

Towards a Future Without Vanishing Food

An Interdisciplinary Answer to Minimize Locust-Induced Crop Losses in
Kenya



Interdisciplinary Bachelor Thesis
Liberal Arts and Sciences
June 26, 2020
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Abstract

The Horn of Africa and surrounding countries are currently experiencing one of the worst desert locust outbreaks of the last decades, risking mass starvation of African citizens. One of the countries affected is Kenya, where up to 100% of all crops are expected to be lost, leaving farmers behind without any food or income. Since millions of livelihoods are at stake, effectively addressing this locust plague crisis and decreasing future risks is critical. In order to do so, this thesis aims to answer the following question: “How can the appropriate measures be implemented to sustainably minimize crop loss due to locust plagues in the coming planting seasons in Kenya as effectively as possible?”

This thesis conducts an interdisciplinary research process to investigate different components of the locust crisis and its solutions. First, a chapter by Governance for Sustainable Development (GfSD) shows that the current locust policy is not focused enough on Kenya’s specific context and resources, and that the policy needs to be improved with sustainable landscape adjustments. Second, the Gender Studies (GS) chapter indicates that development organizations and Kenyan women need to work together in the locust crisis to provide structural policy changes specified towards women, the most vulnerable group in this crisis. Finally, the chapter by Politics, Philosophy and Society (PPS) reveals that the locust crisis can cause policy change, but only if scientists and government officials cooperate and present the needed policy comprehensively and as not shaking up the existing power relations.

These different insights were then integrated to create a *more comprehensive understanding*. To do so, *common ground* was created for the main components and identified conflicts between the disciplinary insights. As a next step, the *more comprehensive understanding* was formulated, providing our answer to the research question. This answer highlights that appropriate measures must be effective on the long term and tailored towards Kenya’s specific context. Also, the measures must match with the needs and abilities of Kenyan women. The most important actors in the implementation of these measures must be the Kenyan government, supported by international organizations in cooperation with Kenyan women. However, other actors are critical to ensure that the government will correctly implement appropriate measures. Only in this way can long-term effective action be realized for Kenya to address the locust crisis.

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Introduction: Kenya's Locust Crisis and the Critical Need for an Interdisciplinary View on Solutions

The Horn of Africa and surrounding countries are currently experiencing one of the worst desert locust outbreaks of the last decades. With climate change as a catalyst, the weather conditions in 2018 were favourable for desert locusts to survive and reproduce, and for the plague to start in late 2018 (Emerald Insight, 2020). As of now, this plague has accumulated to a crisis where every day, one swarm of desert locusts eats crops that would have fed 81 million people. Farmers see crops they need to feed their families vanish within hours, and within months, the crisis is expected to grow four hundredfold (World Bank Group, 2020a). In addition, the same weather conditions that caused the plague have also damaged or destroyed previous crops, making a successful planting season starting in June crucial for the livelihoods of millions (Ministry of Agriculture, Livestock and Fisheries, 2019).

Locust crops are targeting an already vulnerable region with limited resources and socio-economic instability. With 22 million people already food insecure – and many more millions on the brink of insecurity – and without enough resources, or in countries such as Somalia even without a government able to take action, the locust plague could drive millions into starvation. To make the situation worse, the locust swarms are only expected to grow in the coming months and possibly years, with this crisis having damaging impacts on multiple planting seasons (Oxford Analytica, 2020). Action to save lives is thus critical.

This thesis will try to show how this action must take place, by presenting the solutions to avoid locust crises in future planting seasons. It will do so by focusing on Kenya, firstly because this country is affected especially severely, with up to 100% expected crop losses (World Bank Group, 2020b). Another reason is that Kenya is relatively representative for Africa – in terms of economic conditions and political context – and the outcomes of the research could be, too (World Bank Group, 2020c). To address this locust plague crisis and future risks properly, the following research question has thus been formulated: “How can the appropriate measures be implemented to sustainably minimize crop loss due to locust plagues in the coming planting seasons in Kenya as effectively as possible?”

This problem is highly complex: it requires looking both at what has scientifically proven to work, and at how we can ensure this will be implemented and effective in the political, economic and social context of Kenya and the countries' supranational relations. As mentioned previously, Kenya is, just as the entire region, already a vulnerable country, with food insecure inhabitants, limited resources and capacities, and whose crops have already been negatively affected by weather conditions (Ministry of Agriculture, Livestock and Fisheries, 2019; Zhang et al., 2019). Furthermore, implementation of solutions requires political action, which makes the political and policymaking context vital to understand. Any solution must take all these factors into account, by considering what is possible for Kenya to implement, where others must help, and what measures are effective in this context.

Because all these different areas are critical and highly interlinked, this thesis will provide an interdisciplinary view on how to ensure implementation of the appropriate measures for longer-term locust plague risk reduction. The following disciplines will be used for this aim: Governance for Sustainable Development (GfSD), Gender Studies (GS) and Philosophy, Politics & Society (PPS).

GfSD, a discipline that generally focuses on analysing environmental issues and designing new solutions from a broad natural and social scientific perspective, can provide crucial insights in what measures have been shown to work in sustainably minimizing impacts of locusts, and how this can be related to the governance context in which these measures function. Here, taking into account climate change is required for longer-term solutions. GS generally looks at existing power structures, knowledge bases and inequalities between social groups. This is crucial to take into account in this research, because 52% of the agricultural workforce of sub-Saharan Africa are women, and past measures have shown to have neglected women, or have been unable to reach them, because they did not explicitly design measures to accommodate women's needs and abilities (Food and Agriculture Organization, 2011; Mohanty, 2003). This leads to higher inequalities and less effective measures, with those who most need them unable to benefit from the measures (Anunobi, 2002; Resurrección et al., 2019). Aiming not to make past mistakes, GS will provide the critical insights in how to design and implement measures that will help women as well.

However, as implementation of policies happens via politics, an analysis of Kenyan politics and the related policy formation processes is critical. The last discipline, PPS, which generally focuses on political structures, their relation with society, and how political and societal change interact and drive changes, can provide key insights on how to realize uptake of measures and implementation, especially in times of crises.

To provide a solid and holistic answer to address the multi-layered problem of our research question, the methodology for interdisciplinary research processes as described by Repko & Szostak (2017) will be used to integrate the insights from different disciplines. This methodology identifies conflicts between the disciplines, in order to solve these conflicts. Next, this method allows for the creation of a *more comprehensive understanding*: an answer to our research question based on the insights from different disciplines but going beyond just providing the sum of the disciplinary parts. This answer will provide a clear call to action, explaining which actors must take what actions to ensure that Kenya's risk of locust plague-induced crop losses will significantly decrease, ensuring that millions of Kenyans will not be driven into starvation in the future.

Important to note is that this unfolding crisis is an international one: the locust plagues affect in 23 countries in total, and due to the species' mitigatory nature, Kenya is affecting surrounding countries, while simultaneously being affected by them (Food and Agriculture Organization, 2020; Lecoq, 2005). Consequently, this thesis focusing on Kenya should be seen as both the starting point in solving a larger problem that affects almost twenty percent of the world's population, and as a case study where the case is highly interlinked with and impacted by others.

1. Kenya's locust policy: the need for a change in policy to prevent future plagues

1.1 Introduction

Kenya and surrounding countries have been affected by locust plagues for centuries, with the worst and most frequent plagues happening in the 1960's (Emerald Insight, 2020). Over the decades, multiple strategies have been developed in order to combat these frequent plagues before finally deciding on preventive control; since this switch in locust control was made at the end of the 20th century, locust plagues have become less frequent, smaller in scale and shorter in duration (Lecoq, 2005). This might change now; with climate change as a catalyst, the Horn of Africa is currently facing its worst locust plague to date, and the chance of this occurring more frequently is rising (World Bank Group, n.d.).

Desert locusts have a life-span of approximately three months, and can only procreate under very specific weather conditions; climate change has made this weather pattern of drought and extreme rainfall more frequent, already destroying crops and multiplying the swarms at an alarming rate (Emerald Insight, 2020). Currently Kenya's focus is to try and save remaining crops from the pests and controlling the locust surge by spraying and airdropping huge amounts of pesticides (Jaoko et. al, 2020). An unsustainable solution, both in terms of durability and the negative effects it has on the environment, biodiversity and citizen's health (Jaoko et. al., 2020; Conte, Piemontese & Tapsoba, 2020).

This consequence of climate change has also brought institutional deficiencies to light; Kenya is both part of an international institution with its neighbouring countries, The Desert Locust Communication Office East Africa (DLCO-EA), in order to collect data about the locust and receives help from the Food and Agriculture organization (FAO), as well as using their guidelines regarding the locust plagues. This preventive policy was deemed successful since it was implemented in the early 2000's, but its efficiency depends heavily on the country and its capability to implement this policy correctly, which largely depends on if the country has the correct resources

to do so. With the current plague, this policy is not enough to protect the citizens from the consequences, and within the context of climate change, it can be assumed that it will not be enough to protect them from following plagues of this caliber.

The aim of this thesis is to identify the weaknesses in Kenya's current locust policy and suggest the improvements that need to be made to ensure that Kenya is able to sustainably control future locust plagues. This will be led by the following research question : 'What does a more effective, sustainable and achievable locust policy for Kenya look like?'

In order to answer this the desert locust guidelines created by the FAO, will be outlined in order to see what Kenya's current role is in the established practice of preventive control. These guidelines are chosen since they are the basis of locust policies in different countries, and the FAO plays an important role in preventive locust control of which these guidelines are a big part. Following this, it is researched through a variation of literature to what extent Kenya is able to comply with these expectations and how their own desert locust policy is organized, at least to the extent in which it exists.

These results will be discussed through the use of indicators in order to determine in what areas Kenya is lacking and room to suggest improvements to Kenya's locust policy that are more achievable with their available resources, followed by a discussion and conclusion in which a more sustainable, manageable and effective locust policy for Kenya is recommended in order to minimize the chance of the plague repeating itself on this devastating scale.

1.2 Methods

In order to conduct this research, a multitude of sources are used. A combination of scientific papers and grey literature such as policy documents will be used in order to determine how the FAO guidelines and Kenya's own locust policy work and are organized. Grey literature is also necessary to determine how much influence an institution such as the DLCO-EA has on either the policy itself or the capacities to implement it. Academic literature will also substantiate how effective the current measures are for a country such as Kenya, in addition to illustrate how the plague has developed until now and why it got so out of hand in a country like Kenya. This literature will be used as the background information on which it will be decided how well Kenya performs on the tasks that they are responsible for, which are outlined in chapter 1.3.

Subsequently, they will be scored based on the following indicators in the result section:

Indicator	Explanation
0	Not enough information available
+	Well organized and executed
+-	Moderately organized and executed
-	Lacking in organization and execution

However, it is important to note that since the plague is currently still unfolding and the last plague of this size in Kenya was decades ago, it is not always possible to find relevant literature on the current plague. In addition to this, it might be necessary to use more general literature or older sources in order to deduct Kenya’s role in desert locust prevention, their - absence of- locust policy and the current context through which the approach used now does not work.

1.3 The FAO Guidelines and background of preventive locust policy

Together with other African countries that frequently experience locust plagues, Kenya has been part of the DLCO-EA since 1962 (The Desert Locust Control Organization for Eastern Africa, n.d.). The DLCO-EA, in cooperation with its member states, collects information about the locusts and their seasonal distribution patterns (DLCO-EA, 2018). The DLCO-EA is supposed to have a base and a manager in every member country, to make sure data is collected (DLCO-EA, 2018). However, since some member countries were not able to pay their membership fees the last couple of years, the DLCO-EA has less resources and it is unclear if an actual base and manager was present in Kenya for the last years (Everard & Cheke, 2018). This information is gathered for the Food and Agriculture Organization of the United Nations (FAO), which has identified five different regions that frequently experience locust plagues and created guidelines to keep the recurring issue under control.

In the late 1990’s, researchers theorized that a locust policy that focused more on preventive control than on the management and saving of the affected crops might be more effective (Krall, Peveling, & Diallo, 1997; Magor, Lecoq, & Hunter, 2008). The FAO developed a new policy based on these research papers in 2003, which proved to be more effective than the previous one.

These guidelines are the closest thing to an official Locust Policy for Kenya, meaning that analyzing these guidelines and seeing the degree to which Kenya complies can reveal much information about where the flaws in the current policy are.

It is important to note that in the FAO guidelines, not all responsibility is for countries experiencing locust plagues. They do however, have a very important role in information gathering, implementing strategies and monitoring, whilst the FAO provides information, support and locust control strategies based on the information received from those countries (FAO, 2001).

Therefore the guidelines summarized in table 1 below, will be the steps in the process that Kenya itself is responsible for.

Information and Forecasting.	<ol style="list-style-type: none"> 1. Establish a national locust Information officer. 2. Collect country-specific required data (locust sightings, ecological conditions, weather etc.) 3. Plot available data, analyze and make a report. 4. Send said report to the FAO headquarters.
Control Process	<ol style="list-style-type: none"> 1. Decide if control is necessary. 2. Decide on the control method(application, type of pesticides) 3. Inform the public. 4. Carry out control operations. 5. Monitor operation and report back to FAO.
Campaign Organization and Execution	<ol style="list-style-type: none"> 1. Pre-outbreak; devise multiple contingency plans for different locust scenarios. 2. Determine if locusts are in recession, an upsurge or a plague. 3. Organize the campaign based on available information and forecasts. 4. Post-campaign debriefing.

Safety and Environmental Precautions.	<ol style="list-style-type: none"> 1. Warn citizens living in infestation zones about the control operation. 2. Identify ecologically sensitive zones and use alternative spraying methods on them. 3. Provide protective clothes for workers. 4. Monitor the situation to avoid overspraying.
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Table 1: Summary of locust prevention system, highlighting the responsibilities for the affected country. Source: FAO(2003)

1.4. Kenya’s locust policy

Kenya’s locust policy is the responsibility of their Ministry of Agriculture(MOA). However, the Ministry of Agriculture and the Kenyan government themselves have said that their main focus is a smart development of their agricultural sector, in line with the goal of achieving Sustainable development goal #2- zero hunger (European Commission et al., 2020) . While reports from the Ministry of Agriculture and multiple of its sub departments state that infestations from locusts and other insects are a threat to their crops, it was not seen as a large enough threat to mention or create specific measures in order to deal with these infestations, but rather an afterthought. Furthermore, recent and less recent reports from different Kenyan ministries do not mention anything about locust prevention at all, even the monitoring and information gathering-stage (Republic Of Kenya & Ministry of Livestock, Agriculture and Fisheries, 2012). It is therefore safe to say that Kenya does not have a locust policy tailored to their country’s capacities, resources and needs but instead trusts that their efforts in line with the FAO guidelines are enough to prevent plagues. This has worked for decades, and it is not totally surprising that a country with limited resources and an absence of locust plagues in the last few decades decides on enhancing their agricultural sector instead of focussing on locust prevention.

