Department for Environment Food & Rural Affairs

Full Business Case Change Control Note

Version May 2023

Detail of Template

1. KEY INFORMATION

Project Name	Animal Health Systems Strengthening Project		
Original Project Objectives	The project objectives are: • To enhance biosafety and biosecurity through improved veterinary services, laboratory quality management systems and disease surveillance capabilities to reduce the frequency and impact of animal disease outbreaks and minimise their emergence and transmission. • To enable rapid and effective emergency response to animal disease outbreaks, thus reducing the risk of spillover of animal pathogens into the human population, by developing early warning systems and strengthening intersectoral collaboration of animal and public health systems. • To improve livelihoods of livestock keepers by reducing losses attributable to disease by a strengthened animal health system.		
Reasons for change	*Continuation funding has been allocated for FY 25/26. The project has now been aligned with International Climate Finance (ICF) objectives and will seek to tackle climate change, through the lens of animal health systems.* *Revised Objectives* • Increase resilience against climate change induced shocks across the animal health sector • Strengthen competent authority ability to reduce the burden of animal disease associated with climate change • Improve livelihoods by strengthening livestock assets, particularly amongst the rural poor (including women, small farm-holders and other marginalised groups), by reducing loss attributed to disease and climate change vulnerability through strengthened animal health systems.		
Whole Life Cost	Original Amount £m	Revised Amount £m	Change Amount £m
	£4.9	£6.9	£2m
Budget	Original Amount £m	Revised Amount £m	Change Amount £m
	£4.9	£6.9	£2
Project Start & End Date	Original start date	Original end date (Project closure)	Amended end date (Project closure)
	April 2022	March 2025	March 2026

Other projects/ Programmes impacted by change	N/A
Is the change Novel or Contentious	*No*
DevTracker link to original business case	*https://iatipublisher-prod.s3.amazonaws.com/document-link/414/AHSS-Business-Case-20240903040954174554414 1.pdf*

2. KEY DIFFERENCES (CHANGES TO ORIGINAL FULL BUSINESS CASE)

Summary reference table to help the approver understand the key changes from the original business case.

- Indicate if each case has changed or not.
- If it has, in one sentence summarise the change.

Full detail of the change is requested later in the template in sections below.

Strategic Case Changed to meet Rio Marker adaptation and ICF objectives, specifically strengthen Competent Authorities' resilience against climate related shocks in livestock, particularly amongst rural producers/owners. Theory of Change and Logframe revised to reflect above amendments.
Commercial case – changed to increase the range, number and mandate of third-party organisations to improve project resilience, meet ICF objectives, improve poverty reduction outcomes and prepare for scaling up the project in the next phase.
Economic Case – changed to reframe through lens of climate change, update the switching analysis in the original business is response to a change in focal countries, VfM performance as referenced year 2 annual report external reports scheduled within the next six months.
Financial Case – changed to account for £2m 100% ICF RDEL, allocated for FY 25/26 (with a request to convert approximately £220K) to meet the costs for R&D activities.
Management Case - changed to amend resourcing to meet ICF objectives, strengthen GESI/poverty reduction outcomes, improve data collection/analysis and increase staffing resilience.

3. INFORMATION

3.1 What is the projects background and Strategic Objectives?

The Animal Health Systems Strengthening project aims to work with the competent authorities in Low-and Middle-Income Countries (LMICs) through bilateral technical assistance to build resilient health systems by strengthening capabilities in animal health systems, based on a One Health, all-hazards, system strengthening approach. This will help to: protect from, and detect and respond to, known and emerging diseases; improve food security through stronger, healthier, and more productive animals; improve livelihoods; and enhance global health security. The World Organisation for Animal Health (WOAH) Performance of Veterinary Service (PVS) Pathway is used as an operating framework to inform the scope and delivery of Defra's technical input. This is an internationally recognised methodology for evaluating the effectiveness of countries' terrestrial and aquatic veterinary services, including capacity building activities for systematic strengthening and monitoring improvement.

The project has scored an A for both annual reviews in FY1 22/23 and FY 2 23/24. Total expenditure to date (end of January 2025) £3,820,754 (see section 3.8 for a summary of lessons learned from the most recent annual review)

3.2 What is the reason for the change?

An additional £2m 100% ICF RDEL has been awarded for FY 25/26, the project was previously 100% non ICF RDEL. This has resulted in corresponding changes to the strategic, commercial, financial, economic and management cases including new suppliers, changes to resourcing and staffing to meet ICF requirements, a stronger poverty reduction narrative, GESI empowering outcomes and anticipated changes arising from the current external end of project review. (The draft report is due end of February 2025).

3.3 What is the total and additional funding required?

Funding for FY 22/25 = £4.9m additional funding for FY 25/26 = £2m. Total funding = £6.9m

Increases in costs have been difficult to avoid. Despite the current economic conditions, the project has sought to minimise or stabilise cost increases by:

- Harmonizing our delivery approach to encourage partners to work closer together to align outcomes, reduce project management costs and achieve additional co-benefits.
- Participate in national development partners forums to reduce risk of duplication, co-develop and co - deliver activities to improving cost efficiency and effectiveness, particularly where progress has been slow due to limited absorption capacity of competent authority and competition between development partners to “best/biggest” travel and subsistence allowances.
- Secure co-funding from delivery partners to reduce costs and maximize impact. For example, leveraging APHA’s DSTL funded project in Ghana for laboratory and surveillance.
- Revise scope of proposed country level Animal Health Climate Change Vulnerability Assessment to adopt a sub-regional approach (West Africa and Southern Africa), removing the need to commission additional country level assessments as the project scales up.

3.4 Summary of performance to date

Benefits realisation and performance to date

Results to date: What results have been achieved to date, detail performance against existing investment. How has the investment delivered against the intended outcome, impact, outcomes and indicators? Evidence of value for money

Based on cumulative results for years 1 & 2 the following results have been achieved to date:

- The project worked across three countries – Ghana, Zambia and The Gambia.
- A total of 122 Animal Health professionals, including vets, scientists, technicians and senior manager against a target of 143 were trained in laboratory competencies, improving quality management standards and diagnostic capabilities (85% achievement rate)
- A total of 2,438, animal health workers including vets, technicians veterinary para-professionals and community animal health workers against a target of 2,400 were trained in emergency preparedness, surveillance and control diseases including wildlife, aquaculture and terrestrial animals, with a 27% participation rate amongst women.
- A vaccination rate of 102% was achieved for a poultry and small ruminants campaign (51,332 animals)
- 4 knowledge products including handbooks & guides have been produced to help train the next generation of veterinary professionals and farmers

As noted in sections 3.6 (due diligence) and 3.7 (management case) a new data collection and analysis tool is currently be developed. Results for year three are currently being finalised in preparation for the annual review. Results for year 3 will be included in the final version of the CCN, by June 2025 latest. (see Economic Case for VfM evidence)

Annual Review Scores

Detail Annual Review scores - The project has scored.

The project has scored an A for both annual reviews in FY1 22/23 and FY2 23/24.

What evidence does this provide to support the scale up.

As noted in the financial case, this years' allocation will only allow the project to continue operating in its current focal countries.

3.5 What are additional expected benefits of the budget or other changes?

3.5 What are additional expected benefits of the budget or other changes?

The project will build on the successes of phase 1, to optimize benefits in Phase 2. To meet ICF objectives the focus will shift from strengthening animal health systems as the primary outcomes, to strengthening animal health systems as the mechanism to achieve poverty reduction, climate mitigation and adaptation outcomes- as detailed in the revised ToC.

This year the project will pilot the ICF approach, investing in demonstrating best practice and generating a robust evidence base, in preparation for scaling up in subsequent years. The project will continue to invest in capability building of the competent authority (veterinary services, fisheries department, veterinary medicines regulatory authority) and in partnership with national academic/training institutions upgrade curriculums in preparation for the next generation of veterinarians, scientists and veterinary paraprofessionals to improve the knowledge and skills to mitigate and adapt to the challenges of climate change. In addition, these benefits will now also be extended to prioritized communities through investments in regional architecture and support, including GESI responsive programming.

In this phase the project is expected to deliver the following benefits:

What are the expected results and benefits of the additional investment/material change?

- Continued delivery of technical assistance in the three current focal countries – Ghana, Zambia and The Gambia
- Produce 1st generation animal health climate change vulnerability assessments for West and Southern Africa ICF Benefits
- 1,140 organisations supported with ICF technical assistance, of which 1,036 are subsistence farmers or SMEs
- 3,283 people supported by ICF technical assistance
- ICF likely to lead to transformational changes, when outcomes are realised within the next 5-6 years.

