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# Food Security in a Changing World: Navigating Health and Environmental Challenges

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**ABSTRACT:** Food security, health, and the environment are three pillars that sustain human life and well-being. As the world faces increasing environmental challenges, such as climate change, resource depletion, and biodiversity loss, the interconnectedness of these three areas has never been more evident. Food security, defined as the ability to access sufficient, nutritious food, is directly affected by the state of the environment. Unsustainable agricultural practices contribute to soil degradation, water scarcity, and loss of biodiversity, which in turn jeopardize food production. At the same time, the global rise in non-communicable diseases such as obesity, diabetes, and cardiovascular issues highlights the critical link between food security and public health.

This thesis explores the complex relationship between food security, health, and environmental sustainability. It presents an integrated perspective on how food systems can be reimagined to promote human well-being while safeguarding environmental integrity. By reviewing current agricultural practices, policies, and health interventions, this paper identifies key challenges and offers actionable recommendations to create a resilient, sustainable food system that supports both human health and environmental health. Through a balanced approach, that prioritizes nutrition, ecological conservation, and sustainable agricultural practices, a more secure and healthy future can be achieved for all.

**KEYWORDS:** Sustainable agriculture, health systems, food security, climate change, environmental conservation, nutrition, ecosystem resilience, public health, policy integration.

## I. INTRODUCTION

The global challenges of food insecurity, environmental degradation, and deteriorating public health are all deeply interconnected. As the world grapples with the impacts of climate change and environmental stress, food systems face increasing pressures that undermine the ability to meet global nutritional needs. Furthermore, the rising prevalence of diet-related diseases, compounded by environmental destruction, is leading to a health crisis. It is within this context that food security—ensuring access to adequate, nutritious food is threatened not only by economic and political factors but also by unsustainable environmental practices. This paper aims to examine the intersection of these issues and explore innovative solutions that integrate food security, health, and environmental sustainability.

## II. LITERATURE REVIEW

### 1. The Role of Agriculture in Food Security and Environmental Sustainability

Food security is inextricably linked to the health of ecosystems. Studies by the World Resources Institute (2018) demonstrate that agricultural intensification has led to deforestation, water depletion, and soil erosion, all of which degrade the environment and reduce food availability. Conversely, sustainable farming practices, such as agro ecology and crop diversification, have shown promise in enhancing both food security and environmental health. According to Rockström et al. (2009), these practices increase soil fertility, improve water retention, and reduce carbon emissions, ensuring long-term food security while maintaining ecological balance.

### 2. Health Impacts of Poor Diets and Food Systems

Poor diets and food insecurity are major contributors to the rise in non-communicable diseases (NCDs). The WHO (2020) reports that poor nutrition is responsible for an increasing number of health issues, particularly in low-income countries. Lack of access to diverse, nutritious food sources leads to malnutrition, obesity, and related diseases. Furthermore, environmental factors, such as contaminated water and degraded land, exacerbate the challenges faced by vulnerable populations.



### 3. Climate Change and Its Effect on Food Security

The effects of climate change on food production are undeniable. FAO (2016) projects that rising temperatures, altered precipitation patterns, and more frequent extreme weather events will decrease crop yields and disrupt food systems globally. As the environment changes, so too will the ability of ecosystems to support agriculture, highlighting the importance of mitigating environmental harm to ensure food security.

### III. DISCUSSION

The discussion delves into how food systems can be transformed to address the twin challenges of food security and environmental degradation. Key themes include:

- **Sustainable Agriculture:** Exploring agro ecological practices, permaculture, and regenerative farming methods that improve soil health, increase biodiversity, and reduce the carbon footprint of food production.
- **Healthier Food Systems:** Focusing on improving access to nutritious, diverse diets and reducing the reliance on processed, calorie-dense foods that contribute to health problems.
- **Policy Integration:** Advocating for policy reforms that support integrated approaches to food security, public health, and environmental protection.