1.5 Results

The following Indicators will be used for the result section:

0 - Information not available (yet).

+ Well organized and executed.

- + - Moderately organized and executed.
- Lacking in organization and execution.

Guideline Area	Description	Indicator	Explanation
Information and Forecasting.	<ol style="list-style-type: none"> 1. Establish a national locust Information officer. 2. Collect country-specific required data (locust sightings, ecological conditions, weather etc.) 3. Plot available data, analyze and make a report. 4. Send said report to the FAO headquarters. 	<p>1.+</p> <p>2.+ -</p> <p>3.+ -</p> <p>4.+</p>	<ol style="list-style-type: none"> 1. There is one appointed. 2. Data is collected but insufficient quality and quantity. 3. Does occur but not detailed enough for accurate forecasts. 4. Reports are sent regularly.
Control Process	<ol style="list-style-type: none"> 1. Decide if control is necessary. 2. Decide on the control method (application, type of pesticides) 3. Inform the public. 4. Carry out control operations. 5. Monitor operation and report back to FAO. 	<p>1.+ -</p> <p>2.+</p> <p>3.+</p> <p>4.+</p> <p>5.+ _</p>	<ol style="list-style-type: none"> 1. It seems the control process started slowly. 2, 3, 4 = Happened according to FAO guidelines. 5. Kenya's government and the FAO are currently strengthening their monitoring capabilities.

<p>Campaign Organization and Execution</p>	<ol style="list-style-type: none"> 1. Pre-outbreak; devise multiple contingency plans for different locust scenarios. 2. Determine if locusts are in recession, an upsurge or a plague. 3. Organize the campaign based on available information and forecasts. 4. Post-campaign debriefing. 	<ol style="list-style-type: none"> 1. - 2. +- 3. + 4. 0 	<ol style="list-style-type: none"> 1. Did not happen. 2. Insufficient resources. 3. Campaign organized following FAO guidelines. 4. Is yet to occur.
<p>Safety and Environmental Precautions.</p>	<ol style="list-style-type: none"> 1. Warn citizens living in infestation zones about the control operation. 2. Identify ecologically sensitive zones and use alternative spraying methods on them. 3. Provide protective clothes for workers. 4. Monitor the situation to avoid overspraying. 	<ol style="list-style-type: none"> 1.+ 2.+- 3.+- 4.+- 	<ol style="list-style-type: none"> 1. Was done by the Ministry of Agriculture. 2. Zones identified but differentiation not always possible due to insufficient resources. 3. Done moderately; insufficient resources. 4. Done moderately, currently improving.

Table 2: Outline of how well Kenya performed scored on their responsibilities in preventive locust management.

1.5.1 Information and forecasting

As explained before, Kenya’s role starts as the collector of information on which the forecast will be based on. The FAO states that the forecast they provide is only as good as the quality and amount of information they receive, and since these forecasts can only predict up to six weeks ahead, accuracy is of the utmost importance (Magor, Lecoq, & Hunter, 2008).

This process starts with the designation of a national locust information officer, who oversees the information gathering process and makes up the final report for the FAO. Kenya has integrated this with its ministry of agriculture and the efforts of the DLCO-EA (Piou , 2020 ; Republic of Kenya & Ministry of Agriculture, Livestock, Fisheries and Cooperative, 2020). It is important to note that Kenya's Ministry of Agriculture is primarily focused on developing their country's agricultural sector and seems to view locust control as more of a side issue. Although the Kenya Climate Smart Agriculture Program (KCSAP) did focus on locust control as well, it has become clear from emergency response reports from both the Kenyan government and the World Bank that these monitoring efforts were below standards (Republic of Kenya & Ministry of Agriculture, Livestock, Fisheries and Cooperative, 2020; The World Bank, 2020). In addition to this, while the DLCO-EA does work closely together with the FAO on locust control, their corresponding countries are not part of any of the FAO's regional locust control commissions, in contrast with other countries that frequently experience locust plagues. Combine this with the fact that the DLCO-EA has been underfunded for years (Piou, 2020), and it is safe to assume that while the information and forecasting stage is being conducted in Kenya, it is done with limited resources and priority.

1.5.2 Control process.

If an upsurge or plague is expected, it is important for the control process to start quickly. While the first mentions of an upsurge already started in December the first signs of Kenya's control process were only in late January and early February, according to multiple news outlets (FAO, 2020; The Guardian, 2020). The FAO has extremely detailed guidelines to ensure that the correct form of pesticide, type of control operation and spraying method is used. While quick response is important for effective control, the same guidelines that specify the types of pesticides that must be used also forbid countries from storing large amounts of them, and ordering these large amounts of pesticide can take up to two to three weeks (FAO, 2003; Piou, 2020). This is even longer for biopesticides, meaning the pesticides used are the ones that are more harmful to the environment and people (Wikteliu, Ardö, & Fransson, 2003). In addition to this, the amounts of pesticides that were stored in African countries were partly unusable due to the warm temperature and corrosion of the material in which they were kept(World Bank, 2020).

1.5.3 Campaign Organization and Execution.

Since Kenya's last major outbreak was almost 70 years ago, the need for contingency plans probably became smaller by the year. They are not found for this crisis, and again the emergency response reports confirm that they were either non-existent or too minimal since the development of them is outlined as a key priority (World Bank, Republic of Kenya, Ministry of Livestock, Agriculture and Fisheries, & Kenya National Climate Smart Agriculture Project, 2020; The World Bank, 2020). Regarding the classification of the outbreak as an upsurge, recession or plague is also an important step; but with the previously explained lacking resources needed to collect these types of information in combination with the migratory nature of desert locusts, this was not done correctly as well (Lecoq, 2005; Piou, 2020).

1.5.4 Safety and Environmental Precautions.

As part of their Emergency Control Plan (2012) the Ministry of Agriculture used the KCSAP to inform citizens in target areas of the locust control operations, expected impacts of the used chemicals and safety measures.

The pesticides used are not biopesticides and therefore more harmful to the environment and citizens, especially with the combination of ground, by vehicles, and aerial spraying methods used, making it harder to control ecologically sensitive areas (Conte, Piemontese, & Tapsoba, 2020). Kenya has started working together with the FAO in March to train their voluntary Kenyan Youth Service in order to increase the frequency and quality ground monitoring, as well as acquire more vehicles for spraying and protective clothing (Xinhau, 2020).

All things considered, Kenya is mostly lacking in their monitoring and acquisition of important and useful information and data, resulting in a late identification of locust groups and unreliable forecasts (Williams & Constantine, 2019; Zhang, Lecoq, Latchininsky, & Hunter, 2019). Kenya does follow the FAO guidelines very closely on informing the public, organizing the locust control campaign and pesticides, with the exception of campaign activities that started slowly because of the insufficient information reply (FAO, 2020). The guidelines were created so that they can be the foundation of locust policy in all countries that deal with the invasive species- while this is sufficient regarding the use of pesticides, informing citizens and protective clothing, the needed information and institutional structure to collect it for accurate predictions and forecasts cannot be implemented by some of the countries, like Kenya, with the resources they currently have

available. The next paragraph will suggest some sustainable, effective solutions that are easier to implement for Kenya given their current resources and capabilities.

1.6. Recommendations

For a plague of this caliber to not happen again, Kenya first needs to seriously strengthen their ground monitoring capabilities in order to improve the information they deliver to the FAO, which in turn increases the quality of forecasts they receive. The Kenyan government and FAO both recognized this issue early in the plague, and are currently training 300 volunteers from the Kenya's National Youth Service (NYS) in monitoring, spraying techniques and data collection, as well as 300 additional trainees for capacity and resilience-building and additional ground bases for locust monitoring (FAO, 2020).

While this will help tremendously with the information collection issues Kenya experiences, this issue cannot be solved with development help only. There are also more sustainable, both in terms of environmental-friendly and enduring, and cheaper alternatives in locust management strategies that are easy for Kenya to implement.

These more achievable locust management strategies work well with the plans that Kenya has for enhancing their agricultural and therefore economic sector.

Their enhancement of the agricultural sector has positive effects for the country, but also makes them very vulnerable for locust plagues; desert locust prefer grassy, arid areas such as farms to woody vegetation(Lawton, Waters, Le Gall, & Cease, 2020).

By strategically planting trees it might be possible for future locust population sizes to decrease since their breeding area is smaller, or at the very least the way the locusts are distributed will be more controllable, making preventive measures and identifying upsurges more manageable and decreasing the chance of large locust outbreaks that might turn into plagues(Lawton, Waters, Le Gall, & Cease, 2020).

Another cheap, easy to implement solution that works well with Kenya's agricultural sector is the use of chickens as a preventive method; the same method was applied in China in 2017 and turned out to be successful; one chicken is able to eat up to 600 locust per day (Sevilmis, 2020)

Both of these achievable, sustainable and effective preventive measures can reduce the locust population in Kenya; populations will be smaller and it will be easier to determine where upsurges or recessions will occur, combating the issue of insufficient resources to thoroughly

monitor the countries locust populations. With the addition of the FAO's help during the countries, the country will now also have a well-established and functioning monitoring and information-gathering system, making the country less vulnerable to future plagues of this calibre as well.

1.7. Discussion

Even though Kenya's response time was too slow and the information-gathering stage was lacking, they are certainly not fully at fault for how this crisis unfolded. First, the FAO guidelines have not been revised and updated since 2003, meaning that they might not work so well now as they did roughly 20 years ago since the influence of climate change was smaller than. Secondly, Kenya is lacking the most in the information-gathering stage; However,

This issue is partly caused by the country's focus on strengthening their agricultural sector and therefore their economy and the livelihoods of citizens, but also due to the countries lack of resources and, maybe even more importantly, the lack of resources of their main locust monitoring and control institute, the DLCO-EA, as well as the lack of support from FAO commissions. It is still important to note as well that it has been decades since the last big locust plague in Kenya and in general countries are not overly prepared for crises that have a small chance of occurring in their country.

1.8. Conclusion

This chapter of the thesis has focused on how Kenya's current locust policy is organized and what should be improved to avoid a repeat of the current locust crisis, led by the research question: 'What does a more effective, sustainable and achievable locust policy for Kenya look like?'

In order to answer this question, it was at first established what the current locust policy in Kenya looked like and why this did not work; since the last big locust plague in Kenya was almost 70 years ago, the country did not have their own plan or policy to react to the locust problems. Instead, Kenya rather followed the guidelines set up by the FAO based on preventive control, monitoring areas and identifying upsurges of locusts before it was too late. This did not happen enough, partly because of Kenya's own lack of resources and partly because the lack of resources of the main overseeing international institute in locust control in Kenya, the DLCO-EA.

It is therefore that any changes to Kenya's policy need to be i) more effective, trying to yield the maximum effect out of the solutions implemented; ii) Sustainable, with climate change as the catalyst for this crisis and the harm that the current solutions such as spraying regular pesticides do, it is important to focus on solutions that do not harm the environment and are long-lasting and iii) achievable, thus should be able to be implemented with the resources that Kenya has available. In light of these criteria, a few suggestions were made for such solutions, keeping in mind Kenya's focus on agricultural development.

The FAO guidelines, while a good starting point are too general to base a country's locust policy on. Kenya did not have the resources to successfully base their policy on these guidelines, but with slight alterations and sustainable landscape adjustments their capacity to deal with this threat will probably lead to this crisis not recurring in such a large scope.

2. How to Do Them Justice: Development Projects for Kenyan Women and Postcolonial Critiques

2.1 Introduction

The previous chapter has shown what policies should be developed to help during the locust plague. However, this chapter has not analyzed policies for the most vulnerable people in this plague – Kenyan women. Foreign aid organizations Oxfam Novib and The World Bank are currently providing cash support, technical assistance and help with the economic impact in Kenya (“Millions of locusts devastate crops in East Africa in the worst outbreak in decades - Oxfam prepares to respond,” 2020, “The Locust Crisis: The World Bank’s Response,” 2020). They thus have the opportunity to reach out to Kenyan women, the poorest in Kenyan society, and support them during this plague.

Although these sort of development organizations sound positive, postcolonial scholars have adopted a critical stance towards the concept of “development”. These scholars are critical of two main ideas within development discourses. First, postcolonial scholars critique the biased idea that western countries are developed, whereas countries in the Global South are under-developed (Escobar, 1995). Second, postcolonial scholars regard western countries going to countries in the Global South as a civilizing mission to shape these countries to the western ideals of development as “imperialist” (Kagal & Latchford, 2020). Many postcolonial critiques have noted that central in development discourses is gender: these discourses are full of representations of women in non-western countries as poor, oppressed Third World women (Dogra, 2012; Mohanty, 2003).

In their work during the locust plague, organizations such as Oxfam Novib and The World Bank thus have the opportunity to work with women, while also trying to make (the discourses around) their projects less prejudiced in their representations of women. In this chapter, I will discuss the most important postcolonial critiques of development discourse, in order to formulate advice for development projects around Kenya’s locust plague. Therefore, my research question is: “How can women in Kenya best be supported by Oxfam Novib and the World Bank, based on postcolonial critiques of representations of non-western women in development discourses?”

I believe that it is important to look at the relations between development projects and (Kenyan) women because women are a vulnerable group among the many people influenced by the locust plague in Kenya.¹ It is not just important that there are policies focused on them, but it is also important that these policies do them justice: that they represent women in a realistic manner and give them the right aid, if needed. I will focus mainly on Oxfam Novib and The World Bank because both organizations are involved in aid during the locust plague and are committed to gender equality.

To analyze relations between development projects and non-western women, I will first discuss why development projects should develop policies focused on women. To do so, I will use literature about the feminization of poverty and the vulnerability of women to climate change. Additionally, I will analyze the way that development discourses produce knowledge about non-western women, using Chandra Mohanty's and Nandita Dogra's writings about development discourses around Third-World women. Thirdly, I will discuss postcolonial critiques of the focus that development projects have on women's participation in the economy, using different postcolonial critiques of development organizations. I will apply all the knowledge and postcolonial critiques I have found to Oxfam Novib and The World Bank's web pages that describe their view on gender equality in development projects. Finally, using the critiques from postcolonial scholars that I have discussed, I will formulate recommendations for Oxfam Novib and The World Bank in their work with Kenyan women during the ongoing locust plague.

