THE ECONOMIC CASE FOR A JUST LIVESTOCK TRANSITION:

Healthy, Sustainable, Equitable and Humane Livestock Systems.

Shifting to Healthy, Humane and Equitable Livestock Systems (SHHELS) Coalition Policy Briefing

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The Shifting to Healthy, Humane and Equitable Livestock (SHHELs) Coalition

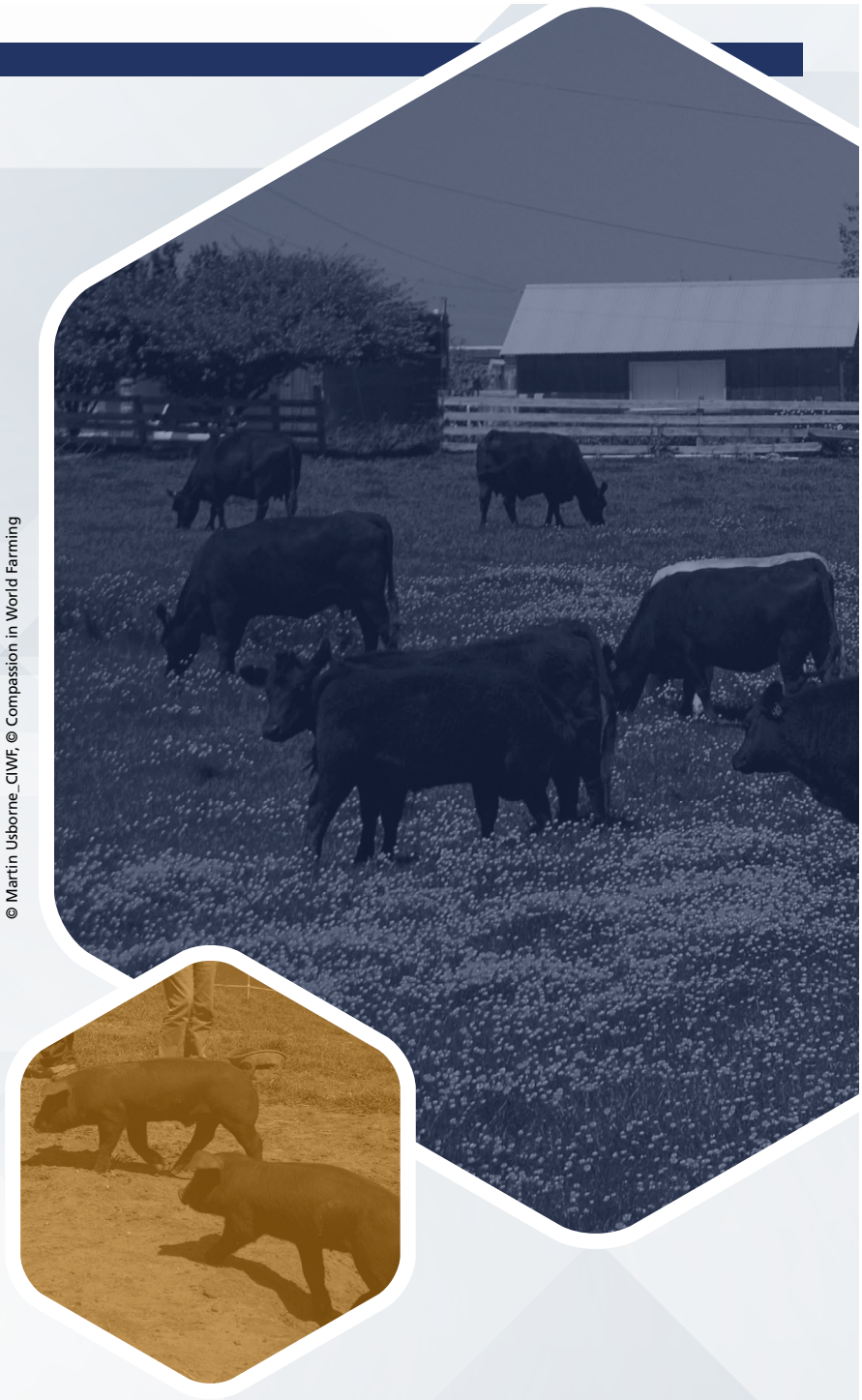
is a global coalition which was established at the UN Food System Summit in 2021. It consists of a wide range of stakeholders which have come together to transform the livestock system so that they are sustainable, healthy, equitable and humane.