Poverty Reduction Benefits

- 3,283 people trained in critical animal health competencies to reduce disease burden and improve resilience and mitigation against climate change
- 2,960,138 people with access to improved veterinary services across nine prioritised districts in three countries
- Livelihoods for 1,480,069 people are protected or created through healthier animal assets which are more productive and resilient to climate shocks.

A strategic review will be undertaken to assess options to maximize impact. Given the current uncertainty in UKAID it is difficult to estimate future projections at this stage. It is very evident this is an emerging area with the potential for transformational change. For example, for this CCN we will be exploring opportunities to work with multi-lateral agencies such as WOAH to embed climate change action into their ways of working.

3.6 What is the approach to implementation?

As detailed in the original business case, funding will continue to be primarily used to help build in-country capability of the competent authorities in key areas such as disease threat detection and prevention**, but now through the lens of climate change**.

Implementation will continue to be undertaken through, training, mentoring, peer-to-peer skills and knowledge exchange, facilitated by scientific and veterinary experts from APHA, CEFAS and VMD, supported by the strategic presence of a locally employed country based team, with the added resilience of additional surge capacity through a partnership with a UK veterinary college/university. We will continue to work in partnership with national and international academia/research instutitues and strategically with the Quadaripte (WHO, FAO, WOAH, UNEP), specifically WOAH and UNEP to review opportunities to incorporate climate change objectives into the PVS framework. Once climate change technical advice is embedded into the project, opportunities to explore and capture co-benefits for biodiversity outcomes will be factored in.

Climate Change technical advice will be mainstreamed into the project provided by technical expertise from across the Defra group partnership to ensure climate change resilience and mitigation is central to this new phase of the project.

At a national level, delivery will continue in three focal countries, Zambia, Ghana and The Gambia.

To better tackle poverty reduction, the project will extend into agreed prioritised rural regions /provinces in each focal country, to ensure the benefits of the investments extend beyond the Competent Authority and service improvements and access are realised in at the community level. This will focus on livestock owners and their communities, including marginalised populations such as women, girls and specific ethnicities as recommended in recent in country GESI analysis workshops.

The communications sub-group, will establish a working group to share evidence across the project. This will include opportunities to share best practice, research and emerging evidence across the project team to feed into design and delivery, and platforms such as FCDO's Animal Plant Health Innovation and Evidence Delivery Platform (APHID) to share project outputs e.g. manuals, course curriculums, climate change vulnerability assessment etc.

***Gender Equality*: Compliance with the Gender Equality Act. Any changes or evidence of impact since the original business case**

The Animal Health Systems Strengthening project aims to be aligned with the International Development Act, the Gender Equality Act, and the Public Sector Equality Duty (PSED). In the design of the intervention, we have considered the likely effects of strengthening animal health systems in reducing inequalities through two key mechanisms:

1. Improving the asset base of rural animal farming communities including subsistence and small-scale commercial farmers, marginalised groups including women and specific ethnicities.
2. Providing opportunities for female animal health professionals (including vets, scientists, technical officers & veterinary paraprofessionals and those serving poor communities and regions, Both Zambia Government of Zambia 2024) and Ghana (Government of Ghana: 2015) have national targets to employ at least a third of women across all sectors. (According to our GESI analysis the livestock sub-sector is significantly behind this target, with women being actively prevented from treating animals some circumstances).

It is anticipated that strengthening animal health systems and building capabilities of key institutions at the national and regional level will have two outcomes for women and marginalised communities: 1) Improved services, will enable the competent authorities to better respond to national needs (with up to 80% of households involved in/or dependent on livestock (of which the majority are located in rural areas), including training and development for female members of staff. 2) Improve availability and accessibility of veterinary services and resources for women and poor rural farming communities, to strengthen their asset base, by reducing animal diseases/improving animal health and welfare and thereby improving productivity, livelihoods, and food security at the household levels.

Most recently, the AHSS project was evaluated as a "GESI unaware", but moving towards "GESI sensitive" following the GESI analysis workshops for Zambia and Ghana conducted in October 2024. The recommendations from these reports are actively incorporated into the forward plan. Focal countries Gender mainstreaming department/ministries will come onboard as technical partners to strengthen institutional level capabilities and commitment to equalities. Community consultation, codesign and baseline assessments will be undertaken to inform community level interventions and GESI training will be undertaken across the project team to build team capabilities.

Safeguarding considerations; update on performance and measures in place to date. Do risks increase, if so, what mitigation factors have been put in place?

Safeguarding and in particular SEAH safeguarding, is a key consideration for the programme. A SEAH Safeguarding self assessment was undertaken in 2024 and is regularly reviewed. Actions have been taken to monitor and reduce these risks including: Inclusion of SEAH/Safeguarding as a standing agenda item for Joint Planning Meetings, inclusion of safeguarding clauses in agreements/subcontracts/MOUs, completition of a SEAH safeguarding risk assessment - which is regularly updated and reviewed for progress and inclusion of SEAH and Safeguarding in the summarised risk register.

Alignment to Paris Agreement:

The CERA has been completed to confirm alignment with the Paris Agreement. As detailed in the strategic case, AHSS focuses on aquaculture and terrestrial livestock (an agriculture sub-sector), which has inherently high climate related risks (as demonstrated in the initial screening of 12). The project has and will continue to implement significant measures to reduces these inherent risks, in both the stakeholder engagement and participation processes and stakeholder engagement and support (both scoring 2 = low) by strengthening adaptative capacity across a range of asset bases.

Due Diligence: What due diligence is in place with the existing programme; Is it still valid; what further due diligence process needs to be followed?

The due diligence and processes remain broadly the same as detailed in the original business case with following additions.

Although not formally required when working with other UK Government departments and multi-lateral agencies a due diligence assessment has been undertaken, demonstrating due diligence processes in place for Tier 1 – ALBS and Tier 2 – downstream partners.

- Bi-monthly country level narrative report – to monitor and assess anticipated change at the country level. The pen is held by the country team, with inputs from the ALBs
- Monthly meetings with the ALBs and Country teams – supported by quarterly narrative and financial reporting monitoring progress against key milestones, output targets and expenditure

Reporting: (informed by the new data analysis and reporting tool).

Governance

- Regular pipeline meetings with DgC to main oversight and compliance of subcontracts/grants
- Core Defra - ALB MOU reviewed and updated by DgC
- Oversight Board, TWG and Joint Planning Meeting (JPM) terms of reference regularly reviewed
- Minimum annual monitoring visit to each focal country to view work on the ground, meet with key beneficiaries and maintain ongoing partnership with FCDO/post
- Inclusion of Safeguarding and SEAH as standing agenda items on JPM and Oversight Board
- PMO – participate in technical working group in observer capacity
- 6 monthly in person or hybrid JPM (with representatives from across the project team)
- Finance spot checks to ensure reported expenditure supported by appropriate receipts, and in line with Defra policies.

Describe any key changes to the original business case including the Theory of Change or new evidence from ongoing monitoring, evaluation or learning work.

Set out clearly the changes and enhancements of the scale up against the 5- case model of the original business case. Include the greatest level of detail here, it should be proportionate to the scale of the increase, level of funding and the scope and scale of the changes proposed. The changes and additions should be clearly set out:

Strategic Case

The strategic case has changed to meet Rio Marker adaptation and Mitigation and ICF objectives, specifically to strengthen the Competent Authorities mitigation and resilience capabilities against climate related shocks in livestock, particularly amongst rural producers/owners (including women, small farm-holders and other marginalised groups). A Global Theory of Change and logframe have revised to reflect these amendments.

Animal health is already being affected by a changing climate globally (FAO: 2020). Changes to seasonality, rising temperatures and increasing frequency and intensity of extreme events are increasing the incidence of vector borne diseases and parasites, creating heat stress and reducing access to water and feed. (Bezner Kerr et al 2022), (Lopez et al 2016) The range of vector-borne diseases and parasites are already expanding in Africa. These vector-borne diseases include tick vectors and arthropod vectors that spread disease, such as rift valley fever, anthrax the bluetongue virus. However, there may be some cause for optimism relating to other parasites, for example the tsetse fly, which show a contracted range. (ibid)

Changes in vector and pathogen epidemiology/occurrence can also result in occurrence of new livestock diseases in new areas due to changes in disease ecology. Further, extreme weather events such as droughts, floods, desertification, and cyclones will occur more frequently and forcefully, causing insecure living conditions, food shortage and forced migration. Researchers have reported transhumance as a cause of many infectious disease outbreaks in animals and humans (Egeru,et al, A., 2020), (Mohamed, A., 2020) - migration increases their chance of contact with geographically limited and seasonally abundant disease. There is also evidence of the influence of global warming on mortality due to viral infections in farmed aquatic animals.

