Food and nutrition policy in South Africa

The national vision, policy space, and policy alignment

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Young Scholars

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Abstract: The aim of this study is twofold. First, it assesses the full South African national policy landscape pertaining to the food system in order to understand policy alignment and coherence across and within sectors. Second, it provides an alternative way to view the South African food system, and correspondingly provides a framing for more effective alignment and coherence in food policy to ensure adequate food and nutrition security. The results of the study reveal three key dimensions that are overlooked in South African food policy: 1) the complexity of the food system, as revealed when taking a social-ecological system lens; 2) what appropriate policy responses to the food system would be; 3) the (mis)alignment of policy (across sectors). This in turn highlights issues surrounding departmental vision and the mechanisms required to ensure the coordination of sectors and internal directorates mandated to provide overall policy guidance for provincial and local government.

1   Background and objectives of study

As part of the United Nations sustainable development agenda, Sustainable Development Goals (SDGs) two and three aim respectively to end world hunger and to ensure general good health and well-being. However, providing the world's population with a healthy, nutritionally adequate, affordable and environmentally sustainable diet is proving to be one of the greatest challenges of the 21st century (Pereira and Drimie 2016). Globally, there are 795 million undernourished people, and a further two billion with micronutrient deficiencies (FAO et al. 2015). Furthermore, malnutrition (in its multiple forms) affects one in three people across the globe, manifesting in chronic illnesses, stunted growth, and micronutrient deficiencies, among other conditions (Harris et al. 2017). As a result, the above—coupled with food price volatility, increasing obesity, climate change, environmental degradation, persisting food insecurity, and numerous food safety crises— has led to a rapid increase in calls for more sustainable and integrated food systems and food policies (Candel and Pereira 2017).

In the past, 'food policy' was essentially used as a blanket term to indicate the entire range of policy efforts that affect various food system outcomes. Of late, however, the term has come to be used to indicate the need for more integrative strategies to align the various policy efforts. This would involve pursuing a shared vision of food systems as a whole, through consistent and integrated sectoral policy goals and instruments (Rayner and Howlett 2009). Within South Africa, the presidency is mandated to coordinate and integrate these policies, in order to create credibility, sustainability, and investor confidence, and to avoid political confusion (Drimie 2016). However, food policy offers a substantial challenge to governments across the globe, as—among many other issues—it spans multiple policy areas, thereby demanding various responses across different policy sectors (Barling et al. 2002). Furthermore, government structures often create inconsistent policies due to their separate political mandates (Drimie 2016) and the pursuit of various self-interests.

The right to food is a fundamental human right, recognized within the South African Constitution. The right to food is also recognized as a principal economic and social right in the Universal Declaration of Human Rights (UN 1948) and the International Covenant on Economic, Social, and Cultural Rights (UN 1966). However, law does not automatically result in the realization of rights, and legal enforcement is not the only means through which rights can be implemented. The ability of individuals and households to access adequately nutritious food depends on a range of social-economic conditions. The government therefore has an important role to play in establishing the necessary social conditions and arrangements, through the implementation of appropriate and effective food and nutrition security policy measures. Hendriks (2013: 12) states that the overall goal of food and nutrition security-related policies is to 'achieve household food and nutrition security and support individuals in accessing adequate individual dietary intakes to meet their needs at different stages in the human life cycle'. However, as will be demonstrated, it is clear that South Africa's current food and nutrition-related policies are far from reaching this objective.

Building on this, the aim of this study is twofold. First, it aims to assess the full South African national policy landscape pertaining to the food system in order to understand policy alignment and coherence across and within sectors, and to indicate the implications thereof. Second, it aims to provide an alternative way to view the South African food system, and correspondingly to provide a framing for more effective alignment and coherence in food policy in order to ensure adequate food and nutrition security.

2   Methodology

As an outcome of multiple factors operating from household levels through to international levels, food and nutrition security is an inherently complex issue. Thus, the solution is a multifaceted one. It depends not only on the availability of production, but also on a range of entitlements that enable and sustain economic and social access to food (Ericksen et al. 2010). Given this inherent complexity, in order to systematically review the food systems and the subsequent policies that govern the system as a whole, the approach developed by Harris et al. (2017) has been followed in this study. This approach provides a narrative review of policy and strategy documents from different sectors, with a systematic assessment to evaluate vertical and horizontal coherence with specific reference to food and nutrition security. In line with this approach, a policy matrix has been constructed to identify key policies falling under different sectoral responsibilities in the government. The National Policy on Food and Nutrition Security for South Africa (NPFNS) was gazetted in 2016, and is South Africa's most recent and comprehensive food and nutrition security policy effort. Hence, the NPFNS was adopted as a starting point to populate the matrix, given that it is the most recent policy framework which recognizes the role of different sectors in addressing food and nutrition insecurity. Drawing on the approach by Harris et al. (2017) and the basis provided by the NPFNS, the key sectors of agriculture, environment, social protection, health, land, education, and rural development were determined to be the main areas of policy focus. Based on these sectors, various policies were sourced and placed within the relevant focal groupings. Tracking back from the NPFNS, the SDGs and the National Development Plan (NDP) were positioned first in the matrix to show the international and national goals, evidence, and linkages with South Africa's food and nutrition-related policies

