Framing agriculture and climate in Kenyan policies: a longitudinal perspective

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ABSTRACT

Climate change threatens Kenyan agriculture and the environment, and jeopardizes people's livelihoods and food security. The 2017 Kenya Climate-Smart Agriculture Strategy claims to guide a transformation of Kenya's agricultural system through an integrated approach to agriculture, climate change, development, environment, and food security. By undertaking a longitudinal analysis of policy frames, this study temporally contextualizes climate-smart agriculture (CSA) policy adoption to understand whether CSA is a transformative tool versus business-as-usual. A policy frame analysis of the Ministries of Agriculture and Environment between 2002 and 2017, complemented with in-depth interviews addresses the question how policy frames for agriculture, climate change, development, environment and food security have evolved over time, and which factors contributed to policy frame development in Kenya. Findings demonstrate that (a) CSA in Kenya is an incremental shift away from existing policy frames rather than a radical transformation, (b) a discrepancy exists between Strategic Plans and sectoral policies; and (c) policy frames are influenced by donors, regional and global fora and personal networks. This study suggests that CSA's relevance is limited to those contexts that acknowledge a complex relationship between agriculture, climate change, development, environment, and food security prior to CSA policy adoption.

1. Introduction

Extreme climatic events threaten agricultural production in Kenya, and put pressure on the economy, the environment, livelihoods, and food security (Bryan et al., 2013). The Kenyan government consequently needs to enhance the resilience, productivity, and sustainability of the agricultural sector. In 2017, the government launched the Kenya Climate-Smart Agriculture Strategy, jointly developed by the Ministry of Agriculture and the Ministry of Environment. It describes CSA as an "excellent opportunity for the transformation by uniting agriculture, development and climate change under a common agenda"(MALF, 2017). Whereas CSA is promoted as an innovative transformative tool to realize the required integration adjustments, more critical voices question CSA's transformative potential and refer to CSA as 'old wine in new bottles' (Lipper et al., 2018; Faling et al., 2018a, 2018b; Steenwerth et al., 2014).

In this paper I analyse the value of the Kenya CSA Strategy, assess whether it is a transformative tool or represents business as usual, and identify the factors that explain policy development in Kenya. Studying change processes in a longitudinal perspective helps to explain origin, disposition and development of the object under study (Pettigrew, 1997, 1990). Therefore I analyse how the Kenyan agriculture and environment ministries between 2002 and 2017 have addressed agriculture, climate change, development, environment, and food security.

Because perceptions frequently inspire the approach governments take, they are a suitable indicator of government action around CSA-related issues. I therefore conduct a policy frame analysis (Dekker, 2017). The central question in this paper is: how have the agriculture and environment ministries in Kenya framed agriculture, climate change, development, environment, food security, and their connections? And (how) can shifts in frames be explained?

The paper contributes to the CSA literature by enhancing insight into the process of incorporating CSA into policy. Because CSA is a rather new approach, insights into the concept's contribution and the process of policy incorporation are still limited. Cases of successful CSA policy uptake are studied with close scrutiny to see what lessons they provide (Chandra et al., 2018). Because antecedent conditions are expected to shape present and future reality, understanding how CSA fits in a longitudinal analysis of positions by agriculture and environment ministries will enhance our understanding of CSA and what it has to offer. If Kenya is to be used as providing lessons for other contexts an understanding of the temporal context is imperative (see Pettigrew, 1990). Understanding how CSA relates to previous policy approaches will enable the interpretation of the transformative potential of the

approach.

The article proceeds as follows. In the next section I discuss the analytical approach to policy frames. In the third section the methodology of the paper is discussed. The results section presents a comprehensive analysis of the frames in strategic plans and policy documents, and the factors explaining frame change. In the discussion I reflect on whether CSA is transformation or old wine in new bottles, I discuss the policy frames in the two types of policy documents, and reflect on the factors explaining change.

2. Theoretical section: on climate-smart agriculture and policy frame change

2.1. Policy frames

Policy frames play an important role in policy processes. These are 'interpretive schemata and ordering devices' necessary for decision-makers to contextualize and socially construct the reality of policy issues (Dekker, 2017; Stone, 1989). Frames contain aspects of a perceived reality including causal assumptions about problems, objectives and appropriate responses. They thus present certain perspectives by highlighting particular aspects of reality while ignoring others (Nilsson, 2005; Entman, 1993; Gaspar et al., 2013). Policy frames are often constructed to capture the current and desired situation and communicate about it (Rein and Schon, 1977, 240, Dekker, 2017).

Policy frames co-determine policy action, alongside other factors including institutional arrangements or external events (Hertin and Berkhout, 2003; Lenschow, 2002; Nilsson, 2005; Candel and Biesbroek, 2018). In the case of Kenya, policy frames also sometimes function as a 'shopping list' or 'signal' to potential donors to indicate the country's policy priorities in order to attract funding (Faling and Biesbroek, 2019). Policy frames might be ambiguous and incoherent across sources, thus providing an unclear action perspective. Ambiguity can be caused by layering of frames, limited resources, bounded rationality of policymakers, or by accommodation of different perspectives (Schon and Rein, 1995; Yanow, 1996; Vij et al., 2018). In Kenya donors, international NGOs, and research organizations frequently participate in policy processes by providing funding, knowledge and technical support (Njoroge et al., 2017; O'Brien and Ryan, 1999; Chesterman and Neely, 2015). The influence from multiple different sources is thus likely to create a certain ambiguity in policy frames across documents.