Improved animal health and welfare can also increase the resilience of communities, with positive outcomes on development. Climate-induced shocks can deplete livestock assets which, for many poor people, means collapsing into chronic poverty with long-term effects on their livelihoods or ability to climb up the poverty ladder. Empowering communities to protect and promote animal welfare and health improves livelihoods while building resilience to emerging threats. Many communities are critically dependent on livestock, which provide income and nutrition, and are often a buffer against climate change, helping communities cope even when there is severe crop failure (Magiri, et al 2021). Animal health can contribute to food security while decreasing the likelihood and impact of infectious diseases.

Animals are a significant source of greenhouse gas emissions (enteric emissions of methane from ruminants) and there are potential options to reduce these emissions (mitigation). Animal health and welfare is fundamentally connected to the transition to low-emissions agriculture, as healthy animals produce fewer emissions per unit of product. (Capper 2023) There are several synergies between adapting to a changing climate and mitigation of climate change through reducing emissions, particularly if a holistic and long-term approach is taken. Narrowly focused interventions often fail to anticipate unintended consequences on other goals (maladaptation).

Figure 1 illustrates the impacts of climate change on animal health and welfare, and the interaction of mitigation and adaptation to these. The figure illustrates the direct and indirect effects, as well as the socio-cultural and behavioural changes that interact with the direct and indirect effects on animals.

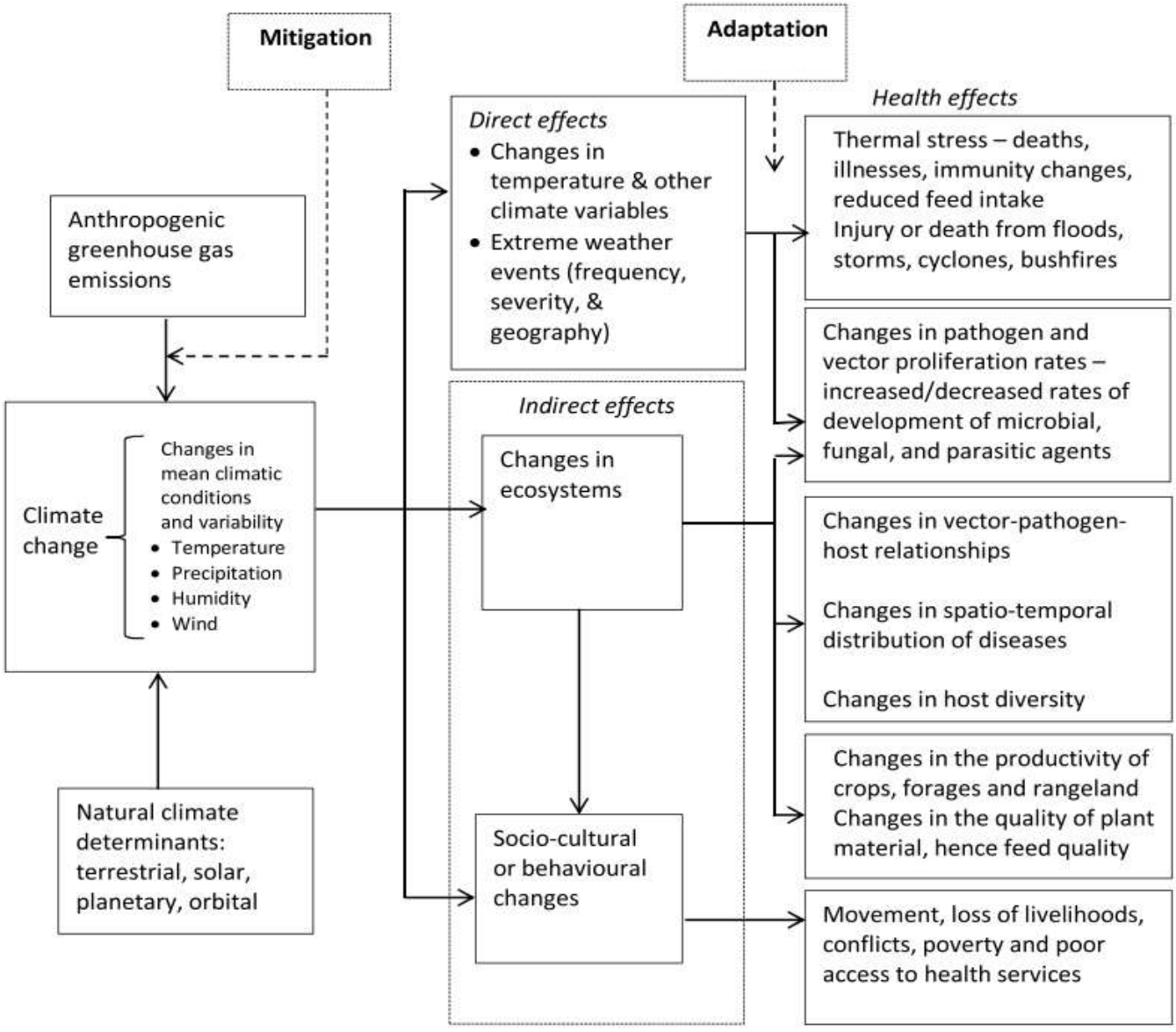

Figure 1 Climate change responses and direct and indirect effects (Bett et al 2017)

Overall, there is a lack of data for shifts in the geographical range of pathogens and vectors. This is emphasised across studies, including in the Intergovernmental Panel on Climate Change (IPCC) reports, which synthesise existing evidence. Some case studies do exist, for example around the bluetongue virus and some ticks, however in general there is a need for standardised and systematic monitoring of climate, vectors, pathogens and diseases over multiple sites and many years to obtain evidence for the effects of climate change on disease distribution.

Furthermore, it is not always possible to attribute climate change to the changing distribution of pests and diseases, particularly in developing countries where limited resources are available for monitoring and surveillance. Therefore, while it is generally acknowledged that climate change will have an important influence

on animal health and welfare, it is also important to keep a holistic perspective and understand the wider socio-political and environmental changes that may also contribute to changes in animal health and disease.

Projected impacts

Both direct and indirect impacts result in reduced animal health and welfare, productivity and welfare; implications for public health; food safety; disease burdens from bacteria, parasites and their vectors; reduced income for affected communities. These are discussed further below.

Direct impacts

Animal health and welfare is expected to be directly affected through changes in temperature, relative humidity, precipitation, and changes in the frequency and intensity of extreme events such as drought and flood (Lacetera 2019). The effects of drought and flood also create vulnerability to disease, so these are also discussed under the Indirect impacts section.

Impacts of drought on animal health

Drought presents many challenges to livestock health across Africa, both in terms of productivity as well as animal welfare and farmer mental health. The main direct impacts are in water and food scarcity. Without sufficient water, animals face dehydration, which leads to reduced feed intake, poor digestion, and increased vulnerability to diseases. Prolonged water scarcity can result in high mortality rates among livestock, especially in arid regions. Drought also leads to the degradation of pastures and grazing lands, causing shortages of quality feed. Malnourished animals also produce less milk, meat, and offspring, affecting both productivity and rural livelihoods.

Drought often forces pastoralists to migrate in search of water and grazing land. These migrations can lead to overgrazing and conflicts over resources, as herders move into areas with limited resources. This is discussed further in the indirect impacts section.

Impacts of heavy rain and flooding on animal health

Heavy rainfall and flooding can create complex impacts on animal health and their surrounding environment. A main consequence is on the range and transmission of disease, which is discussed in the indirect impacts section.

Floodwaters often become contaminated with a range of pollutants. Drinking this contaminated water can severely affect the health of animals, leading to dehydration, digestive issues, and infections. Floods often submerge or wash away pasturelands, leading to feed shortages for livestock. This can result in malnutrition, and its associated effects on productivity and animal welfare. Additionally, the destruction of crops used as feed for livestock can have long-term effects on animal productivity. In severe cases, floods can directly cause livestock deaths through drowning or accidents. Animals may also suffer from hypothermia and other stress-related conditions if they are exposed to prolonged wet conditions without shelter. Flooding can cause soil erosion and degrade the quality of grazing lands, making it difficult for vegetation to recover. This reduces the availability of quality forage for livestock, leading to long-term impacts on their health and productivity.