In order to source the various policies, the websites of various national and local government departments were searched: Agriculture, Forestry, and Fisheries (DAFF); Environment and Tourism; Social Development; Health (DoH); Education; Rural Development and Land Reform; Human Settlements; Trade; and Water Affairs. These websites were searched for relevant policies using search terms such as 'policy', 'strategy', and 'plan', and then further policies were identified through cross-references in policy documents. In order to access further supplementary literature, a search was also conducted through Stellenbosch University's library database and Google Scholar, using numerous keywords aligning with the search criteria at hand. Supplementing this, existing bodies of research were utilized and requested from key scholars within the field, including Sheryl Hendriks, Nick Vink, Scott Drimie, and Laura Pereira. Further inputs were drawn from key informants—such as the lead of the Western Cape Food and Nutrition Security Strategy, and the head of department at Agriculture and Rural Development in KwaZulu-Natal—and the author's own knowledge of the policy landscape. Two policy workshops, provincial and national, were also utilized in order to further validate the research and policy selection. These sequential steps were taken in order to ensure that all associated policies were retrieved. Policies that focused on both individual and household food and nutrition security provision in South Africa, and that were published between January 2000 and November 2017, were included within the policy matrix and subsequent analysis, with the exception of those under the land domain. This is due to the current rhetoric surrounding a possible policy shift from the current land reform programme to that of land expropriation without compensation, in addition to the nature of the land reform programme at large.

The selection of this framework for analysis was informed by the observation during data collection that the incoherence evident in the policy content appeared to reflect significant deviations across sector beliefs and policy agendas. In essence, the policy incoherence within the South African food policy system appeared to reflect not simply different policy goals and targets across sectors, but also predominantly different beliefs about food and nutrition security and

nutrition as a policy issue within South Africa. As a consequence, the various policies within each focal grouping were reviewed with the following six research questions/criteria in mind: 1) policy goals, 2) mission, 3) recognition of interdependencies, 4) coordination mechanisms, 5) targets/indicators, and 6) possible learning culture/ethos. The overarching objective of the policy matrix and subsequent analysis was to identify policy content that fosters positive incentives for food and nutrition security and nutrition within the South African food system, or subsequent points of incoherence or misalignment.

3   The South African food policy space

South Africa is one of many low- and middle-income countries across the globe that are battling a rise in overweight and obesity leading to diet-related non-communicable diseases (NCDs) while still struggling to address persisting household food insecurity and undernutrition (Thow et al. 2018). Addressing this double burden of malnutrition and food insecurity requires a comprehensive policy approach that supports both the demand and the supply of healthy food. Using the policy matrix (Figure 1) formulated through the approach developed by Harris et al. (2017) and described in section 2, this policy assessment has two aims:

1)   to identify instances of policy incoherence and misalignment;
2)   to indicate areas of opportunity to improve policy coherence among sectors with responsibilities related to food and nutrition security and nutrition in South Africa.

The formulation and implementation of food and nutrition policy is by no means a simple task. In order to overcome the complex and dynamic nature of the food system, food and nutrition policy must take into account a vast range of interest groups and stakeholders. However, the different opinions and concerns of these interest groups and stakeholders often taint and warp the policy formulation process. Thus, policy efforts are often subdued in their attempts to remedy the food system, due not only to its complex nature but also to powerful agendas and interests across the political and corporate system (Drimie 2016). As demonstrated in the policy matrix, internal to the illustrated sectors and domains are a range of subsectoral programmes and strategies. A review of these reveals some redundancy, contradiction, and internal misalignment. This in turn raises questions around departmental vision and the mechanisms required to ensure the streamlining of directorates which are mandated to provide overall policy guidance for provincial and local government.