A big part of this research is based on critiques of western discourse around non-western women. While I am analyzing these critiques and the discourse itself, I – as a western feminist academic – am also involved in this discourse. I hope to confront my own biases towards non-western women. Another important aspect to note is that this research discusses the stereotypes around 'Third-World women'. In order not to use this term, which the research proves is prejudiced, I will refer to women in non-western countries as "non-western women". Although I understand that this term makes western women the norm, there is such a variety in women meant by the term 'Third-World women' that 'non-western women' is the only term I can think of that is broad enough to encompass them.

¹ I will elaborate more on this point further on in the chapter, where I explain why women are more vulnerable to crises such as the locust plague.

2.2 Disaster's influence on women

Women are more vulnerable than men to crises such as the locust plague. One of the reasons for this inequality is that disasters such as the locust plague influence, amongst others, food security and thus have bigger adverse effects on vulnerable people. Therefore, these disasters have a big influence on the poorest in society – a group largely made up of women (Puzyreva & Roy, 2018; Staudt, 1998). This well-known fact is called ‘feminization of poverty’, a term made popular by United Nations documents. The UN defines this term as the fact that the gap between women and men caught in the cycle of poverty continues to widen (“The Feminization of Poverty,” 2000). This means that women are more often poor and caught up in circumstances that keep them poor than men are.

This concept can also be applied to Kenya (Kariuki, 2013). Scholars Fanta Diamanka and Francis Godwyll (2008) write that women experience poverty differently and more forcefully than men in Sub-Saharan Africa. Generally speaking, women live in very different conditions than men do: they often live in poor, rural areas, do not own land and housing as much as men do, and have less access to education. In addition, women more often lack the political access that many men do have and therefore have less possibility to change policies to reflect their needs (Staudt, 1998). Research thus shows that women in Sub-Saharan Africa are generally poorer than men and experience less beneficial living conditions than men. Not only are women more vulnerable to crises such as the locust plague, it is also harder for them to overcome damage from such crises (Puzyreva & Roy, 2018).

In addition to vulnerability because of poverty and poor living conditions, research states that many women in Kenya are also more vulnerable to crises such as the locust plague because of the roles that they play in the household. First, many women produce the food for their households. Although statistics differ, according to scholars Marina Puzyreva and Dimple Roy (2018), up to 75% of all laborers in the agricultural sector are women. Crises such as the locust plague that threaten food security make their work much more difficult: during these crises, it takes more time and effort to produce food. In addition, just as many women in other countries, a large part of Kenyan women do domestic work. This means that they cook, fetch water, and do reproductive work such as taking care of children and elders. These are also jobs that are complicated by disasters such as the locust plague, which make it much harder to access natural resources needed to complete domestic work (Speranza, 2011).

One critical note about statements on the topic of women's vulnerability is that they make

many generalizations about women. Of course, not all women are poorer than men – this depends also on socioeconomic status and race, for example (Mohanty, 2003). Still, according to Staudt (1998), since women are in less powerful positions, any policy that does not focus on women’s needs, maintains the status quo that negatively influences women. It is thus necessary that development projects specify their policies towards women. Many development projects have therefore recognized this need for gender-specific aid. Oxfam Novib mentions ‘gender justice’ as one of the pillars of their work in Kenya. According to the webpage dedicated to Oxfam’s work in Kenya:

[Oxfam Novib is] committed to promoting sustained, widespread changes in attitudes, practices and beliefs about gender power relations in order to further women’s rights and gender justice. To achieve this, [Oxfam Novib is] working with women rights organizations, national networks, opinion shapers, including religious institutions to support shifts in attitudes, challenge and change power relations at the household, community and national levels. (“Kenya,” n.d.)

Oxfam thus knows that there is a need for gender-specific aid in Kenya and is working with Kenyan organizations to help further gender equality. The World Bank, another important organization providing aid during the locust plague, has a separate page on its website about gender issues, which states statistics about women’s involvement in the economy and shows different projects focused on gender equality that the World Bank is focused on (“Gender,” n.d.). In conclusion, both Oxfam Novib and the World Bank recognize the need for gender-sensitive aid in Kenya.

2.3 Representations of ‘Third World women’

While many development organizations recognize the need for policies focused on non-western women, scholars have criticized the way that these development organizations view and represent non-western women. This is part of a broader post-colonial critique of development organizations. According to post-colonial critiques, the discourse in development organizations is often imperialist in nature, portraying non-western countries as in need of development whereas western countries are modern and developed (Escobar, 1995). Additionally, these discourses often do not recognize that colonization and exploitation of the Global South by western

countries is the reason that the Global South is now worse off (Dogra, 2012). Another aspect of the development discourses that have been widely critiqued is the way that it represents western development organizations as ‘white saviors’, coming to non-western countries to help the poor, undeveloped citizens (Kagal & Latchford, 2020).

Central in this discourse are representations of Third World Women, which have been widely critiqued by postcolonial scholars, such as Chandra Mohanty (2003) and Nandita Dogra (2012). Mohanty explains that development discourses have represented so-called Third-World women in an incorrect manner. One important element of representations of women in development discourses is the idea of women as a homogenous group (Mohanty, 2003; Wilson, 2015). In development projects, women are represented as homogeneous, and are thus seen as a group with the same interests, needs, problems and goals. Mohanty writes: “What is problematical about this kind of use of “women” as a group, as a stable category of analysis, is that it assumes an ahistorical, universal unity between women based on a generalized notion of their subordination.” (2003, p. 31) Mohanty thus states that development projects often see women as a homogenous group because they are all oppressed. In reality, however, there are many structural differences between them, such as socioeconomic class and ethnicity (Crenshaw, 1991). These sorts of representations not only create the idea of women as all the same, but also of women as all powerless. Women are seen as collectively oppressed victims.

In addition to the representation of women as a homogenous, powerless group, the developmental discourse produces stereotypical ideas about women living in non-western countries. These women are often believed to be religious and therefore conservative, focused on family and thus traditional, illiterate and therefore not intelligent and domestic and therefore backward, amongst others. These values are often attributed to the Third-World woman in contrast to the Western woman (who is modern, individualistic, intelligent) (Mohanty, 2003). In addition, according to scholar Nandita Dogra, Third-World women are often presented as in desperate need of aid from NGOs and as deserving of that aid, often creating the idea that Third-World women are inherently good (Dogra, 2012). Through these stereotypes, the image of the poor, oppressed, backward but deserving Third World woman is created (Dogra, 2012; Mohanty, 2003).

A last essential part of the representation of women in development projects as oppressed Third World women is the role that western women play in development projects. According to Mohanty (2003) and scholars Jawad Syed and Faiza Ali (2011), the development discourse portrays western women as saviors who rescue Third World women from their poverty and

hardship. This completes the dichotomy between the poor, oppressed Third World woman and the liberated western savior. Development discourses paint western women as agents and saviors, whereas Third World women are just the objects of their help (Wilson, 2015). These constructions do not recognize work organized by women in countries such as Kenya to further gender equality, rather painting them as victims (Dogra, 2012). Important in the production of this discourse is the fact that the voices of those so-called Third-World women, the subject of the discourse, are not heard: they do not get a chance to weigh in on the way they are represented (Wallace, 2020).

Whereas there is this need for policies designed for Kenyan women, since they have other experiences and live in other conditions than men, it is also important for development projects not to represent them as a homogenous group of victims. This poses a challenge for Oxfam Novib and The World Bank. On Oxfam Novib's website, Oxfam states a crucial fact about their work regarding gender equality in Kenya: it is working with women's organizations ("Kenya," n.d.). It is unclear exactly how Oxfam works with women, but this sort of cooperation could be a crucial opportunity for women's organizations to let their voices be heard. Oxfam also states: "We believe that women taking control and taking collective action are the most important drivers of sustained improvements in women's rights, and are a powerful force to end poverty" ("Gender justice and women's rights," n.d.). This shows that Oxfam represents women not as victims, but rather as agents.

This sort of representation is not seen on The World Bank's website. On their webpage about gender issues, there is a one-minute video about their work around gender equality. The video shows different shots of different countries that the World Bank works with. Over the shots, lines of text are displayed. The lines state:

Ponder this idea. What if women were equal to men, had the same access to financing, to technology, to land, had an equal opportunity to complete schooling and were not at risk of gender-based violence? We like this idea, so we're taking action: 1. Improving health and education; 2. Removing constraints to more and better jobs; 3. Removing barriers to women's ownership and control of assets; 4. Enhancing women's voice and agency, and seeing real impact. (World Bank, 2019)

This video aims to show that non-western women are on unequal footing with men and thus receive extra help from the World Bank. Although the video succeeds in showing that the World

Bank recognizes needs for policies specifically for women, it also reproduces stereotypical representations of women in non-western countries. By listing all these problems and not specifying them to specific women in specific countries, it produces the idea that all the women in the countries that The World Bank works in have the same issues: it represents non-western women as a homogenous, oppressed group. Interesting is the fact that the video mentions that the World Bank is “enhancing women’s voice and agency”, when there are no women speaking in the video and efforts made by women are not recognized. Additionally, the World Bank is represented as the beneficial western organization helping the oppressed non-western women. This World Bank video thus produces the idea that non-western women are oppressed Third World women who are in need of aid that the World Bank, a western development project, is giving them.



Figure 1 and 2: Screenshots of The World Bank's video

2.4 Focus on women’s productivity

Another major point of critique from postcolonial scholars is that development organizations have been focused on economic productivity, rather than dismantling existing power structures that produce gender inequality (Rist, 2008). Many development projects have sought to make women more equal to men by giving them access to the productive sphere of the economy. These kinds of projects would, for example, focus on giving women access to education, training, technology and finance, which would eventually allow them to become more productive and thus more useful to the economy. The thought behind these kinds of projects would be that giving women more economic power would further gender equality (Mohanty, 2003; Wilson, 2015).

These kinds of projects, however, are based on western ideals for productivity.

Productivity in the western world does not translate to productivity in non-western countries. For one, many women in these countries are already doing a lot of work outside of the western production sphere, such as social reproduction or other domestic work. As mentioned before, social reproduction is highly gendered work: it is often women who are expected to take care of the elderly, the children and the sick. Giving women access to the productive sphere of the economy therefore does not necessarily mean more power for them; it can instead be another burden to carry (Wilson, 2015). Syed and Al conclude: “In the context of the modern development or civilising project, it is important to consider the economics of unpaid labour which women perform in their traditional gender roles.” (2011, p. 360) Economic aid given by development projects thus does not recognize non-western productive work, such as social reproduction.

In addition, this kind of aid does not consider power structures that produce gender inequality well enough. By focusing solely on including women in the economy, development projects do not take into account the different power structures that influence each other and produce gender inequality. Rather than looking at the economic productivity of women in isolation, it would be better to look at the bigger picture (Wallace, 2020; Wilson, 2015). When one notes, for example, that women are excluded from the labor market, it is important to not just give them access to the labor market, but also to place this exclusion from the labor market in the context of bigger gendered power relations and examine ways to navigate those power relations.

Oxfam Novib’s site mentions different aspects of work on gender inequality. Along with economic aspects such as the gender wage gap, other structural matters such as political power, education and gender-based violence are discussed. The World Bank’s website is focused mainly on economics and productivity: “Failure to fully unleash women’s productive potential represents a major missed opportunity, with significant consequences for individuals, families, and economies. IDA countries face wide gaps in economic opportunity, with women’s labor force participation and job quality consistently trailing those of men.” (“Gender,” n.d., “Gender justice and women’s rights,” n.d.) After this quote, statistics are listed about participation of women in the labor market. Whereas Oxfam thus seems to consider structural inequalities, The World Bank’s development projects seem to focus solely on western ideals of productivity in isolation.

Gender inequality in numbers

- Women make up **less than 24%** of the world's parliamentarians and 5% of its mayors.
- On average, women are paid **24% less** than men for comparable work, across all regions and sectors.
- Nearly **two thirds** of the world's 781 million illiterate adults are women, a proportion that has remained unchanged for two decades.
- **153 countries** have laws which discriminate against women economically, including 18 countries where husbands can legally prevent their wives from working.
- Worldwide, **1 in 3** women and girls will experience violence or abuse in their lifetime.

Figure 3: first statistics visible on Oxfam Novib's "Gender justice and women's rights"-webpage.



Figure 4: first statistics visible on The World Bank's "Gender"-webpage.

2.5 Advice

There are multiple points of advice that can be drawn from the postcolonial critiques that I have discussed. The first point of advice towards Oxfam Novib and The World Bank would be to create aid specified towards women during the locust plague. While both organizations mention being focused on gender equality on their websites, neither of them say anything (yet) about special policies for women during the locust plague.

Furthermore, this aid should not be applied to all Kenyan women as if they were a homogenous group of oppressed women, but rather consider the differences between them and be specified towards their different needs. Higher income women, for example, might not need as much help as lower-class women. Therefore, Oxfam and The World Bank should be committed to listening to Kenyan women and women's organizations and should ask them what they need in light of the locust plague.

In addition, it is important for Oxfam and The World Bank not to just regard Kenyan

women as victims and themselves as benefitters – therefore, it would be better to work together with Kenyan women’s organizations in implementation of aid during this plague and give Kenyan women a platform to use their own skills. Finally, development projects organized during this locust crisis should not just focus on the economic impact of this plague, but also look at the underlying structural powers that make Kenyan women vulnerable to this crisis.

2.6 Conclusion

How can women in Kenya best be supported by Oxfam Novib and the World Bank, based on postcolonial critiques of representations of non-western women in development discourses? I have attempted to answer this question by explaining a few different matters in this paper. First, it is important for development projects to have policies focused on women, because especially lower-income women, being the poorest citizens, are more vulnerable to disasters that leave them without natural resources. It is therefore important that organizations such as Oxfam Novib and the World Bank specify their aid towards women’s needs. In addition, development discourses often portray non-western women as a homogenous group of victims in need of aid from western development projects. This is quite visible in a video provided by The World Bank, which represents non-western women as a homogeneous group in need of help. It is important for Oxfam and The World Bank to specify their aid during the locust crisis to different women’s needs and – most importantly – use Kenyan women’s input on this matter, in order to regard women as a heterogeneous group. Furthermore, many development projects focus on non-western women’s participation in the economy, rather than analyzing structural powers that keep inequality in place. While Oxfam Novib’s work is concentrated on different gendered issues, many of The World Bank’s projects seem to be centered on women’s productivity and inclusion in the economy – thereby ignoring existing power structures. It is thus important for both these organizations to focus not just on economic impacts of the locust plague, but also to look at the structural gendered powers that make Kenyan women vulnerable to these impacts. In conclusion, Kenyan women can best be helped by aid that is specified to their varying needs, uses their input and is not solely focused on the economic impacts.