Impacts of increased temperature on livestock

Heat stress can cause important disruption to production, reproductive and animal welfare in livestock, including in extreme cases, mortality. Animals are affected by a combination of environmental factors, including sunlight, thermal radiation and humidity, which can result in the animal being unable to dissipate an adequate quantity of the heat to maintain the body's thermal balance (Hill et al 2015). Lactating dairy cows are particularly vulnerable to heat stress due to their high metabolic load. Milk yield and fertility can be affected as well as increased disease risk[9,10].

Considerable increases in heat stress are projected during this century in the number of 'extreme stress' days per year for cattle, chicken, goat, pig and sheep populations in a high warming future. However, in a lower emissions scenario there would be far fewer extreme heat stress days (Thorton et al 2022).

The impacts on livestock production and productivity may be significant in much of Africa (Rahmini et al 2020) [12]. Estimates of losses in milk production due to heat stress in parts of Africa range from 1 – 14% over the course of the Century[13],[14].

In many African countries, poultry contribute significantly to rural livelihoods, including via modest improvements in nutritional outcomes of household children. Rural poultry are generally assumed to be hardy and well adapted to stressful environments, but little information exists regarding their performance under warmer climates or interactions with other production challenges (Nyoni et al 2018).

Heat stress can impair the immune response of animals to disease and increase the pathogenesis and severity of many diseases, and therefore the impacts on animal health and welfare of heat stress can multiply if not managed.

Indirect impacts: Animal diseases

Climate change is expected to affect the distribution, incidence and severity of infectious diseases of livestock, although the impacts remain uncertain (Bett et al 2017). Diseases are generally spread through either pathogens and/or vectors.

Vector-borne diseases include those spread by mosquitos, midges, biting flies and tsetse flies, and tick-borne diseases such as East Coast Fever.

High temperatures generally increase the metabolic rates of arthropod vectors leading to an increase in their ability to feed, mature and lay eggs, and ultimately enhance chances of pathogen transmission among vectors and hosts. The development rates of ticks (through their different life-cycle stages) are governed by temperature while the survival of the free-living stages as well as hatching and molting depend on humidity.

East Africa and South Africa are considered the most vulnerable regions to climate-induced changes in tick distribution and incidence of tick-borne diseases (Olwoch 2007).

Local shifts in geographical ranges may occur as cold areas get warmer and warm areas get hotter. One study (Olwoch 2007). examined the effect of temperature changes on tick distribution in eastern and southern Africa, demonstrating the habitats for are likely to expand, although the suitability for some tick species (Rhipicephalus humeralis, R. kochi and R. planus) may contract as temperatures become hotter.

Rising temperature is expected to increase the expansion of the geographical ranges of arthropod vectors such as Culicoides imicola, which transmits the bluetongue virus. A 1-in-20-year bluetongue outbreak at present-day temperatures is projected to increase in frequency to 1-in-5 to 1-in-7 years by the 2050s, under RCP4.5 and RCP8.5 (Cummings et al 2006).

However, changes in climate may reduce the suitability for other vectors, such as tsetse fly. East Africa may see a decline in tsetse fly and the associated transmission of animal trypanosomosis, due to further increases in temperature and increases in human population. High soil temperatures increase the larvae mortality rates, and therefore a significant shift in tsetse fly distribution is expected across Africa (Moore 2010).

Pathogens can live either in the body of a host or exist in the environment. Changes in temperature and humidity are the main factors driving pathogen survival in the environment[1]. A rise in temperature increases replication rates of pathogens in the vector, therefore shortening their extrinsic incubation period.

Emerging diseases

Over the last 75 years, more than 220 emerging zoonotic diseases, some associated with domesticated livestock, have been identified, several of which may be affected by climate change, particularly vector-borne diseases (Vaillancourt 2016).

Although cases of the Marburg virus have been identified in Ghana, there is no current evidence that climate change would increase its spread. However, as bats appear to be the reservoir for this virus, any changes in

climate or responses to changes in climate that put pressure on the bats' habitats could bring them into greater proximity to domestic livestock and humans.

Extreme events and diseases

Extreme weather events (particularly drought and flooding), as well as affecting the animals directly, can both promote or inhibit disease transmission, by influencing the densities and distributions of vectors, hosts and pathogens. Drought (which is associated with higher temperatures and lower humidity) can reduce the survival and transmission of environmental pathogens into host animals, potentially reducing the incidence of some types of disease. Increased temperatures and high frequencies of droughts in some regions are reducing the ranges of some vectors, for example tsetse flies (FAO 2020).

However, other diseases, particularly mosquito-borne diseases, which often occur following periods of high precipitation. For example, the Rift Valley Fever (RVF), a mosquito-borne disease that case significant impacts on livestock morbidity and mortality (Rich 2010), is often associated with the warm phase of the El Niῆo weather pattern as well as extreme rainfall events. There are high risks of future Rift Valley fever outbreaks in a changing climate in East Africa and beyond.

It appears that prolonged precipitation lasting at least two months, or flooding for 10-15 days is necessary to allow the emergence of RVF virus-infected floodwater Aedes mosquitoes. Further prolonged floods can amplify transmission patterns and lead to epidemics[25].

Some evidence indicates that droughts followed by extreme rainfall may create conditions suitable for explosive RVF outbreaks and explain why they are more frequent in arid and semi-arid areas. Droughts contribute reduce herd immunity as animals die and are often replaced by animals that do not possess immunity, which amplifies the virus transmission process when floods occur, and mosquitos develop. Areas with a stable endemic transmission are therefore expected to have fewer outbreaks compared to areas that experience frequent extreme climate events that interrupt established vector-host-virus interactions and persistence of immunity (Bett et al 2017).

Wider implications

The impacts of climate change on animal health and welfare are closely connected to the health and functioning of farmers and communities. Livestock play important social and cultural roles in many societies. Farmers' mental health can suffer significantly when their animals are impacted either directly or indirectly.

Growing infectious disease burdens in domesticated animals may also affect human health, through increases in zoonoses (Bett et al. 2017).

Different perspectives on whether greater biodiversity is better or worse for domestic livestock disease risk. Stronger linkages are needed between ecosystem service and food security research and policy to address these challenges.

Researchers have reported transhumance as a cause of many infectious disease outbreaks in animals and humans (Egeru 2020); migration increases their chance of contact with geographically limited and seasonally abundant disease. These changes, in turn, promote an increase in vectors that transfer pathogens, while also driving new migrations of animals towards human dwellings, as protection levels or food sources vary with the new landscapes (ibid).

As the disease profile changes, there are increasing concerns regarding parasite resistance to medicines (ecto and endoparaciticides) and bacterial resistance/AMR. Livestock (and human) populations are likely to suffer the highest impacts due to inappropriate use and poor-quality medicines which can be mitigated by better regulation.

Country overviews

1. Ghana

Ghana is significantly affected by climate change, with increasing temperatures, erratic rainfall, and frequent extreme weather events. These changes impact agriculture and livestock, which form the backbone of rural

livelihoods. Animal health in Ghana is affected by climate change as it alters disease dynamics, water availability, feed quality, and livestock productivity.

Climate change has facilitated the spread of vector-borne diseases such as trypanosomiasis (transmitted by tsetse flies) and schistosomiasis. Warmer temperatures and changing rainfall patterns have expanded the habitat of these vectors into previously unaffected areas. Northern Ghana, traditionally less affected, is now increasingly at risk. A tsetse control programme is inadequate (Tweneboah 2024).

Rising temperatures, particularly in northern Ghana, have resulted in heat stress in livestock, particularly cattle, goats, and sheep, with the associated impacts described previously.

As in many regions across Africa, climate variability is likely to result in water shortages and poor pasture quality. In northern Ghana, farmers already face a longer dry season, leading to reduced water access for livestock. The quality of pasture has diminished, leading to malnutrition and increased disease susceptibility in livestock. This trend has been well-documented across West Africa, where changing rainfall patterns have reduced grazing land quality (Akpoti 2022).

Changes in climate have caused pastoralists from northern regions to migrate southwards in search of better pasture. This has increased competition for resources, leading to conflict between pastoralists and farmers. Overgrazed land in new areas increases disease transmission among livestock due to overcrowding and unsanitary conditions.

