

## PROPER APPLICATION OF PHYSICAL INPUTS TO ACHIEVE THE CHALLENGE OF FOOD SECURITY

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Agriculture of any country directly involves in the food security because the objective of agriculture is to provide food and to fulfill all other life sustaining requirements. The country is considered as food secure which has good agriculture and economy. The sustainability and security of food nutrition can be possible by imparting education, awareness and all other healthy and clean life sustaining inputs. Food security is the biggest challenge for about 9 billion people live on earth which is to be resolved. The role of governance has been receiving increasing attention from food security scholars in recent years. However, in spite of the recognition that governance matters, current knowledge of food security governance is rather fragmented. To provide some clarity in the debate about the role of governance in addressing food (in)security, this paper reports the results of a systematic review of the literature. The synthesis revolves around seven recurring themes: i) the view of governance as both a challenge and solution to food security; ii) a governability that is characterized by high degrees of complexity; iii) failures of the current institutional architectures; iv) the arrival of new players at the forefront; v) calls for coherency and coordination across multiple scales; vi) variation and conflict of ideas; and vii) calls for the allocation of sufficient resources and the integration of democratic values in food security governance.

**Keywords:** Food security, pillars, effects of food insecurity, challenges, strategies and physical inputs.

### INTRODUCTION

Food security is the availability of food at all times to sustain a steady expansion of food consumption and to offset fluctuations in production and prices. It is the availability of food and one's access to it. A household is considered food secure when its occupants are not afraid of hunger or starvation. This definition was subsequently amplified by FAO to include the nutritional value and food preferences. This definition was subsequently amplified by FAO to include the nutritional value and food preferences. Thus, the definition agreed upon at the World Food Summit in 1996 is that food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for a healthy and active life. Stages of food insecurity range from food secure situations to full-scale famine. When there is availability of food and everybody has an approach to get that food which is sufficient, safe and nutritious needed to live. The traditional security paradigm focuses on military threats to sovereign states. The absence of war, however, does not equal peace and stability. Between 1990 and 2009, Kenya experienced neither interstate nor intrastate war, yet political and social violence, including election-related rioting, communal conflict and cattle raiding caused over 4,700 deaths (Salehyan *et al.*, 2011). Civil conflict and interstate war are merely the most obvious manifestations of political

violence; other types of conflict may pose similarly grave threats to human security. The Roman poet Juvenal recognized in 100 CE that the provision of "bread and circuses" was an effective mechanism for garnering public support and preventing the populace from expressing discontent. Contemporary observers note that it is not only the level of insecurity that matters but also how this insecurity is distributed. Relative deprivation, rather than absolute deprivation, generates grievances that motivate violent behavior. Thus, many of the studies linking economic grievances to conflict look at both the average level of food insecurity and at whether that food insecurity is widely experienced or concentrated in certain groups (Reenock *et al.*, 2007; Ostby, 2008). Most of the types of political violence addressed here are more prevalent in societies with higher levels of chronic food insecurity. There is a correlation between food insecurity and political conflict in part because both are symptoms of low development (Collier *et al.*, 2003). Nevertheless, a growing body of research makes both direct links and indirect links as proxied by environmental scarcity or access to water resources – between food scarcity and various types of conflict.

The causal arguments linking food insecurity to political violence lack micro-foundational evidence based on actions of individuals – to explain how the mechanism works but there are plenty of theories. The theories tend to rest either on the perspective of motivation, emphasizing the effect of food

insecurity on economic and social grievances; or on the perspective of the opportunity cost, emphasizing the perceived costs and benefits of participating in violence relative to other means of securing income or food (Gurr, 1970; Tilly, 1978; Humphreys and Weinstein, 2008; Blattman and Miguel, 2010). These arguments are most valid with respect to participation in civil war and rebellion where participation is better explained by a mixture of grievances which provide motivation – and selective incentives – protection from violence and opportunities to engage in predation or to receive food, clothing, shelter and other material benefits rather than grievances alone (Berman, 2009). A study of demobilized combatants in Sierra Leone found that poverty, lack of educational access and material rewards were associated with participation in the civil war (Humphreys and Weinstein, 2008).