While I succeeded at answering my research question, there are some aspects that I feel my research failed at. For example, I struggled with recognizing all my biases, especially when I tried to write about feminization of poverty without representing non-western women as victims.

I also realize the irony in my advice to give non-western women a voice while writing about non-western women as a western person. Research like this might be better done by a non-western author. In addition, I think this research could be better connected to the locust plague case study once there is more information about the development work during this plague – at the moment, I could not find anything about development work done with Kenyan women during this plague.

The situation in Kenya is getting more urgent every day. While it is extremely important that Kenyan women receive help, it is also important that this aid is given in a responsible manner. Only by listening carefully to Kenyan women can development projects do them justice.

3. Strategically Leveraging Today's Crisis for Future Resilience

How the needed national policies can be brought about in Kenya's crisis-influenced political and policymaking context

The last chapter has shown what measures and policies are needed in Kenya to sustainably minimize crop losses caused by locust plagues. Nevertheless, these policies have not yet been introduced by the Kenyan national government. This discrepancy between science and policy, between theory and practice, makes the locust plague an infolding disaster, with possibly all Kenyan crops lost as a result (World Bank Group, 2020a, 2020b). This failure to implement needed policies, even if consequences are severe, raises the crucial question of how the change in national policy needed to minimize crop loss in Kenya resulting from locust plagues can be brought about in today's policymaking and locust crisis context.

This chapter aims to answer that question, by firstly examining the political and policy formation context in Kenya, and the agricultural policy formation processes. These components are critical to understand as they show what factors and stakeholders contribute – and to what extent – to bringing policy changes about. With that, these two sections explain the framework of policymaking that needs to be dealt with and worked in when trying to introduce the scientifically advised policies. Thereafter, the paper will discuss if and how this crisis can catalyse policymaking by changing and speeding up the usual policy formation processes. Finally, it will investigate how to ensure that the scientifically advised measures and policies will indeed be introduced once new policies are being formulated as response to the crisis.

This chapter will show that the current and future crisis provides an important “window of opportunity” to introduce the needed policies, but that it remains highly uncertain and dependent

on the stakeholders involved, their approaches and the general unfolding of events, whether these policies will indeed be introduced and implemented for the longer term. However, certain, distinguished, methods and approaches enhance the chance for the implementation of the scientifically advised policies.

3.1 Kenya's Political and Policymaking Context

Policies always come about in a certain, highly influential context. To understand how to ensure the policies needed to sustainably minimize crop losses due to locust plagues are introduced, one must understand the policy formation process. This, in turn, is fundamentally shaped by two context-related factors providing the framework in which policymaking processes take place: the political system, its functioning and its institutions; and the key political actors and influential stakeholders, their interests and their influence. This chapter will therefore discuss these factors, after which the next chapter will zoom into the precise policymaking processes of the agricultural sector.

3.1.1. Kenya's political system: a malfunctioning democracy in name only

While declaring itself a presidential representative democratic republic on 12 December 1964, Kenya has known a long and persistent struggle for true democracy. Since 1991, when the one-party system was abolished, it has experienced a political reform process (Murunga & Nasong'o, 2007; Githinji & Holmquist, 2012). The 2002 election was a landmark, being the first to meet international standards for democratic elections and leading to the defeat of the Kenya African National Union (KANU) after four decades of ruling. The president also retired, for the first time in history, from office (Harneit-Sievers & Peters, 2008; Murunga & Nasong'o, 2007). The 2007 election, however, leading to a largely unexpected eruption of violence and the disputation of electoral results, proved that democracy was not yet consolidated. The country found itself, again, at the brink of a civil war eventually only avoided by interference of UN Secretary General Kofi Anan (Harneit-Sievers & Peters, 2008). Still, Kenyan democratic experience can be characterized as Godwin R. Murunga (2000) did before, as 'a mixture of success and failure, of onwards rushes and backward reversals'.

Today, Kenya is identified by the Democracy Index 2019 of the Economist Intelligence Unit as a hybrid regime, situated between a flawed democracy and an authoritarian regime. At a

minimum, thus, democracy is still weak and fragile, with high levels of corruption and a lack of the crucial vertical political accountability. Importantly, this is caused by a highly, ethnographically divided population that holds politicians accountable in light of narrow personal and local interests instead of democratic virtues. The result is little transparency and even littler responsiveness of state institutions, frequently not abiding by their own laws and regulations (Murunga, 2000; Githiniji & Holmquist, 2012; Njuguna et al., 2004; Mwangi, 2008).

3.1.2. Key political actors and important stakeholders

Politics in Kenya is structured around ethnical lines, with ideologies playing only a minor role. Ethno-regional alliances are formed for political parties and to build stable governments (Cheeseman et al., 2016). 47 semi-autonomous counties are furthermore governed by elected governors, whose mandate highly increased after the 2013 elections due to decentralization, while the national government determines the main frameworks (Cheeseman et al., 2016).

As agriculture is the backbone of the Kenyan economy, accounting for approximately 25% of Kenya's Gross Domestic Product (GDP) and employing 75% of the national labor force, it, and especially the large landowners, also has significant political power (Alila & Atieno, 2006). This power increased in the mid-1970s, according to Cox (1984), but only truly significantly since the 2000s according to Kibaara et al. (2008), when agriculture got a more prominent place on the policy agenda. Nevertheless, all authors conclude that predominantly ethnic differences shape political discussions leading to policy formation processes (Muhula, 2009; Cheeseman, 2016; Mwangi, 2008; Githiniji & Holmquist, 2012; Murunga, 2000; Harneit-Sievers & Peters, 2008).

3.2. Kenya's Agricultural Policy Formation Process

3.2.1. Agricultural policy framework and implementation

Kenya has a dedicated Ministry of Agriculture, Livestock, Fisheries & Irrigation (MOA) responsible for developing and implementing national policies and strategies for the agricultural sector, linked to general national strategies (Kenya, 2020). Central is the in 2008 adopted Kenya Vision 2030, that aims to provide a national roadmap for Kenya's economic and social development, e.g. by transforming smallholder agriculture from subsistence to an innovative, commercially-oriented and modern sector (Food Security Portal, 2012; Food and Agriculture

Policy Decision Analysis, 2016). The appurtenant revised Strategy for Revitalizing Agriculture and Agriculture Sector Development Strategy (2010-2020) provides the overall frameworks within which more specific policies are made (Kibaara et al., 2008). Within these frameworks, there are many existing national and county-level policies (Alila & Atieno, 2006; Ministry of Agriculture, Livestock and Fisheries, 2020; Cheeseman, 2016; Nzuma, 2016).

Frequently, however, policies developed get only partially implemented – or not at all – due to too limited financial and administrative resources or difficulties with translating policy statements into government interventions. Also, government actions often diverge from stated policies (Cox, 1984). The policies introduced to minimize Kenya’s food crisis in 2007-2011 are an important example of these challenges (Nzuma, 2016). Moreover, numerous legislation and complex procedures regarding implementation hamper government agencies to keep up with the demand for their services, in line with the policies (Alila & Atieno, 2006).

3.2.2. Characteristics of agricultural policy formation processes

Historically, bureaucratic policymaking by the MOA, the presidency, or other government departments was the rule. After 1985, a trend towards more cabinet and parliament involvement, and generally towards more transparent, inclusive and participatory processes, is described by many authors. Recently, this has been given important impetus by the pan-African Comprehensive Africa Agriculture Development Programme (CAADP) (Alila & Atieno, 2006; Kibaara et al., 2008; Agricultural Sector Coordination Unit, 2012). Similarly, evidence-based policymaking has increased, with amongst others the creation of ministerial policy research institutes (Kibaara et al., 2008; Alila & Atieno, 2006). Consequently, one could say that in general, the process democratized and rationalized.

However, Alila & Atieno (2006) also note that policies induced by either a (perceived) crises usually are implemented via executive presidential directives. Also, the increased executive policy directives (i.e. increased cabinet and parliament approval), often entails “ad-hoc” policymaking, leading to contradictory policies and derailed budgets – one of Kenya’s main problems identified for implementation (Alila & Atieno, 2006; Cox, 1984).

Moreover, policy formation processes have always been and are significantly shaped by the political context and democratization processes and competition, both between politicians and between politicians and bureaucrats (Muhula, 2009; Cheeseman, 2016; Mwangi, 2008; Githinji & Holmquist, 2012; Murunga, 2000; Harneit-Sievers & Peters, 2008; Nzuma, 2016). In Kenya, ever-

changing power arrangements and unstable political alliances led to frequently adjusted policies. Related, is the strong clientism and importance of ethnographic differences in policymaking processes, undermining the introduction of nation-wide beneficial agricultural policies. In Kenyan agriculture ethnic differences align with geographical climate regions, and thus differences in commodities produced and marketed. The consequent different policy interests highly influence the policymaking processes (Cox, 1984; Leonard, 1977; Smith & Karagu, 2004; Alila & Atieno, 2006; Muhula, 2009). All these trends have increased by recently grown political competition and executive-led policymaking processes.

3.2.3. Key stakeholders in bringing agricultural policy changes about

The amount of people involved in Kenya's policy formation processes is generally very limited (Alila & Atieno, 2006). A small group within the Ministry of Finance (MOF) and the Central Bank of Kenya lays the foundations and approves annual and multi-year budgets, consequently being often more influential than MOA officials themselves, which 'consider their inputs ignored by MOF since their budget submissions detailing priorities for the ministry get reordered without consulting with them. Instead they resorted to lobbying MOF decision makers for policies they would wish to implement accepted' (Alia & Atieno, 2006; O'brien & Ryan, 2001; Nzuma, 2016).

Also, as Kenya's political system concentrates power in the presidency, this generally highly influences and actively leads agricultural policy formation processes (Alila & Atieno. 2006). Especially in times of crises, the food security unit office of the president plays the key role (Babu, 2013). The MOA therefore, while also initiating own policies, is generally tasked with formulating policies within the frameworks provided and with working out the details.

Non-government actors

While Alilo & Atieno (2006) strongly highlight government's dominance, non-government actors play an increasing role, with a growing scope of involved actors. Large-scale agricultural produces have historically significant political influence, enabling them to initiate and shape policies favorable for them, but not necessarily benefitting the broader agricultural sector (Bates, 1981; Berry, 1984). Consequently, many beneficial policies and support systems did not trickle down to the mass of smallholder farmers often most in need of them. Njuguna et al. (2004) show that this remains an important issue.

Other stakeholders, though relatively less influential, are scientists and specialists, civil society organizations, trade union, faith groups and the media. A key scientific stakeholders is the

Kenya Agricultural Research Institute (KARI). The CAADP and Kenya Vision 2030 enhanced their and large-scale producers' influence, by strengthening participatory policy developing processes. (Njuguna et al., 2004; Agricultural Sector Coordination Unit, 2012; Alila & Atieno, 2006; Kibaara et al., 2008).

Thus, while a small circle within the government dominates the policy formation processes, increased participation over the years has somehow expanded the pool of actors involved. It seems however, that this is mainly the case when it also suits the government, which easily overrules other actors and does not value too much sticking to its own regulations, policies and formation frameworks regulations (Babu, 2013; Murunga, 2000; Githinji & Holmquist, 2012; Njuguna et al., 2004; Gakuo Mwangi, 2008). This insight is crucial to understand which actors can do what to bring about the needed policies.

3.3 This Locust Crisis as Impetus for Longer-Term National Policy Change

3.3.1 A crisis as potential and missed “window of opportunity” for policy change

While crises such as the locust plague in Kenya are destructive events, they are also generally recognized to have a constructive aspect in creating “windows of opportunities” to address overlooked or neglected policy domains (Manyena, 2013; Birkmann et al., 2010; Boin et al., 2008). As Boin et al. (2008) state, they ‘create temporary open sociopolitical windows to reform, that can lead to fine tuning, policy reform or even paradigm shift’. As such, crises have induced policy change, sometimes leading to longer-term beneficial and sustainable policies (Boin et al., 2008; Birkmann et al., 2010; Rose et al., 2017; Grossman, 2019).

Missed opportunities and critical factors

Nevertheless, especially developing countries often fail to use emerging “windows of opportunity” to enhance resilience to disasters (Manyena, 2013). Boin et al. (2008) link this predominantly to limited severity, and uncertain causes of and responsibility for the crisis. But equally or more important, is the political and policymaking context. Government leaders, preferring both the *status quo* and the quickest possible fix with least potential power losses, generally limit policy responses to fine-tuning (Birkmann et al., 2010; Acemoglu & Robinson, 2012). According to Suzan Berry

(1984), this failure to adopt policies in fear of losing power is the main explanation of the food crises facing Africa from 1960s onwards. For Kenya, York Bradshaw (1990) described how elites ignored mutually reinforcing trends of food shortages, limited land availability and rapid population growth, because the land reform measure needed to minimize impacts would have far-reaching consequences, possibly undermining their own power. More recently, Njugana et al. (2004) confirmed the importance in Kenya of this elitist response. On the other hand, Alila & Atieno (2006) note that, '[i]n regard to the agricultural sector specifically, a number of policy reforms undertaken especially in the 1990s shows some measure of acceptance of change by the political elite rather than complete opposition to change to preserve the *status quo*'.

Consequently, in general, pressure from non-government actors and their influence during crises – critically linked to their power and the accountability and responsiveness of governments to their nation – is found crucial to bring about longer-term significant policymaking processes. (Boin et al., 2008; Grossman, 2019; Acemoglu & Robinson, 2012; Birkmann et al., 2010). Arguably, thus, Kenya's political and democratic characteristics undermine the chances of significant policy changes due to crises.

Beyond public pressure, Cortell & Peterson (1999) show that the ability of state officials themselves to use "windows of opportunities" to implement the required policies highly depends on their institutional position and capacity, and their ability to build and use networks and coalitions, for instance by ensuring participation of societal representatives in policy formation processes. As seen before, this is especially relevant for Kenya's MOA officials having to lobby for policies. Manyena's (2013) conclusions align with these, while also mentioning the general importance of governments using an integrated evidence-based approach to policymaking, in order to implement longer-term focused, crisis-induced policies.