2. The Gambia

The Gambia, one of Africa's smallest countries, relies heavily on agriculture and livestock for the livelihoods of its rural population. Climate change poses significant challenges to this sector, with rising temperatures, erratic rainfall, and increased frequency of droughts and floods affecting animal health, productivity, and food security. The livestock sector in The Gambia contributes to both local food production and income generation, and climate change is exacerbating the vulnerability of livestock health and farm management practices.

As with other African countries, The Gambia may experience an increase in vector-borne diseases in a changing climate. Rising temperatures, particularly in the central and eastern parts of The Gambia, are already resulting in heat stress in livestock.

Erratic rainfall patterns and prolonged dry seasons contribute to water scarcity and degraded pasture quality in The Gambia. In coastal and low-lying regions, the intrusion of saltwater due to sea-level rise has further degraded grazing lands, leading to loss of arable and grazing areas.

Increased rainfall and flooding in some parts of The Gambia may lead to a rise in waterborne diseases and parasitic infections such as schistosomiasis and liver fluke infections in livestock.

Water resources for livestock may decrease in places because of increased runoff and decreased groundwater availability (Government of The Gambia, 2020). The growing pressure on grazing land and water sources due to climate variability has led to seasonal migration of pastoralists, particularly during droughts. These migrations, especially from the northern parts of The Gambia, can lead to overcrowding in grazing areas, potentially amplifying disease transmission.

3. Zambia

Zambia, located in Southern Africa, is highly vulnerable to the impacts of climate change. Agriculture and livestock are critical components of Zambia’s economy, particularly for rural communities, but as with the other countries of interest, changes in climate and weather are placing increasing pressure on animal health and welfare.

As with the other countries, increasing temperatures, particularly in southern and western regions of Zambia, are causing heat stress in livestock. Erratic rainfall patterns and prolonged dry seasons have exacerbated water scarcity in Zambia, particularly in southern regions. The scarcity of water affects not only animal hydration but also reduces the quality of pastures, leading to poor nutrition for livestock. Droughts have led to significant degradation of grazing lands. The lack of water sources during dry periods also forces farmers to reduce their

herd sizes or migrate in search of better grazing conditions, further stressing livestock, and potentially spreading disease, as in other countries.

Social exclusion is an important factor in vulnerability, risks and adaptation and mitigation options. As evidenced in the GESI Analysis report, and referenced in section 3.6, 80% of the poorest poor reside in rural areas and keep animals or want to keep animals (WOAH 2019). Poor, remote communities are most adversely affected by under resourced vet services Therefore Stronger Veterinary Services is vehicle for tackling poverty, boosting the national economy and individual's livelihoods Women are generally more vulnerable than men to climate-food insecurity and related risks[3] Identifying and supporting women's roles as livestock owners, processors and users of livestock products and ensuring their access to veterinary service delivery, are key aspects in promoting women's economic and social empowerment and consequently provides a way to enable rural women to break the cycle of poverty.

This phase of the animal health system strengthening project will build on the strengths and successes of the first phase and continue to operate within the scope of the PVS framework to meet climate change and poverty reduction objectives. By improving overall animal health and welfare (through better provision of vet services), livestock will be better and fitter to cope with the stresses outlined above, and b) improve both competent authority and livestock owners' adaptive capacity to cope and where possible mitigate the impacts of climate change variability. This will be achieved via direct programming/bi-lateral technical assistance at the national, regional and community level and improvements to regulation, legislation research and development and influencing national policy to enable a more conductive operating environment. A revised Global Theory of Change and logframe has been developed to correspond to changes in the strategic case. The Revised ToC has been developed in anticipation of a successful multi-year SR and covers a 6- year timeline. Progress for year 4 (the period for this CCN) is noted on the ToC. Building on the successes of the first phase, (years 1-3) significant improvements are anticipated by consolidating the outputs and progressing towards the stated outcomes. A global level ToC and logframe have been included in this CCN. Country level ToCs with corresponding populated logframes will be submitted as part of the revision process by the end of June (latest).

Economic Case

This has been changed to reframe the project through lens of climate change, providing an updated narrative on value for money. As set out in the Strategic Case, phase 2 of the Animal Health Systems Strengthening Project will continue to invest in capability building of competent authorities (institutional level) while starting to invest in development of regional and local animal health services, focusing on livestock owners and their communities, with poverty reduction, GESI-responsive programming, and climate mitigation at its heart.

It will draw on unique Defra and UK expertise, build on and leverage existing investments and partnerships, support mandated international One Health bodies and strengthen science partnerships to deliver high-quality and innovative technical assistance, and develop and share knowledge and evidence that will help Defra priority countries identify, prevent, and respond to emerging animal health threats.

The Economic Case for phase 1 was set out in the approved Business Case in June 2022. This Economic Case is for phase 2.

Three options have been considered:

1. Do nothing / counterfactual: make no additional investments in this area.
2. Do minimum: reduce geographical, technical and delivery scope
3. AHSS Phase 2: building on AHSS Phase 1

Option 1 – do nothing

Details of approach

Not developing and delivering new investments in animal health systems and services. Given the current global health and climate crises, this would result in a loss of credibility when the UK is still seeking to demonstrate leadership in these areas with ODA reductions elsewhere. Whilst technically feasible, this is not

considered further, given the combination of HMG's high-level commitments to addressing climate change, the severity of the problem and the significant gaps in animal health. It would also undermine delivery of International Climate Finance commitments and the UK's Global Health Security agenda, including support for pandemic preparedness.

Option 2 – do minimum

Details of approach

This option represents a minimum level of investment, assumed to be £1m in 2025/26, continuing to invest in capability building of competent authorities (i.e. institutional level only) and in just one or two focal countries.

What would be the benefits?

This would involve a focus on leveraging existing Defra ALB expertise of working with veterinary and fishery services, and continuing to develop existing relationships, achieving limited impact in existing technical areas in one or (at most) two existing target countries. This would largely involve direct delivery by ALBs, having the advantage of reduced procurement requirements.

What would be the costs and / or risks?

There are costs, or missed opportunities, associated with this approach.

A focus on direct delivery by ALBs in one or two existing focal countries would not represent best value for money as it would limit benefits of scale and offsetting higher average overhead costs. It would also reduce resilience and delivery capacity (e.g. the programme would be more vulnerable to the impact of domestic disease outbreak response activities as these are led by ALBs and would need to take priority – this could also be reputationally damaging for the programme and undermine its emphasis on upstream prevention at source, which is more likely to deliver higher VfM, as outlined below).

In addition, reliance on work at the institutional level could make the programme more exposed to the impact of any engagement, resource and absorption capacity issues in competent authorities in its focal countries. It could also make it more difficult to extend the benefits of investments beyond the competent authority to rural regions / provinces in each focal country.

Option 3 – AHSS Phase 2 (preferred)

Details of approach

Building on Phase 1 of the project (design and initial delivery) by continuing to invest in capability building of competent authorities in key areas such as disease threat detection and prevention (institutional level) while also starting to invest in development of regional animal health services, focusing on livestock owners and their communities, with poverty reduction, GESI-responsive programming, and climate mitigation at the centre.

What would be the benefits?

The programme materially reduces the risk of animal disease (including zoonoses of pandemic potential) and associated losses, driven by climate change. It also reduces food insecurity and improves livelihoods, including through increased ability to trade.

Projected benefits (as also outlined in section 3.5) include:

- Over 1,100 organisations supported by ICF technical assistance, over 1,000 of which would be subsistence farmers and SMEs
- Over 3,200 people trained in critical animal health competencies to reduce disease burden, and improve resilience to and mitigation against climate change

- Around 3,000,000 people with access to improved veterinary services across nine prioritised districts in three countries (Ghana, Zambia, and The Gambia)
- Around 1,500,000 livelihoods protected or created through healthier animal assets, which are more productive and resilient to climate shocks
- Continued delivery of technical assistance in three countries – Ghana, Zambia and The Gambia
- Animal health climate change vulnerability assessments produced for West and Southern Africa.

The evidence base for these has been developed in collaboration with the delivery teams, adopting a proportionate approach to reflect the scope and reach improvements in veterinary services can have for service users/key stakeholders within this one-year extension period. However, there remains uncertainty given the move to ICF, with new delivery modalities, and the risks around delivery of commercial timelines outlined below.

The programme builds on two years of delivery and continues to enjoy strong support from Post as being key to HMG's One Health approach to Global Health Security and now climate.

