



Which types of animal advocacy interventions are likely to have the highest impact in African countries?

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Examining the effectiveness of four intervention types across five countries.

This is a research report about different forms of animal advocacy interventions targeting farm or production animals across five African countries.

For questions about the content of this research, please contact Joy Muthanje Mwaniki at joymwnk1@gmail.com or Moritz Stumpe at moritz@credenceinstitute.org

We highly welcome feedback and encourage the idea of red-teaming or challenging the conclusions made in this report.

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Animal Advocacy Africa

AAA works to strengthen the funding capacities and effectiveness of African animal advocacy organisations that are reducing animal suffering, particularly that of farmed animals.



Table of contents

Executive Summary	4
Introduction	7
Countries Studied in the Report	7
Northern Africa: The Case of Egypt	7
Southern Africa: The Case of South Africa	8
Eastern Africa: The Case of Kenya	8
Western Africa: The Case of Ghana	8
Central Africa: The Case of Rwanda	8
Methodology: Weighted Factor Model	9
Results	10
1. Strength of Idea	10
1.1. Evidence Base	10
1.1.1. Individual Outreach	10
1.1.2. Institutional Outreach	11
1.1.3. Capacity Building	11
1.1.4. Direct Help	12
1.2. Cost-Effectiveness	13
1.2.1. Individual Outreach	13
1.2.2. Institutional Outreach	13
1.2.3. Capacity Building	14
1.2.4. Direct Help	14
1.3. Flexibility	15
1.3.1. Individual Outreach	15
1.3.2. Institutional Outreach	16
1.3.3. Capacity Building	16
1.3.4. Direct Help	17
2. Execution Difficulty	18
2.1. Metric Focus	18
2.1.1. Individual Outreach	18
2.1.2. Institutional Outreach	19
2.1.3. Capacity Building	20
2.1.4. Direct Help	20
2.2. Scalability	21
2.2.1. Individual Outreach	21
2.2.2. Institutional Outreach	21
2.2.3. Capacity Building	22
2.2.4. Direct Help	23
2.3. Timing	23
2.3.1. Individual Outreach	23
2.3.2. Institutional Outreach	24
2.3.3. Capacity Building	25
2.3.4. Direct Help	26
3. Limiting Factor	27
3.1. Counterfactual Replaceability / Neglectedness	27
3.1.1. Individual Outreach	27
3.1.2. Institutional Outreach	28
3.1.3. Capacity Building	28



3.1.4. Direct Help	29
3.2. Funding Availability	30
3.2.1. Individual Outreach	30
3.2.2. Institutional Outreach	30
3.2.3. Capacity Building	31
3.2.4. Direct Help	31
3.3. Talent Availability	32
3.3.1. Individual Outreach	32
3.3.2. Institutional Outreach	33
3.3.3. Capacity Building	33
3.3.4. Direct Help	34
3.4. Size of Problem	35
3.4.1. Individual Outreach	35
3.4.2. Institutional Outreach	35
3.4.3. Capacity Building	36
3.4.4. Direct Help	36
3.5. Logistical Bottleneck	37
3.5.1. Individual Outreach	37
3.5.2. Institutional Outreach	38
3.5.3. Capacity Building	38
3.5.4. Direct Help	39
4. Externalities	40
4.1. Risk of Negative or No Impact	40
4.1.1. Individual Outreach	40
4.1.2. Institutional Outreach	41
4.1.3. Capacity Building	42
4.1.4. Direct Help	42
4.2. Flow Through Effects	43
4.2.1. Individual Outreach	43
4.2.2. Institutional Outreach	44
4.2.3. Capacity Building	44
4.2.4. Direct Help	45
Results of the Weighted Factor Model	46
Sensitivity Analysis	49
Conclusion	50
Limitations	51
References	52

Executive Summary

This paper analyses and compares different forms of animal advocacy interventions targeting farm or production animals across five African countries representing [each region of the African continent](#): Egypt, Ghana, Kenya, Rwanda, and South Africa. The purpose of this study is to determine the interventions that are likely to succeed in these countries and inform animal welfare practitioners and organisations which interventions would be well suited to each country's context. Egypt, Kenya, and South Africa are included in this study due to their ranking on the [Animal Protection Index \(API\)](#), which rates countries based on their policies and legislation on animal welfare and provides helpful information for researchers ([Owino, 2020, World Animal Protection, n.d.](#)). Ghana and Rwanda are not included in the API but are selected as representative countries of their region to enhance the limited information available on their animal welfare ecosystems.

We use a [Weighted Factor Model \(WFM\) framework](#) to analyse four types of interventions:

- individual or public outreach, which targets behavioural change among the public;
- institutional outreach, which seeks to influence political institutions and corporations;
- capacity building, which focuses on improving the capacities of stakeholders in animal welfare; and
- direct help, which provides direct services to animals, such as veterinary services, vaccinations, and animal rescues.

We use this framework because it is useful in situations where a large number of different quantitative and qualitative factors need to be consolidated, as is the case for this study. It also helps in identifying factors that decisively influence the final scores and thus supports clear communication and understanding ([Charity Entrepreneurship, n.d.](#)). The criteria, metrics, and weights used in the model are shown in Table 1 and are determined through our previous research, which can be found [here](#). The criteria are weighted subjectively based on their estimated importance for impact, and the likelihood that each criterion will result in the failure of each intervention. By researching and gathering evidence on the four intervention types, they are scored in each country on a scale of one to five for each metric, with one always representing the least and five the most favourable score.

Table 1: Criteria, Weights and Metrics for Weighted Factor Model

Criteria	Metrics	Weights
Strength of Idea	Evidence Base	5.4%
	Cost-Effectiveness	10.0%
	Flexibility	7.0%
Execution Difficulty	Metric Focus	5.4%
	Scalability	10.0%
	Timing	7.0%
Limiting Factor	Counterfactual Replaceability / Neglectedness	10.0%
	Funding Availability	5.4%

	Talent Availability	9.2%
	Size of Problem	10.0%
	Logistical Bottleneck	8.0%
Externalities	Risk of negative or no Impact	8.0%
	Flow-Through Effects	4.6%

The full WFM created for this study can be found in its entirety [here](#). The final scores resulting from the Weighted Factor Model can be found in Table 2 below:

Table 2: Final Scores of the Weighted Factor Model

	Public / Individual Outreach	Institutional Outreach	Capacity Building	Direct Help
South Africa	374	365	331	267
Kenya	384	355	319	325
Egypt	378	324	304	329
Rwanda	369	303	302	312
Ghana	385	339	321	306

In all five countries, the most impactful type of intervention is individual or public outreach followed by institutional outreach. These similarities in scoring across countries are likely caused by the fact that the countries share commonalities in terms of socio-economic factors and culture. In South Africa, institutional outreach scores very highly, almost on par with individual outreach. Direct help does not seem promising at all in South Africa, while it seems relatively more promising in Egypt and Kenya than in the other countries. In Rwanda, individual outreach clearly outranks the other possible intervention types.

To test the robustness of the model, different sensitivity analyses are conducted on the most relevant results. This is done by varying the weights of the different metrics on a range of +/- 2 percentage points and the scores by +/- 0.5. This method shows that the rankings of individual and institutional outreach in South Africa are robust, with individual outreach outperforming institutional outreach in 88% of the simulated cases. This is true even though the difference between the two scores is very small – less than 3% in 56% of the cases. As South Africa scores highest on institutional outreach, individual outreach is even more likely to outscore institutional outreach in all of the other four countries. A similar analysis also finds that Ghana or Kenya is very likely to have the highest scores for individual outreach among the five countries. In 83% of the simulated cases, Ghana achieves higher scores than South Africa on individual outreach, even though the difference between the scores of two countries is small – less than 3% in 69% of the cases. Since these analyses focus on the more contested results of the model (where differences in scores are not very large), other findings should be even more robust, such as the result that direct help in South Africa should be the least promising intervention. For interested readers, the detailed sensitivity analyses can be found [here](#).

The scores for individual outreach are generally highest because this intervention does not demonstrate major weaknesses on the metrics covered in the WFM. Compared to other interventions, it is highly scalable, has a large talent pool to draw from and has good timing. In contrast, institutional outreach suffers from a high risk of no or negative impact across all of the five countries, even though it typically scores high on cost-effectiveness and neglectedness. Capacity building generally performs weaker across most metrics, most crucially on metric focus, as the impact of capacity building efforts are hard to measure. Direct help scores weakly across most of the metrics, even though it has a low risk of no or negative impact and tackles a significant problem in the five countries studied.

To give an example of the evidence and reasoning applied across this report, consider the high risk of no or negative impact for institutional outreach. In South Africa, political and corporate institutions may ignore lobbying efforts like petitions and protests ([Fairbrother, 2017](#); [National Council of SPCAs, n.d.](#)). Such a risk is also present in Kenya where there are additionally no documented prosecutions for animal abuse ([ICPALD, 2017](#)). Similarly, in Egypt, there is a high risk of no impact as legislation often results in no change in the situation for animals ([Salah, 2017](#), [World Animal Protection, 2020](#)). Further, in Rwanda, there is evidence that institutional interventions run the risk of resulting in errors in legislative reforms ([Sherman, et al., 2014](#)). Lastly, in Ghana, social conflict seems likely if legislation were to be changed to require the stunning of animals before slaughter ([Agentur für Wirtschaft & Entwicklung, n.d.](#)). More insights and the exact reasoning for every score can be found in the [full report](#), especially in the [results section](#).

Individual outreach is likely to be most impactful in all five countries, which suggests that animal advocacy organisations and individuals should first aim to create awareness among the public. Campaigns could be focused on animal welfare, sentience, or diet change. When designing such campaigns, advocates should keep in mind that there are risks of negative reactions from the public (such as perceptions that animal welfare and diets are un-African) and conflict with local cultural traditions. It is also noteworthy that within the [Effective Altruism](#) community, institutional outreach is often preferred over individual outreach ([Reese Anthis, 2020](#)), in contrast to the findings of this report. Nevertheless, prioritising public outreach efforts in the African countries studied here seems very reasonable, given their peculiar local context which has not been analysed thoroughly before. Public outreach may not be as effective as institutional outreach in places where awareness of animal rights and welfare issues is already quite high (such as the United Kingdom or United States). However, public outreach can be very relevant in communities where the animal advocacy movement is still small ([Harris, 2020](#)).

That being said, several limitations concerning this study should be noted. Most importantly, there is limited information concerning animal welfare interventions across the African continent. This is especially true in the case of Egypt where missing information has been filled in by using information from comparable countries. In addition, information on the cost-effectiveness of animal welfare interventions in the five countries is notably absent, except for the cost-effectiveness of direct help. Again, information has been substituted and drawn from other contexts. Furthermore, this Weighted Factor Model is an initial try at scoring and is based purely on desk research, not on practical experiments. Further primary qualitative and quantitative data is required to draw more robust conclusions. More specifically, the use of qualitative interviews with experts from the relevant countries could likely fill in some of the gaps in the study, especially in the case of Egypt.

Introduction

According to Lobbyists 4 Good (n.d.), animal advocacy is the act of promoting the humane treatment of animals and the alleviation of their suffering. There are multiple forms of interventions within animal advocacy. These are individual outreach, institutional interventions, capacity building, and direct help. Individual or public outreach focuses on reaching and creating behavioural change among the public. This can include leafleting, online advertising and pledge programs (Peacock, 2018). Individual outreach can also include online competitions, as well as social media campaigns that are aimed towards the public. Institutional or corporate outreach focuses on pressuring corporate organisations or political institutions. This pressure can be applied by consumers, investors or animal advocates (Lymbery, 2018). In addition, it can include legislative advocacy, lobbying for and enforcing animal welfare laws, running protests and petitions, as well as social media campaigns and media exposure targeted towards corporations or governments (Sarek, 2019). Capacity building interventions, as the name implies, involves building the capacities of stakeholders in animal welfare, including farmers and local animal advocacy organisations. This can be done through conducting research, coordinating knowledge sharing networks and conferences, providing logistical support as well as teaching animal welfare techniques to farmers (Tan, 2021). Finally, direct help involves providing veterinary services for animals that are abused or abandoned (Tan, 2021). This can include vaccinations, as well as the work done by rescue shelters and animal sanctuaries.

The aim of this paper is to determine the interventions that are most likely to be successful in different African countries. It will help practitioners and organisations that work on animal welfare in African countries, and who need a guide to understand which interventions would be ideal for which region. The paper focuses specifically on interventions targeting farm or production animals. It highlights and analyses the existing environment for animal advocacy in each country, and determines which interventions should be used. More specifically, the paper looks at animal advocacy interventions in Egypt, Ghana, Kenya, Rwanda, and South Africa. These countries were selected for various reasons, the most important being that they represent each region of the African continent, that is, Northern, Western, Eastern, Central, and Southern Africa. Another reason that Egypt, Kenya, and South Africa were selected is that all three countries feature on World Animal Protection's Animal Protection Index (API) (Owino, 2020). This is an index that ranks countries based on their policies and legislation on animal welfare based on a scale of A to G and provides helpful information for researchers (World Animal Protection, n.d.b.). Ghana and Rwanda are not included in the API. They have been selected as representative countries of their region to enhance the limited information available on their animal welfare ecosystems.

Countries Studied in the Report

Northern Africa: The Case of Egypt

Egypt is ranked at F by World Animal Protection. This poor ranking can be attributed to the fact that Egypt's legislation does not acknowledge the sentience of animals. There are laws that do protect animals, but these are not comprehensive. There is also low cultural receptivity towards animal advocacy. While there are serious penalties for persons breaking animal advocacy laws including fines and prison time for up to seven years, there are gaps in these laws regarding specific animals and the type of abuse that they are subjected to (World Animal Protection, 2020a). Conversely, there are numerous non-governmental organisations (NGOs) that deal with animal welfare.

Unfortunately, Egypt lacks a lot of information on animal welfare interventions. Therefore, missing information on Egypt's interventions has been supplemented with data from Vietnam. The reason Vietnam has been selected to bridge information gaps is that it ranks at the same level as Egypt on the API. Both Vietnam (World Animal Protection, 2020d) and Egypt (World Animal Protection, 2020a) rank poorly at ranking F. In addition, both countries have similarities in that they have animal festivals that have been criticised as being inhumane. Egypt's Eid al-Adha often involves the slaughter of animals (Kingsley, 2014), whereas Vietnam's Dong Cuong New Year festival has faced backlash as it has in the past involved the hanging of live buffalo (Animals Asia, 2017).

Southern Africa: The Case of South Africa

South Africa is ranked at E by World Animal Protection. This is because the country has a number of laws that forbid animal cruelty, including the Animal Protection Act, the Performing Animals Protection Act and the National Society for the Prevention of Cruelty Act (Trent, et al., 2005; Wilson, 2019). However, there is a lack of accessibility to the animal welfare standards developed by the South African Bureau of Standards as the public has to buy a copy of these regulations. In addition, the confinement of farm animals, including the use of cages for chicken, is legal. (World Animal Protection, 2020c).