Importantly, with rising pressures to respond quickly to a crisis, policymakers can lack the time to carefully review, and may make policy decisions based largely on emotion. While Cox and Béland (2013) note that this can open windows for abnormal changes, being led by emotion can also decrease government's ability to implement the rationalist, longer-term focused policies needed to sustainably limit the crisis' effects (Grossman, 2019). This is critical to take into account when determining strategies towards crisis-induced policy change.

3.3.2 Kenya's history of crisis-induced agricultural policymaking

While Kenya's relative weak democracy, and government's accountability and responsiveness could hamper the catalyzing effect of crises for policymaking, there are multiple examples of agricultural crises influencing and inducing policymaking processes and shaping Kenya's political context (Githiniji & Holmquist, 2012; Harneit-Sievers & Peters, 2008; Murunga, 2000; Gakuo Mwangi, 2008). The recent 2007-08 global food crisis is a clear and well-documented example that is elaborated on below.

During the 2007-08 global food crisis, pressure from civil society and consumer groups, and the consequent fear of large protests undermining government stability, triggered rapid and significant policy reactions in Kenya, a country not seriously affected (Babu, 2013). Nzuma (2016) underlines that the government reacted primarily to avoid social unrest and maintain legitimacy. The food security unit of the President's Office and the Ministry of Economic development took a leading role and, amongst others, subsidized agricultural inputs to raise productivity, enhanced grain reserves, increased social protection, and enlarged overall expenditures towards and investments in the agricultural sector (Babu, 2013; Food and Agriculture Policy Decision Analysis, 2016; Food Security Portal, 2020; Nzuma, 2016). These measures were further scaled up or broadened during food emergency situations in 2008, 2009, and 2011, and many have a longer, undetermined timeframe (Babu, 2013; Food and Agriculture Policy Decision Analysis, 2016; Nzuma, 2016). Consequently, one can say that this food crisis induced both short-term disaster relief and longer-term disaster reduction oriented policymaking processes.

Nevertheless, Nzuma also critically notes that 'the policy responses in Kenya suffered from several policy reversals, ineffective export restrictions and post-election political turmoil. [...] [u]neven distribution of power with the Kenyan government and a weak policy-making process contributed to the reversals and inefficiencies'. For example, in 2009 the 2008 urban maize meal subsidy program reversed, while other subsidy programs faced many challenges in implementation (Nzuma, 2016, 214; Food Security Portal, 2012).

In line with the increased evidence-based policymaking processes described before, special task forces or committees were set up to provide information to policymakers, being: the National Food Security Committee in the President's Office; the Kenya Food Security Steering Group; Inter-ministerial Committee on Drought and Food Security. Think tanks, consisting of experts and scientists, were also a source of evidence on policy alternatives, as was the Kenya Institute for

Public Policy Research and Analysis (KIPPRA), used by the Kenyan government in the policy formation process. However, they played a limited, advisory and not steering, role (Babu, 2013). In addition, food vulnerability assessment conducted jointly with government departments provided a basis in the policy process to identify targeted areas for intervention. Independent or local assessments, however, were not considered (Babu, 2013).

3.3.3. The potential of this locus crisis catalyzing longer-term, sustainable policy change

According to Boin et al. (2008) and Grossman (2019), the policy outcomes of crisis-exploitation games, in which all actors involved try to benefit from a crisis, are often highly unpredictable. Nevertheless, the described political context, agricultural policy formation and implementation processes, and characteristics of Kenya's policy responses to former crises, indicate the chance of this crisis catalyzing policy change, and show the key contributing factors.

Nature of the crisis and accountability

First of all, the nature of this locust crisis enhances its potential to catalyze policy change. It is a severe crisis, with potentially 100% of all crops being lost and millions of people unable to sufficiently feed themselves, and as it hits all ethnic groups equally (World Bank Group, 2020a, 2020b). The agricultural sector is furthermore both vital in people's subsistence and the backbone of Kenya's economy, with stakeholders having significant political power. Consequently, the possibility of large scale, nationwide, public pressure – which we have seen is unique in the along ethnic lines divided Kenyan nation – on the government to act is very significant. Historically, governments have acted quickly by adopting desired policies in the face of national unrest.

Secondly, the last chapter showed that measures and appurtenant policies known to limit the impact of locust plagues on crops could have at least partially avoided the crisis (Lecoq, 2005; Lawton, Waters et al., 2020; Food and Agriculture Organization, 2020c). Being not implemented by the government, it could therefore be held accountable for the crisis, known to be critical in enhancing public pressure that brings about policies (Boin et al., 2008).

Even in a democracy as malfunctioning as Kenya, therefore, this crisis can reasonably be expected to leading to policies as response to public pressures. Shorter-term responses can already be seen emerging, making the case for the chance of also policy and longer term responses stronger (Food and Agriculture Organization, 2020d).

Sustainable and longer-term policy formation and implementation

While government action can thus be expected, this needs to go beyond the to Kenya familiar “ad-hoc”, fine-tuning policies that are hardly implemented or reversed later (Nzuma, 2016; Boin et al., 2008; Cox, 1984). To sustainably solve the underlying issues, longer-term policy changes are required.

The locust plague and the needed measures have the same effect on all crop types from all regions. Consequently, they are both nationwide and non-discriminating along ethnic lines. Therefore, reversals of implemented policies, often the consequence of a regime change followed by the removal of policies less beneficial for their (ethnic) followers while more beneficial for other ethnic groups, is less likely in this case (Food and Agriculture Organization, 2020a).

The critical uncertainties, however, are the longer-term focus and implementation of policies. Concerning the former, public pressure, government’s willingness, and stakeholder involvement in the formation process advocating for longer-term solutions, are important factors. As policymaking processes usually and in crises involve a limited group of government officials, the uptake of scientific advice or expert-informed policies of the MOA, characterized by longer-term perspectives, could be hampered (Babu, 2013; O’Brien & Ryan, 2001; Alila & Atieno, 2006). Meanwhile, the past 2007-08 food crisis example, where task forces and expert committees were set up, and the general increase of evidence-based and participatory policymaking described before, gives hope. Nevertheless, their influence is still limited, as Kenya’s government generally follows their advice when it pleases, and often does not even consider it – especially when quick response is required (Babu, 2013; Carter, 2009).

Thus, while experts are involved but their influence is not a given, it is vital to consider how the take-up of their recommendations, and those of science in general, can be ensured in the crisis response. Important here, is the alignment of public demands with scientific advice. Therefore, the next chapter will further elaborate on this aspect specifically. The crisis itself could due to its expected long duration – as the locust swarms will only be growing in the coming seasons – enhance chances of longer-term focused solutions, as a quick fix might be less appropriate for this timescale, proving to be ineffective in later stages of the crisis (World Bank Group, 2020b).

3.4 Ensuring the Uptake of Scientific Advice in Crisis-Induced Policymaking

While there is no universal best practice, as shown by the vast account of case studies and examples discussed by Fred Carden (2009), there are three main proven principles to enhance uptake of scientific advice once a window of opportunity emerges, as is the case now with locust crisis.

First of all, Rose et al. (2017) underline the importance of responding rapidly while keeping in mind the specific policy environment and policymaking processes, to make sure scientists target the government officials that will indeed make policy decisions, and are for instance invited to join think tanks or committees, as happened in 2007-08 (Babu, 2013). In this locust crisis, former examples have shown that the food security unit of the Office of the President, as well as the MOF, and the Central Bank of Kenya should be targeted predominantly, while the MOA should also be targeted, more specifically in helping these experts to lobby for needed policies.

Secondly, communication and framing is key. As Carter (2009) notes, this requires dedicated effort, as '[e]ffective communication is a long-term, organized process of engaging with policymakers and with the public – heeding their concerns while keeping them abreast of the research under way, and highlighting its utility and pertinence to their interests'. Communication with the public is vital to ensure that the public pressure for reform, proven to be so effective in Kenya's context, aligns with the policies recommended by science (Carter, 2009; Nzuma, 2016).

In the communication with government officials, scientists should frame the issue in line with societal needs and government's priorities and stakes (Rose et al., 2017). Also, perseverance is key, as Dahm et al. (2013) note: 'repeated, positive, non-confrontational exposure to relevant science' is needed. This also indicates that, non-politicized scientific arguments should be used. Beyond that, Carter (2009) emphasizes the need to communicate in terms and formats easily understood and absorbed by policymakers – something too often overlooked by scientists, and also by Rose et al. (2017). Next to that, adding economic value to the advice can greatly enhance its chance of uptake, as it immediately responds to the stakes of politicians themselves, and is highly relatable for them (Carter, 2009). In case of this locust plague, that could be done by showing the vast evidence of past examples and future predictions of the impact of food crises on economic productivity and growth. Key sources can be, amongst many others, the Global Report on Food Crises and the State of Food Security and Nutrition in the World reports of the Food and Agriculture

Organization (2019; 2020b), or the recent report of USAID on the Economics of Resilience to Drought, specifically targeting Kenya (2019).

Lastly, when scientists are giving limited possibilities to participate in policy formation, as has been shown to be the case in Kenya's normal practices and last crises, arguing for incremental changes – or arguing that the changes will not result in major paradigm shifts – could help, as it limits general resistance and the fear of governments losing power (Rose et al., 2017; Boin et al., 2008; Birkmann et al., 2010; Acemoglu & Robinson, 2012; Bradshaw, 1990).

3.5 Conclusion

Policies and progress are not made or achieved in a vacuum. The political and policymaking context is vital to understand which policies get introduced, and how to enhance this chance. In times of crises, these contexts change, making way for unprecedented “windows of opportunity” for policy change. In Kenya, past examples and general characteristics show that this locust crisis could therefore potentially induce the democratic pressure mechanisms vital to make it's government introduce the needed longer-term policies to minimize crop loss resulting from locust plagues. Nevertheless, an occurring auspicious crisis and existing knowledge on which policies to introduce do not suffice – what is needed is to master the crisis-exploitation games that will emerge, by understanding the political and policymaking context, as described in this chapter, and by targeting the right people, by communicating persuasively, and by advocating for realistic changes. Doing this, scientists must take the forefront and must team up with the public and government officials. If they do so, the odds are high that the rising public pressure resulting from the severe consequences of this crisis can inaugurate a new chapter in Kenya's agricultural history. A new chapter, where not only the sector proves to become resilient to one of the greatest risks it faces, but also where millions of Kenyans will not wake up each morning with the only thought crossing their mind being: “how can I make sure my family eats today?”

Important to note and beyond the scope of this chapter, is that this crisis might induce policy changes that will never be implemented, as shown by track records, and often limited due to either contradictory policies and frameworks, or lacking resources. While how to avoid this should be more thoroughly researched, one can already note that the formation of policies is crucial. Either

policies must be developed in line with the existing frameworks listed in this chapter, or these frameworks must be aligned with the policies. Also, in the policy formation process, government budget and resources must be already sufficiently and explicitly allocated to ensure implementation is possible. How this can be done, and why this has proven so difficult, should be examined.

4. Integrating the Disciplinary Insights

In order to enable a clear and comprehensive answer to our main research question, the insights and conclusions of the three disciplines - Governance for Sustainable Development (GfSD), Philosophy, Politics & Society (PPS), and Gender Studies (GS) - will be integrated. To achieve this, the methodology for interdisciplinary research processes as described by Repko & Szostak (2017) and complemented by Van der Lecq (2012) will be used. This method is divided into three steps: i) the identification of conflicts between disciplines and disciplinary insights – on the level of concepts, assumptions and theories; ii) solving these conflicts by creating *common ground*, through the application of the methods of redefinition, extension, transformation, distinguishing or organization; and iii) creating from this *common ground* a *more comprehensive understanding (MCU)* (Repko & Szostak, 2017; Lecq, 2012). The concluding section of this chapter describes the MCU with which we will answer our research question: “How can the appropriate measures be implemented to sustainably minimize crop loss of the coming planting seasons as a consequence of the locust plague in Kenya as effectively as possible?”

4.1 The Four Components of Our Research Question

The four main components of our research question - “appropriate measures”, “implemented”, “sustainably”, and “as effectively as possible” – appear either explicitly or implicitly in all disciplinary chapters, albeit in different ways. Creating common ground between these differing insights is therefore a crucial step to present a comprehensive interdisciplinary answer to our research question.

4.1.1. “As effectively as possible”

Kenya does not have the resources and capacity to manage the current locust crisis. Therefore, optimal effectiveness is needed to ensure that Kenya can minimize crop loss caused by the current crisis as much as possible with the resources available. GfSD is the only discipline that explicitly discusses this, stating that ‘as effectively as possible’ means ‘to achieve the most positive effect with the resources available’. The effectiveness of locust policy for Kenya thus depends on how well the measures and directives can be achieved with the country's current resources. PPS does

not elaborate on what is effective, but notes that policies should be in line with existing agricultural policy frameworks and should not be reversed in order to be effective. Although GS also does not explicitly discuss effectiveness, it does state that only durable measures leading to structural change that take into account women’s lived realities are effective. An important future of effectiveness is the durability of the solution: a more durable solution can be used longer and is thus more effective.

The definition used by GfSD and implicitly by GS will be combined with the technique of extension to form the following *common ground* definition of the concept of effectiveness: ‘achieving the most positive effect, that is structural and durable, with the resources available’.

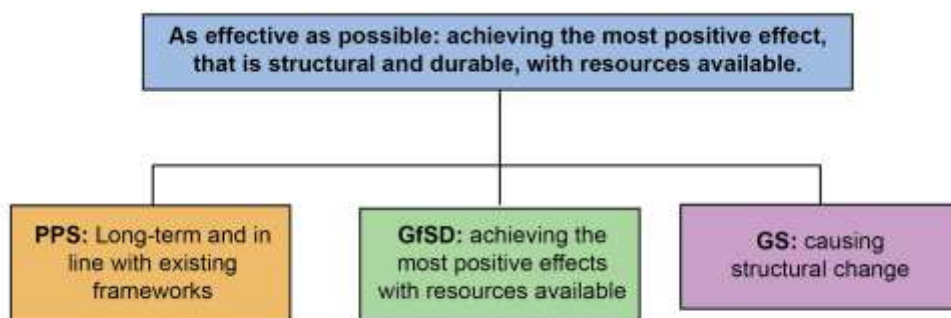


Figure 1: use of extension to define “as effectively as possible”

4.1.2. “Sustainably”

There was a conflict in definitions of “sustainably” used in different disciplines. GS uses the term to describe solutions that are durable: measures having a long-time positive effect, rather than working only in the short-term or having to be replaced frequently. Meanwhile, PPS uses the term sustainable to describe measures that do not harm the environment - either directly or indirectly - when implemented, or that potentially even have a positive effect on the condition of the environment. GfSD uses the term in both ways described above.