2.2. The framing of climate-smart agriculture

Climate-smart agriculture (CSA) is an approach to address the potential challenge of feeding a growing world population under a changing climate, by proposing transformations in the agriculture sector (Behnassi et al., 2014; Lipper et al., 2014). It presents agriculture, climate change, development, environment, and food security as closely linked by acknowledging a complex interpretation of issues and their interconnectedness. CSA acknowledges agriculture's vulnerability and contribution to climate change, identifies adverse consequences of climate change for development and food security, and signifies the prominence of agriculture to address these challenges (see Fig. 1). The changes it proposes serve to increase agricultural outputs and farmers' incomes to enhance resilience, development goals and food security, while mitigating emissions from the sector, where possible. CSA preaches context-specificity and acknowledges differing interpretations of CSA depending on the situation. For example, whereas some corporations promote synthetic agrochemicals and sustainable intensification as climate-smart agriculture, the World Bank interprets trading carbon offsets as CSA. Others, predominantly NGOs, interpret climate-smart agriculture as small-scale, agro-ecological farming (Faling et al., 2018a, 2018b; International, 2014; Karlsson et al., 2018). Despite these different interpretations, an essential and agreed-upon governance component of CSA entails the acknowledgement and
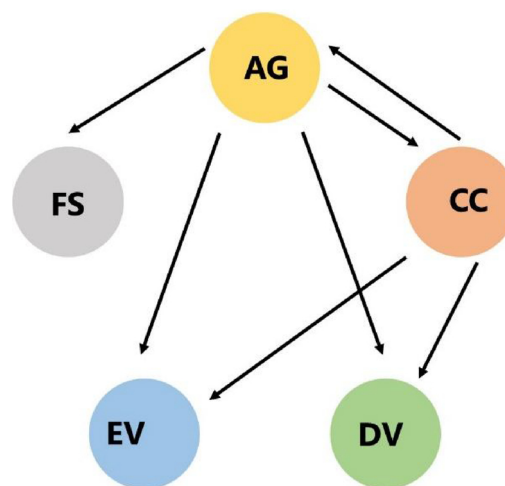

Fig. 1. Climate-smart agriculture narrative. Arrows indicate perceived connections between issues. AG = agriculture, CC = climate change, DV = development, EV = environment, FS = food security.

accommodation of linkages among agriculture, climate change, development, environment and food security (Faling et al., 2018a,2018b, Negra, 2014).

2.3. Explanatory factors of policy frame change

Policy frames change following different contingencies. Various socio-political-economic mechanisms have proven to influence frames including focusing events, policy entrepreneurship, and administrative culture, to name but a few (Candel and Biesbroek, 2016; Baumgartner and Jones, 1993). For instance, Fiss and Hirsch (2005) demonstrate in their study on the diffusion of the globalization discourse that changing economic and political conditions, such as levels of integration in the global market, codetermine frame change. Also, actor changes or interactions between sectors might influence the presence of one frame or another (Steensland, 2008; Jenkins-Smith et al., 2014; Hall, 1993; Mahoney and Thelen, 2010). In addition, changes in policy integration (frames) may be brought about by strategic and functional considerations including public demands, international organizations' demands, and control over jurisdictions (Tosun and Lang, 2017). The literature on explanations of general policy change highlights additional factors including external events, social learning, or internal governmental dynamics (Massey et al., 2014; Hall, 1993; Mahoney and Thelen, 2010).

3. Methodology

3.1. Demarcating the research

The study analyses policy documents from the two ministries that have been involved in the development of the CSA Strategy: the ministry responsible for agriculture and the ministry responsible for environment. Although both ministries have alternated their titles and jurisdiction over the years (e.g. Ministry of Agriculture and Irrigation, Ministry of Agriculture, Livestock and Fisheries), their general function has largely remained unchanged. Throughout the study I will refer to 'Ministry of Environment' and 'Ministry of Agriculture' for feasibility reasons. The period under study is 2002 – 2017. The time period was selected for pragmatic reasons, as the availability of policy documents from preceding and during the era under President Moi is generally limited (before 2002).

3.2. Data sources

Policy documents were used to identify policy frames and factors

Table 1
Issue frames in Strategic Plans.

Issue	Agriculture 2005–2009	Agriculture 2008–2012	Agriculture 2013–2017	Environment 2005–2010	Environment 2008–2012	Environment 2013–2018
Agriculture	Sustainable growth, through industrialization, private investment, trade.	Sustainable growth, through inputs, technology, credit.	Sustainable growth, through transformation smallholders to modern agriculture.	Negative impact on environment. Not specified.	Negative impact on environment, responsible for growth, food security. Agriculture, livestock, fisheries.	Negative impact on environment, responsible for growth. Agriculture, livestock, fisheries.
Climate change	Natural threat to agriculture, problem approach (no solutions).	Natural threat to agriculture and livelihoods, problem approach (no solutions).	Man-made threat to agriculture, livelihoods, economy, environment, and food production, positive approach (solutions, opportunities).	Natural threat to environment.	Man-made threat to environment, positive approach (solutions).	Man-made threat to environment and agriculture, positive approach (solutions).
Development	Trickle-down: economic growth through income and employment leads to poverty reduction, positive approach (solutions).	Trickle down: economic growth through income and employment, leads to sustainable development, equity, positive approach (solutions).	Trickle down: economic growth through income and employment, leads to sustainable development, equality, positive approach (solutions)	Sustainable development, poverty, livelihoods; problem approach (no solutions)	Sustainable development, poverty, wealth, employment, economic growth, positive approach (solutions)	Sustainable development, economic growth; positive approach (solutions)
Environment	Economic approach: environment key for production.	Not specified.	Economic approach: environment key for production.	Sustainability approach: environment key for sustainable development and addressing poverty.	Sustainability/economic approach: environment key for sustainable development and growth.	Sustainability/economic approach: environment key for sustainable development and growth.
Food security	Productionist approach: availability sufficient food.	Productionist approach: availability sufficient food.	Productionist approach: availability sufficient food.	N/A.	Unspecified.	N/A.

influencing frame change. To enable comparison between ministries and over time, I selected the Strategic Plans of both ministries, launched in 2005, 2008, and 2013, for analysis. These sector-wide Plans serve as operational blueprints and to guide prioritization by ministries. Because the Strategic Plans provided only three measurement points per ministry, and because policy documents might be ambiguous across sources, I complemented these with all other available policy documents (policies, strategies, programmes) published by each ministry. This resulted in 59 documents for analysis (Annex A).

