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## **Food safety as an integral part of Food Security: Addressing the governance issues and the critical role of climate change**

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This article discusses about the role of food safety and its interconnectedness with Food security. It also highlights the role of climate change and its impact on nutritional security which is one of the components of the broader human security. It also addresses the burning issue of this decade namely climate change which has a great impact on human lives especially on food production and health status are addressed from the research studies globally. The challenge of food security is to assure that all people have access to enough food to lead productive lives, but a large part of food security is assuring the food is safe from a chemical, physical or biological aspect on which the WHO has prioritized for this year theme. There is an urgent need for strengthening the existing food policies to incorporate the importance of food safety which is ignored most of the times, improving the food governance so that gender issues are addressed, public private partnerships are strengthened, encouraging the farming occupation & community organizations for food production and finally improving access to the end users.

*Copy Right, IJAR, 2015,. All rights reserved***INTRODUCTION**

“Food safety: from farm to plate, make food safe” is the theme for World Health Day campaign for the year 2015. The day focuses on demonstrating the importance of food safety along the whole length of the food chain in a globalized world, from production and transport, to preparation and consumption<sup>1</sup>. According to UN, access to a safe and secure food supply is a basic human right. Everyone needs food and needs it every day either plant sources or animal sources or both. There is an urgent need for raising the awareness of the limitations of many developing nations and those susceptible to food insecurity. The policy makers must include “safe food” as a top priority and integrating ‘food safety’ in the nutrition and food security policies and programs. The food we eat must be nutritious and safe but we often ignore or overlook the issue of food safety. Many cases of food borne diseases either acute poisoning or chronic exposure are largely under reported.

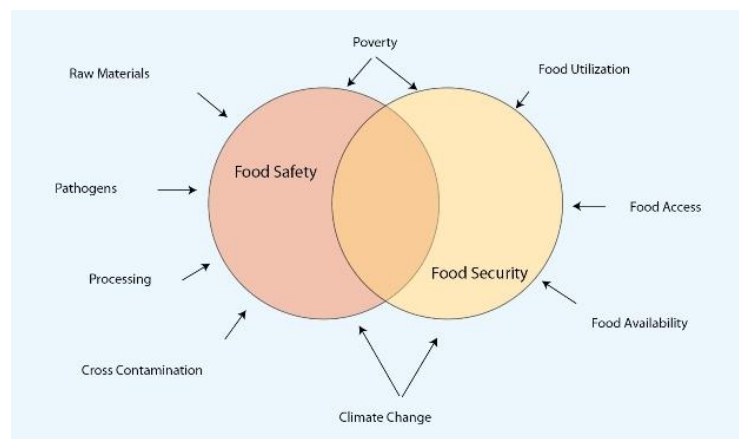
In this globalized world, though the food chain extends over thousands of miles from different continents, an error or contamination in one country can affect the health of consumers on the other part of the world. Food safety and food security are interrelated concepts which have an impact on the health outcomes and quality of human lives. To ensure full impact, these actions must build on principles of government stewardship, engagement of civil society<sup>2</sup>.

**Food safety** is an umbrella term that encompasses many aspects like food items handling, preparation and storage of food to prevent illness and injury. Diarrhoeal diseases – both foodborne and waterborne kill an estimated two million people annually, including many children in developing countries. Food contaminants, such as harmful

parasites, bacteria, viruses, prions, chemical or radioactive substances, cause more than 200 diseases – ranging from infectious diseases to cancers<sup>3</sup>. The other important issues are chemical, microphysical and microbiological aspects of food safety. Allergens which can be life threatening, Microphysical particles such as glass and metal which can be hazardous and pathogenic bacteria, viruses and toxins produced by microorganisms are all possible contaminants of food and impact food safety. Food safety can also be affected by poverty and climate change. Currently there numerous food safety standards that are present in the market which includes public vs private, costs involved in certification, different requirements for different markets (e.g. European, American etc.). But there are issues related to the costs of implementation of food safety measures and the compliance with the standards. Moreover if there is an increase in cost of food to ensure the food safety, then it becomes less affordable to poor consumers thereby leading to food insecurity<sup>4</sup>.