Eastern Africa: The Case of Kenya

Kenya is ranked at D according to the API. Animal production systems in the country differ from urban areas to rural areas. In urban areas, chicken production is often characterised by the use of overcrowded cages and harmful growth chemicals. Chicken are also transported in inhumane conditions, including being held upside down or piled on top of vehicles (Otieno & Ogutu, 2019). In rural areas, however, chicken production is usually free range (USAID, 2010).

The country also has a proposed bill, that is, the Animal and Protection Bill 2019 which seeks the institution of a County Animal Welfare Unit in all of the country's counties and proposes stiffer penalties than those instituted by the Prevention of Cruelty to Animals Act. Currently, the Prevention of Cruelty to Animals Act states that those found guilty of abusing animals can either be fined approximately USD 30 or imprisoned for up to 6 months. The proposed bill will also recognize animal sentience (World Animal Protection, 2020).

Western Africa: The Case of Ghana

Ghana is not ranked on the API. However, it is clear that there is little animal protection legislation (Agentur für Wirtschaft & Entwicklung, n.d.). The country also faces a shortage related to animal health professionals (Adams & Ohene-Yankyera, 2015). Furthermore, stunning rarely occurs before the slaughter of animals, as this is not considered to be Halal in the Islamic faith, which is highly prevalent in the country (Fuseini & Sulemana, 2018). Incidences of animal cruelty have also been reported in slaughterhouses (The Animal Reader, 2020), during transportation (Akwei, 2015), as well as during loading and unloading of animals (Frimpong, et al., 2012). However, there are organisations that work on promoting animal welfare, such as the Society for the Protection of Animals Abroad (SPANNA) and the Ghana Society for the Protection and Care of Animals (GSPCA).

Central Africa: The Case of Rwanda

As is the case with Ghana, Rwanda is not ranked on the API. The nation has few laws on animal welfare (Sherman, et al., 2014). One notable law that does exist, however, is a law on the transportation of chicken which mandates that they must be transported using appropriate baskets during the day (Miklyayev, et al., 2017). However, many farmers cannot access veterinary services, and veterinarians themselves lack the appropriate skills. In addition, there are few appropriate transportation devices to allow the humane transportation of animals (Musemakweli, 2018).

Methodology: Weighted Factor Model

The paper uses a Weighted Factor Model (WFM) to determine which intervention would likely be most successful in each country. According to Charity Entrepreneurship (n.d.), the WFM is a process of evaluating and scoring a set of interventions based on a range of criteria and weightings. In the case of this study, the four interventions have been scored based on the criteria, metrics and weights shown in Table 3.

Table 3: Criteria, Weights and Metrics for Weighted Factor Model

Criteria	Metrics	Weights
Strength of Idea	Evidence Base	5.4%
	Cost-Effectiveness	10.0%
	Flexibility	7.0%
Execution Difficulty	Metric Focus	5.4%
	Scalability	10.0%
	Timing	7.0%
Limiting Factor	Counterfactual Replaceability / Neglectedness	10.0%
	Funding Availability	5.4%
	Talent Availability	9.2%
	Size of Problem	10.0%
	Logistical Bottleneck	8.0%
Externalities	Risk of negative or no Impact	8.0%
	Flow Through Effects	4.6%

The criteria, metrics, and weights were drawn from a WFM already created for Animal Advocacy Africa's previous research on interventions, which can be accessed [here](#). Following the gathered evidence, each intervention type in each country is scored on a scale of one to five for each metric, with one always representing the least and five the most favourable score.

This method has several strengths, most importantly that it enables one to compare different interventions and rank them on a quantitative scale. In addition, a WFM helps improve the understanding of complex issues and enables researchers to draw conclusions that they would be unlikely to find otherwise. Furthermore, a WFM allows multiple factors, both qualitative and quantitative, to be considered. WFMs also help identify factors that decisively influence the final scores, and thus support clear communication and understanding. On the other hand, the model has several limitations, including the fact that it is not a flexible model, and is not commonly used. It also requires a lot of time and input to be effectively implemented (Charity Entrepreneurship, n.d.).



The following section details how each intervention type performs in the different countries on the metrics considered in the WFM. The full WFM created for this study can be found in its entirety [here](#).

Results

1. Strength of Idea

The first criterion, strength of idea, is based on the question of how promising the intervention seems to be (Charity Entrepreneurship, n.d.). It is based on three major factors, the evidence base, cost effectiveness, and flexibility of the intervention.

1.1. Evidence Base

Evidence base is related to whether there has been historical success of the intervention in question, and whether this evidence is enough to help improve outcomes related to animal welfare (ACE, 2018). For instance, Animal Charity Evaluations (ACE) states that there is generally little historical evidence on the success of leafleting (ACE, 2017), while the evidence supporting protests is moderate (ACE, 2018).

1.1.1. Individual Outreach

When looking more specifically at individual outreach in South Africa, there is strong evidence for success. According to ProVeg International (2021), there is high evidence of increased awareness of veganism in the country. This can be attributed to high media coverage concerning the vegan movement and the plant-based alternatives that are available to South Africans. In the case of Kenya, there is moderate evidence for the success of individual outreach, including campaigns such as the Annual World Veterinary Day which often sees information on animal welfare disseminated across the country (ICPALD, 2017). There is also evidence of consumers' willingness to pay for the humane treatment and slaughter of chicken among Kenyans (Otieno and Ogutu, 2020). As is the case in Kenya, Egypt has moderate evidence of success of public outreach. For instance, there is evidence that Animal Care in Egypt's efforts to teach children about animal welfare has led to attitude changes and a greater compassion for animals (Animal Care in Egypt, n.d.). However, the rating for Egypt's evidence base for public outreach is not higher because vegetarian campaigns have had less positive impact. In Rwanda, the evidence base for individual outreach is moderate and outreach has increased awareness on animal welfare (Ly, 2021). In Ghana, there is moderate evidence of the success of individual outreach. For instance, there has been moderate interest in vegan events such as vegan film screenings, run by the Vibrant Vegan Society of Ghana (VVESOG) (Força Vegan Magazine, 2021). However, there is less evidence of the success of online campaigns. For instance, a promotional video for Meatless Monday in Ghana has only garnered 133 views on YouTube (Coulibaly, 2016). This indicates a low reach of such video campaigns.

Table 4: Evidence Base - Individual Outreach

Country	Rating (Out of 5)	Justification
South Africa	4.5	High evidence of increased awareness of veganism
Kenya	4	Moderate success of campaigns Evidence of consumers' willingness to pay for the humane treatment and slaughter of chicken
Egypt	3.5	Evidence of attitude changes among children after education on animal welfare Less positive evidence for vegetarian campaigns

Rwanda	2.5	Moderate evidence base Outreach has increased awareness on animal welfare but has not led to an increase in the number of vegans
Ghana	3	Moderate evidence Moderate interest in vegan events Less evidence of the success of online campaigns.

1.1.2. Institutional Outreach

When it comes to institutional outreach in South Africa, there is a large amount of positive evidence. For instance, through ProVeg South Africa's efforts, Feinshmecker, which is a company that sells deli meat, introduced a plant-based meat alternative to the South African market (ProVeg, 2020a). In addition, there is also evidence of Compassion in World Farming's successful corporate outreach efforts, including its campaign to Woolworths to stop stocking pork that is produced with the use of sow stalls (Compassion in World Farming, 2014). Moreover, there is also evidence of widespread commitment to cage free systems from such large corporations as McDonald's, Famous Brands and the City Lodge Hotel group (Gasparis, 2021). For Kenya, on the other hand, World Animal Protection (2021) recently released a report which found that fast food companies in the country, including KFC, Pizza Hut, Burger King and Dominos ranked low on the care of chicken used in food production. This is despite the commitment that KFC and Burger King made to the Better Chicken Commitment. There is also little evidence of the successful prosecution of animal rights violations (Muigua, 2020). However, there is evidence that World Animal Protection helped create the Animal Disaster Management Consortium in Kenya which aims to guide the national and county governments to help communities protect their animals from natural catastrophes (World Animal Protection, 2016). In Egypt, there has been some success in institutional efforts. For example, PETA has had success in eradicating the use of animals in Advanced Trauma Life Support (ATLS) (PETA, 2012). However, efforts like these have been contradicted by the level of pushback from government institutions which consider animal rights issues to be trivial (Salah, 2017). Conversely, in Rwanda, there is little evidence of the success of institutional outreach as the country has few laws on animal welfare (Sherman, et al., 2014). The same is true in Ghana, where there is low evidence of successful animal protection legislation (Agentur für Wirtschaft & Entwicklung, n.d.).

Table 5: Evidence Base - Institutional Outreach

Country	Rating (Out of 5)	Justification
South Africa	5	High evidence of corporate commitments to animal welfare
Kenya	3.5	Little evidence of prosecution of animal rights violations Limited evidence of the success of institutional outreach
Egypt	2	Some success in institutional efforts, for example, PETA's efforts Pushback from government institutions on animal welfare
Rwanda	1	Few laws on animal welfare
Ghana	1	Low evidence of successful animal protection legislation

1.1.3. Capacity Building

With regards to the evidence base on capacity building in South Africa, there has been moderate evidence of success. For instance, a local project run by Mngcunube Development which trains farmers in animal health care has led to lower sheep and cow mortality (IFAD, n.d.). In Kenya, there has also been moderate evidence of success of capacity building with an increase in the development of curriculums on animal welfare in universities and tertiary institutions being seen (ICPALD, 2017). In addition, the Kenya Society For The Protection And Care Of Animals (KSPCA) has been said to have had some success in providing training in slaughterhouses (Humane Slaughter Association, 2016). In Egypt, there is high evidence of the success of capacity building projects. For example, the project by the Food and Agriculture Organization of the United Nations (FAO) to train animal health personnel has enhanced their technical capacity (FAO, 2021). Similarly, in Rwanda, there has been evidence of the success of capacity building projects. For example, the Send a Cow project which trains farmers to be para-vets has helped local communities access better health services for their animals (Davidson, 2019). Similarly, there is also evidence of the success of capacity building on animal welfare in Ghana. For example, there is now increased use of stunning at slaughterhouses after staff members received training on the benefits of stunning (Eyes on Animals, 2019).

Table 6: Evidence Base - Capacity Building

Country	Rating (Out of 5)	Justification
South Africa	3.5	Training farmers in animal health care has led to lower sheep and cow mortality
Kenya	3	Increase in the development of curriculums on animal welfare Some success in providing training in slaughterhouses
Egypt	4	Training animal health personnel has enhanced technical capacity
Rwanda	5	Training farmers to be para-vets has helped local communities access better health services for their animals
Ghana	4	Increased use of stunning at slaughterhouses after training

1.1.4. Direct Help

The next question is on the availability of positive evidence for direct help. In South Africa, there is limited evidence of the overall success of direct help interventions. This is evidenced by the fact that the World Organization for Animal Health (OIE) tried but failed to investigate the work of veterinarians working on animal welfare (Fermet-Quinet, et al., 2012). Conversely, there is high evidence of the success of veterinary services in Kenya. For instance, there is documented evidence of the International Livestock Research Institute's projects in Garissa in 2016 that successfully offered vaccination and veterinary services to pastoralist communities (Technoserve, 2018). In Egypt, there is a lack of evidence of the efficacy of mass vaccinations in commercial poultry farms. However, there is evidence of the success of veterinary extension workers who transfer knowledge and create behavioural change among communities and therefore reduce the prevalence of Highly Pathogenic Avian Influenza (FAO, 2018). In Rwanda, there is also some evidence of the moderate success of vaccination efforts. For instance, while Rwanda's vaccination programs for diseases such as anthrax and lumpy skin disease have only reached between 20-30% of animals, the same is not true for Foot and Mouth disease which is expected to be completely eradicated within the country (Weaver, et al., 2019). In Ghana, there is also evidence of

successful direct help interventions. For instance, there has been improvement in animal welfare at slaughterhouses after Eyes on Animals offered direct help, including implementing the use of captive-bolt pistols (Eyes on Animals, 2018a).

Table 7: Evidence Base - Direct Help

Country	Rating (Out of 5)	Justification
South Africa	1	Limited evidence of the overall success of direct help
Kenya	4	High evidence of the success of veterinary services
Egypt	2.5	Lack of evidence of the efficacy of mass vaccinations in commercial poultry farms; Evidence of the success of veterinary extension workers who transfer knowledge and create behavioural change
Rwanda	3	Moderate success of vaccination efforts
Ghana	4	Evidence of successful direct help interventions

1.2. Cost-Effectiveness

The cost effectiveness of an intervention is based on the benefit created by the intervention per dollar spent. A common determinant of cost effectiveness is the number of lives spared per dollar (ACE, 2018b). ACE (2017) states that in general, leafleting may be less cost-effective than other interventions in the short term. According to Sarek (2019), corporate campaigns that focus on a priority country and addressing priority animals by priority ask tend to be cost effective. Information on cost-effectiveness across the five African countries is quite limited. Gaps in information have been supplemented with data from ACE, who had measured the cost effectiveness of interventions undertaken by Mercy for Animals, and the Humane League.

1.2.1. Individual Outreach

Information on the cost effectiveness of individual outreach is only available regarding social media. According to ACE (2016a), the number of animals that Mercy for Animals spares per dollar by social media are 9.2. It is assumed that this number would be applicable to individual outreach interventions undertaken across South Africa, Kenya, Rwanda, Ghana and Egypt as there is no information that would indicate this to be significantly different among different countries in Africa. That said, due to the lower cost of advertising to social media users in these countries, it is possible that the real number would be higher.

Table 8: Cost-Effectiveness - Individual Outreach

Country	Rating (Out of 5)	Justification
South Africa	4	The number of animals spared per dollar by social media = 9.2
Kenya	4	
Egypt	4	
Rwanda	4	

Ghana	4	
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1.2.2. Institutional Outreach

On the other hand, the cost-effectiveness of institutional outreach is high. This is based on the fact that the number of animals spared per dollar by campaigns run by the Humane League is 1700 (ACE, 2016b). Again, it is assumed that this number would be applicable across the five countries that are included in this study.

Table 9: Cost-Effectiveness - Institutional Outreach

Country	Rating (Out of 5)	Justification
South Africa	5	Number of animals spared per dollar by campaigns = 1700
Kenya	5	
Egypt	5	
Rwanda	5	
Ghana	5	

1.2.3. Capacity Building

There is information available on the cost of capacity building across the five African countries in this study but there is little information on how many animals are saved from each. However, according to ACE (2016a) the number of animals that Mercy for Animals was able to spare per dollar by education in 2016 was 2.3, which is moderate. It is therefore assumed that this would be the same across the five countries.