The policy reports are complemented with 15 semi-structured interviews conducted in 2016 to identify frames and explain frame changes (Annex C). The interviews provided retrospective evidence, with consequences for reliability of findings, as human memory is selective and may be faulty (Yow, 2014). An additional literature analysis served to complement insights from the interviews, both historically to better understand past patterns of policy development and more recently to directly underpin and test oral accounts of the interviewees. A member check with three experts was done to assess the reliability of results.

3.3. Data coding

The policy documents were analysed through a largely deductive frame analysis, starting from predetermined categories, to identify policy frames and explanatory factors linked to frame change (David et al., 2011). A code book and a data extraction table can be found in Annex B.

Based on a broad interpretation of CSA I coded all text relating to the following issues: agriculture, climate change, environment, development, food security (Annex B). Because policy frames consist of causal assumptions about problems and appropriate responses, a policy frame contains an understanding of the issue (e.g. climate change as a natural threat externally imposed on Kenyan citizens and therefore unable to be curtailed) and a causal relationship among issues (e.g. how climate change impacts on agriculture through an increase in extreme weather events). These causal relationships indicate either a problem or a solution (e.g. problem: unpredictable weather decreases yields, or solution: agroforestry to mitigate and adapt to climate change). Annex B comprises an operationalization of frames.

For the identification of explanatory factors I deployed an open coding technique. I identified explanatory factors following indicators including 'this policy was developed following […]' or 'in accordance/line with […]' or similar expressions. In addition I coded references to other policies, events and agencies.

3.4. Data analysis

The analysis of the Strategic Plans was based on three areas of interest: the importance the Plans assign to each issue, the particular interpretation of each issue, and the framing of relationships among issues. First, to assess the importance each Strategic Plan attaches to the individual issues, I counted how often each issue appeared in the quotes identified per document, and then divided this number by the total amount of quotes to control for document size (e.g. if climate change was coded 26 times in a total of 68 quotes, climate change would get value .38 (26/68). Second, to identify the dominant policy frame on each issue per document I assessed the content of each quote to identify the interpretation of each issue. Third, to analyse the ministries' framing of relations among issues, I focused on whether a relationship was acknowledged, the direction of the relationship (e.g. agriculture influencing the environment or vice versa), and the value of the relationship (positive, negative or neutral). For the qualitative analysis (interpretation of the issue and the linkages) all quotes were organised according to ministry, year, sector(s), type of statement; and subsequently interpreted in an iterative way for general trends and patterns, following the operationalization as described above.
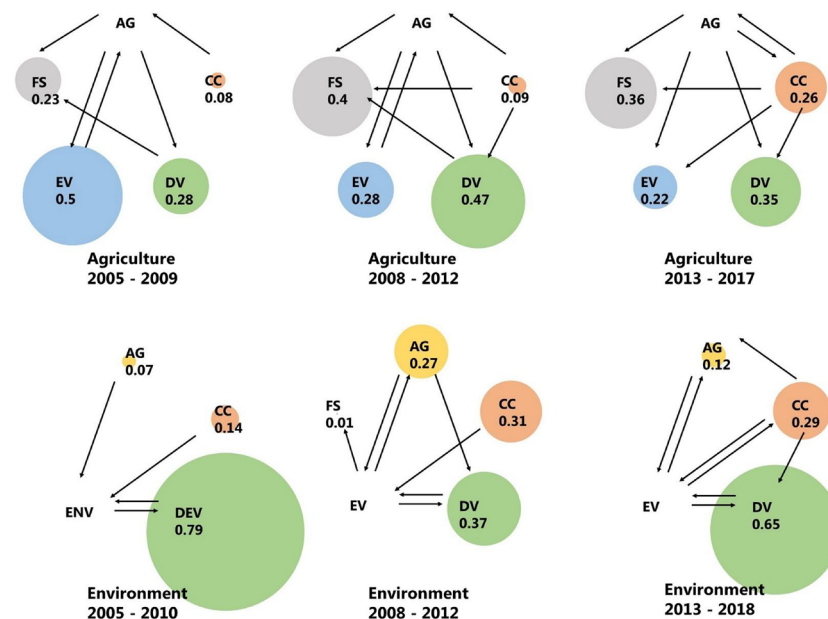
Fig. 2. Issues and issue linkages in Strategic Plans over time. AG = agriculture, CC = climate change, DV = development, EV = environment, FS = food security. Arrows display linkages framed, circle sizes represent relative attention per issue.

4. Results

Below I discuss the framing of the agriculture and environment ministries regarding the issues of agriculture, climate change, development, environment, and food security. Table 1 provides an overview of issue interpretations. Fig. 2 displays relative importance of the issues and issue linkages acknowledged in the Strategic Plans of both ministries. Below I present per time period an overview of agriculture-climate change-development-environment-food security related events and contingencies, discuss for each of the ministries' Strategic Plans the attention each issue receives, the dominant frames deployed, and issue linkages identified, contrast these with issue frames and attention in the sectoral policies, and discuss the factors explaining each ministry's focus.

4.1. The 2005–2010 period

Agriculture has traditionally received undivided policy attention in Kenya as a catalyst for growth, whereas environment has largely been viewed as subordinate to development. This standpoint was emphasized in the national Economic Recovery Strategy (ERS) launched in 2002. The ERS focused on macro-economic development, food security, and income and employment creation through strengthening of extension services and access to credit. It superficially addressed environmental preservation. In 2006 the 12th United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties was held in Nairobi. In preparation for this event civil society stepped up its climate change awareness and action, and united in two coalitions which would later form the Kenya Climate Change Working Group (KCCWG). These coalitions consisted of civil society and community farmer groups and were supported by various international development organizations.

4.1.1. Agriculture: modernization through environmental conservation
The agriculture Strategic Plan covering the 2005–2010 period framed the environment as key to agricultural development (.50), whereas climate change, though mentioned, seemed to play a very limited role (0.08). The other issues of development (.28) and food security (.23) received more or less equal attention. In the 2005–2009 Strategic Plan of the Ministry of Agriculture, the agricultural sector was

framed as key to national development and food security. According to the Ministry, the sector needed to be boosted predominantly through industrialization, private investments, and trade. Development in the agricultural sector would boost food security – framed as sufficient available food – and macro-economic growth, which would trickle down and address poverty. Climate change and environmental deterioration were understood to hamper agricultural development, therefore environmental conservation needed to be strengthened. In terms of linkages, the agriculture ministry predominantly framed agriculture as having a positive impact on development, environment, and food security. Climate change was framed as having an adverse impact only on agriculture.