**Food security** is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life as per Food and Agricultural Organization (FAO)<sup>4</sup>. One in every nine people in the world still has insufficient food for an active and healthy life. Considerable efforts are therefore still needed to reach the Millennium Development Goal hunger target by 2015 especially in countries that have registered inadequate progress. Four food security dimensions can be identified in this definition namely food availability, economic and physical access to food, food utilization and stability over time. The other global factors that affect the food security are Poverty, Climate change, loss of biodiversity, dependence on fossil fuels and use of food crops as biofuels. The interrelationship between food safety and food security is shown below (Figure 1)

**Figure 1:** Interrelationship between Food safety and Food security



Source: Food Safety and Food Security. Nature Education Knowledge 3(10):9

### Climate Change and Food security:

The term climate change has been used in recent years to refer specifically to climate change caused by human activity (anthropomorphic climate change), and is often used interchangeably with the term global warming. Many studies have examined the effects of climate change on crop yield. Gregory *et al.* (1999) determined that yields of wheat and rice decreased about 5% per degree rise above 32°C.

If we look at the dimensions of the food security as mentioned above, Availability dimension captures not only the quantity but also the quality and diversity of food. The availability is influenced by food production, stockpiled food reserves and trade. Stability accounts for the reality of the individual or households losing access and becoming food insecure periodically, seasonally, temporarily or permanently. Stability of the food supply may be affected by an increase in the frequency or severity of such extreme events as cyclones, floods, hailstorms or droughts. The ability of people to use food effectively will also be impacted by climate change by increasing the possibility for water and food borne diseases. Researchers have found that common food borne illnesses such as salmonellosis show a nearly linear increase in reported cases for each degree of increase in weekly temperature. Access refers to the ability to obtain sufficient quantity and quality of food, whether through purchasing or production. Effects of climate change on food access therefore depend on income, food prices and productivity.

**Policy & Governance issues to be addressed:**

1. Governance to food and nutrition security relates to formal and informal rules and processes through which public and private actors articulate their interests, and decisions for achieving food and nutrition security (at local, regional and global levels) are made, implemented and sustained”.
2. Establishing closer collaborations between agriculture, human health, animal health, trade and tourism to prevent, control and response to foodborne diseases.
3. Climate change, water availability and global financial crisis are the major concerns for the near future and they must be addressed.
4. To achieve the MDG goal of reduction of proportion of hungry people by half, there is a need for improved global governance for helping to ensure more coordinated food security and nutrition governance at all levels; increasing the availability of high quality information for evidence-based policy making; supporting the development and implementation of policies and programs; and developing capacity at all levels.
5. Food safety needs a commitment and effort from global governance institutions for better food governance. WHO has long collaborated on several joint activities with the FAO and the World Organization for Animal Health to ensure food safety at all stages of the food chain.<sup>5</sup> At national level too, there must be such cooperation and coordination between various ministries, and institutions
6. Food safety entails other public health concerns, and antimicrobial resistance is one such concern. Resistant microorganisms entering the food chain are a significant health security threat today. Food safety needs strengthening in many countries and no country can do this alone.

**Recommendations:**

1. There is a great need for increasing the investment for national food safety systems thereby emphasizing the food safety as a public health priority.
2. Governments must be proactive to establish and improve the broader national food safety systems where the food producers and suppliers operate.
3. In this globalized world under the open trade markets as the food crosses the borders, the coordination, cooperation and communication between various ministries & departments must be improved in order to focus on food safety at each and every stage till it reaches the end users.
4. Since there is very scare data available on food borne diseases and its impact on health status, there is a great need for various methods to estimate this burden so that proper guidelines and preventive actions could be disseminated to ensure food safety.
5. Contamination at one end of the food chain can affect populations on the other side of the world. Given the interaction of multiple actors separated by vast distances and potentially delayed impacts, multi-sectoral and international cooperation is essential to ensure food safety at all stages.

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**Conflict of interest:**

The author declares that there is no conflict of interest

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