Interestingly, in Liberia, women were more likely than men to fight for material benefits (Hill *et al.*, 2008). Thus, grievances are important but so are motivations related to that individual's economic and opportunistic considerations. Civil Conflict Civil conflict is the prevalent type of armed conflict in the world today. It is almost exclusively a phenomenon of countries with low levels of economic development and high levels of food insecurity. Sixty-five percent of the world's food-insecure people live in seven countries: India, China, the Democratic Republic of Congo (DRC), Bangladesh, Indonesia, Pakistan and Ethiopia (FAO, 2010), of which all but China have experienced civil conflict in the past decade, with DRC, Ethiopia, India and Pakistan currently embroiled in civil conflicts. Pinstrup-Andersen and Shimokawa (2008) find that poor health and nutrition are associated with greater probability of civil conflict, though their findings are based on small sample sizes. Countries with lower per capita caloric intake are more prone to experience civil conflict, even accounting for their levels of economic development (Sobek and Boehmer, 2009). This relationship is stronger in those states where primary commodities make up a large proportion of their export profile. Some of the countries most plagued by conflict in the past 20 years are commodity-rich countries characterized by widespread hunger. Food Insecurity as a Cause of Violence provide opportunities for rebel funding is a volatile combination. World commodity prices can trigger conflict, as higher prices, especially for food, increase affected groups' willingness to fight. Timothy Besley and Torsten Persson (2008) find that as a country's import prices increase, thereby eroding real incomes, the risk of conflict increases. Some researchers arrive at similar conclusions when looking at Colombia, where higher export prices for coffee (which is labour intensive and a source of rural income) reduced violence in coffee producing areas while higher export prices for oil (which is capital intensive and a source of income for rebels and paramilitary groups) increased violence in regions with oil reserves and pipelines. Other research links transitory weather shocks to civil conflict. In

these studies, weather shocks – like drought and excess rainfall – are thought to fuel conflict by causing crops to fail and reducing agricultural employment opportunities, thus increasing food insecurity both in terms of food availability and food access (ability to pay). The people most likely to participate in armed conflict – young men from rural areas with limited education and economic prospects – are likely to seek work in the agricultural sector. As that work dries up, fighting looks more attractive. However, the empirical link between transitory weather shocks and civil conflict is still ambiguous. Some studies find that civil conflict is more likely to begin following years of negative growth in rainfall (Miguel *et al.*, 2004; Hendrix and Glaser, 2007), suggesting that drought and decreased agricultural productivity expand the pool of potential combatants and give rise to more broadly held grievances. However, approaches that look at levels of rainfall, rather than growth in rainfall from year to year, find tenuous, or in fact positive relationships, between rainfall abundance and the onset of conflict (Burke *et al.*, 2009; Buhaug, 2010; Hendrix and Salehyan, 2010).

Some case-based research, however, links drought to conflict – though mediated by the government's response to the crisis. For example, during the Tuareg rebellion in northern Mali, drought aggravated by the government's embezzlement of drought relief supplies and food aid was a significant source of grievance that motivated young men and women to take up arms. Recently, warmer temperatures have been linked to an increase in civil conflict, though this finding has been challenged (Burke *et al.*, 2009; Buhaug, 2010). Civil war is also more likely in the aftermath of quick-onset natural disasters, such as earthquakes, major volcanic eruptions, floods, and cyclonic storms (Brancati, 2007; Nel and Righarts, 2008). The relationship between disaster and conflict is strongest in countries with high levels of inequality and slow economic growth. Food insecurity and resource scarcity are among the more plausible explanations for this correlation.

- The ready availability of nutritionally adequate and safe foods
- An assured ability to acquire acceptable foods in socially acceptable ways

**Pillars of food security:** There are three pillars of food security according to the WHO, i.e. food availability food access and utilization. Later, FAO added fourth pillar and according to World Summit on Food Security in the four pillars 2009 stated of the food security which are food availability, access, utilization and stability.

**Availability:** It is directly related to the agriculture because the growing of crops and rearing of animals are done in it. All the factors affecting on crop growth ultimately affects the availability of food. If there is a good crop growth then high will be the crop yield and ultimately food availability will also be the more in the market (Ostby,2008)). After food production or harvesting of the crop there is food distribution

which involves the processing, packaging, transport, and marketing of food. All the factors from the start of seed selection up to transport and marketing of the food products if favorable and appropriate then there is more food availability in the food and vice versa.

**Access:** It involves the price or affordability or allocation of available food. The food is available but it is being sold with high price or if anybody does not afford to buy the food or if the food is available in that area/market which is located at a distance from the intended buyer then all these possibilities to minimize or reduce the approach to available food. Causes of hunger and malnutrition are due to poverty (Colier *et al.*, 2003).

**Utilization:** The next pillar of food security is food utilization refers to the metabolism of food by individuals (Burke, 2009). When household obtains the food then there is a variety of factors that affect the quantity and quality of food that reaches members of the household. In order to achieve food security, the food ingested must be safe and must be enough to meet the physiological requirements of each individual.