Members of the SHHELS coalition are:

50by40, Aquatic Life Institute, Brighter Green, Compassion in World Farming International, EAT, Farmers' India Forum, Faith and Food Coalition, Global Forest Coalition, Good Food China, Health Care Without Harm, Jeremy Coller Foundation, Slycan Trust, World Federation for Animals, Youngo

EXECUTIVE SUMMARY

This briefing paper outlines the economic benefits of a just livestock transition. 75% of the world's livestock are now reared using intensive industrial livestock systems, resulting in a significant and disproportionate rise in global greenhouse gas emissions (GHGs), biodiversity loss and human and animal health impacts, including the spread of antimicrobial resistance (AMR).



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On the face of it, industrially-produced animal sourced foods (ASFs) are cheap. However, this is the result of distorting economics which takes account of some direct costs (housing, labour costs, feed prices etc.) but which ignores other indirect costs, including the detrimental impact these systems have on biodiversity, human and animal health. In effect, governments, taxpayers, and citizens are subsidizing these industrial systems, which monetarily benefit a few, at the expense and demise of many, smaller livestock farmers practising agroecological, regenerative and pastoral systems.

This paper outlines the unseen economic costs of industrial livestock systems and reveals the long-term financial benefits of a just transition to a livestock system using humane agroecological and regenerative farming practices, global average reductions in livestock consumption, and a shift to healthy, sustainable, and culturally appropriate diets.

ACRONYMS AND ABBREVIATIONS

AMR	Antimicrobial Resistance
ASFs	Animal Sourced Foods
CAFOs	Concentrated Animal Feed Operations
EU	European Union
GHGs	Greenhouse Gas Emissions
LDFs	Livestock Derived Foods
LMICs	Low- and Middle-Income Countries
NCDs	Non-Communicable Diseases
NDCs	Nationally Determined Contributions
SDGs	Sustainable Development Goals
UN	United Nations
USD	US Dollars

TECHNICAL TERMS

Agroecology – Is a holistic and integrated approach that simultaneously applies ecological and social concepts and principles to the design and management of sustainable agriculture and food systems. It seeks to optimize the interactions between plants, animals, humans, and the environment while also addressing the need for socially equitable food systems within which people can exercise choice over what they eat, and how and where it is produced.

Animal welfare – Animal welfare describes the state of the animal in terms of their physical condition (health, growth, and functioning), their mental state (feelings of pleasure, happiness, pain, or frustration) and their ability to live naturally (to perform their full range of behaviours).

Antimicrobial resistance (AMR) – AMR occurs when bacteria, viruses, fungi, and parasites change over time and no longer respond to medicines, making infections harder to treat and increasing the risk of disease spread, severe illness and death. Antibiotic overuse, particularly within industrial livestock systems, is a key driver of AMR[1].

Concentrated animal feeding operations (CAFOs) – The US terminology for 'Factory Farms'. Defined as a form of intensive animal agriculture, where animals are contained or confined for more than 45 days in 12 months, in an area that does not produce vegetation.

Factory farming – The business model is characterized by concentrated and highly corporatized management, production efficiency and process control, monocultures, high production volumes, and a strong focus on cost minimization.

Just transition – A Just Transition means greening the economy in a way that is as fair and as inclusive as possible to everyone concerned, creating decent work opportunities, and leaving no one behind[2]. It involves supporting those who stand to lose economically from any transition in livestock farming – be they countries, regions, farmers, farm workers, communities, workers, or citizens – to ensure decent livelihoods, access to nutrition, and fair and equitable terms of trade.

Industrial livestock systems – These systems are complex, globally interconnected, value chains, supporting high levels of production of animal-derived foods as cheaply as possible. Activities include crops fed to livestock/fish, factory farming, fish farming, abattoirs, meat processing and packaging, transportation of livestock, marketing and retail, meat consumption, and the degree to which livestock derived foods are wasted.

Regenerative agriculture – Describes farming and grazing practices that, among other benefits, reverse climate change by rebuilding soil organic matter and restoring degraded soil biodiversity, thus resulting in both carbon drawdown and improvement to the water cycle[3].

INTRODUCTION

We are at a critical juncture with a 'decade of action'[4] needed to address many of the health, sustainability, and social equity challenges we confront in the 21st century, including global commitments to deliver on the 17 UN Sustainable Development Goals (SDGs)[5], the Paris Agreement on Climate Change[6] and the need to eliminate malnutrition in all its forms[7]. The livestock sector plays a significant role (both positive and negative) in addressing these commitments.