The sectoral policies of the ministry in this period displayed a somewhat different frame. The central focus on the environment was not reflected in the sectoral policies, which framed agriculture predominantly as a catalyst for development. Environment however increasingly received attention in sectoral documents until 2009, after which its focus shifted again. Instead, the sectoral policies predominantly embraced a policy frame where agriculture acts as catalyst for development. Climate change received equally scant attention in sectoral policies.

4.1.2. Environment: the multiple threats to the environment
Development (.79) was the key focus of the Environment Strategic Plan, climate change received significant attention as compared with the Agriculture Strategic Plan (.14), whereas food security was not mentioned. The Environment Strategic Plan deployed a policy frame in which the environment was central to national development. Whereas the agriculture ministry focused predominantly on macro-economic growth, the Ministry of Environment framed the environment as key to realizing sustainable development, improving livelihoods and addressing poverty. Climate change and agriculture were framed as threats to the environment. Simultaneously the Plan framed the adverse impact of environmental degradation on development as significant. The framing in the Environment Strategic Plan was thereby more negative as compared with the Agriculture Strategic Plan.

The ministry's sectoral document (only one in this period: the Forest Policy) demonstrated a similar policy frame as compared with its Strategic Plan. It demonstrated an equal focus on the value of environmental preservation for societal development, and highlighted

agriculture and climate change as impacting negatively on the environment. Contrary to the Strategic Plan, it identified the environment's mitigation potential by highlighting the role of forests for carbon sequestration.

4.1.3. Explaining policy frames

The policy frames in this time period could be partly traced back to certain events and activities that took place. Agriculture's focus in the Strategic Plan on industrialization, private investment and trade resulted from donors like the World Bank and the IMF who introduced structural adjustments focused on liberalization and privatization since the 1980s (O'Brien and Ryan, 1999). The Strategy for Revitalizing Agriculture (SRA) that is based on the National Economic Recovery Strategy equally promoted private investments, as endorsed by international development partners (Poulton and Kanyinga, 2014). Both ministries' policy frames on environment presented environment as subordinate to development, as was the traditional approach by both government and donors (Wamicha and Mwanje, 2000). The Environment Strategic Plan focused on development, climate change and environment, inspired by global fora including the World Summit on Sustainable Development in 2002. The foreword of the Strategic Plan states that it "builds on the commitments set out in the ERS, the national Development Plan, Agenda 21, The Johannesburg Plan of Action and the Millennium Development Goals" (Ministry of Environment Strategic Plan 2005–2010).

4.2. The 2008–2012 period

The Kenya Vision 2030, a long-term development blueprint to transform Kenya into an industrialized and middle income country, was launched in 2008. Despite opposition from various civil society organizations, environmental concerns were only marginally included in the Vision. Agriculture was viewed as key for growth. From 2008 a new format dictated that Strategic Plans had to be aligned with Vision 2030 and that policy development required inter-ministerial consultations. Climate change slowly gained a more prominent focus in government. As one interviewee states: "the international community plays a role in the introduction of climate change, as funding around climate change is huge. All big international donors [...] are focusing on it" (interviewee 14). A Climate Change Unit was established in the office of the Prime Minister in 2008. In run up to the 2009 UN Climate Change Conference in Copenhagen African governments united in a common African platform for the acknowledgement of the link between agriculture and climate change in the climate negotiations. Kenya was closely involved in the process. In 2010 Kenya adopted a new Constitution, which recognized the right to environmental protection for present and future generations, and acknowledged climate change mitigation and adaptation (Kenya, 2010). In 2010 the Government adopted a National Climate Change Response Strategy, which obliged the mainstreaming of climate change in all projects and policies.

4.2.1. Agriculture: development is threatened, technical interventions required

The 2008–2012 Strategic Plan paid most attention to development (.47) and food security (.40) as compared with the other issues; whereas climate change still received negligible attention (.09). It presented a more integrated picture as compared with the previous Plan. It equally portrayed agriculture as key to national development. The policy frame shifted somewhat to portraying inputs, technology and credit to boost agriculture, instead of private investment and trade. Development of the agricultural sector was linked to development, framed as economic growth, and food security, which again was framed in terms of food availability. Climate change was framed as hampering not only the agricultural sector, but also development. Whereas in the previous plan development was mainly portrayed as an issue of macro-economic growth, this Plan acknowledged development also as matter of equity

and poverty alleviation. The Plan focused more heavily on negative linkages among the issues by acknowledging the adverse impact of agriculture on environment, but most importantly by framing how climate change threatens agriculture, food security and development.

Overall, attention for the different issues waxed and waned in the Ministry of Agriculture's sectoral policies. Whereas environment was central in 2009, development was key in 2010, and food security, due to the National Food Security Policy, occupied centre stage in 2011. Climate change was covered for the first time in sectoral policy in 2009. In line with the National Climate Change Response Strategy the ministry incorporated climate change structurally in its sectoral policies from 2011 onwards. It was perceived as an external natural threat, and neither adaptation not mitigation actions were offered.

4.2.2. Environment: agriculture's adverse impacts on environment

The Plan again paid most attention to development (.37), although the issues of climate change (.31) and agriculture (.27) receive almost equal attention. Food security was incorporated in the Strategic Plan, but received negligible attention (.01). Again, the Strategic Plan framed the environment as key to sustainable development and poverty alleviation, but in alignment with Agriculture acknowledged the importance of the environment for macro-economic growth. Agriculture and climate change were again framed as threatening the environment, but unlike the previous Plan, the 2008–2012 Strategic Plan displayed an action perspective by highlighting various interventions the ministry could undertake to address these threats. In general, the 2008–2012 Plan framed issues as increasingly linked, and started acknowledging positive linkages among issues as well, with the exception of the central focus on the adverse impacts of agriculture on the environment. Although the Environment Plan paid much more attention to climate change as compared with the Agriculture Plan of the same period, the Environment Plan only framed climate change in terms of its adverse impacts on the environment.