Figure 1: Policy matrix

SDGs							
NDP Vision 2030							International
New Growth Path							↓
Agriculture	**Environment**	**Social protection**	**Health**	**Land**	**Rural development**	**Education**	
NDP chapter 6 and Industrial Policy Action Plan (IPAP)	**NDP chapter 5**	**NDP chapter 11**	**NDP chapter 10**	**NDP chapter 6 and IPAP**	**NDP chapter 6 and IPAP**	**NDP chapter 9**	
AgriBEE Fund 2004	Drought Management Plan 2005	Social grants	National Vitamin A Supplementation Guidelines for South Africa 2012	Settlement Production Land Acquisition Grants 1995	Integrated Sustainable Rural Development Strategy 2000	National School Nutrition Programme 2004	National
Mafisa 2005	National Biodiversity Framework 2008	War on Poverty Programme 2008	National Environmental Health Policy 2013	White Paper on Land Reform 1995	Comprehensive Rural Development Programme 2009		
Ilima/Letsema	Ground Water Strategy 2010	Household Food and Nutrition Security Strategy for South Africa 2014	Roadmap for Nutrition in South Africa 2013	Land Redistribution for Agricultural Development 2001	Adoption Strategy for Rural Human Settlements 2013		↓
National Agricultural Research and Development Strategy 2008	National Climate Change Response White Paper 2011	Social Relief of Distress (food parcels) 2013	Strategic Plan for the Prevention and Control of NCDs 2013–17	Comprehensive Agricultural Support Programme 2004			Sectoral
Integrated Growth and Development Policy for Agriculture, Forestry, and Fisheries 2012	Ocean Economy Strategy (Operation Phakisa) 2013		Strategy for the Prevention and Control of Obesity in South Africa 2015	Proactive Land Acquisition Strategy 2006			
Fetsa Tlala Food Production Initiative 2013	National Water Resource Strategy 2013			Settlement and Implementation Support Strategy 2008			
Agricultural Policy Action Plan 2015–19				Green Paper on Land Reform 2011			↓
				Land Tenure Security Policy of Commercial Farming Areas 2013			
				State Land Lease and Disposal Policy 2013			Agency
				Recapitalization and Development Policy Programme 2014			
Medium-Term Strategic Framework 2014–19							
DAFF Strategic Plan 2015–20	Department of Environmental Affairs Strategic Plan 2014–19	National Strategic Plan 2015–20	Department of Health Strategic Plan 2014/15–2018/19	Department of Rural Development and Land Reform Strategic Plan 2015–20		Department of Education Strategic Plan 2015–20	

Source: author's compilation.

In 2010 the National Planning Commission released a diagnostic report which identified policy implementation failure and an absence of broad partnerships as some of the leading reasons for South Africa's slow progress in reaching a number of development goals, including that of food and nutrition security (Hendriks 2013). The NDP was developed partly to address this issue by aligning future policy activities at the national level. As a whole, the NDP provides an important basis for establishing the mechanisms necessary to address food insecurity in South Africa. The NDP explicitly emphasizes the importance of social dialogue as the most effective means to drive change in the country, through renewed cooperation and engagement between the private and public sectors, civil society, and organized labour (Pereira and Drimie 2016). This reflects the acknowledgement, at least within the NDP, that government alone cannot solve food and nutrition insecurity. Presently, however, there is a lack of practical implementation surrounding this vision. Further issues of contradiction, redundancy, and misalignment become apparent already within the NPFNS. Essentially designed to address the shortcomings of the previous Integrated Food and Nutrition Security Strategy (IFSS), at its core the NPFNS in fact offers very little that is different from the IFSS. Concerns and discrepancies already arose in the policy's development process, which was largely characterized by a lack of consultation and co-development among stakeholders across the greater food system. This centralized decision-making approach contradicts that promoted within the main policy document itself, which states: 'Food and Nutrition Security is a complex issue characterised by interdisciplinary approaches. This National Policy on Food and nutrition security and Nutrition seeks to provide an overarching guiding framework to maximise synergy between the different strategies and programmes of government and civil society' (DAFF 2014: 28). Furthermore, there are no clear guidelines or procedures on how the participation of civil society organizations and/or the private sector will be included with regard to the implementation of the policy itself.

As noted, the limited engagement with all of the relevant stakeholders has led to a narrow and inadequate understanding of the vast array of complex issues that affect the food system and food and nutrition security in South Africa as a whole. Central to the NPFNS is the recognition of the importance of multisectoral coordination and alignment. However, due to the limited consultation undertaken within the development process of the policy, one is forced to question the commitment to these intentions, and the ability of the NPFNS to lead to practical outcomes that are different from those of the IFSS. Furthermore, the NPFNS demands that 'national, provincial, and local municipalities will be required to coordinate and partner with existing stakeholders in their spheres of government' (DAFF 2014: 20). However, without a consideration of the pre-existing limitations within the specific government departments and spheres, the implementation plan will be largely ineffective. Contradictions surrounding the focus on employment creation between the NPFNS and the overarching national policies of the NDP and New Growth Plan (NGP) serve as further examples of goal misalignment. As a whole, although it is admirable in its overall vision and goals, the NPFNS remains overly ambitious with its set targets, and lacks the necessary coordination and implementation mechanisms to effectively align the policy responses across the various sectors and government departments.