Figure 1- Livestock represent key opportunities for achieving the 17 UN SDGs but also several present challenges and risks. *Source: FAO (2018): Livestock and Agroecology*

The UN estimates that livestock play a crucial economic role for around 60% of rural households in developing countries, including smallholder farmers and pastoralists. Overall, it contributes to the livelihoods of 1.7 billion poor people[8], through the provision of nutrients, family income, transport, fuel, and fertilizer inputs (manure) for crop production on mixed farms. As a result, traditional, high animal welfare livestock systems can play a major role in reducing poverty, improving resilience, as well as combating food insecurity and malnutrition[9]. Of the 770 million people surviving on less than USD 1.90 per day, about half depend directly on livestock for their livelihoods.

However, the rapid development of the livestock sector, in response to growing demand, has given rise to several risks which are increasing in magnitude and global impact. Most of this development and expansion in production has taken place in large-scale and intensive industrial livestock systems (factory farms and concentrated animal feeding operations (CAFOs))[10], with relatively little contribution from small-scale agroecological producers or pastoralists[11]. With nearly 75% of the world's livestock now reared using industrial livestock systems, where animals live in cramped conditions and rarely see daylight, these systems make a significant and disproportionate contribution to global heating (the livestock sector is estimated to be responsible for some 13% of global GHGs[12]) land use change (occupying 26% of total ice-free land surface area of our planet[13]), biodiversity loss (agricultural expansion drives near 90% of global deforestation[14]) and water quality (30% of the planet's freshwater resource is used by the animal agriculture sector[15]). They are also linked with a range of negative health and economic risks, impacting on the poorest in society, including non-communicable diseases (cardiovascular disease, type 2 diabetes etc.), antimicrobial resistance (AMR), and the spread of zoonotic pathogens (increasing pandemic risk).

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Worldwide, meat production has more than doubled in the past 20 years, reaching 339 million tonnes in 2021

Worldwide, meat production has more than doubled in the past 20 years, reaching 339 million tonnes in 2021[16]. Demand for animal-sourced foods (ASFs) in low- and middle-income countries (LMICs) more than quadrupled from 1970 to 2012[17]. This demand is expected to increase significantly over the next 30 years, with a growing global population forecast to reach 9.5 billion by 2050, and a more affluent, urbanized, middle class population across parts of Asia, Africa, and South America. Though growth has slowed, demand for ASFs, driven by the growth in intensive industrial livestock systems, is still predicted to increase by 35% from 2012 levels by 2030, and by 50% by 2050[18]. Within 10 years, the livestock sector could account for almost half (49%) of the world's emissions budget for 1.5°C by 2030 and 80% by 2050[19].

Reducing the amount of meat within average global diets, particularly in high-income countries but increasingly in middle-income countries, whilst increasing the production of plants for consumption in a way that improves the livelihoods and incomes of farmers and workers, present major opportunities to deliver across multiple SDGs. Shifting diets generates significant co-benefits in terms of human health and nutrition, particularly for the poorest and most vulnerable groups[20 21].