The programme has already helped attract further investment into the sector, including from USAID in Ghana, where we also influenced the new administration to include commitments to further investment in animal health in their manifesto. We expect to leverage further such investment (and commitments to invest) throughout the period.

What would be the costs and / or risks?

Risks for this option are outlined in the Management Case below. Despite the current economic conditions, the project will continue to seek to minimise costs as outlined in section 3.3.

Options appraisal

Strength of evidence on VfM of animal health interventions

Animal disease threats have significant impacts on health and food security, the environment and prosperity. Weaknesses in animal health systems are entrenched because of chronic under funding compared to public health.

While Phase 1 of the programme has worked to strengthen animal health systems it is has not yet been possible to calculate the impact on disease incidence and resulting burden. Estimates suggest, however, that only a small percentage fall in burden is needed to deliver significant benefits. Looking at 'spread of economic gains or losses' shows that where the ratio of total population engaged in agriculture and the livestock sector is very high (as it is in two of the programme's three focal countries), the burden of animal disease is more likely to be felt across a greater number of citizens, adversely affecting their incomes and livelihood.

The case for investment in animal health systems is well evidenced by the World Organisation for Animal Health (WOAH) whose Performance of Veterinary Services (PVS) Pathway is the basis of the programme's operating framework. This is supported by analysis from the International Livestock Research Institute (ILRI), which suggests that one dollar invested in animal health can generate five dollars' worth of benefits. Further, a recent systematic literature review of evidence of the economic value of One Health initiatives found that, of the 97 studies reviewed (73% of which involved animal health), 78 reported a positive economic value or return (Auplish et al. 2024).

More generally, the cost of prevention is estimated to be just a small fraction of the cost of responding to crises (approximately 1%) and the human suffering and economic cost of zoonotic pandemics is enormous: COVID-19 has already caused over 6.5 million deaths and cost the global economy USD 13.5 trillion. It is estimated that the future cost of zoonotic disease emergence is likely to exceed USD 1 trillion annually.

Learnings from the programme to date

A recent internal review of programme costs found that APHA (the programme's lead delivery partner) and VMD were offering VfM, though Cefas resource costs were higher compared to Defra resource should costs. Defra group Commercial are continuing work on ALB costs.

As referenced in the Management Case and section 3.8 (lessons learned), an end of Phase 1 external review was commissioned to ITAD. The initial findings from the draft report, which included some analysis of value for money, were those beneficiaries generally perceived programme delivery to be efficient and effective, and that the technical expertise of AHSS staff was valued by in-country partners and enabled effective delivery. However, the draft report also found that, whilst there were processes in place to monitor the cost of activities, there were limited processes in place to monitor the quality of outputs, which processes differing between ALBs, so there needed to be more of a programme-wide approach to ensure value for money.

GAH-ODA team has growing experience with One Health programmes delivering across a variety of implementing partners which will be drawn on as the approach is developed. We have engaged the Defra Change and Improvement team to ensure our delivery model, processes and systems are as efficient and effective as possible as we head into Phase 2.

We expect return on investment to be higher in Phase 2 of the programme (from 25/26) as we continue to work in our original focal countries where we have had successful engagement with foundation activities (i.e. Ghana, Zambia, and The Gambia), scaling to other countries with a hub and spoke model and country-based teams which offer better VfM than UK-based ALB staff.

Based on the above analysis, the three options have been assessed using eight criteria to determine which offers the best outcome for Defra, as follows:

Criteria	Option 1 – do nothing	Option 2 – do minimum	Option 3 – AHSS Phase 2
Strength of attribution of results to Defra	1	4	4
Management costs for Defra	1	3	2
Leveraging and influence	1	2	4
Building partnerships	1	2	5
Likelihood of transformational impact	1	2	3
Alignment with Defra priorities	1	2	5
Ability to respond to new priorities	1	2	4
Ability to drive VfM outcomes	1	2	3
Total	**8**	**18**	**30**
5 represents the best outcome for Defra with 1 representing the least favourable outcome			

Under option 2, the programme would continue to build on the strong evidence base relating to the impact of investments in animal health, but its objectives would not be as aligned with the gaps and opportunities outlined in the strategic case, given the greater focus on ICF, poverty reduction and GESI.

In addition, Defra has growing experience working with ALBs to deliver development programmes with significant relevant technical expertise, though managerial capacity can be an issue.

We therefore estimate this option to deliver limited/poor VfM, especially within the timeframe of the programme (1 year).

For the reasons outlined above, option 3 is the preferred option. This option has the greatest potential to deliver on the objectives set out in the Strategic Case, as well as the greatest potential development impact, VfM and alignment with Defra and UK ODA priorities. This option would also enable Defra to leverage more expertise from key strategic partners including UN FAO, WOAH, ILRI and GAPNET, who are involved in tackling disease threats in Africa.

What additional measures can be used to strengthen Value for Money for the intervention in Phase 2?

The table below outlines measures that will be implemented in the next phase of delivery, that aim to improve VfM of the programme.

Category	Indicator	Performance Review
EFFICIENCY	Project management	• Digital technologies used to enable continuous communication across implementing partners
	Quality / quantity of outputs	• Regional Climate change vulnerability assessment including assessment of evidence base to inform effective interventions and modalities • Work with Defra Continuous Improvement team to refine delivery model
EFFECTIVENESS	Promote operationally relevant best practices	• Relationship building with governments, coordination bodies, the private sector and local communities to provide pathways to impact, improve policy uptake and drive innovation
	Improve delivery model	• Work with Defra CI team to refine delivery model (e.g. systems thinking approaches and process mapping)
	Establish high quality partnerships	• Establish key strategic partnerships with relevant research and civil society organisations through the implementing partners, augmented by the capacity to support innovation and source the highest quality specialist expertise in key areas as required • Partnership with national gender mainstreaming departments/ministries to develop and monitor effective implementation strategy with marginalised groups
EQUITY	Participation of beneficiaries in design and implementation	• Participation of communities, women and their families in the design and implementation of interventions to ensure local ownership and sensitivity to contextual factors and power relations • Commissioned research into the burden of animal disease on specific marginalised groups
	Disaggregation of data by GESI indicator	• Deep dive into specific ethnic groups – Fulbe/nomadic pastoralist
	GESI capability	• Project level GESI Champions • GESI training for project delivery staff

We will use programme logframes to track delivery of outputs and outcomes on a quarterly basis. Case studies of programme impact will also be used to highlight results delivery. All delivery partners will be expected to have detailed plans for monitoring and evaluation.

Summary Value for Money Statement for the preferred option

At present there is limited evidence to quantify the value-for-money of the extension and VfM is therefore uncertain. However, the extension aligns with Defra and wider HMG strategic aims and there is broader evidence supporting the value of this kind of intervention. Further, research has been planned to build evidence on the value-for-money of the AHSS programme, detailed below.

Value-for-money evidence development

Despite the national and global importance of the livestock sector, it has been chronically underfunded for decades, and most research tends to be focused on crops. There is currently limited data on the monetised impacts of diseases on this sector to inform policy development and decision making. This is particularly true

in LMICs, which are highly dependent on livestock, but experience significant competition for limited national resources.

A switching analysis was conducted in the original AHSS business case, based on available data in Ethiopia, which provided the basis for indicative comparisons with Nigeria (the two largest countries in Africa). However, engagement in Nigeria was paused in 2023/24 due to security issues. While the switching analysis remains useful for illustrative purposes, the variables of current focal countries are too diverse (e.g. in terms of size, climate conditions, contribution of livestock to GDP and husbandry practices) to make any reasonable comparison using Ethiopia.

Research will continue to be undertaken on the Global Burden of Animal Disease in the form of an economic cost-benefit analysis of investment in two of the programme's focal countries (Ghana and Zambia) to help fill evidence gaps and work with national governments to secure further investment in the sector. The calculation of the economic burden of animal diseases is more complex than for human health due to additional factors such as impact on nutrition and human health, trade, food insecurity and food prices.

Given the focus on climate, the project will also commission animal health climate change vulnerability assessments for southern and west Africa, with Zambia and Ghana as illustrative countries, within the first six months of Phase 2. This will build on recent reports conducted in human health by the World Bank and the WHO, adopting a One Health approach, to fill the evidence gap from the animal health perspective. This will include a structured approach to evaluating risks, vulnerabilities, and adaptation strategies, including an economic cost-benefit analysis, and help to inform a climate strategy for the programme.