Table 10: Cost-Effectiveness - Capacity Building

Country	Rating (Out of 5)	Justification
South Africa	3	The number of animals spared per dollar by education in = 2.3
Kenya	3	
Egypt	3	
Rwanda	3	
Ghana	3	

1.2.4. Direct Help

Figures for direct help are much easier to access for each country. These highlight the fact that direct help is much less cost-effective than the other interventions. For instance, in South Africa, the combined cost of food, shelter and veterinary care is USD 20 per month for a pig or cow, USD 13.33 per month per sheep or goat, and USD 3.33 per month per goose or chicken (Greyton Animal Farm Sanctuary, n.d.). It is assumed that by providing food, shelter and veterinary care, this would reduce suffering for these

animals. Therefore, it would cost USD 240 per pig or cow, USD 159.96 per sheep or goat, and USD 39.96 per goose or chicken, per year of suffering spared. In Kenya, the case is no different as it costs USD 24.66 per cow spared by vaccination from Foot and Mouth Disease (Koigi, 2019). Conversely, it costs USD 0.86 per head of cattle spared by vaccination from Rift Valley Fever (Wanyoike, et al. 2019). In Egypt, Eltholth, et al. (2016) state that 50,000 cattle and 50,000 sheep were vaccinated from brucellosis for a total of USD 90,000, thus reducing mortality among livestock. This translates to USD 0.90 per animal spared by vaccination from brucellosis. In Rwanda, the Swine erysipelas vaccine costs USD 1 for one pig but only provides protection for 6 months (Ntirenganya, 2021). Therefore, it can be argued that it would cost USD 2 per year of suffering spared per pig. In Ghana's Kintampo Municipal Vet Clinic, the cost of non-surgical care per animal is between USD 2.61- USD 3.48 (Adeapena, et al., 2021).

Table 11: Cost-Effectiveness - Direct Help

Country	Rating (Out of 5)	Justification
South Africa	1	Would cost USD 240 per pig or cow, USD 159.96 per sheep or goat, and USD 39.96 per goose or chicken, per year of suffering spared
Kenya	2.5	It costs USD 24.66 per cow spared by vaccination from Foot and Mouth Disease. It costs USD 0.86 per head of cattle spared by vaccination from Rift Valley Fever
Egypt	2	USD 0.90 per animal spared by vaccination from brucellosis
Rwanda	2	USD 2 per year of suffering spared per pig
Ghana	2	USD 2.61- USD 3.48 for non-surgical care per animal

1.3. Flexibility

The flexibility of an intervention can be determined through a number of factors. An intervention can be seen as being flexible if it uses staff who are able to work on several different interventions, if there are multiple ways of running this intervention or whether by implementing the intervention, one can branch into several different interventions. Since these factors are more specific to the intervention type than to the local context, there are no strong reasons to believe that the flexibility of interventions will differ significantly between the five countries. All countries therefore received the same scores on this metric.

1.3.1. Individual Outreach

In South Africa, there is a high flexibility of individual outreach, as evidenced by the fact that awareness programs for children on compassion towards animals were able to move online during the COVID-19 pandemic. This high level of flexibility of individual outreach efforts is also true for Kenya. Another reason that individual outreach is so flexible is based on the fact that awareness campaigns tend to be combined with direct help activities such as the vaccination of animals (Atieno, et al., 2021). In Rwanda, free veterinary services and other direct help interventions are often combined with community outreach (Rwanda Animal Welfare Organization, 2021). The case is the same in Egypt, where Animal Aid Egypt, for example, conducts direct help as well as awareness programs (Animal Aid Egypt, n.d.). Similarly, in Ghana, individual outreach efforts such as those of the Vibrant Vegan Society of Ghana are combined with solicitations of signatures (Vibrant Vegan Society of Ghana, n.d.). In general, it can be

seen that individual outreach efforts can be combined very well with other types of intervention and that this holds across all five countries.

Table 12: Flexibility - Individual Outreach

Country	Rating (Out of 5)	Justification
South Africa	4.5	High level of flexibility due to online platforms
Kenya	4.5	High flexibility due to online platforms and ability to combine awareness campaigns with direct help
Egypt	4.5	Ability to combine direct help with individual outreach
Rwanda	4.5	Ability to combine direct help with community outreach
Ghana	4.5	Ability to combine outreach with institutional interventions

1.3.2. Institutional Outreach

Just as is the case with individual outreach, there is also high flexibility with institutional campaigns in South Africa as these can be combined with individual outreach interventions. For example, Veganuary worked with Pick n Pay to promote its plant-based products (which is a form of institutional outreach), as well as to distribute leaflets (which is a form of individual outreach) (ProVeg International, 2020b). In Kenya, institutional outreach can also be combined with capacity building efforts. For instance, World Animal Protection in Kenya trained youth leaders in animal welfare, while also collecting signatures for a petition urging the government to pass the National Disaster Risk Management Policy (World Animal Protection, 2017a). In addition, in Kenya, there are instances where institutional outreach has been combined with individual outreach. For instance, World Animal Protection urged supermarkets in Kenya to only sell meat produced from ethical production systems, while also urging consumers to commit towards buying meat produced through ethical welfare systems (Atieno, 2021). In Egypt, PETA has combined awareness campaigns aimed at the general public with institutional efforts towards the government (Sachkova, 2020). In Rwanda, institutional projects are also highly flexible. The International Fund for Agricultural Development's (IFAD) Partnership for Resilient and Inclusive Small Livestock Markets, for instance, combines institutional outreach such as policy development with direct help, including the upgrading of livestock markets (IFAD, 2019). In Ghana, institutional outreach combines protests with individual outreach. For example, demonstrations to Ghana's Ministry of Health were also combined with leafleting (International Vegetarian Union, 2009). Again, it can be seen that institutional outreach efforts can be combined very well with other types of intervention and that this holds across all five countries.

Table 13: Flexibility - Institutional Outreach

Country	Rating (Out of 5)	Justification
South Africa	4.5	Ability to combine institutional outreach with individual outreach
Kenya	4.5	Ability to combine institutional outreach with individual outreach
Egypt	4.5	Ability to combine institutional efforts with awareness campaigns

Rwanda	4.5	Ability to combine institutional outreach with direct help
Ghana	4.5	Ability to combine institutional outreach with individual outreach

1.3.3. Capacity Building

In South Africa, capacity building interventions are moderately flexible. They often require specialised knowledge and thus, it cannot be automatically assumed that staff members can work on several different interventions. For instance, staff trained in direct help may be ill-equipped to take on capacity building tasks. In fact, this can be assumed to be true for all the five countries that have been included in this study. However, some capacity building workshops in South Africa have been proven to be flexible in the wake of the COVID-19 pandemic. For instance, Welttierschutzgesellschaft's (WTG) capacity building programs switched from group classes to individual visits, so as to comply with COVID-19 restrictions (WTG, n.d.a.). In Kenya, it is fair to say that well-funded capacity building projects are flexible in that they can transcend geographical boundaries. This is true, for example, for a capacity building project by the Norwegian Agency for Development Cooperation (NORAD) that aimed at improving capacity in higher education and research institutions in Eastern and Southern Africa, so as to protect fish populations (NORAD, 2013). It can be assumed that smaller and less well funded projects are not as flexible. In addition, as previously mentioned, capacity building projects can also be combined with institutional outreach programmes such as those run by World Animal Protection in Kenya (World Animal Protection, 2017a). Information on the flexibility of capacity building efforts in Egypt is limited, and has therefore been substituted with information from Vietnam. In Vietnam, the Vietnam Animal Welfare Association combines capacity building interventions with institutional activities such as influencing policy (Saigoneer, 2018). Capacity building in Rwanda has also been flexible as it has successfully switched to online learning since the COVID-19 pandemic (Vet Connect Rwanda, 2021). In addition, capacity building on animal welfare is usually combined with training on other subjects such as business development, which then makes it easier to reach recipients (IFAD, 2019). In Ghana, conferences on animal welfare combine a variety of interventions. For instance, as was mentioned earlier, the 2nd West African Congress combined a demonstration to the Ministry of Health and also worked on leafleting (International Vegetarian Union, 2009).

Table 14: Flexibility - Capacity Building

Country	Rating (Out of 5)	Justification
South Africa	3.5	Requires specialised knowledge Adapted to individual visits
Kenya	3.5	Well-funded projects are flexible May require specialised knowledge
Egypt	3.5	Ability to combine capacity building with institutional outreach May require specialised knowledge
Rwanda	3.5	Ability to use online platforms May require specialised knowledge
Ghana	3.5	Can be combined with institutional outreach and individual outreach May require specialised knowledge

1.3.4. Direct Help

Direct help organisations in South Africa are highly flexible and are able to combine a range of different interventions altogether. For example, Farm Sanctuary SA rescues animals from factory farms as well as raises awareness among consumers on animal cruelty (Flax, 2018). This is also the case in Kenya, where organisations such as the Africa Network for Animal Welfare (ANAW) rescue and vaccinate animals, as well as create awareness among farmers and the general public (ANAW, 2021). As mentioned above, organisations in Egypt such as Animal Aid Egypt (n.d.) run direct help activities, and combine these with awareness campaigns. In Rwanda, high flexibility is evidenced by the aforementioned IFAD project which combines institutional outreach such as policy development and direct help (IFAD, 2019). In Ghana, direct help can be combined with informal training or capacity building. For example, the West Africa Centre for the Protection of Animal Welfare offers equipment including electric stunners to staff at slaughterhouses, while also educating them on the benefits of using said electric stunners (The Animal Reader, 2020).

Table 15: Flexibility - Direct Help

Country	Rating (Out of 5)	Justification
South Africa	4.5	Ability to combine direct help with individual outreach
Kenya	4.5	Ability to combine direct help with individual outreach
Egypt	4.5	Ability to combine direct help with individual outreach
Rwanda	4.5	Ability to combine direct help with institutional outreach
Ghana	4.5	Ability to combine direct help with capacity building

2. Execution Difficulty

The criterion of execution difficulty is based on three factors, that is, the metric focus, scalability, and timing of the intervention. For example, there is some execution difficulty with corporate campaigns, as they tend to be difficult and somewhat expensive to start and run. This means that an organisation employing this intervention would likely have to hire volunteers so as to limit the costs involved (Sarek, 2019),

2.1. Metric Focus

Metric focus refers to the metric that the intervention is related to, for example, the number of animals saved, as well as how easy it would be to measure said metric. It also refers to how directly the metric measured relates to improving animal welfare. It is integral to note that some metrics are weaker compared to others. For instance, the number of people who attend a protest can be considered to be a weaker metric than metrics related to the number of laws passed or corporate commitments achieved, as it is harder to directly link protesters to the number of animals that have been saved as a result of public demonstrations. Since the strength of metric focus is more specific to the intervention type than to the local context, there are no strong reasons to believe that scores should differ significantly between the five countries. All countries therefore received the same scores on this metric.

2.1.1. Individual Outreach

It is difficult to determine the impact of individual outreach interventions on animal welfare. In general, in the countries studied in this report, focus was mostly on the number of people who were reached and on the number of awareness raising activities. However, it is challenging to link these towards the number of animals that have been saved. In South Africa, for instance, some campaigns have focused on the number of people who accessed educational programmes on animal welfare. For example, Beauty Without Cruelty noted that 80 children attended animal welfare education (Compassion. 2019). In addition, many organisations report on the number of leaflets that have been distributed. For example, ProVeg International (2020b) notes that 700,000 leaflets were distributed during a campaign in South Africa. In Kenya, one can also focus on the number of members of vegan outreach Facebook pages. For example, Facebook group Nairobi Vegans has 2,200 members (Nairobi Vegans, n.d.). Similarly, in Rwanda, one can measure the number of people who belong to Facebook groups. For instance, the Rwanda Humane Society group has 270 members (Rwanda Humane Society, n.d). In Ghana, one organisation reported the number of school field trips for children per year (Animal-Kind International, n.d.a.). In addition, one can focus on how many children learn animal welfare. For instance, SPANA notes that 500 children were taught about animal welfare (SPANNA, n.d.). Conversely, in Egypt, there is limited reporting on the exact number of people reached through public outreach. For instance, PETA only states that they distributed thousands of leaflets on live exports across the Middle East, including in Egypt (PETA, 2019). However, there is limited detail given on the number of leaflets distributed. Conversely, it can be argued that measuring the number of leaflets given out can easily be measured.

Table 16: Metric Focus - Individual Outreach

Country	Rating (Out of 5)	Justification
South Africa	5	High focus on number of people reached through awareness campaigns
Kenya	5	High focus on number of members of vegan groups
Egypt	5	Limited focus on number of people reached However, it can be argued that such metrics are easily measurable
Rwanda	5	High focus on number of members of vegan groups
Ghana	5	High focus on number of people reached

2.1.2. Institutional Outreach

Much as is the case with individual outreach, it is difficult to measure the impact of institutional outreach on the lives of animals. For instance, in South Africa, some organisations focus on the number of activists involved in protests. Fairbrother (2017), for one noted that 30 animal rights advocates participated in a protest in Cape Town. In Kenya, there is some reporting on the number of laws passed but it is hard to attribute those to certain interventions. There is also limited focus on the number of corporate commitments or the number of people prosecuted for crimes against animals. World Animal Protection details its success with Twitter conferences in Kenya, but it does not refer to the number of people who subscribed (World Animal Protection, 2017b). However, there is data on the number of people who signed petitions. For instance, World Animal Protection states that there were 67 sign ups to petition the Kenyan government to pass the National Disaster Risk Management Policy (World Animal Protection, 2017a). The same is true in Egypt where PETA focuses on the number of supporters who wrote letters. For example, PETA stated that 500,000 supporters wrote letters in support of their

campaign (Sachkova, 2021). In Rwanda, there is some reporting on laws passed to protect animals. For instance, the FAO mentions working with the Rwandan government to prepare laws on animal welfare but makes no reference to the actual number (FAO, n.d.). However, Shermann, et al. (2014), mention that Rwanda has 14 laws related to veterinary medicine. In Ghana, there is data on the number of people who attend protests. For example, 75 people attended a demonstration to the Ministry of Health (International Vegetarian Union -IVU, 2009).

Table 17: Metric Focus - Institutional Outreach

Country	Rating (Out of 5)	Justification
South Africa	4	Moderate focus on number of activists
Kenya	4	Some focus on number of laws passed and number of people who signed petitions Little focus on number of corporate commitments and number of people prosecuted
Egypt	4	Focus on number of supporters
Rwanda	4	Moderate focus on number of laws
Ghana	4	Focus on the number of people who attend protests

2.1.3. Capacity Building

Capacity building has a low metric focus, since there is a long causal chain from empowering stakeholders to improved lives for animals. One example of rather direct impact can be found in South Africa, where the number of farmers reached via training was measured (WTG, n.d.a.). Other examples come from Rwanda and Ghana. In Rwanda, VET WORLD/ VETS UNITED reports that it trained 163 vets in animal welfare in 2020 (WTG, n.d.c). In Ghana, there is data on more than 150 slaughterhouse workers and agricultural students being trained in animal welfare (Eyes on Animals, 2019). However, the impact on the lives of animals is much more vague in other cases. For instance, for Kenya, World Animal Protection states the number of teachers trained in Makeni County (World Animal Protection, 2017b) and that 400 youth leaders were trained on animal welfare during the 'Fearless Leadership Summit' (World Animal Protection, 2017a). In Egypt, there is also some focus on the number of persons who attend conferences. For instance, 400 participants attended the 2nd OIE Global conference on Animal Welfare in Egypt (World Organization for Animal Health, 2014).