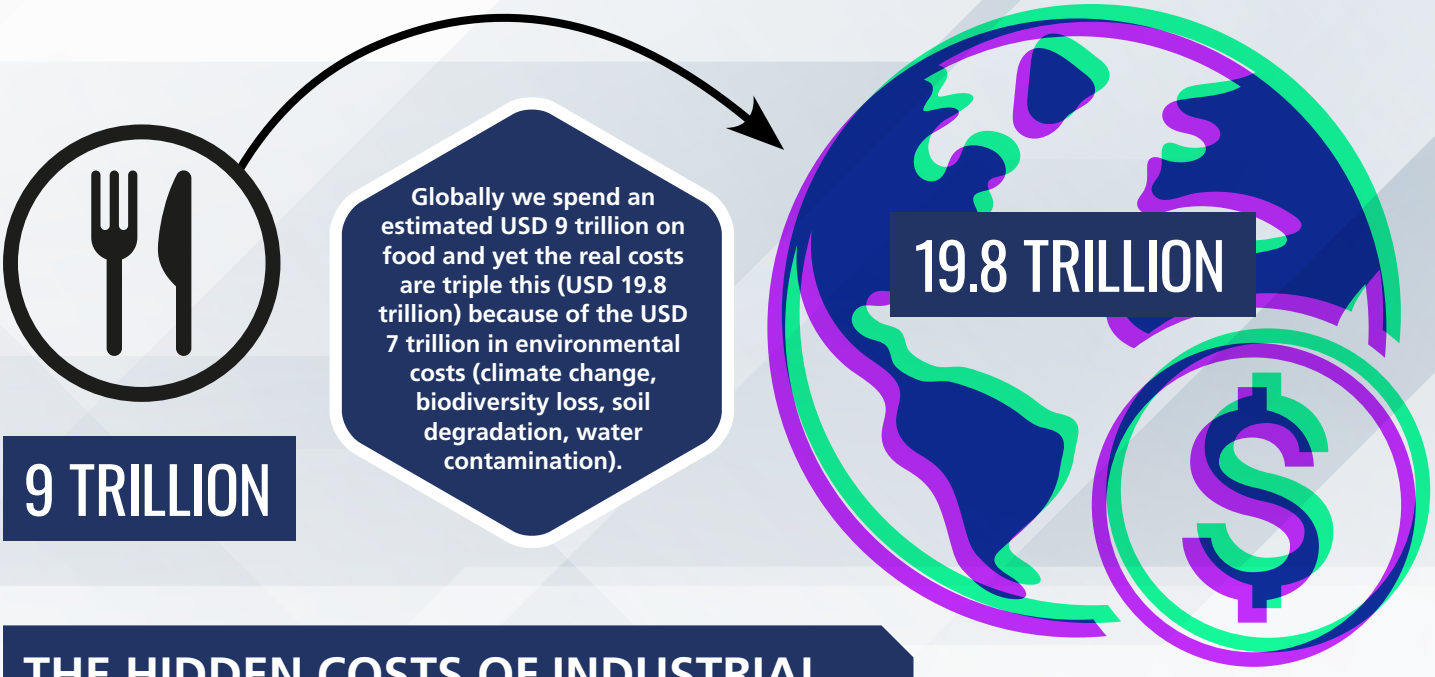
1 **A shift from industrial livestock systems (factory farming/CAFOs) to nature-friendly, pastoral, regenerative and agroecological livestock agriculture/systems:** High welfare agroecological, regenerative, pastoral, and organic livestock farming systems focus on farming practices and principles that reduce global GHGs, improve farmer livelihoods, and reduce the need for antibiotics[22]. A shift away from high levels of meat consumption and production (of all land animals – monogastric and ruminants) offers enormous potential to alleviate the suffering and improve animal welfare conditions of over 80 billion farmed animals.

2 **A shift to healthy, sustainable, affordable, and culturally appropriate diets:** Shifting to healthy, sustainable, and culturally appropriate diets is one of the most significant interventions that would help to reduce GHGs (livestock and the health impacts such as antimicrobial resistance) of our food systems[25]. This includes reductions in average global meat and dairy consumption with a focus on rebalancing meat consumption across countries.

THIS PAPER EXPLORES THE ECONOMIC/FINANCIAL COSTS AND BENEFITS OF SHIFTING TOWARDS A HEALTHY, SUSTAINABLE, AND EQUITABLE LIVESTOCK SYSTEMS, BASED ON FOUR KEY OPPORTUNITIES:

3 **A 'One Health' approach:** The need to support a 'One Health' approach which addresses the underlying drivers of human, animal, and planetary health[23], and which improves resilience and food security outcomes. This approach would also reduce the risk of zoonoses, as highlighted recently by a group of NGOs in reference to the WHO's development of a Pandemic Treaty[24].

4 **Ensuring a just transition approach:** Any transition away from industrial livestock production and global reductions in meat consumption must support farmers, farm workers, abattoir workers, processors, and disadvantaged citizens in a way that does not leave them at an economic disadvantage and ensures that relevant funding for reskilling and new development opportunities or compensation plans are made available.



THE HIDDEN COSTS OF INDUSTRIAL LIVESTOCK SYSTEMS

The USD 11 trillion in human health costs and the USD 1 trillion in economic costs[26], much of which is associated with unsustainable and unhealthy industrial livestock systems.[27]

On the face of it, industrially produced ASFs are seemingly cheap when you look at the supermarket shelf price. However, these prices are the result of distorting economics which takes account of some direct costs (housing, labour costs, poor working conditions, feed prices etc.) but ignores other indirect costs including the detrimental impact of industrial livestock systems on the environment and on human and animal health. According to some estimates, industrialized farming systems costs the environment the equivalent of about USD 3 trillion every year[28]. In the meantime, externalized costs, such as the funds required to purify contaminated drinking water, the costs associated with climate heating or the health impacts of antimicrobial resistance (AMR), are also unaccounted for by the industry, meaning that communities, citizens, and taxpayers are picking up the bill without even realizing it.