As shown above, this usage of the term “sustainably” to mean durable is highly related to the first component of our research question, “as effectively as possible”: measures and policies, or their method of implementation, that work for a week are not effective, measures that are capable to stand the test of time for decades are optimally effective, leading to minimization of future crop loss. A durable solution is thus a solution that does not have to be replaced quickly, because it is effective over a longer time period. Sustainability in terms of environment preservation contributes

to durability: harming, degrading and exploiting the environment will not result in effective outcomes for decades and will cause other problems to arise.

Sustainability thus consists of two components: environmental friendliness and long-term effectiveness. Durability encompasses the long-term effectiveness component. In order to show that environmental friendliness does contribute to durability as well, we used the technique of extension to define “sustainability” *in our common ground* as environmental friendliness (as defined by PPS).

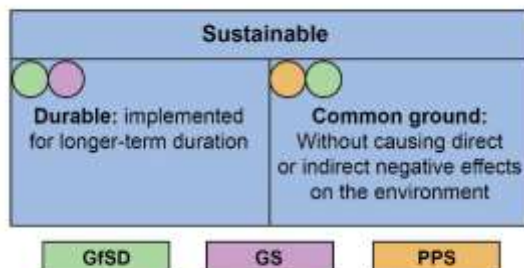


Figure 2: use of extension to define sustainability

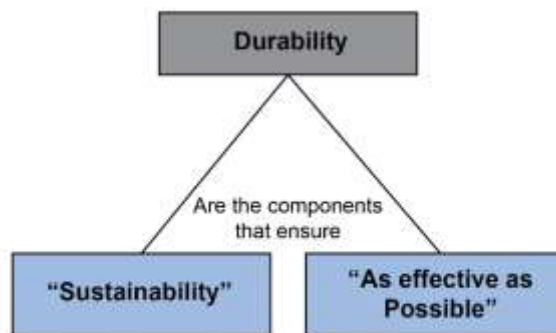


Figure 3: More comprehensive understanding of “durability

4.1.3. “Appropriate Measures”

Another important aspect of this research question are the appropriate measures, especially when measures are appropriate.

While PPS does not explicitly mention what measures are appropriate - but does mention the need to follow scientific consensus applicable to Kenyan context and the agricultural policy framework - GfSD and GS spend most of their attention on this component. Their perspectives, however, are very different. According to GfSD, appropriate measures to address this problem are

the measures that work best and can be implemented with the country's current resources and capacity. Insights provided by GS show that appropriate measures to address this problem need to be tailored to women's needs, keeping in mind that different women have different needs.

All mentioned insights are highly relevant, but on a different scale and at a different stage of designing appropriate measures. On the more macro-level, and at the first stage of design and definition of measures, GfSD elaborates what measures have scientifically proven to work, with PPS emphasizing their importance.

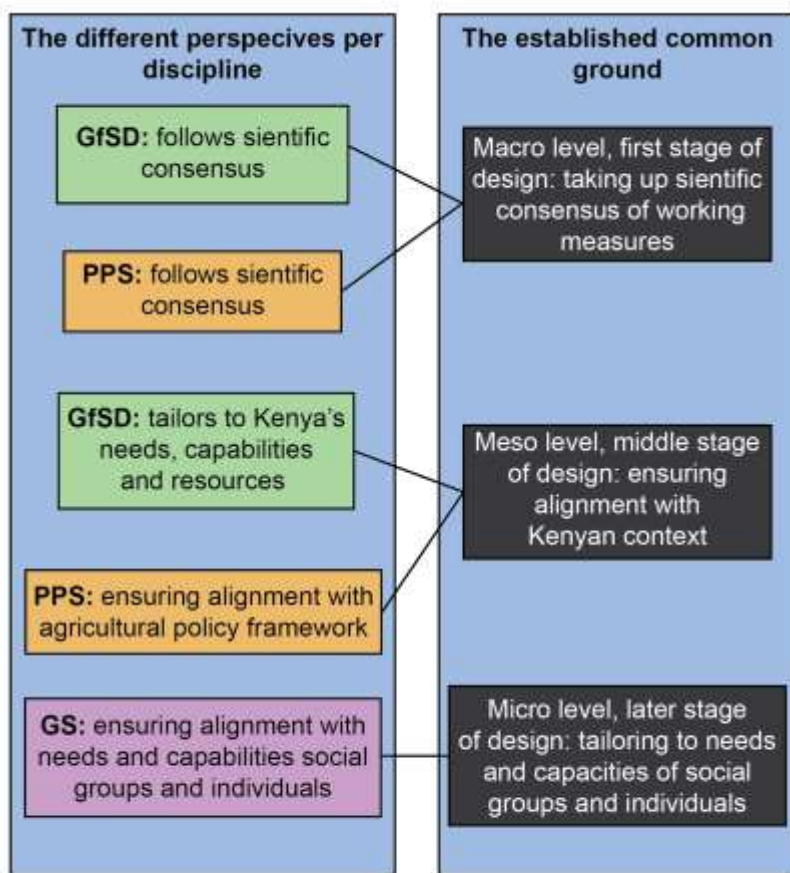


Figure 4: using cross-level intergration for appropriate measures

On a meso-level, tailoring to Kenyan context and policy framework is relevant. On a micro-level, in the later stages of more detailed design, GS shows how these particular measures described by GfSD must be tailored to the specific beneficiaries, and their needs and capacities. Since all these insights are compatible and relevant, the technique of cross-level integration is used, as seen in figure 4, to show how the different perspectives and apparent insights are reflected in a newly defined *common ground*.²

² While this is a difference between insights and not theories, we decided to use a theory-based integration technique (cross-sectional) since we feel this works better in order to show and combine the fundamental differences between insights.

4.1.4. “Implemented”

The next step is to effectively implement these measures. By focusing on different aspects and stages of implementation, the disciplines provide different insights; PPS mainly analyzes what is needed for a policy to be introduced, referring to the political and policy-formation context, and shows that the locust crisis provides momentum to introduce and implement the needed policies, but that this requires pressure from citizens, scientists and other stakeholders. GfSD notes that implementation needs resource allocation and an implementation plan in line with the FAO guidelines, but also tailored to Kenyan context, including both its policies and its capabilities. In the next stage, on-the-ground implementation, the Kenyan government will implement the measures. GS states that development projects need to cooperate with Kenyan citizens and women’s organizations on a local level in the implementation of their projects.

All these insights contribute to the correct implementation of appropriate measures at different steps in the implementation process. Therefore, organization has been used to create our *common ground*, showing that implementation encompasses different steps. In step zero, the opportunity of a crisis is leveraged, brought about by public pressure. In step two, implementing mechanisms are designed, based on the existing frameworks and allocating sufficient resources. Step three shows the government implementing national policy and setting up implementation frameworks in context of the national policy sector. Finally, step four shows development organizations and local citizens organizations cooperating to implement measures in the implementation framework set up by the national government, complementing the work of the government.

Figure 5 shows the different insights of the disciplines, and how this has been translated to an organizational model of our *common ground*, focusing on different steps of implementation and explaining all different factors needing to be taken into account to ensure a successful process of implementation.

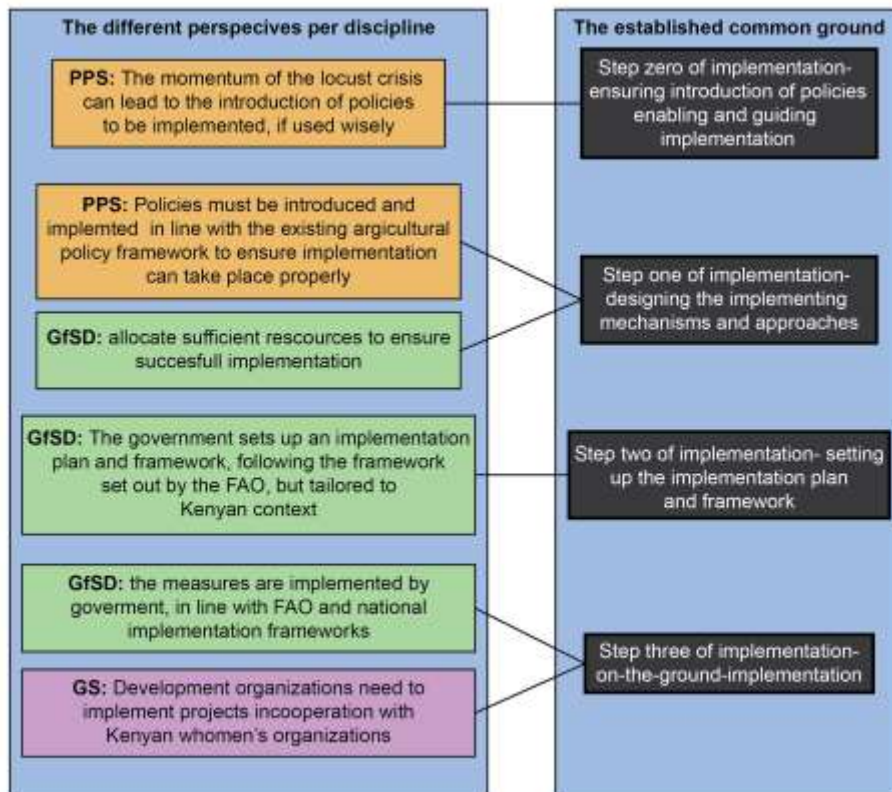


Figure 5: Using organization for "implemented"

4.2 Resolving the Four Additional Conflicts

Four additional conflicts were identified that were central in the insights and answers to the main questions of the disciplinary chapters. Therefore, it was critical to establish common ground between the disciplines in regards to conflicts on the following themes: the actors involved, the power relations, a homogeneous vs heterogeneous focus and representation.

4.2.1. Involved actors

Multiple parties are involved in defining and implementing the appropriate measures, with different interests, resources and abilities to influence the situation. In order to structure all involved parties, a combination of distinguishing (Lecq, 2012) and theory extension is used. Firstly, distinguishing was used to illustrate the difference between the concepts of stakeholders (PPS), actors (PPS & GfSD) and agents (GS), terms used interchangeably through the three disciplinary chapters without explicitly defined differences in meaning. Differences in meaning do exist and are generally

accepted in the GfSD discipline: “stakeholders” are all parties that are interested in, influenced or affected by or are able to influence the locust crisis in Kenya. Within this group, there are “actors”, consisting amongst others of “agents”. An actor is a person, group or organization that participates in or influences the decision-making in the current process, in this case the locust crisis, whereas an agent is an actor that has been formally granted authority to influence the decision-making process, as described by Biermann (2014), among others. This distinction is important in order to clarify the different roles of different parties in both defining appropriate measures and implementation. This distinguishing of concepts is shown in figure 6.



Figure 6: Using distinguishment for the concepts ‘stakeholder’, ‘actors’ and ‘agents’

Secondly, theory extension was used for two different theories; the Theory of Government (PPS) and the Theory of Governance (GfSD &GS). Where the former theory argues that the government is the most important agent in policy making and implementation, the latter argues that there is an entire governance system, including a variety of stakeholders, that designs, defines and implements policies. This Theory of Governance focuses strongly on stakeholder’s interaction and generally gives a less important position to the government. Frequently, there is a strong debate between opponents of both theories. However, while PPS’s focus leans more towards the first theory, it does not take an explicit stance and also acknowledges the influence of multiple stakeholders in this process.

Firstly these perspectives are thus not necessarily mutually exclusive, with PPS’s insights focusing on how other stakeholders can ensure that the government implements the policies, and secondly, insights from the different disciplines acknowledge the government is the central actor to address this problem (as seen in figure X below). Therefore, the Theory of Governance will be used in this research as the overarching concept that defines the actions of and interactions between

all stakeholders related to this crisis, with focus on the Kenyan government as the most important actor. This theory extension is illustrated in Figure 7 below.

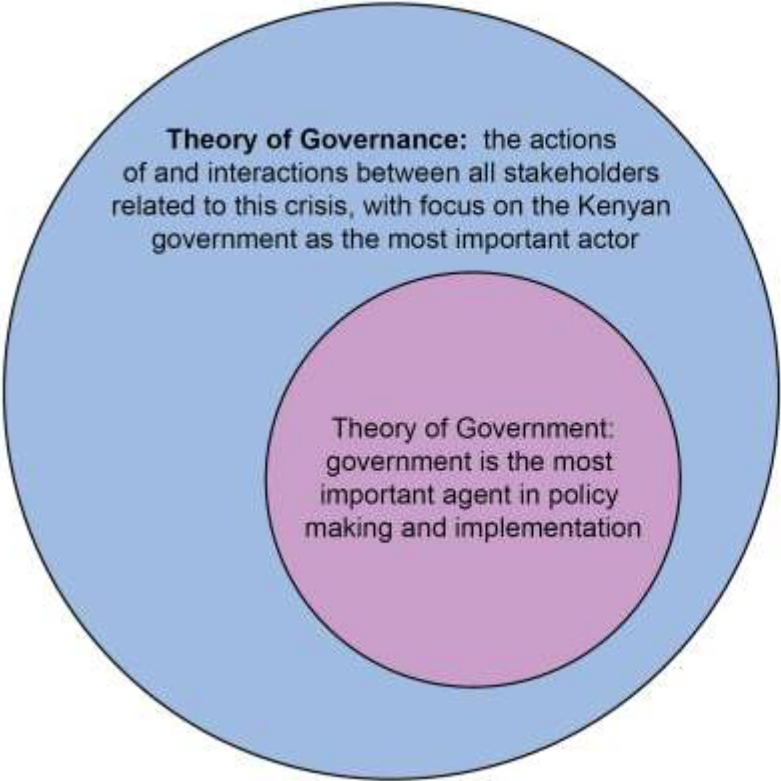


Figure 7: Using theory extension for the ‘Theory of Governance’ and the ‘Theory of Government’.

Shaping and implementing appropriate measures

The table below shows the involved actors identified per discipline. Because all actors listed are relevant but have different roles, the technique of organization has been used to create *common ground* between these insights. The outcome of this is elaborated on in section 1.3.3, also presenting our MCU.

Discipline	Involved actors in defining appropriate measures	Involved actors in implementation
PPS	Politicians, presidency/presidential office, governmental departments and ministries, agricultural sector; scientist and expert groups and media	Presidency/presidential office, governmental departments and agricultural sector

GfSD	FAO, presidency/presidential office and governmental departments	FAO, presidency/presidential office, and governmental departments
GS	Development agencies and citizens (including civil society organizations)	Development agencies and citizens (including civil society organizations)

Table 1: The involved actors and the disciplinary chapters in which they appear.