Table 18: Metric Focus - Capacity Building

Country	Rating (Out of 5)	Justification
South Africa	2.5	Focus on the number of farmers reached
Kenya	2.5	High focus on number of people trained
Egypt	2.5	High focus on number of conference attendees
Rwanda	2.5	Focus on number of veterinarians

Ghana	2.5	Some focus on number of workers and students trained
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2.1.4. Direct Help

While it is difficult to measure the impact of the other interventions on animal welfare, there is a high metric focus for direct help, as there is a direct connection of the metrics measured to the improvements in animal welfare. This focus is on the number of prosecutions, animals removed, people charged and animals rescued. For instance, the National Council of SPCAs (NSPCA) in South Africa rescued 3000 chickens from a farm (National Council of SPCAs, n.d.b.). In Kenya, different organisations measure the number of animals rehomed, number of persons who got their animals vaccinated, number of animals vaccinated or number of animals lost, as well as the percentage increase or reduction in mortality or health issues. For instance, World Animal Protection has previously detailed the number of animals vaccinated in Makueni County, Kenya (World Animal Protection, 2017b). In Egypt, one can also focus on the number of members of veterinary groups. For example, Cairo University Vets for Alternatives (CUVA) has 450 members (Elzaabalawy, et al., 2011). In Rwanda, IFAD measured a less direct metric, finding that 64 livestock markets lacked the infrastructure to hold animals (IFAD, 2019). In Ghana, there is also focus on the number of slaughterhouses that use stun guns. For instance, Eyes on Animals (2018b) noted that two slaughterhouses in Ghana use stun guns.

Table 19: Metric Focus - Direct Help

Country	Rating (Out of 5)	Justification
South Africa	5	High focus on the number of prosecutions, animals removed, people charged and animals rescued
Kenya	5	Focus on the number of animals rehomed, number of persons who got their animals vaccinated, number of animals vaccinated or number of animals lost, as well as the percentage increase or reduction in mortality or health issues
Egypt	5	Focus on the number of members of veterinary groups
Rwanda	5	Focus on number of livestock markets that need intervention
Ghana	5	Focus on the number of slaughterhouses that use stun guns

2.2. Scalability

Scalability refers to the ease with which one can scale the intervention as well as how sustainable it is. Once again, the scores on this metric should be highly similar across countries, as scalability varies more with intervention type than local context.

2.2.1. Individual Outreach

In South Africa, individual outreach through the way of online campaigns is very scalable. For instance, the Plant Rich Diet Task Force ran a global 30-Day Plant Rich Diet Challenge involving live talks from speakers such as the South Africa based vegan figure, "African Vegan on a Budget" (Global Plant-Rich Diet Challenge, 2021). This is true not only with regards to South Africa but also all the other countries in the study. For instance, in Ghana, the Meatless Monday movement in Ghana is based on a global campaign (GhanaWeb, 2015). Online blogs are highly scalable at global level. In Kenya, for instance, the Vegan Society of Kenya runs a blog that highlights vegan lifestyle and which is accessible worldwide (The

Vegan Society of Kenya, n.d.). In Egypt, there are blogs like the Egyptian Vegan (Scene Eats, 2020). Radio campaigns also tend to be highly scalable, such as the ones that have been reproduced in Rwanda, Uganda and Tanzania (Research into Use, n.d.).

Table 20: Scalability - Individual Outreach

Country	Rating (Out of 5)	Justification
South Africa	5	Online and social media campaigns have global reach
Kenya	5	Radio, online and social media campaigns have global reach
Egypt	5	Blogs have global reach
Rwanda	5	Radio, online and social media campaigns have global reach
Ghana	5	Online and social media campaigns have global reach

2.2.2. Institutional Outreach

With regards to institutional outreach, activities such as protests are somewhat scalable as they can be held globally. For example, in South Africa, The Cape Town Animal Save protests to advocate for the rights of pigs were part of the International Animal Save Movement Initiative (South African Vegan Society, n.d.). Political outreach is also scalable at regional level. For instance, veterinarians in Kenya, Rwanda and across the East African region were able to lobby the East African Community and its respective governments to allow the free movement of veterinarians across Eastern Africa (Wandera, 2014). In Egypt, there is no information on the scalability of institutional outreach. Therefore, information from Vietnam has been used instead. In Vietnam, there is the potential to scale institutional outreach by developing and supporting small scale farmer networks. For example, there already is the presence of a social enterprise, HealthyFarm, that is developing and supporting a network of small-scale farmers to produce only cage free eggs (Humane Society International, 2021). In Ghana, institutional outreach has also been seen on a regional scale, as evidenced by the fact that in the past, animal welfare activists have been able to make appeals on a regional scale (GhanaWeb, 2017).

Table 21: Scalability - Institutional Outreach

Country	Rating (Out of 5)	Justification
South Africa	4	Protests can be held at global level
Kenya	4	Political outreach is scalable at regional level
Egypt	4	Potential to scale institutional outreach by developing and supporting farmer networks.
Rwanda	4	Political outreach is scalable at regional level
Ghana	4	Institutional outreach can be done on a regional scale

2.2.3. Capacity Building

Capacity building projects are highly scalable, especially through advancements in online training. In Kenya, workshops have been run online (ANAW, 2021). In addition, projects in South Africa are also generally scalable in terms of the number of farms that they can reach. For instance, WTG's capacity building projects are set to scale from 100 farms to 700 farms (WTG, n.d.a.). The same is true in Egypt as capacity building can be scaled across the country. For instance, Brooke Hospital for Animals Egypt's syllabus on animal welfare for use within the government's literacy program has been scaled across Egypt (The Brooke Hospital for Animals Egypt, n.d.). In addition, the FAO's animal health production and training has been scaled to Egypt (FAO, 2017). In addition, the FAO program to train Community-Based Animal Health Workers (CAHWs) has been replicated in other countries including Kenya and Ghana (Valeix, 2018). In Rwanda, capacity building workshops can also be scaled on a national scale. This is evidenced by the New Vision Veterinary Hospital and Welttierschutzstiftung's programme that runs Train the Trainer workshops on animal welfare. This programme is to be implemented in 5 districts and then scaled nationally (New Vision Veterinary Hospital, 2020). This model of Training of Trainers also increases the scale of impact. For example, in Ghana, the VET WORLD/ VETS UNITED program trains trainers who then train their colleagues. In the long run, the knowledge is aimed to be shared across the country (WTG, n.d.c.).

Table 22: Scalability - Capacity Building

Country	Rating (Out of 5)	Justification
South Africa	5	Highly scalable due to online training Capacity building for farmers is scalable
Kenya	5	Highly scalable due to online training
Egypt	5	Capacity building can be scaled through the country
Rwanda	5	Capacity building can be scaled at national level
Ghana	5	Capacity building can be scaled at national level especially through Training of Trainers

2.2.4. Direct Help

Direct help projects tend to be largely localised. In South Africa, for example, there is limited ability to integrate the Mngcunube system of village link persons into the national veterinarian system. However, as the systems of direct help activities such as vaccinations are standardised, they can reasonably be expected to be replicated (IFAD, n.d.). In Kenya, direct help is moderately scalable with the uptake of micro franchises that provide veterinary services (Technoserve, 2018). In Egypt, direct help projects are also moderately scalable across Egypt. For example, the Community-Based Animal Health Outreach program already operates in 15 governorates (Lubroth, 2012). It is also reasonable to assume that because the system of CAHWs is widespread among several countries in the global South as stated by VSF International (2018), it can be replicated in Rwanda. Finally, in Ghana, direct help has been shown to be moderately scalable. This is proven by the fact that CowTribe, which delivers vaccines, managed to scale its reach from 10,000 to 29,000 farmers (Malabo Montpellier Panel, 2020).

Table 23: Scalability - Direct Help

Country	Rating (Out of 5)	Justification
South Africa	3	Largely localised
Kenya	3	Moderately scalable with the uptake of micro franchises
Egypt	3	Moderately scalable across Egypt
Rwanda	3	System of CAHWs can be replicated
Ghana	3	Direct help can be moderately scalable

2.3. Timing

Timing refers to whether it is the most appropriate time to run an intervention. It also questions whether there are any other events that one can use to leverage or draw attention to the intervention in question.

2.3.1. Individual Outreach

In South Africa, the timing for individual outreach is ideal due to several reasons, the first being that the COVID-19 pandemic has increased awareness of the threat of live wildlife markets to public health (Blood Lions, 2020). It is likely then that the public may be more accepting of campaigns related to diet change. This is evidenced by the fact that ever since the COVID-19 pandemic, 76% of South Africans have changed their buying habits based on animal welfare (FOUR PAWS in South Africa, n.d). This high level of awareness on zoonotic illnesses can also be reasonably expected to be widespread across all the countries in this study. In Kenya, the timing for individual outreach is also ideal as there is increased uptake of mobile technology. This technology has therefore eased online awareness campaigns (ANAW, 2021). In Egypt, the timing for individual outreach is also ideal as there have been recent successful campaigns, such as PETA's expose on the abuse of camels and horses at the Giza Pyramids (Sachkova, 2020), and a social media campaign against the poisoning of dogs (Al-Youm, 2020). In Rwanda, the timing for individual outreach is also good as there are several groups on social media with an interest in vegan and vegetarian lifestyles. For example, the Kigali Vegetarians/ Vegan group has 1600 members (Kigali Vegetarians/Vegans, n.d). The timing in Ghana is somewhat less ideal compared to the other countries, as the COVID-19 pandemic has halted awareness programmes such as the field trips for children organised by the GSPCA (Animal-Kind International, n.d.b.). However, online campaigns can continue despite COVID-19.

Table 24: Timing - Individual Outreach

Country	Rating (Out of 5)	Justification
South Africa	5	Ideal timing due to the COVID-19 pandemic
Kenya	5	Ideal timing due to increased uptake of mobile technology
Egypt	5	Ideal timing due to recent success of campaigns
Rwanda	5	Ideal timing due to increased interest in vegan and vegetarian lifestyles

Ghana	4	Timing is not ideal due to restrictions on field trips due to the COVID-19 pandemic
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2.3.2. Institutional Outreach

With regards to institutional outreach, the timing in South Africa is also ideal as recent proposed legislation for phasing out cage farming in Europe has prompted discussions on reforms to phase out cages in South Africa (Animal Voice South Africa, 2020). In addition, as previously mentioned, there is heightened awareness of the risk of the spread of zoonotic illnesses in South Africa as well as the other four countries (Blood Lions, 2020). This could reasonably help change opinion on policy regarding the rearing of production animals. In Kenya, the timing for institutional interventions is also ideal as there have already been recent proposals to introduce changes to legislation, such as the proposed Animal Welfare and Protection Bill 2019 (World Animal Protection, 2020b). This bill could possibly act as a gateway for more legislation on animal welfare. However, the rating for institutional outreach has not been ranked at its highest possible score as the COVID-19 pandemic has led to lockdowns and limited the ability of persons to hold protests (Kirui, 2020). This needs to be considered for all the countries in the study. The point on recent legislation is also relevant to Egypt. The timing for institutional outreach may be good due to recent policy actions and enforcement, such as the recent banning of animal rides at the Giza pyramids (Sachkova, 2020). In Rwanda, the timing is also ideal as regulatory frameworks on animal welfare are already in line to be developed. For instance, IFAD has already decided to work with MINAGRI to develop a food safety and animal welfare regulatory framework as part of its Partnership for Resilient and Inclusive Small Livestock Markets (IFAD, 2019). The timing in Ghana is even better than in the other countries. This is because Ghana along with 4 other countries have developed an animal welfare resolution and will present this to the United Nations Environmental Assembly in February 2022 (GNA, 2021).

Table 25: Timing - Institutional Outreach

Country	Rating (Out of 5)	Justification
South Africa	4	Timing is ideal due to recent proposed legislation Greater awareness on risk of zoonotic illnesses COVID-19 pandemic could hamper protests
Kenya	4	Timing is ideal due to proposed changes in legislation COVID-19 pandemic has led to lockdowns and limited ability to hold protests
Egypt	4	Timing is ideal due to recent policy actions COVID-19 pandemic could hamper protests
Rwanda	4	Timing is ideal as regulatory frameworks on animal welfare are to be developed COVID-19 pandemic could hamper protests
Ghana	5	Timing is perfect as a resolution on animal welfare has been developed COVID-19 pandemic could hamper protests

2.3.3. Capacity Building

In regards to capacity building, the timing is not ideal in South Africa due to the COVID-19 pandemic. However, workarounds are possible. For instance, the pandemic has slowed down WTG's capacity building in animal welfare. However, the project managed to shift to animal welfare training through individual visits (WTG, n.d.a.). Improvements in technology have increased the ability to hold online workshops across all the countries included in this study, including Kenya (ANAW, 2021). For example, the COVID-19 pandemic has not compromised VETS UNITED's virtual training which is still underway (Vets United programme, 2020). In Egypt, the timing for capacity building is ideal as FAO and the United States Agency for International Development (USAID) are renewing their support to the country, including capacity building, until 2024 (FAO, 2021). Therefore, there may be opportunities for collaboration with local organisations in delivering capacity building. However, it is likely that just as for the other countries in the study, capacity building interventions may be affected by restrictions surrounding the COVID-19 pandemic. This challenge can be mitigated by the use of technology to move training online. In Rwanda, the timing for capacity building is poor as the COVID-19 pandemic has temporarily halted capacity building interventions. For instance, the VET WORLD/VETS UNITED program had to be halted due to the COVID-19 pandemic. However, with Training of Trainers and online platforms, capacity building may still be able to continue (WTG, n.d.c). The case is the same in Ghana as the COVID-19 pandemic has halted capacity building events such as Sankofa Vegan Society of Ghana's public events, including its lectures (Sankofa Vegan Society of Ghana, 2021). However, these could be reasonably shifted online as technology has increased organisations' ability to hold online workshops.