According to the UN Food and Agriculture Organization (FAO), 87% of the USD 840 billion in global annual agricultural subsidies[29], with ASFs such as beef receiving the biggest share of subsidies, is harmful to planetary, human, and animal health and wellbeing. In the USA for example, it is factory farms not farmers who have been benefiting from US government policies which have subsidized the production of soya and maize which go into animal feeds. Between 1997 and 2005, US factory farms saved an estimated USD 3.9 billion per year because they were able to purchase corn and soybeans at prices 5-15% below average operating costs. Industrial livestock companies have collectively saved almost USD 4 billion per year since 1997[30].

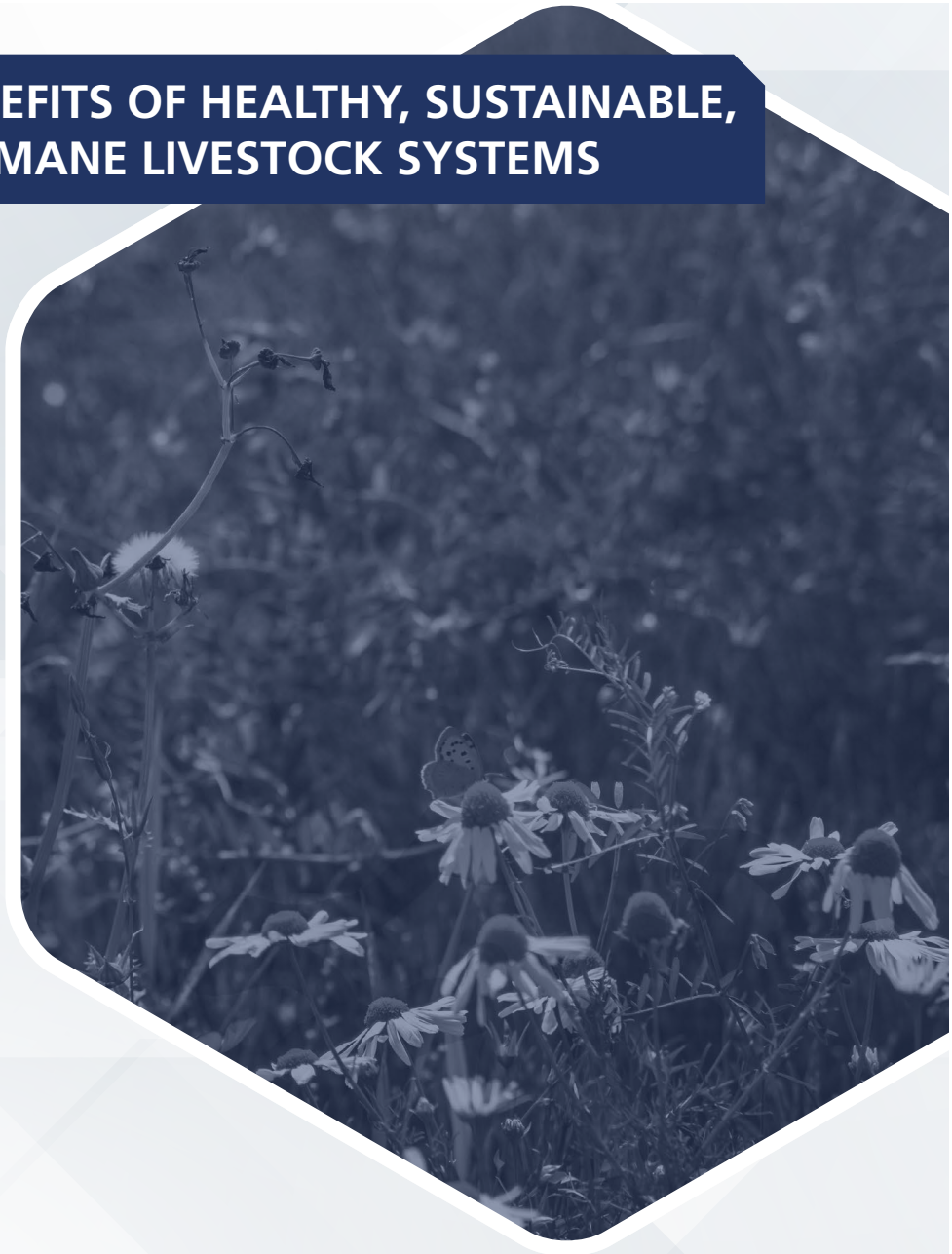
Within the EU, the Common Agricultural Policy (CAP) pays €60 billion a year in subsidies but the land-based payment systems tend to benefit the largest most industrial farming systems – at least €24 billion a year goes to support incomes in the richest farming regions of the EU with the fewest farm jobs[31]. Research in Germany found that the top 1% of the largest recipients in Germany received almost a quarter of all EU agricultural funds, while the smallest farms, which make up 50% of farms, received a combined 8% of the subsidies[32].