Despite a degree of superficial alignment and a focus on transformation, existing agricultural and food polices by and large have failed to engage with the mechanisms required to underpin real policy alignment and good governance. Together with the failure to understand and appreciate the rapid transformations within the processing and retail environments, these polices have largely failed to address the structural underpinnings of the agrarian system. The most notable of the many contradictions that have emerged within the greater agricultural policy environment surrounds the proposed commitment to smallholder agriculture. Despite the strong rhetoric surrounding the commitment to smallholder agriculture in policy documents such as the NDP, NGP, and Agricultural Policy Action Plan, the other policies discussed within this assessment tend

to favour medium- or large-scale emerging black producers. As noted, Drimie (2016) argues that the general lack of coherence within the broad range of current agriculture- and food-related polices can partly be attributed to a lack of clear vision of a future agrarian system and of how to achieve it. The recent policy review by Hendriks and Olivier (2015) further supports this argument, and additionally finds that within the South African food and nutrition security environment it is difficult to coordinate existing policies, given that most agricultural policies do not actively promote food and nutrition security. While many publicly funded programmes (such as Fetsa Tlala, Ilima Letsema, and those initiated by the Comprehensive Rural Development Programme) have increased the ownership of productive assets, and have also increased the participation of food-insecure smallholders in the agricultural sector and hence the greater South African economy, employment levels and engagement within the agricultural sector remain lower than anticipated. Thus the programmes have not significantly increased the competitiveness and profitability of farming operations and rural agri-enterprises that are owned and managed by food-insecure rural populations, as envisioned by the programmes themselves. The apparently incongruous shift in outcome priorities in rural development policy highlighted within the rural development domain—coupled with a lack of common definitions surrounding the relationship between rural development and interconnected aspects of food and nutrition security, unemployment, and sustainable livelihoods—has led to a general lack of transparency and poorly aligned policies across various government departments. Although South Africa has an extensive environmental policy, it appears to be largely developed in isolation from core food and nutrition security outcomes, given there is little (if any) reference to food systems within the policies concerned. The ongoing drought in the Western Cape and other parts of South Africa serves to further highlight the inadequacies of the country's water management strategies, as well as the country's vulnerabilities to climate change as a whole. Environmental implications such as these pose a serious threat to future food and nutrition security.

Land policy in South Africa remains a highly contested issue. The lacklustre performance of the land reform programme has provided the backdrop for the current debate surrounding a policy of land expropriation without compensation. The possible ramifications of such a policy for food and nutrition security in South Africa are beyond the scope of this analysis. Current policy rhetoric aside, the failures within the land reform programme are clear. The misinterpretation and poor implementation of policy has largely constrained the land reform process. Coupled with agricultural polices not having been reoriented and adapted to support land beneficiaries, policy frameworks resultingly lack coherence, with the overriding objectives and strategic thrust of land reform remaining unclear. Most notably, there is an absence of a wider strategic approach to rural development within the land reform programme. Such an approach would assist in supporting land beneficiaries, in addition to maximizing the benefits for surrounding economies. Furthermore, although South Africa's skewed land distribution forms the premise for the land reform programme, few (if any) links are made with the lack of access to land as a constraint on food and nutrition security. As a whole, food and nutrition security is not expressed as a specific policy objective of land reform. Consequently, one cannot assume that land reform would benefit food-insecure households in South Africa, given this absence in policy objectives.

Despite a wide range of established social development policies and a large comprehensive grant system, social protection policies in South Africa have by and large fallen short of their potential to assist in the achievement of various food and nutrition security outcomes. As illustrated throughout the discussion surrounding the social protection domain, aside from not providing an adequate level of social support, social development policies have become conceptually delinked not only from one another, but from food and nutrition security as a whole. As a result, such interventions targeting poverty and food insecurity are reduced to a residual relief role. In order to build resilient livelihoods in South Africa, comprehensive and sustainable approaches are required,

with strong linkages between social development sectors such as agriculture and health. Such approaches are lacking, however, and any notion of internal alignment and coordination mechanisms is noticeably absent. One particular policy success story worth highlighting is the National School Nutrition Programme (NSNP), categorized under the education domain. The NSNP is one of the most enduring and successful policy initiatives of the South African government. Its budget and mandate continue to expand, which says much about both the importance of the programme and its feasibility with regard to implementation. As a whole, the NSNP continues to cover a wide variety of food and nutrition security objectives, despite being essentially a school feeding programme. However, despite the NSNP's relative success, there is still much room for improvement, particularly with regard to the promotion of school gardens as a means of sustainable food production and the various operational constraints within the programme itself. There is much scope for the National Department of Basic Education to expand its mandate surrounding food and nutrition security initiatives through meaningful collaboration with other government departments and the various stakeholders concerned.

While policies within the health domain are largely well aligned with overarching national polices such as the NDP and the Medium-Term Strategic Framework, as illustrated, internal departmental alignment and multisectoral coordination remain a significant issue. Furthermore, there is very little in current South African health policy design that looks at nutrition from a community perspective, or that addresses the underlying and basic causes of malnutrition. As noted by McLaren et al. (2015), while this may best be done in coordination with other governmental departments who are better mandated to deal with the many economic and social factors underlying food insecurity, by and large the DoH is not sufficiently equipped to work in an interdepartmental and multisectoral manner. Challenges of implementation and coordination aside, within the greater context of food and nutrition security it is simply not sufficient to have health policies that largely frame food and nutrition security from the narrow perspective of the immediate causes of malnutrition. While the DoH has participated in some broader food and nutrition security initiatives such as the NSNP, a systematic, coordinated effort is still lacking. After all, food and nutrition security is by nature a multidimensional issue.