Table 26: Timing - Capacity Building

Country	Rating (Out of 5)	Justification
South Africa	3	Pandemic slowed down capacity building However, individual visits have helped continuity in training
Kenya	4	Technology has helped capacity building move online
Egypt	4	Timing ideal due to potential to collaborate with FAO and USAID However, it can be assumed that the pandemic will affect training, which can be mitigated through online training.
Rwanda	3	COVID-19 pandemic has halted training
Ghana	3	COVID-19 pandemic has halted training

2.3.4. Direct Help

The COVID-19 pandemic has made the timing less than ideal for direct help in South Africa. Travel restrictions and regulations surrounding social distancing have paused activities related to mobile clinics and sanctuaries (WTG, n.d.b.). The timing for direct help in Kenya is also poor as the election periods in Kenya tend to disrupt vaccination efforts (ANAW, 2021). Thus, upcoming elections in 2022 may pose a problem to direct help activities. The pandemic may also have paused activities related to mobile clinics and sanctuaries. In Egypt, the timing for direct help is right, not because of accommodating policies or grant opportunities, but because the situation related to animal exports is dire. Water scarcity in Egypt has increased the number of live exports of cattle from Sudan to Egypt (Michaelson & van der Zee, 2020). Therefore, increased live exports may mean that this is the most opportune time to intervene in slaughterhouses. However, it can be assumed that COVID-19 will likely have an impact on direct help

interventions, as it has in the other countries that have been included in this study. In Rwanda, now may also be the ideal time to intervene through direct help as there are large projects that are being rolled out on vaccination. For instance, the Foot and Mouth Disease (FMD) Vaccine Challenge which is a competition that has been unveiled to increase the uptake of FMD vaccines in Eastern Africa (Henning, 2021). However, there are still timing challenges that would impede direct help interventions. For instance, the COVID-19 pandemic has delayed access to animal health vaccines (Kubwimana, 2021). This is also true for Ghana where the timing is good. More specifically, there is increased interest among farmers to adopt animal vaccinations (Enahoro, et al., 2021). However, as is the case with the other countries, the COVID-19 pandemic has paused activities related to clinics for animals.

Table 27: Timing - Direct Help

Country	Rating (Out of 5)	Justification
South Africa	2	COVID-19 pandemic has made timing less than ideal
Kenya	2	Poor timing due to election period COVID-19 pandemic has made timing less than ideal
Egypt	3.5	Timing is ideal as the situation with live exports is dire However, it can be assumed that the COVID 19 pandemic will affect direct help interventions.
Rwanda	2	COVID-19 has impeded vaccination campaigns
Ghana	3	Timing is good but COVID as drawback

3. Limiting Factor

The third criterion of the WFM looks at a wide range of factors that could limit the success of the interventions in question. Limiting factors would include counterfactual replaceability or neglectedness, funding and talent availability, the size of the problem, and logistical bottlenecks.

3.1. Counterfactual Replaceability / Neglectedness

Counterfactual replaceability or neglectedness considers the number and strength of actors within the civil society that already focus on each intervention. These can range from consumer groups that deal with corporate outreach, to animal advocacy agencies that focus on direct help or individual outreach and effective implementation agencies that enforce legislation on animal welfare. These actors can be both local and international (Charity Entrepreneurship, n.d.). Please note that scores related to counterfactual replaceability are listed in inverse. That is, it would be more favourable to start interventions that focus on neglected areas, rather than interventions that focus on specific oversaturated issues.

3.1.1. Individual Outreach

In South Africa, there is a high number of actors working on individual outreach. These include the Humane Education Trust of South Africa, WITS University, and the South African Veterinary Council (World Organizations for Animal Health, 2011). In addition, there exists Animal Voice South Africa, which runs a campaign to create awareness among consumers about the welfare of laying hens (Animal voice, n.d.). Another actor working on individual outreach is African Vegan Outreach which spreads awareness on veganism and its benefits (Beauty Without Cruelty, n.d.). In Kenya, there are a moderate number of efforts on individual outreach. For instance, a recent TV interview was held discussing the link between animal welfare and food safety (NTV Kenya, 2021). In Egypt, there are also a moderate number of vegan movements that are focused on individual outreach. An example of this is the Vegetarian / Vegan Society of Egypt which has 32,700 members (Vegetarian/Vegan Society of Egypt, n.d.). In Rwanda, there is a limited number of animal welfare organisations that work on public outreach, such as the Rwanda Animal Welfare Organization that runs community awareness programs (RAWO, 2021). In addition, there is a limited vegan movement, that is mainly evident through one Facebook group that is dedicated towards creating awareness on veganism (Rwanda Humane Society, n.d.). In Ghana, there are a moderate number of individual outreach efforts. For instance, SPANA works with GSPCA to teach about animal welfare (SPANNA, n.d.). There is also the presence of groups dedicated to highlighting the vegan lifestyle in Ghana, such as VVESOG (Vibrant Vegan Society of Ghana- VVESOG, n.d.) and the Vegetarian Association of Ghana as well as vegan events such as VegFest (VegGhana, n.d.).

Table 28: Counterfactual Replaceability - Individual Outreach

Country	Rating (Out of 5)	Justification
South Africa	1	High number of actors working on individual outreach
Kenya	2.5	Moderate number of efforts on individual outreach
Egypt	3	Moderate number of vegan movements
Rwanda	3	Limited number of animal welfare organisations that work on public outreach Limited vegan movement

Ghana	3	Moderate number of individual outreach efforts
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3.1.2. Institutional Outreach

There are a moderate number of actors working on institutional outreach in South Africa. For instance, Beauty Without Cruelty (n.d.a.) marched to ban the live export of cattle, sheep and goats from South Africa to Mauritius. Most notably the country's NSPCA was recently given the ability to prosecute offenders. This decision was made by the Constitutional Court. However, while the NSPCA has been able to lay charges, they are yet to ever make a conviction or prosecution (Wilson, 2019). In Kenya, there is a low number of corporate and political interventions. However, one example is the fact that World Animal Protection works with the Kenyan government to develop farming standards (World Animal Protection, n.d.a.). There are also a low number of activists who focus on lobbying the government for greater animal welfare. In Egypt, there are also a limited number of institutional efforts. There have been incidences of corporate outreach through media exposure. For instance, video footage was obtained from Animals Australia that depicted the inhumane way cattle from Australia were treated. As a result, Australia halted the export of its sheep to Egypt both in 2006 and then again in 2013 (BBC, 2013). However, since then, there has been no action from governments (World Animal Protection, 2020). Conversely, international brand Kellogg's has announced plans to source cage-free systems in Egypt (Kellogg's, n.d.). In Rwanda, there is also evidence of actors working on institutional outreach. For instance, there are activists who lobby for animal welfare laws, such as Yves Ndindabahizi Sarkozy (Sarkozy, 2019). However, there is limited documentation on the scale of impact such activists have. In Ghana, organisations such as PETA also conduct institutional outreach, including donating and implementing the use of surgical simulators to the Ghana College of Physicians and Surgeons who use those as alternatives to animals (PETA, 2018).

Table 29: Counterfactual Replaceability - Institutional Outreach

Country	Rating (Out of 5)	Justification
South Africa	3	Moderate number of actors working on institutional outreach
Kenya	4	Low evidence of corporate and political interventions
Egypt	3.5	Limited number of institutional efforts
Rwanda	3.5	Evidence of actors doing institutional outreach
Ghana	3.5	Moderate number of organisations doing institutional outreach

3.1.3. Capacity Building

With regards to the number of organisations that work on capacity building in South Africa, there are a limited number of actors. There are also a low number of formal research studies on animal welfare (Murray, 2019). In Kenya, there are a high number of capacity building interventions that focus on animal health such as Practical Dairy Training Centres and the iCow app (Vernooij, A., et al., 2015). Furthermore, ANAW works with universities to teach animal welfare (Fuseini & Sulemana, 2018), while World Animal Protection conducts training for youth leaders in Kenya on animal welfare (World Animal Protection, 2017a). There is a limited number of research studies on animal welfare, but a high number of studies on animal health. In Egypt, there is a moderate amount of research on the welfare of animals and the elimination of diseases (Journal of Applied Veterinary Services, n.d.). In addition, there are also programs that focus on training veterinary extension workers (FAO, 2021). In the Rwandan context,

there is a high presence of capacity building projects that are related to domestic and dairy animals. One such project is run by the New Vision Veterinary Hospital which trains public veterinarians on animal welfare (Owfisher, 2020). In addition, the hospital in conjunction with WTG also runs Train the Trainer workshops for veterinarians and veterinary technicians across Rwanda (Lucas, 2021). Furthermore, the Girinka program runs Training of Trainers on matters of animal husbandry, including proper animal housing (Vernooij, et al., 2015). In Ghana, there are a moderate number of conferences, including those that focus on vegetarianism, such as the West African Vegetarian Congress (International Vegetarian Union, 2009).

Table 30: Counterfactual Replaceability - Capacity Building

Country	Rating (Out of 5)	Justification
South Africa	4	Limited number of actors
Kenya	1	High number of capacity building interventions
Egypt	2.5	Moderate amount of research on the welfare of animals and the elimination of diseases
Rwanda	1.5	High presence of capacity building projects
Ghana	2.5	Moderate number of conferences

3.1.4. Direct Help

In South Africa, there is a high presence of animal sanctuaries and rescue organisations that focus on a wide array of animals including farm animals, such as Asher's Farm Sanctuary in Pretoria (Joburg.co.za., n.d.). In Kenya, there are a moderate number of organisations that work on the vaccination and rescue of animals, for example the KSPCA (n.d.) and the Sadhana Forest Sanctuary (n.d.). There is a moderate presence of organisations that work through direct help in Egypt with a total of 13 direct help organisations registered in 2016 (Fahmy & Gaafar, 2016). There are also a high number of government veterinary clinics, with around 1473 clinics across the country (ArabMedicare.com, n.d.). In Rwanda, while there are a moderate number of veterinary services, these are not enough to cover the entire country (Musemakweli, 2018). In Ghana, there is a moderately high presence of direct help through community animal health workers and government para-veterinarians. More specifically, there are a high number of animal health providers (Mockshell, et al., 2014), as well as over 1000 community animal health workers located throughout the country (Leyland & Catley, 2002).

Table 31: Counterfactual Replaceability - Direct Help

Country	Rating (Out of 5)	Justification
South Africa	1	High presence of animal sanctuaries and rescue organisations
Kenya	2.5	Moderate number of organisations
Egypt	1.5	Moderate number of organisations and a high number of government veterinary clinics
Rwanda	3	Moderate number of veterinary services, but not enough to cover

		the entire country
Ghana	2	High number of animal health providers

3.2. Funding Availability

The question on an intervention's funding availability is largely centred around how marketable the intervention is to funders and the total amount of funding that is available. For instance, there should generally be adequate funding for corporate outreach according to Sarek (2019).

3.2.1. Individual Outreach

In South Africa, there are grants available for campaigns that aim to change diets, as for example the Effective Vegan Advocacy Grant, which offers grants of up to USD 5,000 (ProVeg International, n.d.). This grant is also available to organisations in Kenya, Egypt, Rwanda and Ghana that are working to change diets. In addition to the Effective Vegan Advocacy Grant, organisations working on individual outreach in Egypt can also apply for the Vegan Society Grant which offers GBP 1,000 or approximately USD 1,345 to organisations that create awareness on veganism (The Vegan Society, n.d.). This grant is also available to organisations in Rwanda and Ghana. Moreover, Ghanaian organisations that work on individual outreach can also benefit from funds from organisations such as Animal-Kind International, which usually funds the GSPCA's outreach in schools. This usually amounts to USD 300-400 per school field trip (Animal-Kind International, n.d.c.).

Table 32: Funding Availability - Individual Outreach

Country	Rating (Out of 5)	Justification
South Africa	4	Grants available for campaigns that aim to change diets
Kenya	3.5	Grants available for campaigns that aim to change diets
Egypt	3.5	Grants available for campaigns that aim to change diets
Rwanda	3.5	Grants available for campaigns that aim to change diets
Ghana	4	Grants available for campaigns that aim to change diets Presence of funds from organisations such as Animal-Kind International

3.2.2. Institutional Outreach

In South Africa, there is a reasonable amount of funding for institutional outreach. For example, EA Funds supported the Southern African Faith Communities' Environmental Institute with USD 40,000 to produce corporate campaigns against the use of cages. Conversely, in Kenya, there is moderately low availability of funds for institutional outreach. For example, the Pollination project offers USD 1,000 grants for animal advocacy (Funds for NGOs, n.d.). This grant opportunity is also available to organisations in Egypt, Rwanda and Ghana.

Table 33: Funding Availability - Institutional Outreach

Country	Rating (Out of 5)	Justification
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South Africa	4	Reasonable amount of funding for institutional outreach
Kenya	2	Moderately low availability of funds for institutional outreach
Egypt	2	Moderately low availability of funds for institutional outreach
Rwanda	2	Moderately low availability of funds for institutional outreach
Ghana	2	Moderately low availability of funds for institutional outreach

3.2.3. Capacity Building

With regards to funds available for capacity building interventions outside of the US and Canada, Help Animals International offers funds for education programmes (Help Animals International, n.d.). This grant can be accessed by all the five countries that were looked at within this study. In addition, in Kenya, there is high availability of funds for research and capacity building. For instance, NORAD's funding for a capacity building and research project within the Eastern Africa region amounted to over USD 2 million between 2013 and 2014 (NORAD, 2013). Similarly, Egypt has high amounts of funding available for projects that focus on training animal health personnel to reduce the incidences of avian influenza. For example, USAID's project on reducing Avian influenza was budgeted at USD 23.8 Million (USAID, 2012). While organisations in Rwanda can reasonably apply for funds from Help Animals International, there still tends to be a lack of funds for the capacity building of dairy farmers (Vernooij, et al., 2015). In Ghana, there is moderate to low availability of funds for training. In the past, there has been funding from Stichting Varkens in Nood for training staff at Ghanaian slaughterhouses (Eyes on Animals, 2021). In addition, the International Vegetarian Union funded the West African Vegetarian Congress with a grant of GBP 1,600 (approximately USD 2,150) (International Vegetarian Union, 2009).

Table 34: Funding Availability - Capacity Building

Country	Rating (Out of 5)	Justification
South Africa	3	Help Animals International offers funds for education programmes
Kenya	4.5	High availability of funds for research and capacity building
Egypt	4.5	High amounts of funding available
Rwanda	1.5	Organisations can apply for funds from Help Animals International Lack of funds for the capacity building of dairy farmers
Ghana	2.5	Moderate to low availability of funds for training.

3.2.4. Direct Help

The amount of funding for direct help interventions in South Africa is quite varied. Some grants that are awarded are quite small, such as the grants awarded by Animal-Kind International (Animal-Kind International, n.d.c.). On the other hand, the City of Cape Town recently gave a generous donation of Rand 750,000 or approximately USD 49,795 to the Cape Animal Welfare Forum (News24, 2020). Conversely, many rescue organisations such as the Animal Welfare Society of South Africa depend on donations from the public (Animal Welfare Society of South Africa, 2020). It seems fair to assume then, that larger funds are available to umbrella organisations such as the Cape Animal Welfare Forum, whereas small direct help organisations have much less access to funding. In Kenya, with regards to the

availability of funds for direct help, there are moderate funds available. For instance, the government, the Kenya Vet Association, pharmaceutical companies, and NGOs have previously funded free vaccination programmes (ICPALD, 2017). In Egypt, however, many direct help organisations such as the Rural Wellness Initiative Egypt depend on donations from the public (Rural Wellness Initiative Egypt, 2021). In Rwanda though, there seem to be high amounts of funds available for direct help. For example, IFAD's Partnership for Resilient and Inclusive Small Livestock Markets mentions the possibility of providing grants for networks of small-scale farmers to improve their facilities so as to ensure animal welfare. These grants reach a ceiling of USD 30,000 (IFAD, 2019). In addition, VSF Belgium offers financial support of EUR 3,200 or approximately USD 3,610 to veterinarians (VSF Belgium, 2020). In Ghana, there is a moderate amount of funding available for direct help. For instance, there is funding from Stichting Verken in Nood for the refurbishment of slaughter houses (Eyes on animals, 2021).

