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# The potential contribution of livestock to food and nutrition security: the application of the One Health approach in livestock policy and practice

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**Summary**
Animal products are critical to the nutrition, food security, livelihoods and resilience of hundreds of millions of people throughout the world. Livestock accounts for 40% of worldwide income from agriculture. Demand for animal products is set to continue increasing in the next three decades, as is their market price. If not carefully managed, a worldwide increase in the production of animal-derived products would increase pressure on natural resources (particularly water and land), significantly raising levels of dangerous greenhouse gas emissions and increasing the risk of people contracting zoonotic diseases.
These realities are informing governments as they encourage the managed intensification of livestock production. They seek to do this in ways that take account of poorer people's contributions to the growth of rural economies. They look for ways to link together work on agricultural productivity, efficient food systems; infrastructure development; access to energy, water and affordable health care; and the sustenance of environmental services (including the mitigation of any further stimuli for changes in the global climate).
Managed intensification of livestock production would also require long-term application of a One Health approach with its focus on mitigating health risks at the interfaces between animals and humans in different ecosystems. It will stimulate the joint working of multiple interests in pursuit of a common goal – ending hunger and malnutrition.
The authors would like to see the One Health approach being incorporated within all nations' animal, environmental and public health policies and into the educational agendas of medical and veterinary undergraduate students. It must also be incorporated into preparedness, contingency planning, desk-top exercises and on-site simulations to get ready for the next mega disaster – no matter how improbable it might seem.

**Keywords**
Food Security – Livestock – Nutrition – One Health – Zoonotic disease.

## Background

### Livestock products are important contributors to human nutrition

Livestock contribute one-third of the protein that people consume: poor people depend on animal-source food (especially dairy products) to ensure that their diets deliver the nutrients necessary for cognitive and physical development (1).

### Livestock are centrally important in smallholder farming systems

Half the world's people live in rural areas in developing countries. More than half of the world's people depend on the food produced by smallholders. Livestock are an integral

part of smallholder farming systems. In many developing countries, especially in sub-Saharan Africa, livestock contribute almost 40% of agricultural gross domestic product (2), and in some countries the contribution surpasses 85% (FAOSTAT). The rearing of livestock plays an important role in enabling smallholders to have resilient livelihoods and to avoid both food insecurity and poverty, as livestock can contribute up to 33% of household income. Overall, 75% of rural people and 25% of urban people depend on livestock for their livelihoods (3).

## Consumption of animal-source foods increases with wealth

As people become wealthier they tend to consume increasing amounts of animal-source foods. In the past ten years, the African continent has been the fastest-growing economy in the world, as shown in Figure 1. The rate of per capita income growth in Africa is comparable or greater to that of the Asian Tiger and Latin Puma markets: they have been nicknamed the 'lion markets' (5).

Most of the increase in world population is within developing countries. In recent decades, consumption of animal meat in developing countries has risen by 5% per year, and milk consumption by nearly 4% per year. These figures have been largely driven by increased consumption in the people's Republic of China and Brazil (6). In coming decades there will be a similar increase in meat consumption in other developing regions that are experiencing economic growth, including within Africa.

Production of meat from animals worldwide is projected to increase from 229 million tonnes in 1999/2001 to 465 million tonnes in 2050 (7). The expected rate of increase in developing countries is dramatic (see Fig. 2). Milk output is also set to climb from 580 to 1,043 million tonnes in 2050 (2).

In recent years, poultry have been the biggest contributor to the growth of the livestock sector: poultry production worldwide has grown at more than 5% per annum since the 1960s. Poultry's contribution to world meat production doubled from 15% in 1960 to 30% in 2000. The contribution of pigs to livestock sector growth and overall meat consumption has also increased, but consumption of meat from ruminants has actually declined (6).

## The impact of livestock on the environment

Rapid growth in livestock production can have significant environmental impacts: Steinfeld *et al.* warn that 'the environmental costs per unit of livestock production must be cut by one half, just to avoid the level of environmental damage worsening beyond its present level' (2). One reason for this environmental damage is that livestock produce between 12% and 18% of anthropogenic greenhouse gas emissions. They generate 65% of human-related nitrous oxide, which has 296 times the global warming potential of carbon dioxide. Most of this production comes from manure. Livestock account for 37% of all human-induced methane production – and the warming effect of methane is 23 times greater than that of carbon dioxide.