Whereas development lost the ministry's undivided attention somewhat in the 2008–2012 Strategic Plan, it continued to receive unabated attention in the sectoral policies. Unlike the Strategic Plan, the ministry's sectoral policies paid limited attention to agriculture. The sectoral policies refrained from addressing food security entirely. Climate change was increasingly addressed in the sectoral policies in line with the Strategic Plan, most notably through the adoption of the National Climate Change Response Strategy.

4.2.3. Explaining policy frames

Vision 2030 proved influential for the development of policy frames in the Agriculture Strategic Plan. It framed development as a matter of agricultural processing and technical interventions, and highlighted sustainability and equity concerns, in line with the Vision. Although environment was not separately recognized in the Vision, the Environment Strategic Plan predominantly highlighted how environment is essential for development, and how the expected growth, resulting partly from agriculture, would put pressure on the environment. Agriculture's focus on poverty was related to the Millennium Development Goals, which were signed in 2000. The government's enhanced focus on climate change was mirrored predominantly in the policy frame of the Environment, in both its Strategic Plan and sectoral policies.

4.3. The 2012–2017 period

In 2015 the United Nations General Assembly adopted the 2030 Agenda, including the Sustainable Development Goals (SDGs) that aimed to address various social and economic development issues. Initiatives such as the UNDP and FAO programme to incorporate agriculture in Kenya's National Adaptation Plan, reemphasized and strengthened linkages among different ministries. As one interviewee states "these programmes facilitate and strengthen collaboration and

interaction among relevant line ministries" (interview 15). These developments thus attempted to mainstream climate change in other ministries' policy documents.

4.3.1. Agriculture: the rise of climate change

In this Plan, food security received most attention (.36), whereas climate change (.26) received much more attention as compared with previous Plans, and the other issues of development (.35) and environment (.22) got similar levels of attention. The Plan acknowledged that the agricultural sector needed to be boosted in a sustainable manner, to avoid reducing outputs as a result of environmental deterioration. Thereto subsistence farming needed to be transformed to modern and commercial agriculture. Climate change was framed as hampering not only agriculture, but also development, environment, and food security. Adaptation interventions from the agricultural sector were therefore required. Agricultural development was thus framed as leading to growth, a healthy environment, and resilience to the adverse impacts of climate change. The policy frame adopted in this Strategic Plan thus acknowledged complex linkages among the issues, most importantly climate change was framed as impacting negatively on all the other issues.

The sectoral policies of the agriculture ministry generally retained their focus on development in this time period, although environment and food security were more strongly covered in 2015 and 2016 respectively. Unlike in the Strategic Plan, climate change remained marginally covered in the sectoral policies. The sectoral policies repeatedly referred to sustainable development and the SDGs after 2015.

4.3.2. Environment: the multiple threats of climate change

Development gained more prominent attention again (.65), whereas the adverse impacts of agriculture lost some attention (.27). Climate change remaieds an integral part of the Environment Strategic Plan's frame (.31), and food security disappeared again from the Plan. The focus on the environment as key to development remained a constant throughout the Environment Strategic Plans. This time the Plan framed development as not only entailing macro-economic growth and poverty alleviation, but as also entailing wealth and employment. The adverse impacts of climate change and development were viewed to threaten the environment, whereas environmental deterioration hampered development. The Plan thus framed environment and development as interlinked in multiple ways. Climate change was framed as threatening not only environment, as in the previous Environment Strategic Plan, but also threatening agriculture and development.

Development remained the key issue for sectoral policies, also in this period. Whereas the Strategic Plan distanced itself from food security again, the sectoral policies of Environment addressed food security in 2013, 2015 and 2016. Climate change was well-covered in sectoral policies, particularly with the National Climate Change Action Plan 2012 and the National Adaptation Plan 2015, which offered a range of adaptation and mitigation interventions in all sectors of the economy.

4.3.3. Explaining policy frames

Both ministries frame the issues under study as increasingly interlinked. Part of the ministries' acknowledgement of mutual relations was inspired by the development of a common African position on agriculture in the UNFCCC, which enhanced joint involvement of both ministries in climate-related issues; a process pushed by various international organizations, as indicated by various interviewees. In 2010 the Agricultural Sector Development Strategy (ASDS) was developed. It mirrored the regional Comprehensive Africa Agriculture Development Programme (CAADP) and its principles of accountability, transparency and inclusiveness. It furthermore promoted a shift from agriculture as subsistence practice to agriculture as commercial business, which was reflected in the 2012–2017 Strategic Plan.

The Environment Strategic Plan was influenced partly by UN programmes and activities. It framed the relation between environment and development by referring to the Green Economy, following the UN Environment's contribution to the Rio + 20 process. Although climate change was discussed as an anthropogenic issue, the Ministry of Environment hardly proposed resolutions, except for the Green Economy and Clean Development Mechanism, in line with the Post-2015 Agenda.

5. Discussion

This paper analysed policy frame development regarding CSA-related issues in Kenya. It studied policy documents from the agriculture and environment ministries to identify the development of frames on agriculture, climate change, development, environment and food security. Thereby it analysed the origin and nature of CSA policy adoption and identified whether CSA should be interpreted as a radical divide from existing practices, component of a gradual change process, or as old wine in new bottles. Following my analysis, I herewith discuss three key findings.