Table 35: Funding Availability - Direct Help

Country	Rating (Out of 5)	Justification
South Africa	2.5	Larger funds are available to umbrella organisations Small direct help organisations have much less access to funding.
Kenya	2.5	Moderate funds available
Egypt	2.5	Organisations depend on donations
Rwanda	4	High amounts of funds available
Ghana	2.5	Moderate amount of funding available

3.3. Talent Availability

Similarly, talent availability is dependent on the difficulty of the skill-set required by the intervention. Generally, it can be assumed that individual outreach methods may not require complex skill sets. For instance, one requires little to no training in order to conduct leafleting (ACE, 2017). This means that it would be an appropriate intervention to use in a country that does not have highly skilled personnel. According to Sarek (2019), institutional outreach as a whole tends to have limited talent availability. Corporate outreach interventions would need people who are specialised in corporate outreach, are aligned with animal advocacy values, and fluent in the local language. As a result, there tends to be a high turnover. On the other hand, protests may either increase or decrease talent availability. It can increase talent availability as protests can create and inspire new activists who join the movement and who are then able to build their skills in advocacy and public speaking. Conversely, protests can end up reducing talent availability as activists are often at risk of arrests and legal challenges. As a result, they may ultimately choose to retire or leave the movement altogether (ACE, 2018a). This may also end up discouraging potential advocates from joining such movements.

3.3.1. Individual Outreach

In South Africa, it is evident that there are volunteers available to do public outreach. For example, the South African Vegan Society in KwaZulu Natal has previously made use of volunteers at pop up markets to talk to the public about veganism (Phillips, C.V., 2019). In Kenya, there is a moderate number of vegan activists who do campaigns. These include Kenyan activist, Michelle Odhiambo, who wore spinach leaves as part of a campaign to promote veganism (Business Daily, 2010). Other activists involved in individual outreach are Taruri Gatere who started a blog, the Freegan Soul, to highlight the vegan diet, and Nitin Mehta who set up the first vegetarian society in Kenya (International Vegan Union, 2018). The

same is true in Egypt where there is a presence of bloggers promoting vegan lifestyles, including Randa Rehan who runs a blog and Instagram page, Egyptian Vegan (Scene Eats, 2020). In Rwanda, there are also activists who work on promoting veganism, such as El-Rahim Jaffer and Abdourahamane Ly (Ly, 2020). In Ghana, there are a high number of activists. For instance, while attending a conference in Ghana, 130 activists from all over West Africa made an appeal to religious groups to use stunning during slaughter (GhanaWeb, 2017). In addition, the country has a number of vegan activists such as Mart Tino and Zuu (Força Vegan Magazine, 2021).

Table 36: Talent Availability - Individual Outreach

Country	Rating (Out of 5)	Justification
South Africa	3.5	Volunteers available to do outreach
Kenya	3.5	Moderate number of vegan activists
Egypt	3.5	Presence of bloggers promoting vegan lifestyles
Rwanda	3.5	Presence of activists who work on promoting veganism
Ghana	5	High number of activists

3.3.2. Institutional Outreach

In South Africa, there is moderate talent availability for institutional outreach. There is a low level of legal and technical knowledge regarding animal law. In addition, prosecutors lack an interest in prosecuting matters of animal cruelty (Wilson, 2019). However, there seems to be a moderate number of activists who work on animal rights. For instance, 30 animal rights activists were identified in a protest against pig abattoirs in Cape Town (South African Vegan Society, n.d.). In Kenya, there is also an availability of persons to advocate for animal welfare, for instance, the OIE appointed an experienced and trained OIE National Animal Welfare focal point (IGAD, 2017). In Egypt, however, most lawyers lack the capacity to draft comprehensive legislation on animal welfare (World Animal Net, n.d). In Rwanda, there is evidence of one activist who is working on lobbying the Rwandan government on a comprehensive law on animal welfare, that is Yves Ndindabahizi Sarkozy (da Silva, 2020). However, there is little evidence on how impactful this lobbying has been. In Ghana, there are veterinarians who wish to advise on policies. However, their input is not usually considered by policymakers (Valeix, 2018).

Table 37: Talent Availability - Institutional Outreach

Country	Rating (Out of 5)	Justification
South Africa	2.5	Moderate talent availability for institutional outreach
Kenya	3	Availability of persons to advocate for animal welfare
Egypt	2	Most lawyers lack the capacity to draft comprehensive legislation on animal welfare
Rwanda	2	Evidence of one activist who is working on lobbying the Rwandan government

Ghana	3	Presence of veterinarians who wish to advise on policies but whose input is not usually considered by policymakers
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3.3.3. Capacity Building

When it comes to capacity building, it is important to note that this analysis is limited in scope and looks mainly at veterinarians, as information on capacity building with respect to advocacy and training in law is limited. With regards to the talent available for capacity building activities in South Africa, there is a moderate number of skilled staff who can train veterinarians. The main veterinary school, the University of Pretoria, has 60 to 80 veterinarians involved as teaching and support staff (Kansas State University, 2011). In Kenya, there is a moderately high number of trainers available who provide training in animal welfare. For instance, Vets United has a project manager who provides online training in animal welfare to practitioners across the country (Vets United programme, 2020). The story is different in Egypt. El Maghraby (2011) argues that the number of staff in Egypt’s veterinary medical education needs to be increased and employment benefits need to be improved so as to reduce turnover. Local animal shelters, such as the Society for the Protection of Animal Rights in Egypt (n.d.), rely on local and international volunteers. These volunteers seem to be readily available. In Rwanda, there is a lack of skills among trainers, especially within the Girinka program (Vernooij, et al. 2015). In addition, there is an FAO training program, which suffers from a lack of field supervision for trained CAHWs. Vets who should provide such supervision are often too reluctant or overwhelmed by their workloads. This has ultimately reduced the efficacy of the capacity building program for CAHWs (Valeix, 2018).

Table 38: Talent Availability - Capacity Building

Country	Rating (Out of 5)	Justification
South Africa	2.5	Moderate number of skilled staff who can train veterinarians
Kenya	3.5	Moderately high number of trainers
Egypt	2.5	Number of staff in Egypt’s veterinary medical education needs to be increased
Rwanda	2	A lack of skills among trainers
Ghana	2.5	Lack of field supervision for trained CAHWs

3.3.4. Direct Help

With regards to direct help, South Africa suffers from a severe veterinary shortage, with 60 to 70 vets for every million inhabitants, whereas the international norm ranges between 200 and 400 (Masiwa, 2021). In addition, animal shelters lack skilled workers as they are unable to pay them (Murray & Thomas, 2019). On the other hand, Kenya has a high number of veterinarians available. According to IGAD (2017), there are 3,000 vet surgeons and 8,000 veterinary paraprofessionals. This is also true in Egypt where there is a ready supply of trained veterinarians with 12 veterinary schools in total (UC Davis Veterinary Medicine, n.d.). However, in Rwanda, there are still challenges related to the talent availability of veterinarians. Most veterinarians lack the concept of and skills in ensuring animal rights and welfare (Hakizimana, 2020). Furthermore, it has been found that youth in Rwanda tend not to want to work as CAHWs due to low salaries (Franzel, et al., 2020). Similarly, in Ghana, there is a low number of animal health professionals (Adams & Ohene-Yankyera, 2015). This number of animal health

practitioners is likely to reduce further, as the Vets Without Borders program in the country, which supplies volunteers to help improve animal health, has recently ended (VSF, n.d.).

Table 39: Talent Availability - Direct Help

Country	Rating (Out of 5)	Justification
South Africa	2	Severe veterinary shortage Animal shelters lack skilled workers
Kenya	4	A high number of veterinarians available
Egypt	5	Ready supply of trained veterinarians
Rwanda	2	Challenges related to the talent availability of veterinarians
Ghana	2	Low number of animal health professionals

3.4. Size of Problem

The size of problem looks at the scale of intervention needed to solve issues of animal welfare across the nation in question.

3.4.1. Individual Outreach

With regards to individual outreach in South Africa, there is a reasonably high level of awareness on animal welfare challenges, except among disadvantaged groups (World Organization for Animal Health, 2011). Conversely, in Kenya, there is limited knowledge of animal welfare issues (Otieno & Ogotu, 2020). In Egypt, there is also a lack of awareness of animal welfare and the organisations that work on it (Fouad, 2015). According to Ly (2020), a large problem related to individual outreach in Rwanda is that most people consider veganism being un-African. In Ghana (Fuseini & Sulemana, 2018), there is both the belief that stunning prior to slaughter is against Halal rules of slaughter, as well as a general lack of knowledge about the benefits of stunning. In addition, the notion that veganism is not part of African culture is also prevalent. This is evident from the public's negative reaction to KLM's attempt to cut meat from its flights. The public wrote posts decrying this decision and dismissed this as a measure to cut costs rather than to protect animals (Vibrant Vegan Society of Ghana- VVESOG, 2021).

Table 40: Size of Problem - Individual Outreach

Country	Rating (Out of 5)	Justification
South Africa	3	Reasonably high level of awareness on animal welfare challenges
Kenya	4	Limited knowledge of animal welfare issues
Egypt	4	Lack of awareness of animal welfare and the organisations that work on it
Rwanda	4	Idea that veganism is un-African
Ghana	4	Belief that stunning prior to slaughter is against Halal rules of slaughter

3.4.2. Institutional Outreach

In terms of institutional outreach, the size of the problem in South Africa is large, due to low industry standards. For example, the South African Pig Producers Association (SAPPO) has low welfare standards and allows crowded housing, tooth pulling and tail docking (South African Vegan Society, n.d.). In Kenya, there are also gaps in legislation related to animal welfare (Gathanga, 2013). In Egypt, crimes that break whatever little legislation that exists are faced with low penalties (World Animal Protection, 2020a). The situation is not as dire in Rwanda though, with the existence of some legislation around animal welfare. For instance, there is a law on the transportation of chicken which mandates that they must be transported using appropriate baskets during the day (Miklyaev, et al., 2017). The Agentur für Wirtschaft & Entwicklung (n.d.), argues that in Ghana, there is a high level of informal processing and regulation of producers. However, there is more focus on larger companies, which means smaller companies are not regulated.

Table 41: Size of Problem - Institutional Outreach

Country	Rating (Out of 5)	Justification
South Africa	4.5	Low industry standards
Kenya	4	Gaps in legislation
Egypt	4	Low penalties for crimes against animals
Rwanda	2	There is some legislation around animal welfare
Ghana	4	High level of informal processing and regulation of producers

3.4.3. Capacity Building

With regards to capacity building in South Africa, there has been growth in university education related to animal welfare, including an integration of animal welfare training at the Faculty of Veterinary Science at the University of Pretoria (World Organisation for Animal Health, 2011). However, there is a low number of formal research studies (Murray & Thomas, 2019). In Kenya, there is already a lack of awareness and interest in animal welfare among stockmen and farmers (Deveraux, 2014), which could be solved through education and training on the benefits of animal protection. In addition, there is a lack of capacity and skills towards the protection of fish welfare (NORAD, 2013). In Egypt, the size of the problem related to capacity building is quite small as the country has an oversupply of veterinarians (Smith & Hunter, 1993). Rwanda, however, has a problem related to the capacity of veterinary students who lack practical training in animal health treatment (Kubwimana, 2021). In Ghana, there is a lack of knowledge among animal handlers and stakeholders on loading and unloading procedures at slaughterhouses (Frimpong, et al., 2011).

Table 42: Size of Problem - Capacity Building

Country	Rating (Out of 5)	Justification
South Africa	3	Low number of formal research studies
Kenya	3.5	Lack of awareness and interest in animal welfare

		Lack of capacity and skills
Egypt	1	Country has an oversupply of veterinarians
Rwanda	4	Veterinary students lack practical training in animal health treatment
Ghana	4	Lack of knowledge among animal handlers and stakeholders on loading and unloading procedures at slaughterhouses

3.4.4. Direct Help

The size of problems related to direct help in South Africa is quite high, as there are many cases of animal neglect. For example, the NSPCA found 3,000 chicken starving to death in a farm (National Council of SPCAs, n.d.b.). In Kenya, there are a lot of cases of animal neglect. Farm animals also suffer from lack of feed, poor nutrition and diseases, and cattle are usually housed in small housing units (Deveraux, 2014). In addition, graduates of agricultural colleges lack practical skills and are therefore limited in the amount of direct help that they are able to provide (Vernooij, 2015). Moreover, while stunning is usually practised in large slaughterhouses, this is not the case in smaller facilities (Humane Society Association, 2016). In Egypt, there are also many incidents of cruelty against animals in its abattoirs (BBC News, 2013). According to Musemakweli (2018), Rwanda's livestock production has exceeded its veterinary system capacity which has translated into an inadequate number of technicians as well as a lack of access to sustainable extension services, drugs, and equipment. This point is confirmed by Hirwa et al. (2017) who state that there is limited access to veterinary care across the country. There is also a lack of technical knowledge among livestock keepers and Rwanda's abattoirs lack appropriate pens that do not stress animals (Intergrated Development Consultants Ltd., 2016). As is the case in Egypt, Ghana has common incidences of animal cruelty in slaughterhouses (The Animal Reader. 2020). Cattle are also often transported on overloaded trucks on long journeys without food or water (Akwei, 2015), and are usually whipped during loading and unloading (Frimpong, et al.,2012).

Table 43: Size of Problem - Direct Help

Country	Rating (Out of 5)	Justification
South Africa	4	Many cases of animal neglect
Kenya	4	Many cases related to animal neglect
Egypt	5	Many incidences of cruelty against animals in its abattoirs
Rwanda	4	An inadequate number of technicians as well as lack of access to sustainable extension services, drugs and equipment.
Ghana	4.5	Common incidences of animal cruelty in slaughterhouses and during transportation

3.5. Logistical Bottleneck

Logistical bottlenecks refer to the challenges that would hinder the success of the intervention in question. These could include poor infrastructure, low cultural and political receptivity, as well as a lack

of resources such as specialised transportation (Zewdie, et al., 2021). The scores here are reversed, as less logistical problems faced in a country indicate a better likelihood of success and thus higher score.

3.5.1. Individual Outreach

In South Africa, the logistical bottleneck to individual outreach is moderately low cultural receptivity to animal welfare. For instance, traditional beliefs often clash with the ideals of animal welfare advocacy groups (Qekwana, et al., 2019). The same is also true in Kenya as there are cultural beliefs that differ with the values of animal welfare. In addition, there is a low level of awareness among the public (World Animal Protection, 2020b). The same is true in Egypt where there is low cultural receptivity towards animal advocacy (World Animal Protection, 2020a). In Rwanda, a barrier to individual outreach is the fact that there is a low level of concern about animal welfare (Times Reporter, 2008). Finally in Ghana, there is a lack of knowledge about animal welfare terms among the population (Fuseini & Sulemana, 2018).

