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### Reconnection of Food Policy, Environmental Ecosystem and Its Impact on Stunting Prevalence

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**Abstract:** The increasing incidence of stunting in children is a big challenge for Indonesia as a whole. The Global Nutrition Report in 2018 showed that Indonesia's stunting prevalence was ranked 108th out of 132 countries, while in Southeast Asia, Indonesia's stunting prevalence was the second highest after Cambodia. This problem is related to the role of food policy, whose implementation has not been under what is written. In addition, the influence of ecosystems plays a crucial role, so it is necessary to restore the function of food policies to optimize environmental ecosystems. This study analyzes the reconnection of food policies, environmental

ecosystems, and their impact on stunting prevalence. This is related to the existence of humans as social beings in different lives, and their distribution on earth has a long relationship with the existence and sustainability of environmental ecosystems. This relationship, in many ways, gives rise to inevitable consequences for environmental ecosystems, such as the need for food. The number of these basic needs is increasing from year to year. Food production is closely related to land use for agriculture, food, energy, and water. Therefore, quality food will support the fulfillment of the community's nutritional needs and contribute to preventing stunting

prevalence. By re-analyzing, the function of this relationship, a map of stunting prevention policies will be obtained.

**Keywords:** reconnection, food policy, environmental ecosystem, stunting

### Introduction

The existence of humans as social beings in different lives and their distribution on earth has a long relationship with the existence and sustainability of environmental ecosystems. This relationship, in many ways, gives rise to inevitable consequences for environmental ecosystems. On the one hand, the existence of humans in their various lives builds civilization through knowledge and technology that is created continuously from time to time to meet their needs. Through the knowledge and technology created, humans then explore natural resources continuously in different lives. In this case, the utilization of natural resources and the environment becomes the primary goal.

On the other hand, this phenomenon has caused consequences for the environment. Even the existence of humans in various lives has caused damage to nature and the environment, for example, can be seen from the food problem. Why is that? Food is a basic need for human existence in different lives. The number of these basic needs is increasing from year to year. Food production is closely related to land use for agriculture, food, energy, and water. Land use for agriculture continues to increase in line with population growth—the need for agricultural land for food followed by pressure to clear forests for agricultural land. Meanwhile, food production also creates a higher demand for water and energy use. Traditional energy production requires water resources that are needed by agriculture to provide a potential energy source.

Likewise, food policies have so far been very supportive of increasing food production. For example, through a food security policy, the Indonesian government has developed various fertilizer subsidies, assistance for high-yielding varieties to achieve the policy objectives. In addition, rice import policies were also implemented, the latest

of which was the food estate policy. Functionally, this policy is vital to meet the food needs of the population. However, its implementation is still limited and controversial. Food policy problems are often trapped in the dichotomy of food and a disturbing environmental system. Optimization of food production often does not pay attention to the carrying capacity of the environment. Food and the environment are part of the sustainable development process. Food security policies should also be able to ensure the sustainability of environmental ecosystems.

The policy of increasing food production has, from time to time, had a significant impact on the environment. The use of water on agricultural land has caused environmental pollution. Because the water used to grow crops has been polluted by agricultural pollutants. Groundwater supplies are contaminated with things like nitrogen and phosphorus that are commonly used in modern agriculture [1]. Not only that, food production in several aspects of the food cycle, including food production and distribution, has increased greenhouse gas emissions [2]. Furthermore, the environment polluted by the environment also affects the quality of food nutrition which is an essential part of the body's growth and development. The correlation of food's functional interaction makes the environment an essential part of stunting prevention policies. Conceptually stunting is associated with malnutrition, lack of food intake (in the first 1000 days), and disease. This problem in the literature is caused by limitations in access to food, health services, and environmental hygiene. This problem is also related to individual behavior, household, socioeconomic status.

However, in the environmental aspect, it is seen more from water and sanitation issues. This proves that environmental problems concerning the prevalence of stunting have not been widely discussed. For example, through the framework of functional relationships of food production, environmental ecosystems are related to the availability of quality food needed by the body as the primary nutrient supplier. Clean food and a clean environment can ensure the availability of quality

nutritious food sustainably in various aspects such as human food and nutrition, including hunger and malnutrition, micronutrient deficiencies, food per person, diet composition, and obesity. In this context, the problem of fulfilling human nutrition begins to be felt. Although, until now, nutritional problems are still considered a health problem, food production problems that damage environmental ecosystems are not usually considered a minor problem. Because it has a long-term impact on sustainable development, this is at least the most basic framework of relationships in the discussion of this paper. This is the main focus of the discussion of this article.

## METHODS

This research uses a qualitative approach. The data collection technique is done through literature studies from previous studies.

## RESULTS AND DISCUSSION

### Optimizing food production and its impact on environmental ecosystems

Within the framework of optimizing food production, it has significantly impacted the environment in many ways. For example, the use of chemical fertilizers harms the environment, especially on water. This is the result of a prolonged interaction in the history of humanity. The development of agriculture in thousands of years followed by advances in agricultural technology driven by increased community population has affected the global ecosystem. On the one hand, this development was made possible by the influence of the industrial revolution, which created advanced civilization and social systems. On the other hand, through various policies on optimizing food production, most of the functional activities in agriculture have used synthetic fertilizers, pesticides, and superior plant varieties, which have left global problems that threaten human life [3].