First, the study demonstrates that the CSA Strategy is a continuation of an existing trend in both ministries' policy frames, which display a gradual increase in comprehensiveness and complexity regarding the nature of the issues and their mutual relationships. Climate change particularly is increasingly covered and framed as connected to the other issues. This trend is particularly visible in the Strategic Plans. The CSA Strategy displays a minor frame shift as compared with preceding frames. The clearest difference of the CSA Strategy is the acknowledgement of agriculture's contribution to climate change. The development of a CSA Strategy is thus a logical step given the historical development of policy frames. Often CSA is presented as a transformative approach to address climate change and food insecurity (Lipper et al., 2014; Chandra et al., 2018). The results from this research suggest that CSA policy adoption in Kenya is a continuation of an existing trend. This trend is characterized by an increasing acknowledgement of the complexity of the issues and their mutual linkages rather than a radical transformation. Although the CSA Strategy will thus not bring a transformation of Kenya's agricultural system, in light of implementation possibilities this could be good news. Compatibility with pre-existing policy frames has been shown to be conducive to (environmental) policy integration (Persson and Runhaar, 2018). Smaller or more incremental changes are expected to encounter less resistance as compared with radical changes, and require less adaptation from actors involved (Termeer et al., 2017). Although the assessment of change is highly subjective to certain choices including object of study and time frame, policy frame development around agriculture, climate change, development, environment and food security in Kenya seems incremental rather than transformative (Capano, 2009; Knill and Tosun, 2012). Although CSA is thus presented as transformation from existing practices, this study suggests that the value of CSA as tool to address contemporary challenges including climate change and food insecurity is limited to those contexts characterized by an acknowledgement of a certain level of connectedness among the issues of agriculture, climate change, development, environment, and food security.

Second, a certain discrepancy exists between Strategic Plans on the one hand and sectoral policies on the other. Whereas the Strategic Plans display a gradual trend of increasingly complex and integrated frames of agriculture, climate change, development, environment and food security, sectoral policies show a more erratic pattern. Overall, the sectoral policies do display the increased integrative policy frames of the Strategic Plans. However, some policies keep a narrow focus on the particular issue of concern and link this mostly to more traditional issues including development and economic growth. This might be due to the particular purpose sectoral policies may serve (e.g. a Horticulture Policy or a Solid Waste Management Strategy). Furthermore, it might be explained by limited availability of resources (Alila and Atieno, 2006; Maina et al., 2013), inadequate internal consultation across

government (O'Brien and Ryan, 1999), or by subcontracting policy drafting to consultants or donors (Maina et al., 2013). Struggling with the implementation of policy integration is not unique to Kenya. While policy frameworks such as strategies are adopted rather easily, a move towards more binding (or concrete) measures that interfere with sectoral policymaking and existing institutional structures is much more challenging (Widmer, 2018).

Third, my analysis suggests policy integration frames are influenced by a variety of different factors. Both ministries' policy frames carry the signature of global and bilateral donors and partners, who through various projects and programmes codetermine policy frames and directions. Studies concentrating on policy integration generally stress the role of IGOs in placing integration on national agendas (Tosun and Lang, 2017; Köhler, 2011). My findings underpin what has been argued before: certain policy initiatives, including in Kenya seem to be at least partly donor-driven (Alila and Atieno, 2006; O'Brien and Ryan, 1999). Simultaneously policies are inspired by national development goals including its Economic Recovery Strategy and Vision 2030, as my results indicate. However, overall the pattern of factors influencing on policy frames is somewhat muddled. Interviewees indicated that policy documents are frequently influenced by rather opaque processes, including personal networks and events, subcontracting policy development to consultants, and donor support. Faling and Biesbroek (2019) demonstrate that the development of the Kenya CSA Strategy was developed through close involvement of various donors, international organizations and foreign government departments. Follow-up research would be valuable to identify how Strategic Plans and sectoral policies relate, and how policy development processes usually evolve.

6. Conclusion

Agricultural production in Kenya is threatened by climate change, thereby jeopardizing economy, livelihoods, and food security. The government in 2017 launched the Kenya Climate-Smart Agriculture Strategy, which presents climate-smart agriculture (CSA) as a transformation of its agricultural systems through integrating agriculture, climate change, development, environment and food security. By undertaking a longitudinal analysis of policy frames around these issues and their linkages, I contextualized CSA-policy adoption to understand whether CSA is a transformative approach or old wine in new bottles.

My research has shown that CSA policy is a continuation of a trend characterized by enhanced complexity. It is thus rather an incremental shift away from existing practices instead of a radical transformation. The close proximity to existing approaches might actually enable successful implementation as it meets less resistance. In Kenya policies are influenced by national development plans, donors, regional and global fora, and personal networks. This study suggests that the value of CSA is limited to those contexts that acknowledge a certain level of connectedness among the issues of agriculture, climate change, development, environment, and food security.

Annex A Selected (and missing) policies from Ministries Environment and Agriculture

See Table A1–A5

Table A1
Agriculture Strategic Plans included in analysis.

#	Title	Year
1	Ministry of Agriculture Strategic Plan 2005–2009	2005
2	Ministry of Agriculture Strategic Plan 2008–2012	2008
3	Ministry of Agriculture, Livestock and Fisheries Strategic Plan 2013–2017	2013

Table A2
Agriculture Sectoral Policies included in analysis*.

#	Title	Year
1	Strategy for Revitalizing Agriculture 2004 - 2014	2004
2	National Policy on Cassava Industry	2007
3	National Livestock Policy	2008
4	National Oceans and Fisheries Policy Kenya	2008
5	National Rice Development Strategy 2008 - 2018	2008
6	National Animal Breeding Policy	2009
7	Agriculture Sector Development Strategy 2009 - 2020	2009
8	Agriculture (Farm Forestry) Rules	2009
9	National Beekeeping Policy	2009
10	National Seed Policy	2010
11	National Poultry Policy	2010
12	National Food and Nutrition Security Policy (NFNP)	2011
13	National Agribusiness Strategy	2012

(*continued on next page*)

Table A2 (*continued*)

#	Title	Year
14	The National Agricultural Sector Extension Policy (NASEP)	2012
15	National Horticulture Policy	2012
16	National Agricultural Research System Policy	2012
17	National Dairy Development Policy	2013
18	National Irrigation Policy	2015
19	Kenya Veterinary Policy	2015
20	National Potato Strategy 2016 - 2020	2016
21	Capacity Building Strategy for Agriculture Sector	2017

* Not all Agriculture policies could be retrieved, missing policies are listed in Table A3.

