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## Research paper

## Frugality and cross-sectoral policymaking for food security

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## ABSTRACT

The growing concerns about food security, especially in the disadvantaged regions of the world, often point out the inadequacies of strictly sectoral approaches to addressing the problems of agriculture. Such policy approaches coincided with the rise of a global, top-down, formal, science-driven development of agriculture. Over time, such interventions have drawn criticism from multiple corners as inadequately addressing the need for local variation in institutional contexts. The objective of this paper is to adopt a bottom-up perspective to address the need for cross-sectorality in food security policies. Sustainable Rural Livelihood (SRL) and Grassroots Innovation (GI) are two well recognized schools of thought which emphasize the cross-sectoral approaches to livelihood and local level problem-solving. By embracing a frugality lens, we can offer a conceptual regularity in the patterns of behaviour and decision-making highlighted by the SRL and GI schools of thought. Taking a step further, the frugality lens, by focusing on the usefulness of a decision in the *actual* environment, emphasizes the need to diagnose local institutions better. Note, however, that the contention of the current paper is not to posit 'top-down' and 'bottom-up' as two competing paradigms. It only argues that a frugality lens helps us to better appreciate the strengths of a bottom-up approach for effective policy formulation, an appreciation of which would promote a dignified marriage between the two perspectives.

## 1. Introduction

Ensuring food security for the ever-growing global population remains a major concern for policy makers across the board. Indeed, agriculture has seen a major transformation in the last few decades, purportedly to address this concern. For Adam Smith (1776), what distinguished agriculture from industry was the absence of a division of labour in agriculture. Industrial labourers, in his view, became stupid, undertaking only a few simple operations throughout their lives, as specialization grew and the prime responsibility for technological change shifted from labourers to scientists and philosophers. Farmers, on the other hand, remained wise in the absence of a division of labour, and continued to undertake many integrated activities. In the last 50 years, however, we have witnessed a rapid change in this pattern, with increasing emphasis on the industrialization of agriculture and the creation of "agricultural scientists" (Raina, 1997).

Popularly, such processes became known as the Green Revolution. Farmers in this set-up often became passive recipients of technology, knowledge and decisions from the top, much akin to the condition of industrial labour as visualized by Smith. Such a 'top-down' model, analogous to automation in industrial units, was believed to bring about rapid productivity gains in agriculture, thus solving food crises for the

ever-growing population on this planet. To what extent it has achieved this objective remains debatable.

While praise for the Green Revolution – the one-size-fits-all form of industrialized agriculture – has never been in short supply, scientists and ecological activists have in growing numbers started questioning its implications for growth, equity and as a sustainable solution to food crises. Manning (2016) points out that the Green Revolution has increased the level of energy use for food supply by ten. The satiation in sources of fossil fuel makes this process difficult to sustain in the longer run. In addition, its success seems to depend a lot on the predictability of weather conditions (e.g. rainfall patterns). The variabilities in this introduced by climate disturbances in recent years have, therefore, added further doubts to its future success. Small farmers have been the worst hit. Their inadequate knowledge of new technology-crop combinations have led to the overuse of fertiliser and ground water, resulting in increased incidents of pest resistance and salinity. At a deeper level, adoption of Green Revolution technologies has meant, for farmers, discarding age-old experiential knowledge (e.g. discontinuing crop variety in favour of monoculture).

In short, the one-size-fits-all approach to agriculture has turned farmers into quasi labourers who fail to incorporate their knowledge and expertise in production and feel compelled to be driven by the logic

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of technology decided elsewhere. Such a techno-institutional regime, seeking to view the complex diversity of institutional-ecological settings across the globe through the lens of homogenization, seems to have undermined agricultural productivity in the long run, especially in dryland areas.<sup>1</sup> A recent report by the International Institute for Environment and Development (IIED) (De Jode, 2015) criticizes the inadequate knowledge among policy makers about the variability of dryland ecological settings, with allegedly disastrous impact. According to the Food and Agriculture Organization (FAO, 2012), most African countries will be suffering from significant food insecurities by 2050. Even today, most of Africa is characterized by low per capita food consumption, a high prevalence of undernourishment, high population growth, and a predominantly semi-arid agriculture (FAO, 2012). The call for a better diagnosis of the institutional character of these areas is therefore warranted and opportune (Frankema, 2014; Booth et al., 2015).

The problem of poor diagnosis of local institutions, however, may not be confined to policies on food security, or even policies related to dryland agriculture. Rodrik (2010) and his colleagues (Hausmann et al., 2008) argue that the rigidly sectoral, one-size-fits-all approach has been a dominant feature of development policies across the globe in the post-WW2 era. In this approach, less attention is paid to local context specificities, to the characteristics and interdependence of local institutions, to the bio-physical conditions, and to socio-technical practices (Schouten et al., 2017).<sup>2</sup> The scholarship on institutional diagnosis bears a certain similarity to the discourses on frugality. For instance, both discourses highlight 'what works' and 'what does not work' in actual environments as well as the importance of experimentation, learning and incremental change as an integral part of decision-making processes (Smith, 1776; Gigerenzer, 2008). Clearly, experience in specific contexts holds the clue to success in both approaches. This paper explores how a frugality lens can offer a more grounded conceptual device for local institutional diagnosis.