Further analysis is required to understand delivery modalities and impact of GESI intersectionality to ensure benefits from inputs on institutional strengthening are realised, effective mechanisms for transformation across the animal health sector are utilised, and return on investment is achieved.

Commercial Case

This have been revised to increase the range, number and mandate of third-party organisations to improve project resilience, meet ICF objectives, improve poverty reduction outcomes and prepare for scaling up the project in the next phase. The route to market will continue in line with the original business case, delivering activities in Ghana and Zambia. The Gambia was included as a focal country since 2023, in response to a high-level request to assist in tackling an outbreak of Highly pathogenic avian influenza, with delivery primarily through FAO.

Continuation of funding existing commercial and funding arrangements is predicated on the VfM evidence provided at 3.4 above and future spend will be designed to deliver the predicted benefits set out in section 3.5.

Currently indicative forecast commercial activity for 2025/26 comprises:

Project	**RtM**	**Lead Agency Dept**	**Indicative Value £000**
Animal Health System Strengthening Project MoU with ALBs (and including the following sub agreements)	variation	**DEFRA/ APHW**	**1,355,145**
• GAPNET Grant	variation	APHA	60,000
• GAPNET Partnership	Collaborative agreement/contract	APHA	100,000
• UK Vet. University Partnership	Contract	APHA	10,000
• WOAH Partnership working	Direct Award Grant	APHA	20,000

• *Assessment of the benefits of improved animal health on climate change	Competitive tender	CEFAS	75,000
• Climate Change Adviser	Resourced from expertise within our existing delivery partners	Defra	80,000
Funding for country teams employed under FCDO T&Cs			
• Ghana	HMG Platform	**DEFRA/**	**156,080**
Including deep dive into Fulbe Tribe	Competitive tender, possibly with support from FCDO in Ghana	DEFRA/ FCDO	50,000
• Zambia	HMG Platform	**DEFRA**	**127,775**
GAH -ODA			
• FAO	Financial contribution	**DEFRA/**	**150,000**
• GESI Consultant	Framework agreement	**DEFRA/**	**30,000**
• MEL	Internally resourced within DEFRA	**DEFRA/**	**40,000**
• *ILRI Contract (climate change vulnerability assessment)	Contract – direct award	**DEFRA/**	**141,000**
Total			**£2,000,000**

*science R&D

To meet ICF objectives and outcomes as detailed in the revised ToC, the list of specialists third party organisations will be expanded to enhance data collection and analysis; include NGOs and GESI experts to ensure climate change and poverty reduction is at the heart of design, delivery and outcomes; and partnerships with UK veterinary college/university to provide resilience due to internal staffing issues, such as the need to provide surge capacity during domestic disease outbreaks, and recruitment freezes, and in preparation for potential scaling up of the project. Trusted third party organisations, with a track record of delivery, such as GAPNET will also operate as an umbrella organisation issuing agreed smaller grants to community-based organisations.

When working with new partners in focal countries, due diligence will be undertaken in partnership with FCDO, including sharing information, monitoring visits and risk assessments.

Agreements with third party organisations are included in DgC pipeline for commissioning as close to the beginning of the new financial year as possible.

A significant commercial risk remains related to delivery of required commercial activity within the timeframes set out. To achieve delivery as close to the start of the new financial year as possible, and through this to maximise effectiveness and VfM of programming, DgC require:

- Detailed specifications
- Internal control and approval clearance
- Effective communication with prospective funding partners and/or funding recipients.

Financial case

This has been updated to account for £2m 100% ICF RDEL, allocated for FY 25/26 (with a request to convert approximately £200K) to meet the costs for R&D activities. An Accounting Officer Assessment has been undertaken to ensure compliance with managing public funds. The project has received an uplift of £2m for FY 2025/26. This is broadly in line with allocations over the past two years, as detailed in the table below.

Year 1- 2022/23	Year 2 – 2023/24	Year3 – 24/2025	Year 4 – 2025/2026
£800,000	£2,000,000	£2,100,000	£2,000,000

The project will continue to be funded as RDEL but moving from non ICF RDEL to 100% ICF RDEL to meet ICF objectives as detailed in the Strategic Case. The financial case will continue to operate in line with details specified in the original business case, where funds will be disbursed primarily to Defra's ALBs (APHA, CEFAS and VMD) managed via an MOU between Core Defra and the respective ALBs. Additional expenditure arising from country-based staff located on platform in Zambia and Ghana will be charged to FCDO (as detailed in the table in the commercial case). The project will contain a small research component, estimated at £216,0000 (climate change vulnerability assessments and economic analysis of animal disease burden on marginalised populations).

An external review was conducted for Phase 1 (report due end of March). An external evaluation is not considered best use of funds for a one-year extension, which will allow more funds to be allocated to delivery.

Improvements in VfM are anticipated, as noted in the economic case.

Management Case

Risk management including fraud are consistent with approach detailed in the original business case.

The project has implemented a range of improvements as noted in section 3.6 (governance and due diligence) to improve the management and governance of the project. Improvements in this area also include:

- Comprehensive risk register, which now include SEAH and Safeguarding routinely reviewed with the SRO every two months along with ad hoc review for unanticipated changes such as reduction in Aid funding. Risks are also discussed as standing agenda item at Joint planning meetings and Oversight board meetings.
- Approaches to management of fraud are detailed in MOUs, contract and all sub agreements and routinely monitored via progress reports with ALBs and monitoring/due diligence visits with downstream partners. Fraud risk assessment undertaken in line with requirement of assurance report for delegated authorities. No incidences of fraud have been reported to date.
- Developing a new reporting, monitoring and data analysis tool progressing from the current Excel spreadsheets to a more accurate and time-sensitive digital reporting and analysis. This will help to improve the monitoring and management of partners' performance.
- Working with Defra's Change and Improvement team to refine and enhance the delivery model, including internal processes, roles and responsibilities and communication channels to optimise delivery. This is an ongoing process.

- Commissioning ITAD to conduct an external project review. The draft report is scheduled for March 2025. Recommendations will help to improve the equity, efficiency, and effectiveness of outputs and outcomes.

Proposed changes to resourcing include:

- Climate change advice from across the ALB partnership to ensure climate change is at the heart of the project and meets the 100% ICF commitments as referenced in the commercial case.
- Partnership with a UK veterinary university/college as noted in the commercial case.

Changes to risk and management profile. – ***Risks:*** *What are the existing/ additional risks, assumptions, issues and dependencies to this approach/ scale up? Update plan for monitoring and managing delivery performance*

The major risks are summarised below:

Strategic and context – managing transition from 0% to 100% ICF funded project, ensuring climate, poverty reduction and GESI objectives are at its heart (and becoming GESI empowering in 25/26). Reduction in aid funding, including cutback in UKAID and funding pause for USAID

Programme/Project – **insufficient time to develop and approve CCN to allow for seamless transition to phase two.** Also noted by DgC delivery timelines remain challenging and are dependent on full availability of specifications of requirements and co-operation of funding recipients

Delivery/Operational - Limited absorption capacity, resource constraints and lack of commitment of competent authority partners

Delivery/Operational - Protracted approval process of some delivery partners (notably FAO)

Delivery/Operational – procurement delays (links to preceding risk)

Delivery/Operational –suboptimal delivery by partners external to the ALBs. Include break clauses in contracts, performance management, working with partners to build their capabilities, delivery model review and options appraisal.

Delivery/operational – reputation risk arising from discontinuation of activities due to refocusing activities to meeting ICF objectives.

Overall risk rating 6.61 rounded up to 7 – Amber

The project operates on several assumptions, including the importance of strong veterinary services for tackling poverty and boosting the economy, the adverse impact of under-resourced veterinary services on poor communities, and the relationship between healthier animals and improved livelihoods. As referenced in section 3.5 an options appraisal will be undertaken this year to maximize impact going forward.

3.8 b Lessons identified and implemented

Find below a summary of lessons learned, including those included in the most recent Annual Review

- Governance - Decision making processes improved by clarifying roles and responsibilities between teams. Delivery model under current review. Areas of shared responsibility have been identified, to help address some of the underlying uncertainty. Further refinement is required, which in part will is informed by a Responsible, Accountable, Consulted Informed (RACI) matrix inserted to the country level Gantt charts.
- Communication - Internal communication was cited as a key theme throughout the Year 2 feedback survey. The PMO could improve more timely information flow across the project team. Actions include bi-lateral meetings with the ALBs, attendance at the TWG in an observer capacity, regular internal project updates.