Table A3
Environment Strategic Plans included in analysis.

#	Title	Year
1	National Environmental Management Authority Strategic Plan 2005–2010	2005
2	Ministry of Environment and Mineral Resources Strategic Plan 2008–2012	2008
3	National Environmental Management Authority Strategic Plan 2013–2018	2013

Table A4
Environment Policies included in analysis.

#	Title	Year
1	National Forest Policy	2005
2	National Environment Action Plan Framework 2009 – 2013	2009
3	National Climate Change Response Strategy	2010
4	Draft Wildlife Policy	2011
5	National Wildlife Conservation and Management Policy	2012
6	National Environment Policy	2013
7	National Climate Change Action Plan 2013-2017	2013
8	National Forest Policy	2014
9	Draft National Climate Change Framework Policy	2014
10	National Solid Waste Management Strategy	2015
11	Draft National Forest Policy	2015
12	National Adaptation Plan 2015-2030	2015
13	Green Economy Strategy and Implementation Plan 2016-2030	2016
14	National Wildlife Conservation and Management Policy	2017

**all policies from the Ministry of Environment could be retrieved.

Table A5
Agriculture Policies not included in analysis.

#	Title	Year
1	Kenya Rural Development Strategy 2002 - 2017	2002
2	National Seed Industry Policy	2004
3	National Agriculture Sector Extension Policy	2005
4	National Horticulture Development Policy	2005
5	National Potato Industry Policy	2006
6	National Biotechnology and Development Policy	2006
7	Nut Crops Development Policy and Bill	2007
8	National Water Storage Policy	2008
9	National Irrigation and Drainage Policy	2008
10	National Rabbit Development Strategy and Implementation Framework 2013-2017	2013
11	Draft Agriculture Policy	2014

Annex B Coding instructions

See Table B1

Table B1
Issues to code.

Issue	Definition	Words to look for (not exhaustive)
Agriculture	All issues relating to agriculture, livestock, fisheries, horticulture	Crop, yields, plant breeding, marine resources, horticulture
Climate change	All issues relating to changing/ uncertain weather patterns, both mitigation and adaptation (not general weather conditions)	Climate change, adaptation, mitigation, GHGs, rising/changing temperatures, changes in droughts/floods/rainfall, warming
Development	All issues relating to the organized pursuit of human well-being (both modernizing society, economic growth and well-being and capabilities)	Industrialization, modernization, growth, economy, equity, gender, social capital, livelihoods, happiness
Environment	All issues relating to ecosystems, natural and physical resources, qualities and characteristics of locations, places and areas	Environment, soil, wetlands, ecosystem, marine resources, water, ecology, mountains, desert(ification), biodiversity
Food security	All issues relating to availability, accessibility, adequacy, and acceptability of food	Nutrition, food, hunger, starvation, (under)nourishment, diet

Selection documents

- All strategic plans of both ministries, for consistency and comparability
- In addition, all policies issued/developed/under auspices of Ministries under research or relevant sector ministries [environment and agriculture] in the relevant time period 2003–2017 [as far as available]. As there is no comprehensive database from the government on ministerial policies and documents, comprise list of policies based on interviews, from various non-government organizations, academic publications, international organizations, grey literature, based on saturation approach.

Policy frames

What is the purpose of the coding?

Central question/purpose of coding policy documents from ministries is: how does the ministry frame issues of agriculture, climate change, environment, food security and development, and linkages among issues?

Which sections to code?

Code all sentences mentioning one of the following: climate change, agriculture, food security, development, environment (or related concepts). When coding agriculture policies, code all sentences mentioning climate change, development, environment and/or food security (do not code sentences only relating to agriculture). When coding environment policies, code all sentences relating to agriculture, climate change, development and/or food security (do not code sentences only on environment). For an indication of related concepts, see Table A4.

What is a coding statement, what is it composed of?

Either of the following or a combination (while mentioning the sections as described above): problem, cause, solution, intervention, general statement (most text sections will be incomplete, containing only one of several of the categories).

How go about coding?

1 **Source** – who is the actor speaking, on which occasion, to what audience, in what form.
  a Ministry
    i Ministry Agriculture
    ii Ministry Environment
  b Document type
    i Strategic Plan
    ii iSectoral implementation policy
  c Year
    i Open (between 2002–2017)
2 **Sentence–** copy full relevant piece of text (either (part of) sentences, paragraph, subchapter to data abstraction table.
  a A quote should contain (a) a statement on an issue other than the host ministry (agriculture: climate change, development, environment, food security; environment: agriculture, climate change, development, food security);

  (from Environment Strategic Plan 2008–2012) 'the signs of climate change are increasingly obvious'
  →This quote relates to the issue of climate change

a
  a OR (b) linkage between two issues (e.g. how ENV and CC relate);

  (from Environment Strategic Plan 2008–2012) 'GDP growth with an average rate of 10 % per annum will depend on key sectors such as agriculture'
  →This quote relates to the linkage among agriculture and development

3 **Key concepts–** Identify key concepts, which relate to the nature of the issue or the linkage. A single quote may have multiple key concepts.

(from Environment Strategic Plan 08–12) 'From an environmental point of view, agriculture has long been seen as a major cause of several ills, including erosion, sedimentation, eutrophication and invasive species'

→This quote contains multiple linkages, which thus form separate coding units. 'erosion', 'sedimentation', 'eutrophication', 'invasive species' are variously identified as key concept. Although the quotes refer to linkages among agriculture and environment, these do not count as key concepts, because these are not further specified (when the quote would refer to 'sustainable agricultural practices' or 'sustainable intensification', these would be identified as key concepts.