Table 44: Logistical Bottleneck - Individual Outreach

Country	Rating (Out of 5)	Justification
South Africa	2.5	Moderately low cultural receptivity to animal welfare
Kenya	2	Cultural beliefs differ with the values of animal welfare
Egypt	2	Low cultural receptivity towards animal advocacy
Rwanda	2	Low level of concern about animal welfare
Ghana	2	Lack of knowledge about animal welfare

3.5.2. Institutional Outreach

The logistical bottlenecks to institutional outreach in South Africa include the fact that animal cruelty cases are sometimes poorly prosecuted. An example of this is when the National Council of SPCAs (n.d.b.) pursued legal action against a farm owner who left almost 3,000 chicken starving, but the farm owner was exonerated. In addition, there is moderate political receptivity to animal protection, as evidenced by the fact that some ministers even engage in ritual killings of animals (Qekwana, et al., 2019). In Kenya, bottlenecks that impede institutional outreach include the fact that local communities do not always comply with laws around animal welfare. For instance, bullfighting is common among the Luhya community although it is outlawed (Muigua, 2020). In addition, some laws regarding animal welfare were overturned. For instance, slaughterhouses and herders successfully challenged a ban on the sale of donkey meat (Kato, 2021). In Egypt, there is low political receptivity to animal welfare matters as policy makers dismiss attempts at improving laws (Sakah, 2017). In Rwanda, lawyers are rarely involved in the creation of legislation related to veterinary medicine (Sherman, et al., 2014), which has resulted in gaps in legislation. In Ghana, the major barrier to institutional outreach is the fact that there is a lack of information on animal welfare challenges among policy makers, which would ideally be used as a foundation for animal welfare policies (Frimpong, et al., 2012).

Table 45: Logistical Bottleneck - Institutional Outreach

Country	Rating (Out of 5)	Justification
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South Africa	2	Animal cruelty cases are sometimes poorly prosecuted Moderate political receptivity to animal protection
Kenya	2.5	Local communities do not always comply with laws around animal welfare Some laws regarding animal welfare are overturned
Egypt	2	Low political receptivity to animal welfare
Rwanda	2	Lawyers are rarely involved in the creation of legislation
Ghana	2	Lack of information on animal welfare challenges,

3.5.3. Capacity Building

With regards to capacity building, one large bottleneck is the lack of bursaries that are awarded towards degree level courses on veterinary medicine in South Africa (Masiwa, 2020). This limits the number of people who can learn about veterinary medicine and animal welfare. There is a similar problem in Rwanda, where some veterinary courses are prohibitive in cost. For instance, the Indepth Research Institute's 5-day face-to-face course on animal production is USD 1,100 (Indepth Research Institute, n.d.). Moreover, training kits for veterinary students are too expensive (Kubwimana, 2018). According to Vernooij (2015), in Kenya, a barrier to training programs is the lack of integration of practical skills. In Egypt, one major barrier is the lack of scientific articles in Arabic, which limits the number of people who can understand research studies (Hailat, 2005). In Ghana, the major barrier to the training of CAHWs is that veterinarians are often reluctant to supervise and train CAHWs. This is due to a number of reasons, including the fact that veterinarians are too busy to supervise. Another reason is that the veterinarians often view the CAHWs as being competition and suspect them of working without supervision (Valeix, 2018).

Table 46: Logistical Bottleneck - Capacity Building

Country	Rating (Out of 5)	Justification
South Africa	2.5	Lack of bursaries that are awarded towards courses on veterinary medicine
Kenya	2	Lack of integration of practical skills
Egypt	2.5	Lack of scientific articles in Arabic
Rwanda	2.5	Veterinary courses are prohibitive in cost
Ghana	2.5	Veterinarians are often reluctant to supervise and train CAHWs

3.5.4. Direct Help

For direct help, there are a few bottlenecks in South Africa. Recent restrictions on movement due to the COVID-19 pandemic are likely to limit cross-provincial rescue and vaccinations. In addition, according to Deveraux (2014), farmers tend to lack adequate feed for their animals. There is a lack of appropriate transportation facilities to transport production animals in an ethical manner (Ndou, 2011). The lack of appropriate transportation vehicles is also echoed in Kenya (ICPALD, 2017). Another logistical bottleneck are low-income levels among farmers who are consequently unable to pay

agro-veterinarians and improve the welfare of their animals (Deveraux, 2014). Additionally, there is a lack of regulation of agro-veterinarians, including the dispensation of medicine (Onono & Kithuka, 2020). Transportation vehicles are also lacking in Egypt, as well as awareness regarding animal welfare. In addition, due to low incomes of owners, animals are often left in unhygienic conditions (Bracke, 2009). Further, according to Mostafa & Mahran (2016), the dairy farming industry is plagued by challenges related to poor stockmanship and rough handling of animals. This rough handling can be attributed to the lack of financial resources to develop modern abattoirs with the facilities to handle animals in a humane manner (Aidaros, 2005). In Rwanda, as is the case in Kenya, local farmers cannot afford veterinary services. Further exacerbating the lack of access to veterinarian services is the fact that local farmers are sometimes located in far and hard-to-reach areas (Hirwa et al, 2017). In addition, there is an absence of appropriate transportation vehicles and veterinarians lack the necessary skills to adequately improve animal health (Musemakweli, 2018). The challenge with direct help in Ghana is that there is a lack of proper equipment in slaughterhouses, such as electric stun guns (The Animal Reader, 2020). According to Akwei (2015), specialised trucks to safely and efficiently transport animals are also missing. During transportation, animals are exposed to extreme and harsh weather conditions (Frimpong, et al., 2014).

Table 47: Logistical Bottleneck - Direct Help

Country	Rating (Out of 5)	Justification
South Africa	2.5	Recent restrictions on movement due to the COVID-19 pandemic Lack of appropriate transportation facilities
Kenya	2	Lack of appropriate transportation vehicles Low-income levels among farmers who are consequently unable to pay agro-veterinarians and improve the welfare of their animals Lack of regulation of agro-veterinarians, including the dispensation of medicine
Egypt	2	Lack of transportation vehicles Lack of awareness regarding animal welfare Animals are often left in unhygienic conditions Poor stockmanship and rough handling of animals
Rwanda	2	Lack of access to veterinarian services absence of appropriate transportation vehicles
Ghana	2	Lack of proper equipment in slaughterhouses Lack of specialised trucks to safely and efficiently transport animals

4. Externalities

The fourth criterion of the WFM looks at indirect effects that can arise from the different types of interventions. This paper considers externalities to include the risk of negative or no impact, as well as the indirect effects within animal advocacy and across other cause areas.

4.1. Risk of Negative or No Impact

Risk of negative or no impact refers to the potential that an intervention might create negative consequences, or no change at all. The risk of negative impact can be seen where protests can create feelings of apathy and anger towards the animal advocacy movement, thereby creating negative outcomes. No impact can be seen for example where organisations that have pledged to certain standards of animal welfare may not follow through (Sarek, 2019). This metric is again scored in reverse, as lower risks are rated positively and merit a higher score.

4.1.1. Individual Outreach

In South Africa, there is limited risk of negative or no impact with regards to individual outreach. There already tend to be positive responses to vegan campaigns. This is evidenced by the fact that even though the vegan movement in SA is small, it is steadily growing (Singh, 2020). Conversely, in Kenya, there is a higher risk of negative impact of individual outreach. This is because there exist some cultural values and beliefs that contradict animal welfare guidelines, such as branding (IGAD, 2017). This could potentially lead to cultural clashes and negative responses to campaigns that aim at changing attitudes towards animal welfare. In Egypt, there is also a moderate risk of negative impact. The vegan movement already elicits negative reactions (Gooch, 2017). In fact, Facebook posts that call for the end of mass slaughter of animals around Islamic holidays, have often led to criminal charges being laid against activists (Adams, 2018). However, these cases tend to be rare and extreme in nature. The same is true in Rwanda where veganism is often laughed at and dismissed as being a Western movement (Ly, 2021). In Ghana, there is the risk of negative impact from individual outreach as evidenced by the public backlash when KLM Ghana considered cutting meat from their economy class flights (Vibrant Vegan Society of Ghana-VVESOG, 2021).

Table 48: Risk of Negative or No Impact - Individual Outreach

Country	Rating (Out of 5)	Justification
South Africa	4	Limited risk of negative or no impact with regards to individual outreach
Kenya	3	Risk of negative impact of individual outreach due to cultural values and beliefs
Egypt	2.5	Vegan movement elicits negative reactions
Rwanda	2	Vegan movement considered to be un-African
Ghana	2.5	Risk of negative impact from individual outreach

4.1.2. Institutional Outreach

With regards to institutional outreach, there is a high risk of no impact in South Africa. This is evidenced by the fact that the National Council of SPCAs (n.d.a) in South Africa tried to petition the government to halt the export of sheep by Al Mawashi. Al Mawashi is a supplier of livestock that has become infamous due to its disregard for animal welfare during live export. While the NSPCA was able to take the case to the High Court, the case was dismissed and Al Mawashi were allowed to export thousands of sheep. The case is the same with regards to protests against animal cruelty. There is the risk of not creating impact as offenders of animal cruelty tend to avoid protestors and are therefore unlikely to change. This is evidenced by the fact that abattoir operators are suspected to have deliberately avoided protestors

during a protest in Cape Town, thereby negating the impact of such demonstrations (Fairbrother, 2017). In Kenya, there is also a high risk of no impact, as there are no documented prosecutions on animal welfare (ICPALD, 2017). In Egypt, there is also a high risk of no impact as institutional efforts often result in no change. For instance, when Australia banned the export of sheep to Egypt due to animal welfare challenges, there was no improvement on the welfare of sheep (World Animal Protection, 2020a). In addition, there is a chance of no impact as there is often pushback from the Committee on Agriculture, Irrigation, Food Security and Livestock regarding animal welfare issues (Salah, 2017). According to Sherman et al. (2014), there are serious problems with how legislation related to animal health and veterinary medicine in Rwanda is prepared. This can therefore lead to errors in legislative reform through institutional outreach. Even if policy makers were convinced to create laws on animal welfare, it is likely that these policies would be flawed and would have no impact on the state of affairs. In Ghana, the likelihood of negative impact is high, as there is a risk of social conflict, if legislation were to be changed to impose the stunning of animals prior to slaughter. This is because stunning goes against Islamic rules on slaughter (Agentur für Wirtschaft & Entwicklung. n.d.).

Table 49: Risk of Negative or No Impact - Institutional Outreach

Country	Rating (Out of 5)	Justification
South Africa	1	Risk of no impact of petitions and protests
Kenya	1	No documented prosecutions on animal welfare
Egypt	1	High risk of no impact as institutional efforts often result in no change
Rwanda	1	Potential for errors in legislative reform
Ghana	1	Risk of social conflict if legislation were to be changed to impose the stunning of animals prior to slaughter

4.1.3. Capacity Building

In terms of capacity building in South Africa, there is a high risk of negative and no impact. This is because training has led to an excess number of veterinary paraprofessionals, which in turn has led to high unemployment rates (Fermet-Quinet, et al., 2012). The case is the same in Ghana, where there is the risk of no impact from training veterinarians as these new veterinarians may not be able to get employment. This is because there is no added budget from the Ministry of Food and Agriculture for these positions (Valeix, 2018). In Kenya, there is a moderate risk of no impact as trainers tend to focus solely on teaching their own experiences which does not expand the knowledge of training participants (Vernooij, et al., 2015). This could reasonably be expected to be the same in all the countries in the study. In Egypt, there is a moderately low risk of no impact due to non-compliance from trained professionals. For instance, in the past, there was an incident where a vet who was trained in animal welfare was found to be poisoning stray animals (FAO, 2021). However, as such cases are not common, it is fair to say that there is moderately low risk that all capacity building projects would result in the same outcome. In Rwanda, there is also a risk of no impact with regards to capacity building as producers do not always implement lessons from extension services (Hirwa, et al. 2017).

Table 50: Risk of Negative or No Impact - Capacity Building

Country	Rating	Justification
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	(Out of 5)	
South Africa	2	Training has led to an excess number of veterinary paraprofessionals, which in turn has led to unemployment rates Risk of trainers focusing solely on teaching their own experiences
Kenya	2	Trainers tend to focus solely on teaching their own experiences
Egypt	2	Risk of non-compliance from trained professionals Risk of trainers focusing solely on teaching their own experiences
Rwanda	2	Producers do not always implement lessons from extension services Risk of trainers focusing solely on teaching their own experiences
Ghana	2	New veterinarians may not be able to get employment Risk of trainers focusing solely on teaching their own experiences

4.1.4. Direct Help

In the case of direct help, there is little chance of negative or no impact in South Africa as direct help usually reduces mortality and improves animal health. This is evidenced in the case of the Mngcunube project which provides village link persons in rural areas. While the project has faced difficulties, it has ultimately contributed to greater animal welfare in rural South Africa (IFAD, n.d.). In Kenya, female villagers tend not to consult male CAHWs. Therefore, there is some risk of no impact for animals owned by women, if only male CAHWs are present (Riviere-Cinamond, 2005). In Egypt, there is a high risk of no impact within the household poultry sector as there is evidence that mass vaccinations have not been effective in halting the spread of Avian influenza. For this reason, they were ultimately disbanded (FAO, 2021). In Rwanda, there is the risk of negative impact with direct help that many veterinary professionals have limited capacity and resources which causes errors in the treatment of animals (VSF Belgium, 2020). In addition, laws do not grant power to organisations such as the Veterinary Authority to enter premises to access and therefore rescue animals (Sherman et al., 2014). In Ghana, there is a high risk of no impact from CAHWs as they are seen as not having valuable knowledge and being inaccessible, therefore not being preferred by livestock keepers (Mockshell et al., 2014).

Table 51: Risk of Negative or No Impact - Direct Help

Country	Rating (Out of 5)	Justification
South Africa	4.5	Little chance of negative or no impact
Kenya	3	Risk of no impact for animals owned by women
Egypt	3	Mass vaccinations have not been effective in halting the spread of Avian influenza
Rwanda	3	Risk of negative impact with direct help
Ghana	3	High risk of no impact from CAHWs

4.2. Flow Through Effects

Flow-through effects refer to the indirect impact created towards animal welfare, as well as positive impacts within and across other cause areas outside of animal welfare (e.g. environmental protection).

4.2.1. Individual Outreach

In South Africa, individual outreach usually has high flow through effects within the cause area as it increases awareness on animal rights. As a result, there has been a very high interest in veganism in South Africa, making it the African country with highest interest in the topic (Chiorando, 2019). In Kenya, increased awareness on animal welfare is expected to lead to consumers making trade-offs, such as holding producers responsible (Otieno & Ogutu, 2019). There are also positive impacts on the environment caused by individual outreach. More specifically, it can be argued that vegan diets have been proven to help reduce environmental impact in general (Carrington, 2018). Thus, this argument can be applied across the five countries.