Overall, it is clear that throughout the policies discussed there appears to be a lack of attention to solving the problems at hand. As a whole, there is a general silence as to how to solve problems that have been identified and articulated, and the solutions provided are vague on details. The South African government needs to grapple with the real issues at hand. The majority of the policies analysed make note of governance difficulties, as well as the importance of internal departmental alignment. Promisingly, a large number of the more recent policies offer a set of interventions and activities to address governance challenges. However, these interventions remain vague on detail and generally represent a lack of real engagement with the mechanisms required to underpin real policy alignment. This has essentially resulted in a policy response that has effectively been limited. This institutional challenge may indicate a more serious issue: a lack of political will or impetus to effectively address food insecurity as a political priority. Political will encompasses more than simple statements of intent. It requires a significant level of commitment to coherence across policies to achieve common goals, and the subsequent allocation of budgeting and personnel for efficient implementation. Political will is also required to observe implementation modalities to ensure these coherent policies are in place. Crucially, an effective monitoring and evaluation system is required to ensure efficient allocation of resources, and appropriate learning and adaption of policies. An effective coordination mechanism would be clear about a common goal and set of objectives to ensure the alignment and coherence of related policies. Furthermore, the associated roles and responsibilities of related departments would be explicit. Coordination mechanisms would also facilitate learning and application through an effective monitoring and evaluation system. Lastly, an accountability mechanism is required.

Critically, however, one of the greatest challenges facing the implementation of food policies in South Africa is the absence of a coordination mechanism that can effectively align the different responses across various sectors and government departments. Once again, where coordination mechanisms are mentioned, they are vague on details. Although the NPFNS's vision is directly aligned with that of the NDP, and is regarded by the government of South Africa as a key policy pillar in achieving the NDP Vision 2030, the coordination mechanisms (in the form of various intergovernmental forums) are undeveloped and ambiguous. A further cause of concern is the general lack of monitoring and evaluation mechanisms in South African policymaking to gauge policy impact. This can largely be attributed to an issue surrounding measurement: there is no specific and accepted measure of food insecurity within South African food policy, and no standardized way of monitoring it. Given that food and nutrition security is multidimensional by nature and forever changing, it is naturally difficult to design accurate measurements and policy targets. Thus a comprehensive and wide-ranging food security monitoring and evaluation system should be developed, supported by clearly defined and pre-established targets/goals for food and nutrition security. The absence of such a monitoring and evaluation system consequently reveals a general lack of attention to learning and adjusting implementation across these complex domains that together constitute food and nutrition security in South Africa.

There have nonetheless been some important progressive developments in food policy in the last few years. Nutrition is increasingly recognized as an important food and nutrition security outcome within policy; the need for intersectoral coordination is acknowledged (albeit not practically addressed); and there is improved (albeit still limited) consultation across sectors in the formulation of the latest policies, as revealed in the recent NPFNS. What remains, however, is the need to shift the discourse on food and nutrition security, away from the narrow paradigm of agricultural production and rural development, to a broader context that acknowledges the exclusive, ineffective nature of the South African food system, in addition to the prevailing issue of poor economic access to sufficient and nutritious food. In order to be truly effective, this policy vision must include the national, household, and individual natures of food insecurity in South Africa (McLaren et al. 2015). One of the greatest policy challenges surrounding the 'wicked' problem of food insecurity is the multiple perspectives, agendas, and interests of the various actors within the food system. Thus the need for a thorough understanding of the dynamic, intricate nature of the food system, coupled with the adoption of an integrated, transdisciplinary approach to food policymaking by policymakers, is fundamental. Real solutions to household food insecurity lie in growth, structural change, and fresh, innovative perspectives on food policymaking. Such solutions do not lie within one particular dimension alone. A multidimensional approach is required that includes, above all, the necessary political commitment. While the many complexities surrounding food policy cannot be denied, it is possible, through the right policy efforts, to create a way forward for a food system that is both sustainable and equitable for all South Africans.

4   Framing South African food and nutrition policy within the social-ecological system

One of the defining challenges of the 21st century is the battle to reduce poverty and inequality in the face of a rapidly growing world population, while ensuring the ability of the environment to meet the needs of both current and future generations (Griggs et al. 2013). Food and nutrition security is an inherently complex outcome of multiple factors, operating from international to household levels. It depends not only upon the availability and production of food, but also on a range of entitlements that enable and/or protect economic and social access to food (Ericksen et al. 2010). Poverty and malnutrition have long been correlated with one another, with nutritional value now being firmly embedded in most definitions of food and nutrition security. Thus, any real analysis of food policy within South Africa requires a consideration of numerous economic,

political, and social factors, in addition to the more traditionally noted agronomic issues. The challenges that policy faces consist of finding solutions to food insecurity: policies need to enhance food and nutrition security without compromising environmental and social welfare outcomes.

