Meal Program supply chain can create green jobs, increase community incomes, and encourage the adoption of environmentally friendly agricultural practices. The use of local food ingredients and efficient waste management also have the potential to reduce the program's overall environmental impact. With the support of technological innovation, distribution digitization, and a transparent monitoring system, the Free Nutritious Meal Program can be a catalyst for the transition to an inclusive and sustainable food system.

Thus, the success of the Free Nutritional Meals Program in providing a sustainable impact on human development and the green economy in Indonesia depends heavily on the ability of the government and stakeholders to manage challenges while maximizing existing opportunities. An integrative, data-driven, and long-term policy approach is key to ensuring that the Free Nutritional Meals Program (MBG) is not merely a short-term social assistance program but also serves as the foundation for inclusive, sustainable, and environmentally friendly national development. The implementation of the Free Nutritional Meals Program (MBG) in Indonesia faces several structural and operational challenges that need to be addressed for the program to generate a sustainable impact on human development and the green economy. According to Agustini (2025), one of the main challenges in implementing the MBG is the inconsistency of menu nutritional standards, unequal food distribution, and weak coordination among stakeholders. These three issues can hinder the program's effectiveness in achieving its targets of reducing malnutrition and improving public health comprehensively, especially in remote areas and poor communities that are most in need of nutrition interventions.

Furthermore, challenges within the cultural and social context also need to be addressed. As revealed in an opinion study by Rahman (2025), Indonesia, with its diverse cultures and culinary customs, faces complex multicultural challenges in developing MBG menus that are acceptable to all communities. Differences in traditional food preferences between regions can influence the acceptability of the provided nutritional menus, which, if not addressed, can lead to low participation and program effectiveness. From a policy perspective, cross-sectoral coordination is another important challenge. Effective nutrition programs require synergy between the health, education, agriculture, and local economic sectors, as well as the support of a robust monitoring and evaluation system to ensure continuous service quality. Without strong coordination, programs can potentially experience duplication of resources or gaps in implementation on the ground.

Despite these challenges, significant opportunities also exist in developing the MBG as a sustainable development instrument. Agustini (2025) emphasized that the MBG has positive contributions to the education sector, such as increasing student attendance, learning concentration, and academic achievement, ultimately strengthening the development of quality human resources. Furthermore, local economic opportunities arise when the program empowers MSMEs and local food producers as suppliers of nutritious food ingredients, which can stimulate green economic growth at the community level. Furthermore, effective public communication opportunities are also crucial for the program's sustainability. The National Nutrition Agency (BGN) has prepared incentives for regional implementers to produce positive content about the MBG on social media, an effort that demonstrates that a strong communication strategy can help counter misinformation and increase public trust in the program. By understanding these challenges and opportunities, the MBG implementation strategy can be designed more comprehensively and contextually, so that it not only meets the basic goal of community nutrition but also strengthens local economic resilience, supports the development of superior human resources, and becomes an integral part of the transition to an inclusive and environmentally friendly economy.

## 3. Conclusion

Based on the analysis and discussion, it can be concluded that the Free Nutritional Meal Program (PMBG) is a strategic policy that plays a crucial role in improving the nutritional status of the community and supporting the development of quality human resources in Indonesia. Adequate nutrition from an early age has been shown to contribute to improved health, cognitive abilities, and individual productivity, which ultimately positively impacts national competitiveness. Furthermore, PMBG also serves as a poverty alleviation instrument by reducing the burden of expenditure on poor households and creating economic opportunities for local businesses, particularly MSMEs in the food and agricultural sectors. This study also shows that synergy between nutrition policies, human resource development, and poverty alleviation can be effectively realized through the integrated implementation of the Free Nutritional Meal Program (PMBG). When designed with environmental sustainability principles in mind, such as the use of local and environmentally friendly food ingredients, PMBG has the potential to become part of an inclusive green development strategy that addresses social, economic, and environmental

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aspects in an integrated manner. However, the program's success depends heavily on the government's ability to address various implementation challenges, including cross-sectoral coordination, sustainable financing, and monitoring of nutritional and environmental quality. Therefore, optimizing the Free Nutritional Meal Program requires long-term policy commitment, institutional strengthening, and collaboration between the government, communities, and the private sector. If managed effectively and sustainably, PMBG can be a crucial foundation for realizing inclusive, equitable, and environmentally sound human development in Indonesia.

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