Table 52: Flow Through Effects - Individual Outreach

Country	Rating (Out of 5)	Justification
South Africa	4.5	Increases awareness on animal rights
Kenya	5	Increased awareness on animal welfare
Egypt	4	Positive impacts on the environment
Rwanda	4	Positive impacts on the environment
Ghana	4	Positive impacts on the environment

4.2.2. Institutional Outreach

There are high flow through effects of institutional outreach within the cause area in South Africa. Interventions often result in corporations using cruelty free production methods. For instance, the SPCA and Compassion in World Farming SA pressured the South African Pig Producers Association (SAPPO) to limit the amount of time sows spend in sow stalls (Fairbrother, 2017). In addition, interventions can lead to more prosecutions and charges levelled against people who practice animal cruelty. For instance, the NSPCA managed to have eight prosecutions and charged 103 people between 2019 and 2020. It also causes flow through effects outside of the cause area as it results in an improved brand image for corporates. For example, Beauty Without Cruelty's No Foie Gras SA campaign highlights stores and restaurants that do and do not serve foie gras (Beauty Without Cruelty, n.d.b.). Being highlighted as a restaurant or store that does not serve foie gras improves the organisation's profile. This is confirmed by Cox (2006) who states that a positive corporate attitude towards welfare helps build a positive corporate image. In Kenya, institutional outreach is also expected to lead to improved shelter, feeding, and breeding for poultry (World Animal Protection, n.d.a.). In Egypt, institutional outreach has also led to charges being laid on persons who abuse animals. For instance, in a rare feat, social media users and advocacy groups pressured for legal action against animal abusers (Salah, 2017). Institutional outreach has also led to the creation of standards for animal welfare. For instance, the Australian government supported Egypt to create a set of standards which consequently led to the upgrade of handling facilities (Aidaros, 2005). However, these effects seem to be rare in occurrence and not lasting in effect. There have also been effects outside of the cause area. For example, when PETA donated surgical simulators to the Egyptian Life Support Training Center, not only did this improve animal welfare, but it also made it

easier for doctors to travel with simulators across the country, rather than with animals (PETA, 2012). Similarly, PETA's donation of surgical simulators to the Ghana College of Physicians and Surgeons as alternatives to animals has made doctors more efficient in surgery (PETA, 2018). In Rwanda, institutional outreach can lead to stakeholder engagement. Legislation on veterinary medicine often includes stakeholder engagement (Sherman et al., 2014), which ultimately increases accountability and builds trust within the industry.

Table 53: Flow Through Effects - Institutional Outreach

Country	Rating (Out of 5)	Justification
South Africa	5	Results in corporates using cruelty free production methods and prosecutions Improved brand image for corporates
Kenya	4	Improved shelter, feeding, and breeding for poultry
Egypt	3	Led to charges being laid on persons who abuse animals Led to the creation of standards for animal welfare However, these effects tend to be rare and not permanent
Rwanda	4	Institutional outreach can lead to stakeholder engagement
Ghana	4	Institutional outreach has made doctors more efficient in surgery

4.2.3. Capacity Building

With regards to the flow through effects created by capacity building in South Africa, it has extended reach to animals that would otherwise not have been helped. For example, village link persons are able to reach hard to reach areas and help animals that otherwise would not have been assisted (IFAD, 2018). The same is also true in Ghana where the FAO's training program for CAHWs has increased reach to areas where veterinarians are not present, most notably rural areas (Valeix, 2018). There are also effects outside of the cause area which can be considered to be true for all five countries. For instance, capacity development programs can help in the protection of livestock from climate related disasters. This is evidenced in Kenya, where an online training program was released to teach farmers how to protect their animals during natural disasters. Capacity development also helps improve care for animals and therefore secures livelihoods for farmers. When animals are healthy, they can help their owners earn a living (Xinhua, 2020). In the same vein, capacity building can improve productivity. When veterinary students are trained on improving animal health and welfare, they can train farmers on how to take care of their animals and therefore increase milk production in cows (Bailey, 2014). Capacity building has also led to increased knowledge and good animal welfare practices across all the relevant countries. In addition, in Egypt, capacity building has a high potential of behaviour change. For example, it has been proven that by training researchers who work with lab animals, the number of animals used in lab research ultimately reduces (Gaafar & Fahmy, 2018).

Table 54: Flow Through Effects - Capacity Building

Country	Rating (Out of 5)	Justification
South Africa	5	Extended reach to animals that would otherwise not have been

		helped
Kenya	5	Protection of livestock from climate related disasters Capacity building can improve productivity
Egypt	4	Behaviour change Capacity building can improve productivity Protection of livestock from climate related disasters
Rwanda	4	Capacity building can improve productivity Protection of livestock from climate related disasters
Ghana	5	Extended reach to animals that would otherwise not have been helped Protection of livestock from climate related disasters Capacity building can improve productivity

4.2.4. Direct Help

With regards to direct help, not only in South Africa, but across all the relevant countries, vaccinations help reduce the flow of diseases from animals to humans (World Health Organization, 2018). Similarly, evidence from Egypt shows that direct help tends to reduce disease outbreaks (Desbois et al., 2021). In the same vein, evidence from Rwanda indicates how deeply vaccinations improve animal welfare. For instance, the vaccine for swine erysipelas prevents difficulty in breathing, loss of appetite, and death in pigs (Ntiringanya, 2021). There are also effects outside of the cause area. In Kenya, and reasonably in all the other four countries in question, direct help increases farm productivity (Doyle et al. 2018). Adequate consideration for animal welfare also reduces economic losses. For instance, improvements made with regards to welfare during the transportation of animals would reduce the number of dead animals arriving at slaughterhouses, and would reduce economic losses for producers (Frimpong, et al, 2012).

Table 55: Flow Through Effects - Direct Help

Country	Rating (Out of 5)	Justification
South Africa	2.5	Vaccinations help reduce the flow of diseases from animals to humans Increase in farm productivity and reduction in economic loss
Kenya	4.5	Vaccinations help reduce the flow of diseases from animals to humans Increase in farm productivity and reduction in economic loss
Egypt	4	Vaccinations help reduce the flow of diseases from animals to humans Reduction of disease outbreaks Increase in farm productivity and reduction in economic loss
Rwanda	5	Vaccinations help reduce the flow of diseases from animals to



		humans Increase in farm productivity and reduction in economic loss
Ghana	4	Vaccinations help reduce the flow of diseases from animals to humans Increase in farm productivity and reduction in economic loss

Results of the Weighted Factor Model

To summarise, Table 56 on the following two pages shows the scores of every intervention type in each country for each metric. It also highlights the aggregated scores of each option on the four criteria and overall.

Table 56: Results of the Weighted Factor Model

Intervention	Strength of the intervention	Cost effectiveness	Evidence base	Flexibility	Execution difficulty	Metric focus	Scalability	Timing	Limiting factor	Size / prevalence of problem	Talent availability	Funding availability	Logistical difficulty	Neglectedness/counterfactual replaceability	Externalities	Risk of negative / no impact	Flow through effects	Overall
		10.0%	5.4%	7.0%		5.4%	10.0%	7.0%		10.0%	9.2%	5.4%	8.0%	10.0%		8.0%	4.6%	100.0%
Public/ Individual Outreach in South Africa	96	4	4.5	4.5	112	5	5	5	114	3	3.5	4	2.5	1	53	4	4.5	374
Institutional Outreach in South Africa	109	5	5	4.5	90	4	4	4	136	4.5	2.5	4	2	3	31	1	5	365
Capacity Building in South Africa	73	3	3.5	3.5	85	2.5	5	3	134	3	3	3	2.5	4	39	2	5	331
Direct Help in South Africa	47	1	1	4.5	71	5	3	2	102	4	2	2.5	2.5	1	48	4.5	2.5	267
Public/ Individual Outreach in Kenya	93	4	4	4.5	112	5	5	5	132	4	3.5	3.5	2	2.5	47	3	5	384
Institutional Outreach in Kenya	100	5	3.5	4.5	90	4	4	4	138	4	3	2	2.5	4	26	1	4	355
Capacity Building in Kenya	71	3	3	3.5	92	2.5	5	4	118	3.5	3.5	4.5	2	1	39	2	5	319
Direct Help in Kenya	78	2.5	4	4.5	71	5	3	2	131	4	4	2.5	2	2.5	45	3	4.5	325
Public/ Individual Outreach in Egypt	90	4	3.5	4.5	112	5	5	5	137	4	3.5	3.5	2	3	38	2.5	4	378
Institutional Outreach in Egypt	92	5	2	4.5	90	4	4	4	120	4	2	2	2	3.5	22	1	3	324
Capacity Building in Egypt	76	3	4	3.5	92	2.5	5	4	102	1	2.5	4.5	2.5	2.5	34	2	4	304

Direct Help in Egypt	65	2	2.5	4.5	82	5	3	3.5	141	5	5	2.5	2	1.5	42	3	4	329
Intervention	Strength of the intervention	Cost effectiveness	Evidence base	Flexibility	Execution difficulty	Metric focus	Scalability	Timing	Limiting factor	Size / prevalence of problem	Talent availability	Funding availability	Logistical difficulty	Neglectedness/counterfactual replaceability	Externalities	Risk of negative / no impact	Flow through effects	Overall
Public/ Individual Outreach in Rwanda	85	4	2.5	4.5	112	5	5	5	137	4	3.5	3.5	2	3	34	2	4	369
Institutional Outreach in Rwanda	87	5	1	4.5	90	4	4	4	100	2	2	2	2	3.5	26	1	4	303
Capacity Building in Rwanda	82	3	5	3.5	85	2.5	5	3	102	4	2	1.5	2.5	1.5	34	2	4	302
Direct Help in Rwanda	68	2	3	4.5	71	5	3	2	126	4	2	4	2	3	47	3	5	312
Public/ Individual Outreach in Ghana	88	4	3	4.5	105	5	5	4	154	4	5	4	2	3	38	2.5	4	385
Institutional Outreach in Ghana	87	5	1	4.5	97	4	4	5	129	4	3	2	2	3.5	26	1	4	339
Capacity Building in Ghana	76	3	4	3.5	85	2.5	5	3	122	4	2.5	2.5	2.5	2.5	39	2	5	321
Direct Help in Ghana	73	2	4	4.5	78	5	3	3	113	4.5	2	2.5	2	2	42	3	4	306

Sensitivity Analysis

To test the robustness of the model, different sensitivity analyses were conducted on the most relevant results. This was done by varying the weights of the different metrics on a range of +/- 2 percentage points and the scores by +/- 0.5. This method showed that the ranking between individual and institutional outreach in South Africa is very robust, with individual outreach outperforming institutional outreach in 88% of the simulated cases. This is true, even though the difference between the two scores is very small, less than 3% in 56% of the cases. As South Africa is the country with the strongest score on institutional outreach, individual outreach is even more likely to outscore institutional outreach in all of the other four countries. A similar analysis also found that Ghana or Kenya are very likely to have the highest scores for individual outreach among the five countries. In 83% of the simulated cases, Ghana achieved higher scores than South Africa on individual outreach, even though the difference between the two countries' scores is again small, less than 3% in 69% of the cases. Since these analyses focus on the more contested results of the model (where differences in scores are not very large), other findings should be even more certain, as for instance the result that direct help in South Africa should be the least promising intervention. For interested readers, the detailed sensitivity analyses can be found [here](#).

Conclusion

In all five countries analysed, the most impactful type of intervention is expected to be individual or public outreach, reaching its highest scores in Ghana and Kenya. Institutional outreach scores second-highest in South Africa, Kenya, and Ghana and third-highest in Egypt and Rwanda. These similarities in scoring across the countries are likely caused by the fact that the countries are relatively similar in terms of socioeconomic factors and culture. In South Africa, institutional outreach scores very strongly, almost on par with individual outreach. Direct help does not seem promising at all in South Africa, while it seems relatively more fruitful in Egypt and Kenya than in the other countries. In Rwanda, individual outreach clearly outranks the other possible intervention types. The final scores are summarised in Table 57 below.

Table 57: Final Scores of the Weighted Factor Model

	Public / Individual Outreach	Institutional Outreach	Capacity Building	Direct Help
South Africa	374	365	331	267
Kenya	384	355	319	325
Egypt	378	324	304	329
Rwanda	369	303	302	312
Ghana	385	339	321	306

The scores for individual outreach are generally highest because this type of intervention does not show a major weakness on any of the metrics covered in the WFM. Compared to other interventions, it is also highly scalable and benefits from good talent availability and timing. For instance, the COVID-19 pandemic has increased the level of public awareness on the dangers of live wildlife markets, especially in South Africa, and the proliferation of technology has made it easier to hold online awareness campaigns. In contrast, institutional outreach suffers from a high risk of no or negative impact across all of the five countries. This is largely due to issues related to institutional and legislative structures, as several governments and corporate brands do not adhere to the standards that are set to protect animals. However, institutional outreach typically scores high on important metrics like cost-effectiveness and neglectedness across the countries. Capacity building generally performs weaker across most metrics, most crucially so on metric focus, as the impact of capacity building efforts are hard to measure. Direct help also shows weaker scores across most of the metrics, even though it has a low risk of no or negative impact and tackles a significant problem in the five countries studied.

The result that individual outreach is most likely to be successful among the different intervention types in all five countries suggests that organisations and individuals aiming to advocate for animals should first focus on creating awareness among the public. These campaigns could be focused on animal welfare, sentience or diet change, with regards to vegan or vegetarian diets. While there is a risk of negative reactions from the public (such as negative posts on social media painting animal welfare and diets as un-African) and conflict with local cultural traditions, it would be worthwhile to educate the masses on the sentience of animals and how they can help alleviate their suffering. It is noteworthy that within the Effective Altruism community, institutional outreach is often preferred over individual outreach, in contrast to the findings of this study. Nevertheless, prioritising public outreach efforts in the

African countries studied here seems very reasonable, given their peculiar local context which has not been analysed thoroughly before.

Limitations

That being said, it is important to note that there are several limitations with regards to this study. Most importantly, there is limited information concerning animal welfare interventions across the African continent. This is especially true in the case of Egypt where missing information has been filled in by using information from other countries. In addition, information on cost-effectiveness of animal welfare interventions in the five countries is notably absent, with the exception of the cost effectiveness of direct help. Again, information has been substituted and drawn from other contexts. Furthermore, this Weighted Factor Model is an initial try at scoring and is based purely on desk research. It is not based on actual experiments. Further primary qualitative and quantitative data is required in order to draw more robust conclusions. More specifically, the use of qualitative interviews with experts from the relevant countries could likely fill in some of the gaps in the study, especially in the case of Egypt. In addition, the WFM approach applied in this paper has several limitations. Most importantly, the method is not very flexible, is not commonly used, and requires a lot of time and input to be effectively implemented.

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