In section 2, we briefly discuss some of the existing studies on food security in Sub-Saharan Africa. Section 3 elaborates on the frugality lens, drawing upon arguments and findings from cross-disciplinary studies. Section 4 reviews the two dominant alternatives in policy thinking on agricultural development, namely the Sustainable Rural Livelihood approach and the emerging discourse on Grassroots Innovations, to show how these approaches embody, albeit implicitly and to a varying degree, the characteristics of frugality. Section 5 provides the data and describes their collection method. Section 6 subsequently articulates how an explicit recognition of the importance of frugality can provide the necessary ingredients for an alternative policy roadmap. Section 7 makes concluding observations.

## 2. Food security scenario in Africa

In the words of FAO,<sup>3</sup> "a person must live in conditions that allow him or her either to produce food or to buy it. To produce his or her own food, a person needs land, seeds, water and other resources, and to buy it, one needs money and access to the market. The right to food requires States to provide an enabling environment in which people can use their full potential to produce or procure adequate food for themselves and their families" (p. 8). Lipton (2010: 1402), notes in this context that the proportion of small farm holdings in low income

countries has been rising. Also, in several developing countries, farmland shifted toward the lowest size categories between 1986 and 2002 (p. 1402). According to Hazell et al. (2001) more than two-thirds of the world's three billion rural people live on a farm less than two hectares in size, "These people include half of the world's undernourished people, three-quarters of Africa's malnourished children, and the majority of people living in absolute poverty" (p. 1349). Jayne et al. (2010), based on a survey of five African countries, suggest that many small farm households "are approaching landlessness", with at least 25% of small-scale farm households controlling less than 0.11 ha per capita (p. 1386). Clearly such small farm holdings or landlessness also have consequences for food security, particularly when access is a problem. The majority of these households are in dryland areas. Dryland areas constitute around 43% of African land, and are the habitat of around 41% of Africa's population. In fact, households in dryland areas remain most vulnerable in terms of poverty, with many subsisting on less than US \$1 per day (White et al., 2002). Moreover, the threats from climate change and rising world food prices in the late 2000 s may have further enhanced the vulnerability of food insecurity in smallholder contexts.

Indeed, for the Kenyan economy at least, ensuring food security remains one of the unmet policy goals (MTIP,<sup>4</sup> 2013–2017; ASDS,<sup>5</sup> 2010–2020), and an important part of Kenya Vision 2030. Almost 68% of Kenyan land is arid, 21% semi-arid and only 11% is in an area of high rainfall. De Jode (2015) unequivocally establishes that technologies and policies need to take into consideration such diversity in bio-physical characteristics in order to be successful. Kenya experienced a decrease in the proportion of undernourishment in relation to the total population from 32.4% in 1990–92 to 21.2% in 2014–16 (FAO, 2015 and MTIP, 2013–2017). However, the decrease in the level of undernourishment was achieved at such a slow rate that Kenya could not meet the Millennium Development target of reducing by half the proportion of people suffering from hunger,<sup>6</sup> or reducing this proportion to below 5% of the total population (FAO, 2015: 15).

### 2.1. Cross-sectorality and food security

The word 'sector' often assumes multiple meanings. In the current paper, we use the term to imply a specific sphere of activity. With cross-sectorality we refer to the intricate and inextricable inter-linkages between activities undertaken by farmers, for example, that have been de-linked and separated by professional and academic sub-fields. For example, in both the academic discourse and the aid industry we often discuss energy, water, finances and food production as separate sectors of activity, with only a cursory reference to their inter-linkages. However, in the social and economic reality of farmers, these activities are not separate but intricately connected. Cross-sectorality in this paper therefore refers to the connected and related sets of activities useful to achieving food security; this includes farming practices as well as attempts to finance (changes in) these practices, and, for example, attempts to ensure access to water and energy. Clearly, an emphasis on cross-sectorality would necessitate an understanding of the local context: its bio-physical environment and social-cultural values, norms and practices.

If cross-sectorality and diagnosis of local institutions hold importance for a successful technological-policy linkage for food security, we intend to explore how the lens of frugality can help us gain new insights in this regard. In particular, we seek to examine how the discourse on frugality can legitimize a cross-sectoral, context-specific policy approach to food security which is sensitive to context-specific

<sup>1</sup> However, the trend in the industrialization of agriculture continues unabated with the new genetic revolution and the development of terminator seeds. These interventions have further marginalized the scope for using the experiential knowledge of farmers in general and small farmers in particular, especially in dryland areas.

<sup>2</sup> Rodrik (2010) also argues that in their proclivity to identify the 'universal remedy' or 'the best practice', the implementing authorities of this approach has even undermined the necessity to assess the validity of assumptions behind these 'best practice' in specific socio-economic settings where these approaches have been sought to be implemented.

<sup>3</sup> <http://www.ohchr.org/Documents/Publications/FactSheet34en.pdf>.

<sup>4</sup> Government of Kenya (2013).

<sup>5</sup> Government of Kenya (2010).

<sup>6</sup> [http://millenniumindicators.un.org/unsd/mi/mi\\_goals.asp](http://millenniumindicators.un.org/unsd/mi/mi_goals.asp). Accessed on 28th November 2016

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