- Ways of Working - The project team were found to be committed to working together, achieving an average score of 3.36/5 on the anonymous annual survey. Room for improvement to achieve more coherent programming was acknowledged. Many of the points raised reflect Tuckman's stages of group development[2], with comments resonating with the storming and norming phase. Addressing the issues identified above, the team hope to move into a more consistent performing phase next year.
- Collaborative and joined up ways of working are essential to effective delivery. The Ways of Working document has now been updated. It will be kept as a live document and updated to capture emerging issues and circulated across the project team to enable more consistent ways of working.

Recommendations

- Minutes from the quarterly Oversight Board meetings will also be circulated across the project team, to enable all members of the team to keep abreast with discussions and senior decision making.
- Insert a RACI matrix in the project Gantt Chart to help define specific roles and responsibilities.
- Improve internal communication and clarify terms of reference and roles and responsibilities between PMO/Senior Leadership and technical delivery.
- Technical Working Group (TWG) terms of reference to be reviewed to improve efficacy and PMO to be invited in an observer capacity, to enable efficient decision making.
- Ways of Working document to be kept as live document and regularly updated.

Support to take forward the above recommendations are included in the scope of the work with Defra's Change and Improvement team.

3.9 Implications of non-approval

Reputational damage for Defra and across HMG, job loss, impact on local economies.
Increase in animal disease including zoonoses at national and global level, particularly in the light of the US decision to pause funding for USAID, who are the largest contributor to funding across the animal health sector.

References

1. Akpoti, K., Groen, T., Dossou-Yovo, E., Kabo-bah, A. T., & Zwart, S. J. (2022). Climate change-induced reduction in agricultural land suitability of West-Africa's inland valley landscapes. *Agricultural Systems*, *200*, 103429. https://doi.org/https://doi.org/10.1016/j.agsy.2022.103429
2. Auplish, A, Raj, E, Booijink, Y, de Balogh, K, Peyre, M, Taylor, K, Sumption, K, Hasler, B. (2024) Current evidence of the economic value of One Health initiatives: A systematic literature review. One Health 18, 100755. https://www.sciencedirect.com/science/article/pii/S2352771424000818?via%3Dihub
3. Bett, B., Kiunga, P., Gachohi, J., Sindato, C., Mbotha, D., Robinson, T., Lindahl, J., & Grace, D. (2017). Effects of climate change on the occurrence and distribution of livestock diseases. Preventive Veterinary Medicine, 137, 119–129. https://doi.org/https://doi.org/10.1016/j.prevetmed.2016.11.019
4. Bezner-Kerr, R., & Al., E. (2022). Food, Fibre and Other Ecosystem Products. In H.-O. Pörtner, D. C. Roberts, M. Tignor, E. S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A.
5. Capper JL. The impact of controlling diseases of significant global importance on greenhouse gas emissions from livestock production. One Health Outlook. 2023 Dec 8;5(1):17. doi: 10.1186/s42522-023-00089-y. PMID: 38062496; PMCID: PMC10704630.
6. Cumming, G., van Vuuren, D., 2006. Will climate change affect ectoparasite species ranges? Glob. Ecol. Biogeogr. 15, 486–497
7. Department of Environment Food and Rural Affairs (2024) Animal Health Systems Strengthening Project in Ghana: Gender Equality and Social Inclusion Workshop and Analysis Report
8. Department of Environment Food and Rural Affairs (2024) Animal Health Systems Strengthening Project in Zambia: Gender Equality and Social Inclusion Workshop and Analysis Report
9. Egeru, A., Dejene, S.W., Siya, A., 2020. Short report on implications of Covid-19 and emerging zoonotic infectious diseases for pastoralists and Africa. Pastoralism 10 (1), 1–10.
10. FAO (2020), Animal health and climate change".
11. Government of Ghana (2015) – National Gender Policy – Mainstreaming Gender Equality and Women's Empowerment into Ghana's Development Efforts, National Gender Policy (1).pdf
12. Government of The Gambia (2020) "Third National Communication of the Gambia under the UNFCCC," (July), p. 128
13. Government of Zambia (2023) – National Gender Policy Cabinet-Office-Gender-Policy-NHPP-draft-3.pdf
14. Hill, D. L., & Wall, E. (2015). Dairy cattle in a temperate climate:the effects of weather on milk yield and composition depend on management. *Animal*, *9*(1), 138–149.
15. Lacetera, N Impact of climate change on animal health and welfare, *Animal Frontiers*, Volume 9, Issue 1, January 2019, Pages 26–31, https://doi.org/10.1093/af/vfy030
16. López-i-Gelats, F., Fraser, E. D. G., Morton, J. F., & Rivera-Ferre, M. G. (2016). What drives the vulnerability of pastoralists to global environmental change? A qualitative meta-analysis. *Global Environmental Change*, *39*, 258–274. https://doi.org/https://doi.org/10.1016/j.gloenvcha.2016.05.011
17. Magiri, R., Muzandu, K., Gitau, G., Choongo, K., & Iji, P. (2021). Impact of Climate Change on Animal Health, Emerging and Re-emerging Diseases in Africa. In W. Leal Filho (Ed.), *African Handbook of Climate Change Adaptation* (pp. 1835–1851). https://doi.org/101007/978-3-030-45106_19
18. Mohamed, A., 2020. Bovine tuberculosis at the human–livestock–wildlife interface and its control through one health approach in the Ethiopian Somali pastoralists: a review. One Health 9, 100113.
19. Moore, N., Messina, J., 2010. A landscape and climate data logistic model of tsetse distribution in Kenya. PLoS One 5, e11809, http://dx.doi.org/10.1371/journal.pone.0011809.
20. Nyoni, N. M. B., Grab, S., & Archer, E. R. M. (2018). Heat stress and chickens: climate risk effects on rural poultry farming in low-income countries. *Climate and Development*, *11*(1), 83–90. https://doi.org/10.1080/17565529.2018.1442792

21. Okem, & B. Rama (Eds.), *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK, and New York, NY, USA.
22. Olwoch, J., van Jaaresveld, A.S., Schotz, C.H & Horak, I.G (2007) Climate change and the genus Rhipicephalus (Acari:Ixodidae) in Africa. Onderstepoort Journal of Veterinary Research, 74, 45-72
23. Rahimi, J., Mutua, J. Y., Notenbaert, A. M. O., Dieng, D., & Butterbach-Bahl, K. (2020). Will dairy cattle production in West Africa be challenged by heat stress in the future? *Climatic Change*, *161*(4), 665–685. https://doi.org/10.1007/s10584-020-02733-2
24. Rich, K.M., Wanyoike, F., 2010. An assessment of the regional and nationalsocio-economic impacts of the 2007 Rift Valley fever outbreak in Kenya. Am. J.Trop. Med. Hyg. 83, 52–57, http://dx.doi.org/10.4269/ajtmh.2010.09-0291.
25. Thornton, P., Nelson, G., Mayberry, D., & Herrero, M. (2022). Impacts of heat stress on global cattle production during the 21st century: a modelling study. *The Lancet Planetary Health*, *6*(3), e192–e201. https://doi.org/https://doi.org/10.1016/S2542-5196(22)00002-X
26. Tweneboah, A., Rosenau, J., Addo, K. A., Addison, T. K., Ibrahim, M. A. M., Weber, J. S., Kelm, S., & Badu, K. (2024). The Transmission of Animal African Trypanosomiasis in Two Districts in the Forest Zone of Ghana. *The American Journal of Tropical Medicine and Hygiene*, *110*(6), 1127–1136. https://doi.org/10.4269/ajtmh.23-0329
27. United Nations (2024) Zambia: Drought Response Appeal May 2024 - December 2024 Zambia: Drought Response Appeal May 2024 - December 2024 (May 2024) | United Nations in Zambia
28. United Nations Development Programme (UNDP). (2022). Environment and Climate Change in Ghana: Policy Brief. UNDP.
29. Vaillancourt, J.-P., & Ogden, N. (2016). Emergence of infectious diseases associated with climate change: Rural and urban challenges. *Environnement, Risques et Sante*, *15*, 312–316. https://doi.org/10.1684/ers.2016.0889
30. World Bank Group. (2022). Ghana Country Climate and Development Report. World Bank. https://openknowledge.worldbank.org/server/api/core/bitstreams/9c9764c1-076d-5dcc-8339-6e4f0de2b610/content
31. World organisation for Animal Health (2019)- Strengthening Veterinary Services through the OIE PVS Pathway. The case for engagement and investment 20190513-business-case-v10-ld.pdf