In effect, taxpayers have been subsidizing factory farms and unwittingly supporting the demise of many traditional smaller family farmers who once reared livestock using more humane, sustainable, and extensive grazing systems, but who have now found it more cost effective to grow corn and soya for the animal feed industry, which also has huge implications for future food security, an issue which is high on the political agenda at the moment given the Russian invasion of Ukraine.

THE ECONOMIC BENEFITS OF HEALTHY, SUSTAINABLE, EQUITABLE AND HUMANE LIVESTOCK SYSTEMS

Cost-benefits of a shift to agroecological, regenerative and pastoral livestock systems

A shift to high welfare agroecological systems, including regenerative and pastoral livestock agriculture, is required to reduce the risk, and hidden economic costs associated with industrial livestock systems. These livestock systems can be a powerful lever to improve animal and human health (reduce the use of antibiotics), reduce the need for external feed and fertilizer inputs, reduce GHGs and enhance agricultural biodiversity for greater resilience. Furthermore, agroecological systems improve livelihoods by reducing food insecurity, reducing poverty, and improving social inclusion and increased farmer incomes[33].



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Whilst there is still a paucity of published data on the economic performances of agroecological, regenerative and pastoral systems although some organisations like Regen10 are beginning to take a more action-oriented approach to obtain this[34], the data that does exist highlights agroecology's long term positive contribution to improving financial capital[35]. Agroecological systems can realise better economic returns, supporting regional economies and improving resilience than industrial agriculture[36].

The importance and potential of agroecology has been underscored by the food security crisis caused by the war in Ukraine and Covid-19, and the need for sustainable farming approaches that reduce the agricultural sector's reliance on feed and fertilizer inputs which are the bedrock of intensive, input hungry, industrial livestock systems. A transition towards agroecology enhances nutrition, maximizes production over time, and improves economic stability by diversifying income and showcasing local markets. It promotes indigenous and local knowledge and encourages the participation of local farmers in their food systems thereby boosting food sovereignty.

The redirection of subsidies from industrialized livestock systems to smallholder farmers who promote an agroecological and regenerative approach to farming will bring significant health co-benefits. New incentives to support and reward farmers to transition to higher animal welfare agroecological, diversified practices, and support alternative land use practices and ecosystems integrity, should be a priority for governments and multilateral institutions (e.g., FAO).

COST-BENEFITS OF A SHIFT TO SUSTAINABLE, HEALTHY DIETS

Sustainable healthy diets are dietary patterns that promote all dimensions of individuals' health and wellbeing; they have low environmental pressure and impact; improve the welfare of farmed animals; are accessible, affordable, safe, and equitable; and are culturally acceptable[37].

Dietary changes towards nutritionally balanced diets that are low in animal products and high in nutritionally important plant-based foods – such as fruits, vegetables, legumes, nuts, and whole grains – have been proposed as an important measure to reduce the food system's growing environmental pressures (including GHGs), while improving nutritional status and dietary health, particularly for the poorest and most vulnerable groups[38 39 40]. Globally, premature mortality could be reduced for up to 11 million people by doubling the consumption of nuts, fruits, vegetables, and legumes, and halving red meat and sugars within diets[41].

According to the Food and Land Use Coalition, transforming food systems, dietary shifts, could help save USD 5.7 trillion a year in damage to people and the planet by 2030; meanwhile generating USD 4.5 trillion annually in new economic opportunities[42]. Unless our diets change, global diet-related health costs linked to non-communicable diseases (coronary heart disease, stroke, cancer, type 2 diabetes) will exceed USD 1,300 billion annually by 2030[43]. Estimates of the health care cost savings of shifting diets away from overeating red meat and eating more vegetables range from 0.4% to 13% of global GDP in 2050. In many countries, dietary change interventions that incentivize adoption of healthy and sustainable diets can help citizens in those countries reduce costs while, at the same time, contribute to fulfilling national climate change commitments and reduce public health spending[44].