4.2.2. Power Relations

As PPS already mentioned, ‘policies and progress are not made or achieved in a vacuum’. On the contrary, they are highly shaped by the social context and its power relations. This assumption is acknowledged by both GS and PPS explicitly. However, the precise described power relations, and the scale on which they operate, differ per discipline: GS shows the importance of gendered power relations between individuals in crises such as the locust crisis, where women are more vulnerable than men because they are generally poorer and less powerful. It also highlights the power relation between western and non-western parties and institutions; thus defining power relations as being influenced by social factors such as race and gender. PPS focuses on power relations between different individuals, groups and institutions, mostly related to their legal mandate, economic or political strength, in Kenya the latter importantly based on ethnic support bases. GfSD does not explicitly mention power relations, but does describe the interactions between national and international institutions based on capacities and resources.

These differences are based on different assumptions of key factors influencing power relations. Therefore, the conflict has been solved by applying extension and organization. First, we extended the assumptions of important factors to incorporate all above stated influencers of power relations, being institutional, social, economic and political factors. The newly defined assumption is that “power relations are a connection between people or institutes that influence each other wherein there is a certain balance of power, often influenced by institutional, social, economic and political factors. On different levels, different social factors have influence.” This extension is shown in figure 8.

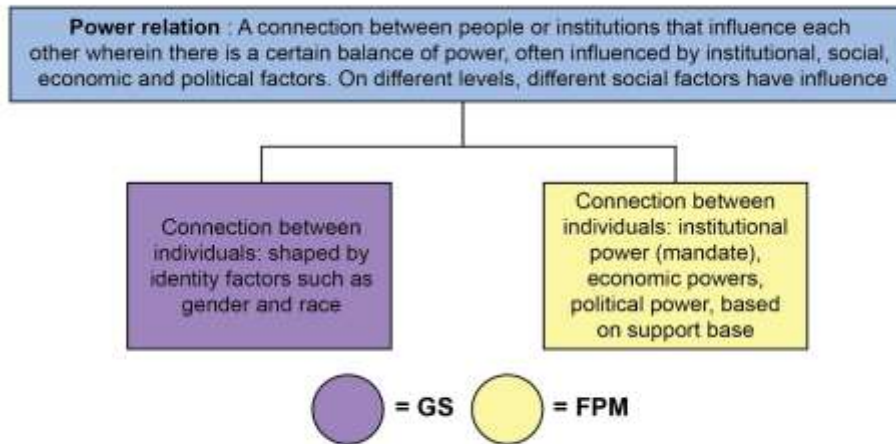


Figure 8: Using extension for 'power relations'

After that, we organized the importance of these different power relations on micro (connection between individuals), meso (connection between national parties) and macro level (connection between international parties), according to the above outlined insights of the different disciplines in order to create *common ground*, as can be seen in figure 9. This common ground shows that at these different levels, different factors should be considered that define power relations.

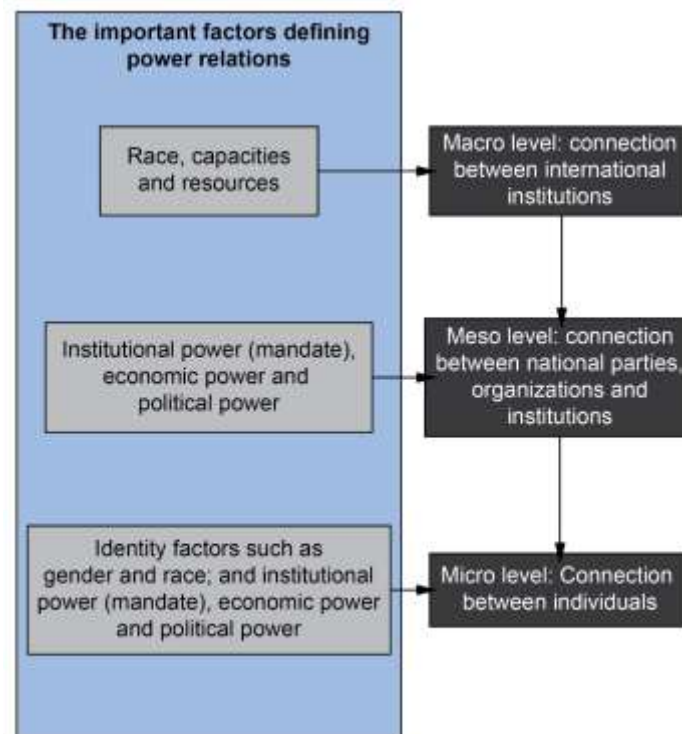


Figure 9: Using organization for 'power relations'

4.2.3. Heterogeneous vs homogeneous focus of policies and measures

A recurrent theme in all disciplinary insights is either a heterogeneous or homogeneous focus on individuals when policies and measures are defined. The insights provided by GS highlight that it is vital to recognize the heterogeneity of people, thereby focusing on both differences between men and women and differences between women as a group to ensure effective policies. In contrast, PPS assumes that the right national policies implemented in Kenya will work for all citizens, seeing them thus as a homogeneous group. GfSD does not take an obvious stand in this conflict, rather landing somewhere in the middle: it prioritizes international, homogenous policies, but stresses the need to look at Kenya's specific context.

What becomes clear from these different insights, is that the scale of the policies and measures considered (micro, meso or macro level) influence whether measures need to be focused on citizens as a homogeneous or heterogeneous group. Therefore, rather than making a black-and-white distinction between a heterogeneous or homogeneous focus, a continuous spectrum approach must be used. Via transformation of these different disciplinary insights, a continuous scale presents the *common ground*. Policies that are shaped for implementation on the local (micro) level, should focus on people as a heterogeneous group with different needs in order to be durable. Policies that are shaped for implementation on a national (meso) or global (macro) level, should focus on people as a homogeneous group with collective needs to ensure optimal and long-term effectiveness: umbrella measures and frameworks are needed that apply to all contexts and implement one overall policy. The higher the level, the less social context of citizens needs to be taken in consideration for a measure to function, and the more crucial it is that measures can function in different social contexts. The figure below shows this continuous spectrum.

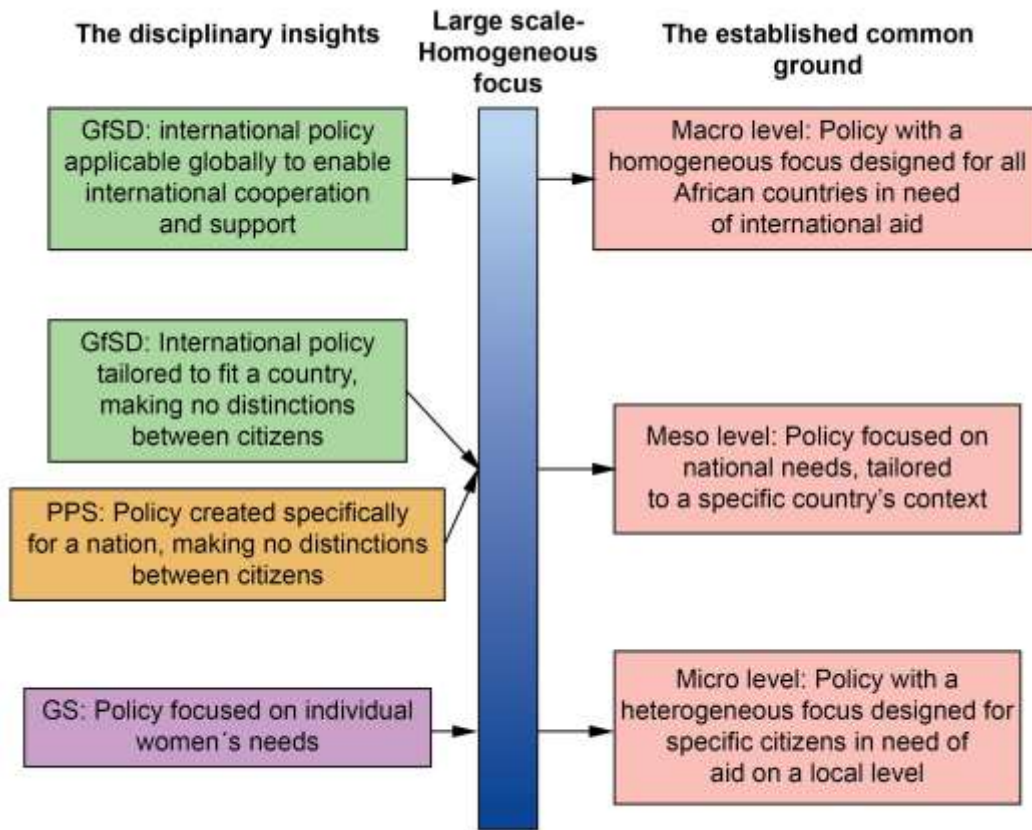


Figure 10: Using transformation for the heterogeneous/homogeneous focus.

4.2.4. Representation

Representation of those in need of appropriate measures and of the problems that need solving, determine if and how appropriate measures are implemented. While GS uses the concept of representation to indicate “a certain way of showing something”, PPS uses the word “framing” to indicate “the way that certain phenomena are, often explicitly, portrayed and communicated”. GfSD does not address this subject.

“Representation” is a broader term than “framing” because it includes explicit portraying and communication, but also implicit or unaware depiction of a certain phenomenon, or the usage of symbols. This is shown in figure 11. Since “framing” can always be substituted for “representation”, we will use the definition of representation in our *common ground*: a certain way to depict something.

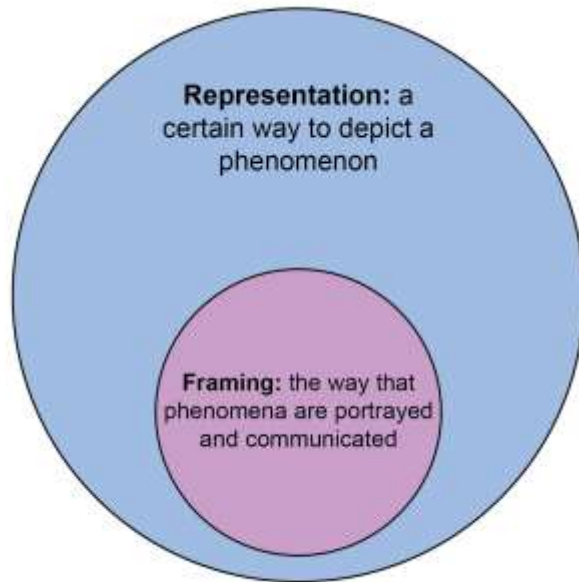


Figure 11: Using extension for 'representation'

4.3. The Integration Model and More Comprehensive Understanding

4.3.1. Durability: encompassing “sustainably” and “as effectively as possible”

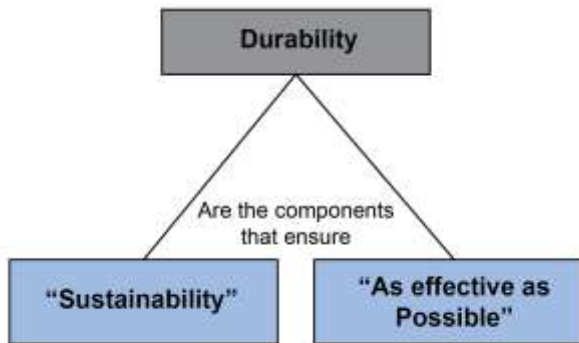


Figure 12: More comprehensive understanding of “durability”

As highlighted in section 1.1.2, our MCU shows how “durability” comprehends both the first component, “optimal effectiveness” in terms of solutions that are longstanding, and the second component, sustainably, which showcases that for a solution to be durable, it must not have any negative effect on the environment. Therefore, in the integration model, these two components will be shown to be the two factors determining the durability of a solution, both in terms of the measure itself and the way it is implemented.

4.3.2. Linking “appropriate measures” and “implemented”

In section 1.1.3 we applied cross-level integration to show what are appropriate measures at specific levels of policies, and in the following section we showed via organization which factors can ensure successful implementation at different stages of the process. An important second link we will make in our MCU, is the link between appropriate measures and their implementation. Appropriate measures influence how implementation needs to take place, while implementation is a part of what defines a measure. Both are, as seen, defined and led by certain actors. This will be elaborated on in section 4.3.3.

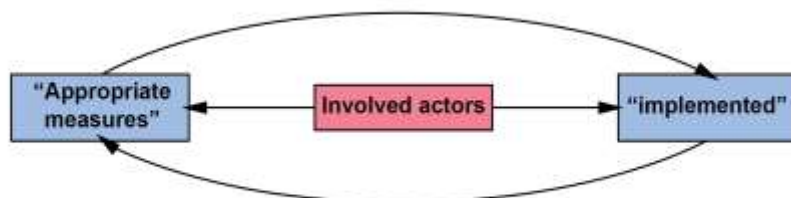


Figure 13: The influence of involved actors

4.3.3. The social context: shaped by actors, their interactions and power relations

A red thread throughout the chapters is the importance of the social context in defining, introducing and implementing appropriate measures effectively and sustainably. This social context is shaped by the actors, their interactions, and the power relations by which these are influenced.

Concerning the actors, the multiple disciplines show that different actors can influence both the definition of appropriate measures. To correctly incorporate these different insights the theory of organization was used for defining appropriate measures (see figure 4) and their implementation (see figure 5). In both defining and implementing measures, the Kenyan government and its ministries are the most important actors: they have the final say on what appropriate measures are – since they approve them – and are the ones who lead and approve their implementation. Scientists and expert groups determine what appropriate measures are according to science and evidence, but are not involved in the implementation of these measures. Media and citizens can informally influence what is perceived appropriate and thus what needs to be implemented, and thus are included in both figures. Likewise is the FAO and the agricultural sector, that influence shaping of measures and implementation via advice and advocacy. Development organizations take on an

advisory role in the shaping of measures but a more active role in implementation, providing immediate resources to stakeholders.