**Stability:** Food stability means ability to obtain food over time. There are three types of food insecurity, i.e. the seasonal transitory and chronic. In the transitory food insecurity food may also be unavailable during periods of time. Seasonal food insecurity can result from the regular pattern of growing seasons in food production. The chronic or permanent food insecurity is the long-term, persistent in which there is found lack of adequate food.

#### **Effects of Food Insecurity:**

- Stunting and chronic nutritional deficiencies
- Many countries experience ongoing food shortages and distribution problems.
- Premature failure of vital organs during adulthood. For example, a 50-year-old individual might die of heart failure because his/her heart suffered structural defects during early development;
- Stunted individuals suffer a higher rate of disease and illness than those who have not undergone stunting;
- Severe malnutrition in early childhood often leads to defects in cognitive development. It therefore creates disparity among children who did not experience severe malnutrition and those who did.

**Challenges to achieving food security:** water deficits: if drought is occurred in any form at anywhere else the crop yield is adversely affected in that specific area due to which there is less availability of food. The water tables are falling in scores of countries (including northern China, the US, and India) due to widespread over-pumping using powerful diesel and electric pumps (Buhaug, 2010)). Level of aquifer has been dramatically reduced in some countries including Pakistan, Afghanistan and Iran.

**Land degradation:** Intensive farming reduces the fertility and productivity of the soil by growing crops season after exhaustive seasons and due to absence of soil fertility

restorative processes. This reduces the crop yield and availability of food. Approximately 40 percent of the world's agricultural land is seriously degraded (Kahriz and Kahriz, 2017).

**Climate change:** The Extreme events such as droughts and floods take place due to climate change like global warming. In our country, the some consecutive years are subjected to severe drought and the later consecutive years there is flood. These both things drastically affect the agricultural productivity (Kahriz and Kahriz, 2017).

**Agricultural diseases:** Diseases affecting livestock or crops can have devastating effects on food availability. There was huge yield reduction in the past due to the attack of stem rust in wheat. The modern breeding techniques have been developed through which the resistance against that specific disease is developed in the current varieties. In this first of all screening is done to select the more resistant wild plant then its genetic information is studied.

#### **Strategies/Recommendations:**

The policy and strategic options recommended by the United Nations System in Pakistan to reduce food insecurity are:

#### **Sustainable and efficient utilization of the natural resources**

**Land:** Land related problems like depleting soil fertility, soil erosion, water logging and salinity needs immediate attention to achieve the yield potential of the crop. The bio-diversity have to be her appearances into consideration in virgin lands where no shortage of water.

**Water:** The efficient and effective use of irrigation water is the most crucial to the future of Pakistan. It is also necessary that the government should plan for the future needs. The efficient and effective use of irrigation water is most crucial to the future of Pakistan. It is also necessary that the government should plan for the future needs. There is urgent need for the government to ensure adequate and timely availability of water for farming to enhance food production and availability. Efficient rainwater utilization in rain-fed areas can be done through better water harvesting techniques to increase the capacity of the main reservoirs should be given higher priority (Burke, 2009).

#### **Proper application of physical inputs**

**Seed:** Improved seed is one of the important factor in crop productivity enhancement

**Fertilizer:** Fertilizers should be used according to the site-specific requirements of crops. The use of organic and inorganic fertilizer needs to be encouraged in an integrated manner (Saqib *et al.*, 2017).

**Pesticides:** There is indiscriminate use of pesticides for plant protection. Integrated Pest Management should be promoted for sustainable plant protection.

**Credit:** Due to the financial limitations of the small farmers are largely dependent on credit to procure inputs excluding descenders. The existing credit procurement system is complicated and note the easy access to small farmers. There

is an immediate need to simplify such procedures. The loan excluding descenders should be broad based, and flexible enough to provide credit for variety of excluding descenders related activities (Collier *et al.*, 2003).

**Improving the nutritional aspects of food:** With balance diet the good food quality and removal of gender inequity the nutritional aspects of the food security can be enhanced. Exploring and promoting cheaper alternatives for nutritional requirement are a necessity (Reference). Ensuring the food security for household is not only related to availability but also adjunct senior fellow at the food fulfills the nutritional requirement of its consumer.

**Use of genetically modified (gm) crops:** One of the most modern and effective techniques to ensuring global food security is the use of genetically modified crops (GM). These crops have established to reduce the previously discussed problems like water crisis, changing climate and land degradation. The area sown to genetically engineered crops in developing countries is rapidly catching up with the area sown in industrial nations (Ostby, 2008)).

**Conclusion:** Household food security is of only limited value as an indicator of individual food security. Because of a high prevalence of poor sanitation and unclean water in many developing countries, its value as an indicator of individual health and however is very less. Add some detail from the proper application of physical inputs.

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