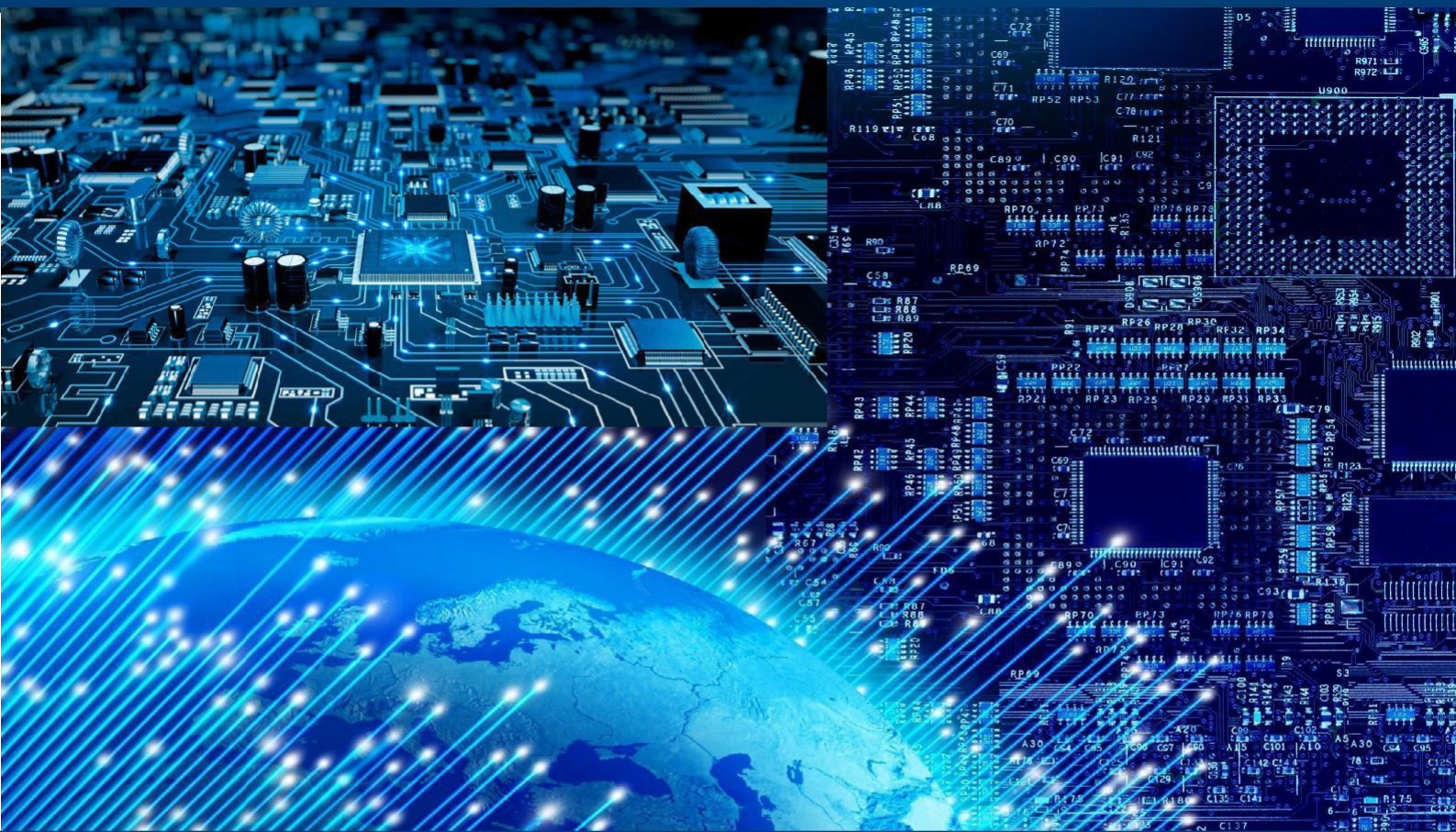
Innovative models like the Food Systems Summit 2021 and the One Health approach offer frameworks for integrating these areas and ensuring long-term sustainability.

### IV. CONCLUSION

The path to food security, improved health, and environmental sustainability lies in the integration of sustainable agricultural practices, public health initiatives, and environmental conservation strategies. A holistic approach that considers the intersection of food systems, human health, and ecosystems is crucial for ensuring a sustainable and equitable future for all. By addressing the root causes of environmental degradation and promoting sustainable, nutritious food production, we can build a resilient global food system that supports both human well-being and the planet.

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