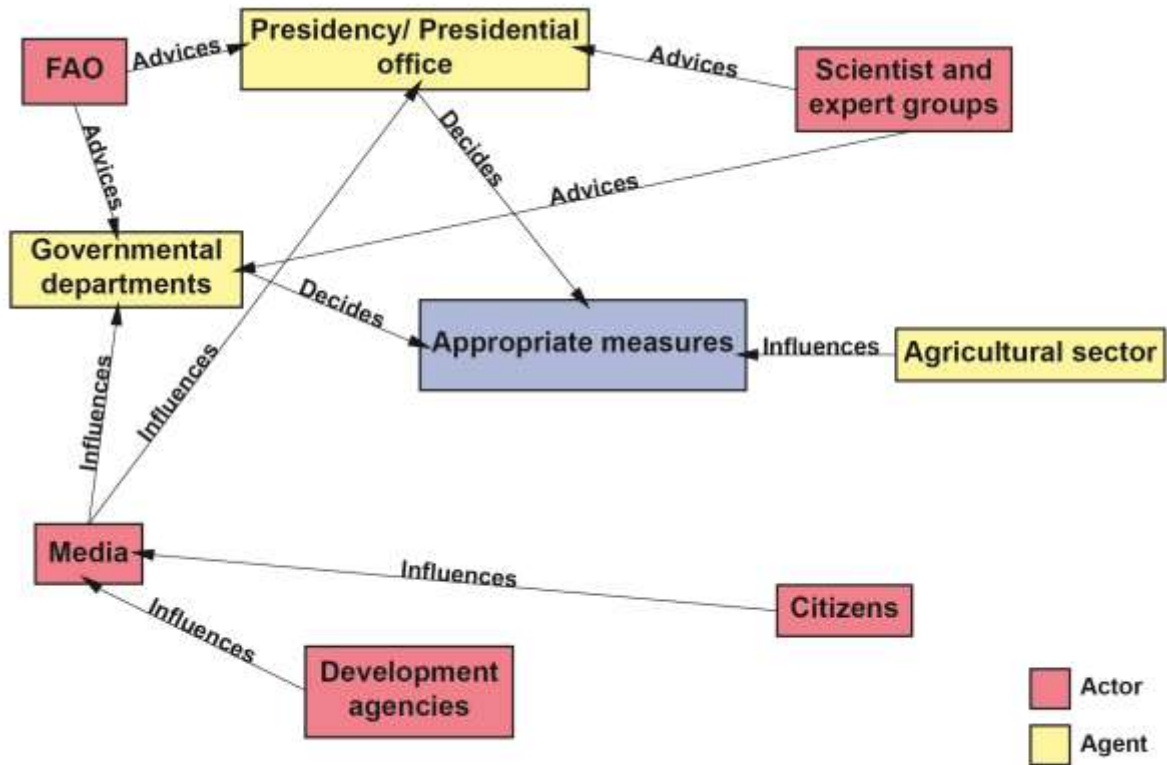


Figure 14: The interaction between involved actors and defining appropriate measures.

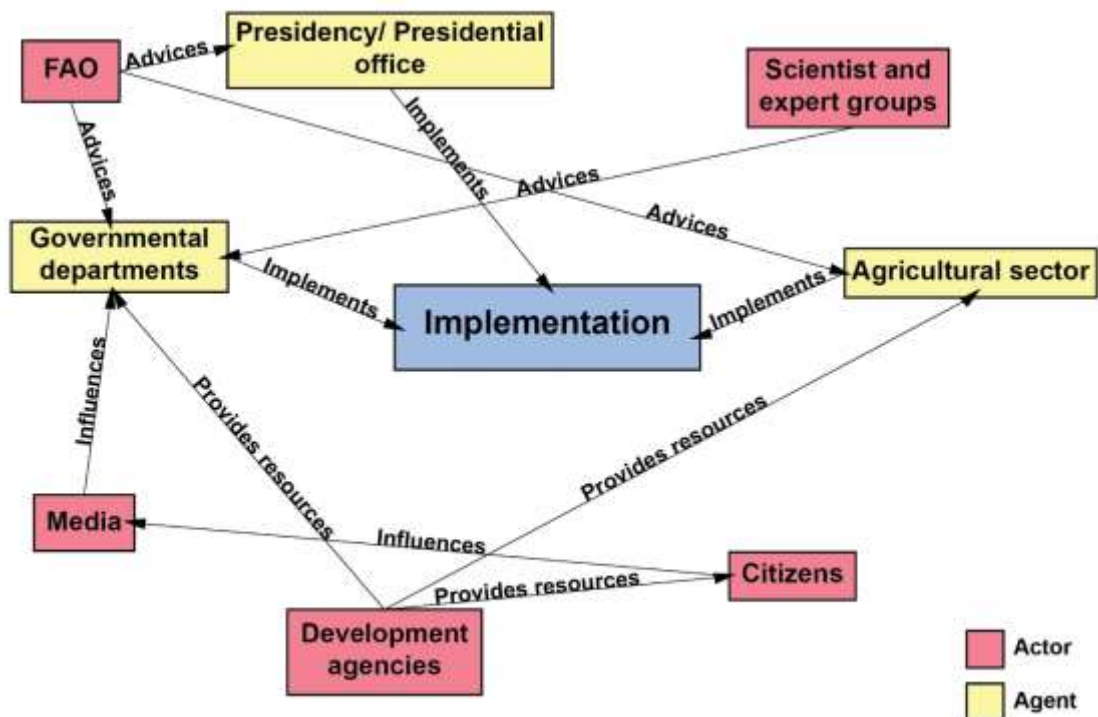


Figure 15: The interaction between involved actors and implementation

4.3.4. Enabling perspectives: representation and heterogeneous or homogeneous focus

In order to integrate our insights on topics of framing and representation, we extended the definition of ‘representation’ to include ‘framing’ and defined it as ‘a certain way of showing something’. Our MCU shows that representation of a problem and those in need of support enables the implementation of a measure, and also influences the way a measure is implemented.

In addition, our *common ground* states that policies need to focus on people as a homogeneous group on macro and meso-levels, and on people as a heterogeneous group on micro levels. The heterogeneous or homogeneous focus of a policy is, as described earlier, a crucial factor in designing and defining appropriate measures on different levels.

With that, *common ground* of both these conflicts provides the perspective needed to ensure that both the definition of appropriate measures and their implementation happen as successfully and effectively as possible.

4.3.5 Connecting the Dots: the Full Integration Model

With the final step of integrating the disciplinary insights into a MCU, this research has shown that in order for Kenya to prevent future crop losses, the appropriate measures should be implemented in the correct manner in order to allow for durable progress - both in terms of sustainability and of optimal effectiveness.

In addition, the actors involved, representation, power relations and the distinction between a heterogeneous and a homogeneous focus form the social context which also influences what measures are appropriate and how they should be implemented as showcased in the figure below. This social context is firstly only crucial to explicitly take up, though either via a heterogeneous or homogeneous focus, in defining and implementing appropriate measures, in order to make them effective both on the scales of global-level framework policies and local-level implementation. Secondly, it is the key environment determining whether Kenya and all parties involved are able to implement the appropriate measures in a correct manner in order to safeguard future crops and lives. The MCU shows that the same stakeholders are involved in this issue with different levels of influence in the ‘appropriate measures’ and ‘implementation’ components, also shown in figure x. But in addition to this, the power relations between these actors also influence these components, since the difference in authority affects the eventual decisions made. Nevertheless, in this social context the Kenyan government proves itself to be the most important

actor, because of its power relations, by finally driving and approving the policy formation process and implementation process. However, it is important to note that the other actors need to fulfill their roles in this network to realize progress in measure design and implementation, and to optimize the result.

How can the appropriate measures be implemented to sustainably minimize crop loss of the coming planting seasons as a consequence of the locust plague in Kenya as effectively as possible?

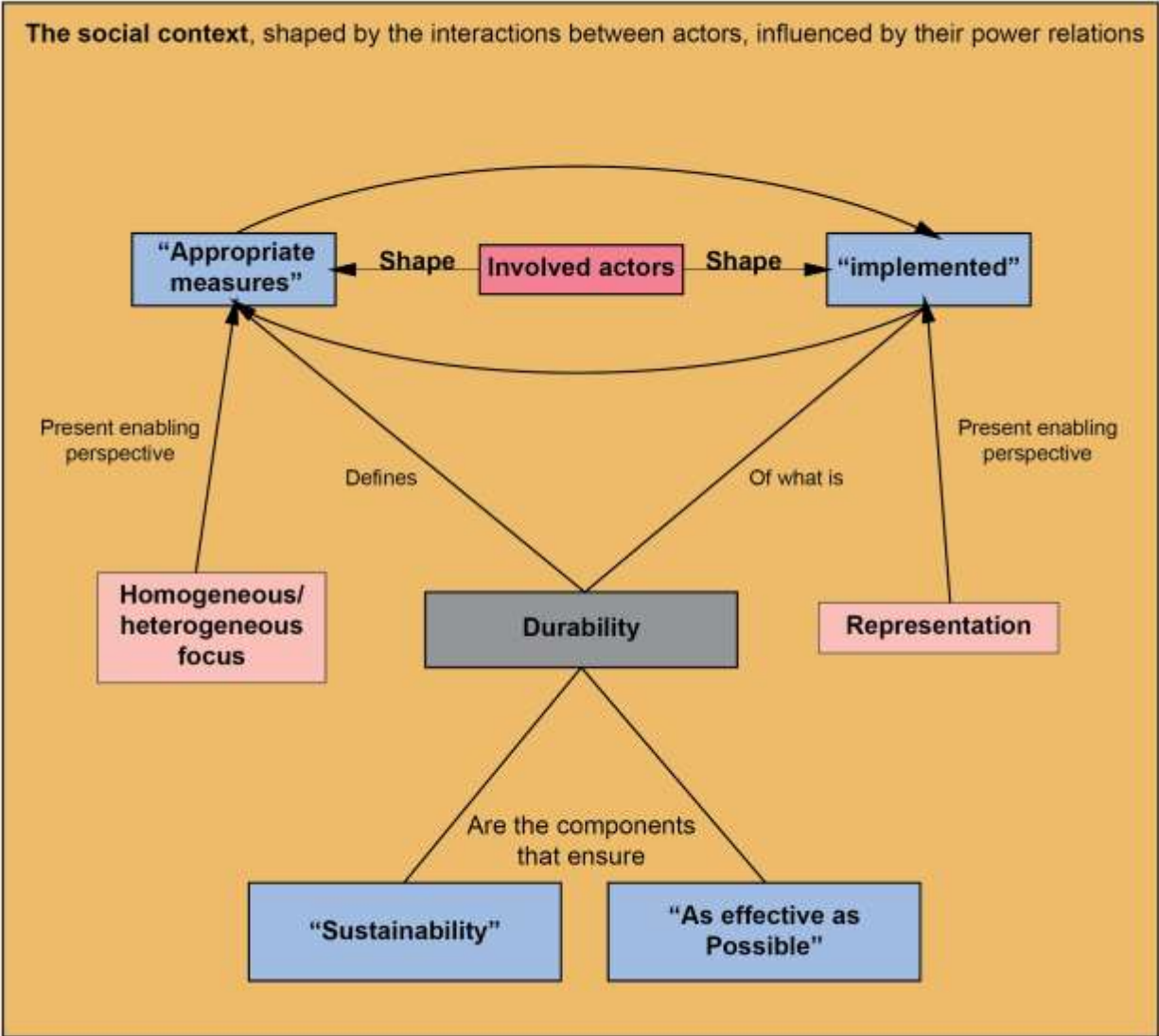


Figure 16: The full integration model

Conclusion

While food for millions vanished every day due to locust swarms, this research has shown how the appropriate measures can be implemented to sustainably minimize crop loss due to the locust plague in Kenya in the coming planting seasons as effectively as possible. While this crisis is a highly destructive event, it also provides a rare “window of opportunity” in Kenyan politics that can be used by scientists, advocates and the public to pressure the government to implement needed measures. To do so, representation of the problem and its solutions by the involved actors in terms that are understandable and relatable to Kenyan politicians, and that do not threaten their power bases, is crucial for success.

What these groups must advocate for, are measures that take into account environmental sustainability, longer-term effectiveness. They also must take into account the context of Kenya, including its abilities and resources, and different groups and citizens within its society. This means implementing measures such as increasing woody vegetation, unleashing chickens, and establishing monitoring officers. These measures, that should be integrated in the existing policy framework, must be tailored to the needs and abilities of specific groups within the country, most especially women, and must be developed and implemented in collaboration with these groups. If all these factors are taken into account, a durable solution that will minimize future crop loss both sustainably and as effectively as possible will be realized.

The Kenyan government has been identified as the central actor to implement measures because of its formal roles and responsibilities and informal power relations. However, as already noted, other actors must ensure that the government will act. In addition, due to scarce resources and the international nature of the crisis, the Kenyan government must be supported by international organizations such as the Food and Agriculture Organization, the World Bank, and Oxfam Novib, in implementation of measures. Their support must be tailored to Kenyan contexts, with Kenya in the ‘driving seat’ of implementation in order to ensure durable, systemic and positive change.

Discussion

This research thus provides a clear picture on which measures should be implemented and how. Nevertheless, it would have benefited from disciplinary insights from both Economics and Media Studies. Economics could analyze the cost-benefits of different implementation measures, in order to make a stronger case for implementing certain measures in the context of Kenya's resource scarcity, and analyze the beneficial impacts of preventive measures on the country's economic development. Since PPS already described media as key drivers of public pressure for change, Media Studies could provide good insight in the media's central role in ensuring that the “window of opportunity” resulting from the locust crisis will indeed result in the implementation of needed measures.

Another important limitation in our research is the central assumption of our ability to develop insights that are applicable to the Kenyan locust crisis, when in reality we as western researchers may be unable to rightly take into account different social contextual factors that only Kenyan citizens are familiar with. Therefore, our research may be biased and incomplete.

Thirdly, we acknowledge that integration can be done in multiple ways, consequently leading to different MCUs. The focus areas and methods of our integration shape our answer to the research question. Importantly, representation of the problem and solutions could be used as a more central theme in integration than it has been now: both GS and PPS elaborate thoroughly on the need to appropriately represent the problem and solutions in order to come up with effective measures and sound implementation, and to ensure, via public pressure and lobbying, that these will indeed be implemented. GfSD is less explicit in this regard, but does mention that Kenya is so negatively affected now because the perceived risk of locust plagues had reduced due to the absence of a major plague for almost 70 years. Here again, representation of the problem – in terms of risk assessment – is shown to be crucial in both explaining the extent of this crisis and in avoiding future ones. Thus, representation and attention to the problem arguably is the main critical factor to ensure implementation of appropriate measures. Especially when the disciplines of Economics and Media Studies will contribute, a central focus on this aspect in the integration could provide the involved actors with better, economically sound, tools to enable, pressure for, and realize action.

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