The issue of food security and resilience, the ability of our food system to prepare for, withstand, and recover from a crisis or disruption[45], has come to the fore in recent months because of the war in Ukraine. This reinforces the need to ensure that governments around the world focus on opportunities to promote shorter value chains with greater emphasis on increasing the production of a diversity of plant-based crops, such as fruits, vegetables, nuts, legumes etc., ensuring great self-sufficiency in the production of these crops[46]. Interventions to encourage healthier and more sustainable diets through reduced consumption of industrially produced meats, which often depends on high volumes of grain for feed, can free up land and negate the impacts of the ongoing war in Ukraine[47]. For example, plant-based proteins provide a unique opportunity to improve the resilience of food systems, for example by alleviating pressure on global grain supplies which would otherwise be fed to animals and producing legumes, reducing over-reliance on fertilizers[48]. To that end, these sustainable farming practices are increasingly seen as an essential approach to meeting the Global Goal on Adaptation[49].

COST-BENEFITS OF ANTIMICROBIAL RESISTANCE AND A ONE HEALTH APPROACH

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Antimicrobial resistance (AMR) is a major global health and development threat and has been declared one of the top 10 global public health threats facing humanity[50]. Resistance to drugs occurs when bacteria, viruses, fungi, and parasites change over time due to the exposure to antimicrobials and no longer respond to medicines, making infections harder to treat and increasing the risk of disease spread, severe illness and death. The increasing industrialization of livestock farming, poor husbandry standards within factory farms, high stocking densities and low associated levels of animal health and welfare, result in the global increase in farm antibiotic use. It has been estimated that 73% of all antibiotics used globally are used within the livestock sector[51], which will continue to rise as the demand for LDFs increases, especially in LMICs.

There are an estimated 1.27 million deaths directly from AMR and an additional 4.95 million deaths each year due to drug-resistant diseases[52]. If no action is taken, drug resistant infections could cause 10 million deaths a year by 2050[53]. Furthermore, AMR generates a burden on the health care system through secondary effects. These effects happen when the procedures that utilize antibiotics, which are essential to decrease the risk of any infection after surgery, cannot be successfully carried out due to the prevalence of AMR[54]. AMR may make performing organ transplants, chemotherapy, and other routine procedures too risky as they expose patients to different infections, against which antibiotics may no longer be effective.[55]

By 2030, shocks due to AMR could cost the world up to USD 3.4 trillion a year and force an additional 24 million people into extreme poverty[56]. It is estimated that by 2050 AMR infections will be the leading cause of death globally, with a total economic cost of USD 100 trillion, and the overwhelming burden placed on low and middle-income countries[57]. Leaving AMR unchecked is predicted to cost between 1-5% of countries' GDP[58] and according to the World Bank, cut global GDP by up to 3.8% in 2050, pushing a further 30 million people into poverty[59]. Furthermore, the World Bank warns that AMR will induce a possible 11% loss to livestock production in low-income countries by 2050[60], resulting in devastating economic and livelihood impacts particularly for those smaller traditional livestock farmers.

To address AMR and a diverse range of other human, animal, and planetary health impacts (e.g., zoonotic diseases, climate change and land-use change) there is a need for governments to strengthen interdisciplinary collaboration and action through a One Health approach. *This is defined as 'an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems. It recognizes that the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and interdependent.'*[61]

Figure 2- Government that takes a One Health approach would enable policy, investment, and research to address multiple health impacts[66]

◀ It has been estimated that one dollar invested in One Health approaches can generate five dollars' worth of benefits at the country level through increased GDP and the individual level[62]. For example, the cost of treating and controlling bird flu (avian influenza) in people is vastly outweighed by the cost of vaccinating poultry against the disease. Savings can be used to build resilience to absorb health shocks. Strengthening human, environment and animal health capacity by the One Health approach could result in 10%–30% cost saving in surveillance and communication costs[63]. Leading the fight against AMR is the European Union (EU), which has recognized the economic risks it presents (in Europe it is estimated that AMR costs 1.5 billion Euros per year in healthcare costs and productivity losses[64]). In 2022, the EU banned the prophylactic use of antimicrobials, and only permits metaphylactic use when the risk of infection is high and there are no alternative options. This legislation also requires producers exporting meat to the EU to do the same[65].

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A JUST TRANSITION APPROACH

A just transition is a systemic, whole economy approach to sustainability

Overall, recognizing the interlinked human, animal and planetary health crises, there is a need to move away from a reliance on industrial livestock systems towards more sustainable livestock practices which support agroecological production, regenerative agriculture and pastoral livestock as well as diversification into alternative plant-based proteins such as nuts, legumes, pulses and plant-based meat alternatives.