Such challenges have led some academics, analysts, and policymakers to question whether the frameworks and objectives that shaped the food system of the 20th century require revision. Given the ever-increasing interconnectedness of global social, economic, and ecological systems, it is clear that an integrated approach that accounts for the multiple interlinkages and dependencies between social and ecological systems is necessary (Biggs et al. 2015). Thus, due to the rapid pace at which these interconnected systems are changing, new policy and governance strategies that cater for system uncertainty are required. However, addressing these challenges further requires new and expanded conceptual frameworks and approaches that fully encompass all the dynamics at play. Such frameworks must therefore be based upon understanding the complex nature of these systems, the interactions between the various components, and the environment in which they are found, as illustrated in systems-based approaches. Therefore, this study aims to provide such an alternative systems-based conceptual framework as a platform to study the 'food system' as a social-ecological system. When one views the food system through the social-ecological system 'lens', many of the traditional challenges (and subsequent policy implications) surrounding food provision systems and the greater issue of food and nutrition security become almost secondary, and new, often overlooked challenges come to the forefront.

4.1   The social-ecological system

The concept of a social-ecological system first emerged from the field of ecology in the 1960s (Holling 1973). It can be broadly defined as an integrated system, loosely based upon an ecocentric viewpoint through which humans are viewed as part of nature; as a result, economic, ecological, cultural, social, political, and technological components interact (Hodbod and Hallie 2015). Social-ecological systems are complex adaptive systems, where the various components frequently interact in unplanned and unpredictable ways. These interactions lead to the rise of broader-scale patterns that feed back into the system, which in turn influences the interactions of the agents operating within the system (Levin et al. 2013). Thus, due to the interactive nature of the components that form a social-ecological system, a disturbance in one aspect of the system will have repercussions across other elements within the system. Figure 2 illustrates the interconnectedness of the various elements that comprise the social-ecological system.

Figure 2: The social-ecological system
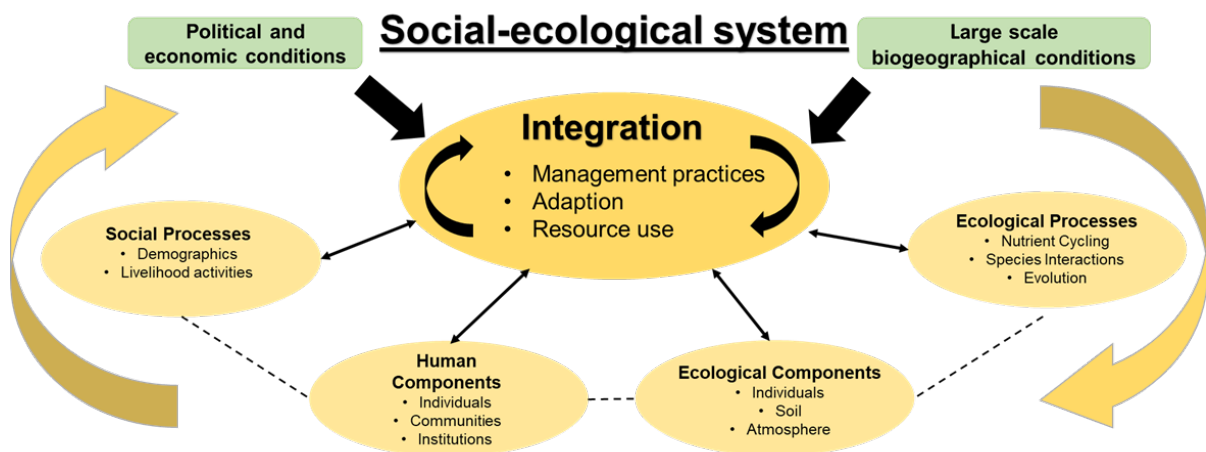
Source: author's illustration based on Virapongse et al. (2016).

As indicated by Figure 2, the social-ecological framework theoretically conceptualizes the environment as an open system that consists of various ecological and social processes and components. Examples of social components include managers, policymakers, and consumers, while ecological components include the biotic and abiotic factors that make up food. Processes refer to the interactions between all these components. These processes are then integrated through various interactions such as management practices, adaption, and resource use. Such processes occur through multiple cycles and scales. As a whole, social-ecological system components interact within a dynamic, web-like structure that facilitates interdependencies and feedbacks (Folke et al. 2016). In essence, social-ecological systems are inherently dynamic by nature, which means that the systems are in a constant state of flux, changing and adapting to and with the environment in which they are situated.