A critical part of human existence in meeting their food needs is how to provide food needs that are increasing every year. This phenomenon requires the availability of food land, which is expected to continue to expand as the population increases. Land expansion like this can be considered functional as long as it is carried out to meet food needs. As long

as it functions as a provider of food production, the land is also considered functional from the availability of land. The problem is how the two functional relationships in meeting human needs can initiate sustainable development in preventing environmental damage. The functional relationship as above may have different consequences. For example, the significant and ever-increasing need for food is often faced with limited land availability. In this context, the available alternative is to add new land by opening new land designated for agricultural, plantation, and livestock activities. This activity will continue over time as the population increases.

However, clearing several lands for agriculture has resulted in another consequence, namely a reduction in the amount of forest (deforestation). Then in the long term, agricultural, plantation, and livestock activities lead to increasing other consequences in the form of environmental damage. The use of fertilizers and other chemicals mixed in agricultural, plantation, and livestock activities has caused pollution of the surrounding environment for many years throughout human life. Under these conditions, natural resources such as water, air, and other ecosystems are continuously carried out to optimize food production. Groundwater seepage due to fertilizers flows into rivers or lakes that threaten the river or lake ecosystem. The use of freshwater that is not controlled and followed by the intensity of farmers also causes a decrease in nutrients. This is what causes the reduced ability of nature to manage its ecosystem. The food production system developed so far has caused damage to the physical environment [4]. Then what is the contribution of this functional activity to the incidence of stunting prevalence?

Based on the description above, it can be understood that when nature is no longer able to manage its ecosystem, there are many opportunities for contamination risk to the quality and health of the food produced. Moreover, most of the population is highly dependent on agricultural products [5].

### Food policy and its impact on stunting

Theoretically, nutritional problems have been associated with a biological science approach

centered on biochemistry, physiology, and medicine. It is concerned with the interaction of food and other nutrition sources and the human body's physiological, metabolic, and genomic systems [6]. However, when nutrition problems are linked to fulfilling individual and community welfare, the impact becomes wider, touching social, economic, political, and humanitarian issues. As a result, its disciplinary scope also broadens. For example, public policy, either locally, nationally, or internationally. When nutrition problems are associated with food production problems, environmental considerations are crucial because the environment is the primary medium for producing food. Policy choices on the types of food consumed by individuals and communities determine health and environmental sustainability [7]. The relationship between environmental pollution and nutritional status is complex [8]. Likewise, food policy influences diet, human health, and other aspects, including economic growth, the resilience of natural and environmental resources, and socio-cultural factors, [9, 10] farmers' political orientation and response to the policy [11]. Thus, in particular, the relationship between the two is primarily determined through specific policy approaches made by the government.

In practice, the above food production and environmental ecosystem policies are functional. The function of both is to support each other in meeting the food needs of humans whose population continues to increase. On the one hand, food security is the main policy agenda. The demand for food increases with population growth and wealth to buy more varied foods and use resources. The implication is that there is an increase in competition for land, water, energy, and others in food production through the policy. Not only that, but all three are closely related: food production requires water and energy; traditional energy production demands water resources; agriculture provides a potential source of energy. [12, 13] As a result of this functional relationship of food production and environmental ecosystems runoff of agricultural pollutants, groundwater supplies can be contaminated by nitrogen and phosphorus, commonly used in modern

agricultural practices. Within the framework of this functional relationship, the policy has an important role that functions as a mechanism to solve the problem of food fulfillment that supports the fulfillment of population nutrition and ensures the balance of food and the environmental ecosystem itself.

### **Reconnection of food, environment, and stunting policy**

It is essential to put back the framework of the relationship between the functional activities of food production, environmental ecosystems, and fulfilling human nutrition. Functional activities of food production do not always have to be placed in a face-to-face situation. However, both have an ongoing relationship supporting and supporting the needs of humans and residents of a region. Food production activities must still be carried out, but paying attention to the carrying capacity of an area is still considered and considered so that the environment can manage its ecosystem. When nature can manage its ecosystem, then the quality of healthy and nutritious food can be fulfilled as part of the action to prevent hunger and malnutrition. Likewise, the government has a big responsibility in making policies that can ensure this functional relationship lasts sustainably in the long term.

The environment is an important food production medium. However, it has a limited carrying capacity, both in terms of quantity and quality. Meanwhile, the number and level of the human need for food always increase every year following the population. Fundamentally, food production policies cannot be separated from the existence of environmental ecosystems. However, the increasing human population and increasing demands on agriculture often impact how basic human needs are met. If there is no balance, it will impact the need for healthy food for the quality of human life. Thus, in implementing food policy, these three elements must be viewed in a position that has the same fundamental function. Food policy must guarantee the socio-ecological dimension of harmonization of food security and conservation of biodiversity [20]. If policies only focus on food production and do not consider other factors from the environment,

diversity and sustainability will impact availability. Likewise, the limited availability of food will affect access to the nutrients needed for stunting prevention.

## CONCLUSION

Reconnecting food policies, environmental ecosystems, and stunting policies aims to restore the essence of food policies, environmental sustainability, and specific actions implemented to prevent stunting prevalence. Food policy cannot be separated from the existence of environmental ecosystems. The policy functions to regulate the mechanism for increasing food production according to needs. Meanwhile, the environment and its ecosystem function to provide space as a place for food production. This functional relationship can encourage the birth of equitable policies, biodiversity, and sustainable development by re-understanding. If the policy can carry out this primary function, the results can be used to improve the population's health status through healthy and quality food. The expected impact is the fulfillment of population nutrition from food and a healthy environment in preventing stunting prevalence.

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