The agricultural sector is a major global employer: more than two-thirds of the population in low-income countries work in agriculture, and around 5% of the population in high-income countries[67]. Many workers in the agricultural sector, including farmers, meat processors and butchers, rely on livestock systems for their financial security. A just transition is a systemic, whole economy approach to sustainability, where the focus is placed on maximizing the social benefits of the transition whilst attempting to mitigate social risks and empower those affected by change[68]. A just transition approach would involve enhancing equity in livestock value chain relationships and ultimately improve the negotiating power of the smaller most vulnerable producers[69]. The Coalition of Finance Ministers for Climate Action have identified that revenues generated from the repurposing of agricultural subsidies can be used to ensure available funding for a just transition, along with increased public investment in education, poverty reduction and climate resilience[70].A just transition approach can also help ensure that both costs and benefits are evenly distributed and protect the most vulnerable stakeholders. By doing so, it can also help increase public support for the transition. A recent assessment by the International Labour Organization and Inter-American Development Bank suggests that shifting towards more plant-rich diets will incur a significant job gain by 2030[71].

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RECOMMENDATIONS

This briefing paper has highlighted the economic costs, risks, and opportunities of global livestock systems. Governments (at international, regional, national, and local levels) have an important role in facilitating a shift away from those most damaging livestock systems to those that support a just transition to healthy, sustainable, equitable and humane livestock systems that benefit human, animal and ecosystem health. Governments should:

1 **Ensure that country food systems transformation plans and National Climate Actions Plans (known as Nationally Determined Contributions (NDCs)) acknowledge the role of livestock in contributing to climate change.** They should focus on country specific policies and targets that support a livestock transition based on humane agroecological/ regenerative farming/pastoral practices, global per capita reductions in livestock consumption and the provision of healthy, sustainable, and affordable diets for all.

2 **Ensure fiscal policies, including taxation and social policy and programs, research, and infrastructure investments, align to reflect the true health, sustainability, and animal welfare costs of livestock production systems**. Applying True Cost Accounting (TCA) approaches will provide transparent, consistent guidance for governments, investors, farmers, corporations, and other stakeholders.

3 **Increase financial support and reorient agricultural subsidies with a focus on promoting humane agroecological, regenerative, pastoral, and indigenous livestock alternatives to industrially produced ASFs.** Governments should remove subsidies that support industrial livestock systems and redirect these to support regenerative, agroecological and pastoralist systems that deliver better human, animal, and planetary health outcomes.

4 **Promote healthy, sustainable, culturally appropriate diets.** Governments should reflect human, animal, and planetary health within their food-based sustainable dietary guidelines and public procurement policies with specific recommendations focusing on the adequate consumption of fresh fruits, vegetables, wholegrains, legumes, nuts, etc. Greater reductions in the production and consumption of LDFs should occur in countries with high per capita rates of current consumption. Increased consumption of LDFs may be needed to support nutrition security in some countries and contexts.

5 **Develop national One Health action plans and national AMR plans.** Governments should develop One Health National Action plans, including AMR National Action Plans, with sufficient budgets to support these, that include the prudent and responsible use of antimicrobials. Within these action plans, antimicrobials used in group disease prevention or to promote growth should be phased out with a focus placed on improving animal welfare standards and protecting and restoring ecosystems, thereby addressing the underlying causes of animal disease and suffering and human health impacts.

6 **Establish national plans to support a just transition towards high welfare agroecological, regenerative and pastoral systems.** Countries should establish an inclusive Just Transition policy process which engages trade unions, farmers associations, pastoralists, indigenous groups, abattoir workers, meat processing and packaging workers, retailers, farmers' associations, citizens, and civil society organisations to determine what kind of transition is required. The process should include clear transition plans that include socio-economic fiscal measures such as compensation funds.

CONCLUSIONS

A just livestock transition is an essential part of the transition to a net zero economy which restores nature and improves the health and wellbeing of people, planet, and animals.

From all these perspectives, the evidence gathered by this briefing leads to a simple but overwhelming conclusion: the benefits of strong and early action by governments who support a just livestock transition, far outweigh the economic costs of not acting.

There are clear economic and social benefits of governments implementing just transition plans that support a shift away from industrial livestock systems towards high welfare agroecological, regenerative and pastoral systems that support healthy, sustainable, and culturally appropriate diets.

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FURTHER INFORMATION

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