4.2 Viewing food systems as social-ecological systems

As discussed previously, food systems can simply be defined to encompass all of the inputs, outputs, and subsequent activities associated with food production, processing, distribution, consumption, and waste disposal. Food systems, however, are far more complex than simply the material flows that comprise the supply chain (Hodbod and Hallie 2015). Food in itself has significant, diverse social and cultural meanings, which further have both direct and indirect influences on a variety of biophysical and ecological processes (DeFries et al. 2006). Food can further be regarded as symbolic and political—throughout history. Governments or regimes have collapsed due to failures in food provision and food system management (Hodbod and Hallie 2015). Given these various complexities surrounding the food system, and the adaptive, dynamic, and complex nature of social-ecological systems, food systems clearly fall within the scope of social-ecological systems. As stated by Ericksen (2008: 236), 'food systems incorporate multiple and complex environmental, social, political and economic determinants encompassing availability, access and utilization', which further involve varying spatial, temporal, and institutional scales. Viewing food systems as social-ecological systems entails framing the overall system differently from the static and linear flow model that is often used to describe, for instance, a food supply chain. For example, within such systems, variability should be considered the norm, as opposed to stability (Holling 1973). Furthermore, change within the system can be either measured or sporadic, generated by fast external shocks (such as price fluctuations or a disease outbreak) or by slower internal drivers (such as changes in consumer preferences and values, or soil nutrient depletion) (Hodbod and Hallie 2015).

Applying the concept of social-ecological systems to food systems has many advantages, particularly with regard to understanding the interconnected dynamics of environmental and societal change within the food system as a whole. According to Fischer et al. (2015) the concept further helps to facilitate: 1) major policy frameworks that consider social-ecological interactions; 2) increased recognition of humanity's dependence on ecosystems; 3) increased organizational diversity; and 4) improved multidisciplinary collaborations between science and society.

While food systems can clearly be viewed as social-ecological systems, they are fundamentally still human-designed systems, and thus social elements disproportionally influence the ecological elements (Hodbod and Hallie 2015). However, in social-ecological system theory, some form of variability, disturbance, and loss is considered beneficial: it helps to maintain system capacity for learning, innovation, and adaptability. Nevertheless, humanity's unique capacity for foresight, conscious action, and self-organization in complex social-ecological systems is significantly different from the standard norm found in purely ecological or physical systems (Ericksen 2008). As a result, when a particular food system is bound up with food production as its main focus or activity, often the aim is to avoid disruption, enhance overall stability, and ensure the necessary minimum level of output to achieve the central goal of food and nutrition security (Hodbod and Hallie 2015).

4.3   A social-ecological systems approach to food and nutrition policy formulation

Viewing food systems through the social-ecological lens enables one to see that these interactions and relations between the social and ecological components are complex, dynamic, and context-dependent. Utilizing the framework of a social-ecological system aids us by providing structure to an inherently complex system, thereby assisting us to understand the linkages, the important role of relationships within the system, and both human-driven and biophysical drivers. Consequently, such an understanding leads to the acknowledgement of the contribution of the different disciplines at play within the social-ecological framework. However, with the bridging of different disciplines, it is crucial to recognize the importance of framing these systems when designing appropriate policies and development strategies (Thompson and Scoones 2009). Different framings or narratives surrounding how social-ecological systems function and the outcomes of their various drivers result in the valuation of diverse outcomes and the subsequent posing of different solutions. As noted by Ericksen et al. (2010: 30), 'economists will emphasize markets as key to food and nutrition security, climate scientists worry about the greenhouse gas emissions from intensive agriculture, agronomists emphasize yields, and political scientists focus on governance arrangements as the solution to undesirable outcomes'. Thus, policymakers must acknowledge that social-ecological systems serve different functions for different actors within the system, who also value their policy outcomes differently. This resultingly forms the central basis of the various trade-offs that are inherent to the interchanging relationship between food and nutrition security and modern food systems (Thompson and Scoones 2009). The above-mentioned framings, coupled with the specific given context, influence how these trade-offs are evaluated and subsequently translated into policy decisions.

As outlined in section 3, the institutional framework surrounding South African food policy is fragmented between different policy domains. Each policy domain has its own institutional and regulatory arrangements, and different policy priorities and horizons. Any coherent and efficiently aligned food policy must traverse the domains of agriculture, environment, social protection, health, land, rural development, and education. Thus, from a food and nutrition security perspective, a social-ecological systems approach is necessary to translate the various trade-offs between the different domains in South African food and nutrition policy and the multiple aspects of food and nutrition security into coherent and well-aligned policy that can effectively tackle food and nutrition insecurity in the country. The framework surrounding the assessment of South

Africa's food policy through the social-ecological systems lens is simple. The social element of social-ecological systems notes the social aspects both present and required within the policy space under assessment. The ecological element highlights the role of the fundamental ecological sources inherent within food systems and thus food policy as a whole. Lastly, the systems element underlines the interconnected, relational, and dynamic nature of food policy. Application of this interrelated, three-pronged framework has revealed a general lack of understanding and/or acknowledgement of the interconnected dynamics of environmental and societal change that drives food governance in South Africa. Issues surrounding the misalignment and incoherence of South African food policy become apparent, serving to highlight the disjointed nature of South African food policy.