Ministry	Document type	Year	Sentence	Key concepts
ENV	Strategic Plan	2008–2012	From an environmental point of view, agriculture has long been seen as a major cause of several ills, including erosion	Erosion
ENV	Strategic Plan	2008–2012	From an environmental point of view, agriculture has long been seen as a major cause of several ills, including […] sedimentation	Sedimentation
ENV	Strategic Plan	2008–2012	From an environmental point of view, agriculture has long been seen as a major cause of several ills, including […] eutrophication	Eutrophication
ENV	Strategic Plan	2008–2012	From an environmental point of view, agriculture has long been seen as a major cause of several ills, including […] invasive species	Invasive species

4 **Issue(s)–** identify issue(s) addressed in quote.

(from Environment Strategic Plan 2008–2012) 'GDP growth with an average rate of 10 % per annum will depend on key sectors such as agriculture'

→This quote contains linkage among 2 issues: agriculture and development

Sentence	AG	CC	DEV	ENV	FS
GDP growth with an average rate of 10 % per annum will depend on key sectors such as agriculture	X		X		

5 **Relationship (if applicable)–** what is the direction of the linkage?

(from Environment Strategic Plan 2008–2012) 'GDP growth with an average rate of 10 % per annum will depend on key sectors such as agriculture'

→This quote contains causal linkage among agriculture and development, whereby agriculture is perceived to cause development

Sentence	AG	DEV	Relation
GDP growth with an average rate of 10 % per annum will depend on key sectors such as agriculture	X	X	AG → DEV

6 **Type of statement–** choose between problem (negative impact of one sector on the other), OR solution (how [interventions in] one sector could address [problems in] other sector, OR neutral [no relationship is explicated]

(from Environment Strategic Plan 2008–2012) 'GDP growth with an average rate of 10 % per annum will depend on key sectors such as agriculture'

→This quote contains causal linkage whereby agriculture is perceived to cause development. No value is indicated in this quote. A 'problem' quote would for instance be 'Climate change severity overcomes national capacity to adapt, leading to increased disasters, including drought and famine.' A 'solution' quote would for instance be: 'Key issues to raise real awareness of the importance of environmental matters within national and local political leaders is to tap on carbon markets'

Sentence	AG	DEV	Relation	Type
GDP growth with an average rate of 10 % per annum will depend on key sectors such as agriculture	X	X	AG → DEV	neutral

7 **Defining the unit of analysis (the 'quote')**
   a Create a separate quote for each **issue** (if quote is a statement and not contains a linkage)

'poverty and hunger are on the rise'
→This sentence relates to the issues of development and food security. Therefore, these should be two separate quotes

Ministry	Document type	Year	Sentence
ENV	Strategic Plan	2008–2012	poverty […] are on the rise
ENV	Strategic Plan	2008–2012	[…] hunger are on the rise

a

  a Create a separate quote if the **nature** of linkage changes

(from Environment Strategic Plan 2008–2012) 'From an environmental point of view, agriculture has long been seen as a major cause of several ills, including erosion, sedimentation, eutrophication and invasive species'
→This sentence contains multiple linkages among agriculture and environment: erosion, sedimentation, eutrophication, invasive species. It will thus be coded as four separate quotes.

a

  a Create a separate quote if the **direction** of the linkage changes

'economic growth puts a pressure on the quality of the environment, while environmental deterioration hampers the development of people dependent on the environment.'
→This sentence contains a linkage among environment and development in two directions: environment impacts on development, and vice versa. It should therefore be coded as two separate quotes.

a

  a Create a separate quote if the **type** of statement changes

'climate **change** threatens agricultural production in some parts of the globe while increasing yields in other areas'
→This sentence contains a linkage between climate change and agriculture, whereby the first part of the sentence refers to a problematic relationship whereas the last part of the sentence refers to a positive linkage. It should thus be coded as two separate quotes.

a

  a In case of a sentence referring to a tripartite linkage among issues, then divide the sentence into two separate quotes, but code for all three issues in both quotes

'climate change threatens agricultural production, thereby jeopardizing Kenya's food security'
→This sentence contains a linkage between climate change → agriculture → food security. It should thus be divided into two separate quotes

Sentence	AG	CC	FS	Relation	Type
climate change threatens agricultural production [thereby jeopardizing Kenya's food security]	X	X	X	AG → DEV	neutral
[climate change] threatens agricultural production thereby jeopardizing Kenya's food security]	X	X	X		

8 **Example data abstraction table**.

min istry	Doc	Yr	Sentence	Key concept	AG	CC	DV	EN	FS	link	nature
EV	SP	0812	most environmental pressure, including catchment degradation comes through overharvesting	over-harvesting, catchment degradation	x			x		AG – EV	problem

Annex C List of interviewees

#	Title	Date
1.	(former) Climate Change Coordinator, National Environment Management Authority (NEMA)	08 May 2017
2.	Livestock Officer, State Department of Livestock, Ministry of Agriculture Livestock and Fisheries	25 April
3.	Agricultural Counsellor for Kenya, Tanzania, UNEP, Netherlands Embassy Nairobi	15 May 2017
4.	Researcher, CGIAR-CCAFS ILRI	21 April 2017
5.	Communications, Alliance for a Green Revolution in Africa	18 May 2017
6.	Research Officer Environment, Kenya Agricultural & Livestock Research Organization (KALRO)	01 May 2017
7.	Senior Officer, Kenya Climate Change Working Group (KCCWG)	18 May 2017
8.	Senior Scientist, Decision and Policy Analysis Research, Centre for Tropical Agriculture (CIAT)	24 May 2017
9.	Sustainable Development Specialist, United Nations Development Program (UNDP)	16 May 2017
10.	Climate Change Expert, Wangari Maathai Institute, University of Nairobi (UON)	03 May 2017
11.	Freelance consultant, Finance Innovation for Climate Change Fund (FICCF)	15 April 2017
12.	Lead Agriculture Economist, World Bank Group	18 May 2017
13.	Senior Assistant Director Climate Change Secretariat, Ministry of Environment	28 April 2017
14.	East Africa Subregional Coordinator, Forest Stewardship Council (FSC)	02 May 2017
15.	Technical Coordinator, United Nations Food and Agriculture Organization (FAO)	06 May 2017
16.	Climate Advisor, Common market for Eastern and Southern Africa (COMESA)	4 May 2017

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