As noted previously, in order to be regarded as sustainable, a food system must take into consideration all environmental, social, and economic factors. The food system is not a simple, linear process that can be governed by conventional, methodical policy. Rather, it is an intricate network consisting of multidimensional, non-linear relationships that requires dynamic, flexible policy structures and instruments. The systems element of social-ecological systems accounts for this intricate, multidimensional nature by highlighting the need for multidimensional interaction between various factors across multiple levels—ranging from the production of food to its consumption. Furthermore, it helps to provide a 'checklist' to ensure that all issues are properly accounted for within dialogues or interventions that aim to enhance food and nutrition security, and it identifies the necessary range of actors who should be party to the process (Ingram 2011). With an emphasis on the systems element of social-ecological systems, the intricate, multidimensional nature of South Africa's agrarian system would be better understood and more clearly defined within subsequent food policy formulation. Drimie (2016) argues that the general lack of coherence within the broad range of current agriculture- and food-related polices can partly be attributed to a lack of clear vision of a future agrarian system and how to achieve it. A more proficient understanding of the various dimensions at play within the greater agrarian system—which is provided by the social-ecological systems approach—will assist in this regard, and thus lead to more coherent agricultural policy as a whole.

As a whole, food and nutrition security in South Africa cannot be achieved with a single policy instrument or a specific time-bound programme. A more holistic, inclusive approach to social development policy is required, such as that provided by the social-ecological systems framework. Altogether, from a social protection perspective, policy in South Africa views the management of food systems as a linear process and not a system-wide process. Once again, if one emphasizes the systems element of social-ecological systems, the linkages between social development sectors such as agriculture and health will be better understood and emphasized. This will lead to more conceptually coherent social policies that are aligned with achieving the envisioned food and nutrition security outcomes.

Nevertheless, where the social-ecological approach is most constructive with regard to food policy formulation is in highlighting the interactions across scales and levels inherent within any given system. As most policy does not take uncertainty into consideration, unanticipated feedbacks within the system create significant policy challenges. The complexity of interactions and feedbacks within social-ecological systems, coupled with the multiple perspectives surrounding food and nutrition security and its various activities and outcomes, makes it increasingly difficult to agree on solutions to food and nutrition security problems. Therefore, for research and food policy formulation it is essential to analyse specific contexts across the relevant scales and levels. Scale mismatches occur when system elements (at their varying scales and/or levels) misalign, resulting in dysfunctionality (Maciejewski et al. 2015). Scale mismatches indicate that one or more functions of the social-ecological system have been disrupted, resulting in the loss of important components and the occurrence of inefficiencies. Maciejewski et al. (2015) further state that scale

mismatches can be spatial, temporal, or functional in nature. Spatial-scale mismatches are clearly evident throughout the policies included in the environment, land, and rural development domains, where differences appear between the physical and geographical extent of the problem and the solution proposed within the given policy. Such policies simply do not have the scope or reach required. This is clearly illustrated by the inability of environmental policy in South Africa to cover the environmental dimensions required to ensure the development of a sustainable food system, and in the inadequate support offered by land reform policies to land beneficiaries.

Temporal-scale mismatches arise when processes occur over different timescales (Maciejewski et al. 2015). For example, the implementation of most food policies forms part of a lengthy process, and the long-term participation of the relevant stakeholders is critical to reflect the intended changes within the greater system, and thereby within food and nutrition security as a whole. This has proven to be a significant issue within South African policymaking, where political interests and policy agendas are continually shifting. Temporal-scale mismatches may also occur when the necessary stakeholders are not involved throughout the entire policy planning and implementation process. This too has proven to be a rising concern throughout the South African food policy space, most notably in the NPFNS, which has been characterized by a lack of consultation and co-development among stakeholders across the food system. Further examples have been highlighted and discussed throughout this food policy assessment, most notably within the health domain. Functional-scale mismatches arise in policy when the scope of the processes considered for use within a given policy differs greatly from the scope of processes actually used (Maciejewski et al. 2015), as illustrated by the poor policy implementation mechanisms discussed throughout this study.

5   Conclusion

The aim of this study was twofold. First, it aimed to assess the full South African national policy landscape pertaining to the food system in order to understand policy alignment and coherence across and within sectors, and to indicate the implications thereof. Second, it aimed to provide an alternative way to view the South African food system, and correspondingly to provide a framing through which to embrace the complexity of this system, and consequently to move towards better alignment and coherence in South African food and nutrition policy in order to secure adequate food and nutrition security in the country.

The study has revealed three key dimensions that are evidently overlooked in South African food and nutrition policy:

1) the complexity of the food system, as revealed when one takes a social-ecological system lens, which subsequently highlights the challenges, assumptions, and expectations involved in governing this complex system through policy;
2) what appropriate policy responses to the food system would be;
3) the (mis)alignment of policy (across sectors).

When the policy matrix was inspected and the social-ecological systems approach was used, the results clearly demonstrated significant levels of redundancy, contradiction, and internal and external sector misalignment.

This in turn has highlighted issues surrounding departmental vision and the necessary mechanisms required to ensure the coordination of sectors and internal directorates mandated to provide overall policy guidance for provincial and local government. Furthermore, this study has shown

that applying a social-ecological systems approach to food systems has many advantages, particularly with regard to understanding the interconnected dynamics of environmental and societal issues within the food system as a whole. This in turn has important implications for policymakers in general, and for food and nutrition in particular.

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