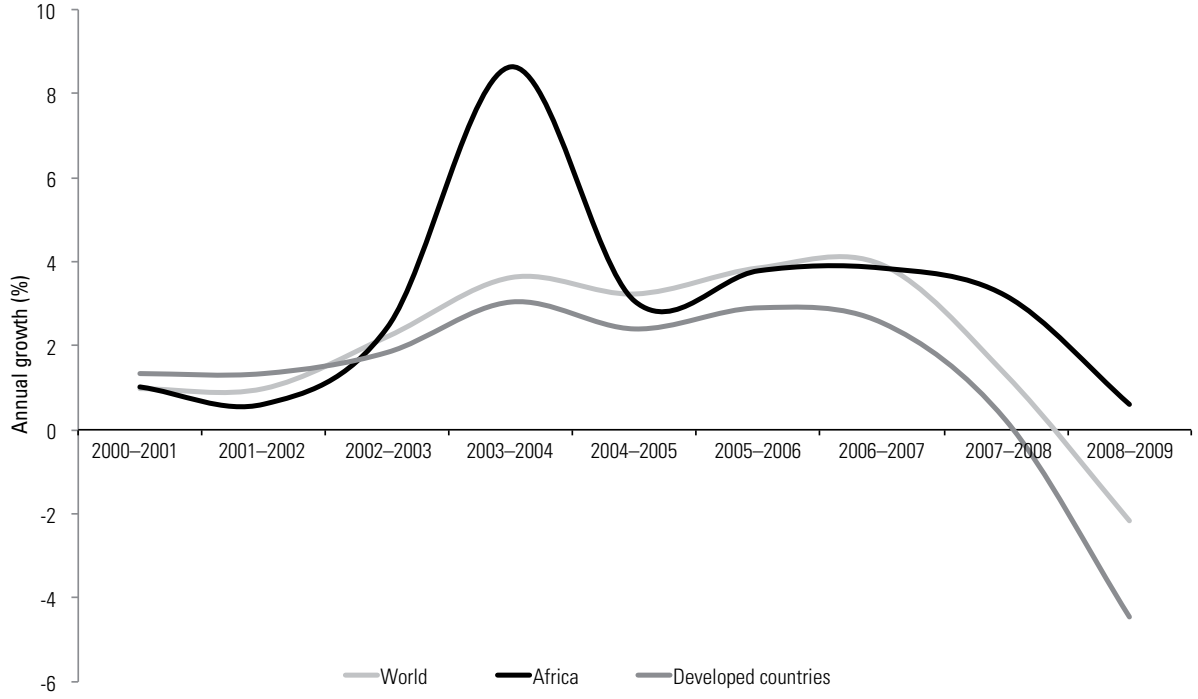



**Fig. 1**
**Economic growth: per capita income growth**
*Source*: FAO, 2011 (4)

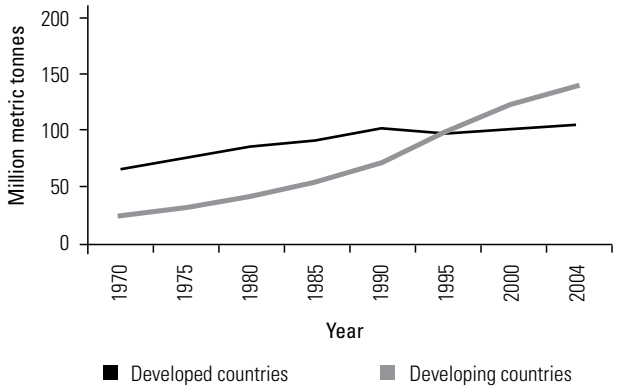



**Fig. 2**
**World meat production, 1970 to 2050**
*Source:* FAO, 2006 (2)

Livestock also have a major impact on the quality of land and the availability of water. The livestock sector has degraded 20% of the world's rangelands over the last decade; it uses 15% of the water used for agriculture, contributes to groundwater pollution and poses a threat to biodiversity in 306 of the world's 825 ecosystems (2).

### Risks of free-range production

One risk associated with the proliferation of small-scale livestock operations is that they tend to use 'free-range' production systems in which it is difficult to protect livestock from disease agents. Production tends to make low use of inputs and smallholders often have limited access to comprehensive veterinary care for their herds or flocks. The classification of poultry production systems distinguishes between small-scale free-range operations (sector 4), large-scale operations with limited biosecurity (sector 3), large-scale enclosed operations with moderate biosecurity (sector 2) and large-scale enclosed bio-secure operations (sector 1) (8). Farmers find it difficult to establish effective biosecurity measures in sector 3 and 4 operations. So while small-scale producers can expect to enjoy nutritional and economic benefits from expanding their production of livestock, they (and their communities) are likely to be more vulnerable to animal and zoonotic diseases because of the comparatively low biosecurity in these sectors. Poor and malnourished populations are disproportionally at risk of illness when exposed to such disease threats.

## The relevance of sound policies for livestock development

### Policies that focus on the interests of smallholders, especially women

Livestock play an important role in smallholder farming systems. Animal-source foods are vital for human nutrition, especially in poor communities. Meat consumption increases rapidly as people become wealthier. What are the options for ensuring that smallholder farmers and poor communities derive optimal benefit from this increase in demand? There is a need for policies that provide the incentives and regulatory frameworks that enable smallholders and their communities to manage any increase in their production of livestock in ways that enable them to increase their income while, at the same time, ensuring the biosecurity and safety of systems for production, as well for the processing and marketing of animal-source foods.

Women have a primary role in livestock rearing, especially in developing countries. Improving women's access to inputs and services has the potential to reduce the number of malnourished people in the world by 100 to 150 million (9). This is especially important in the livestock sector, where women are often the ones responsible for feeding and care, and are the guardians of livestock diversity. A new study by the Food and Agriculture Organization of the United Nations (FAO) argues that to succeed, efforts to conserve specific livestock breeds must empower women. Additionally, women are more at risk of zoonotic diseases because they are more likely to be exposed and may be particularly vulnerable (10).

### Policies that focus on the global good

Unmanaged increases in livestock production will have several adverse consequences, including the negative impact of animals on fragile environments, the contribution of livestock to global warming, the potential dangers for public health and the heightened risk of zoonotic diseases. These challenges will be accompanied by a heightened public concern about the welfare of meat-producing animals and the conditions in which they are reared. All these issues need to be taken into account as governments develop policies for expanding the livestock sector. Such policies will focus on effective governance of livestock production, as well as the processing and marketing of animal-derived products. These policies should address issues such as people's security of tenure over their assets, their access to land and water and decisions on alternative uses, and their ability to obtain necessary goods and services (including livestock extension and comprehensive veterinary care).

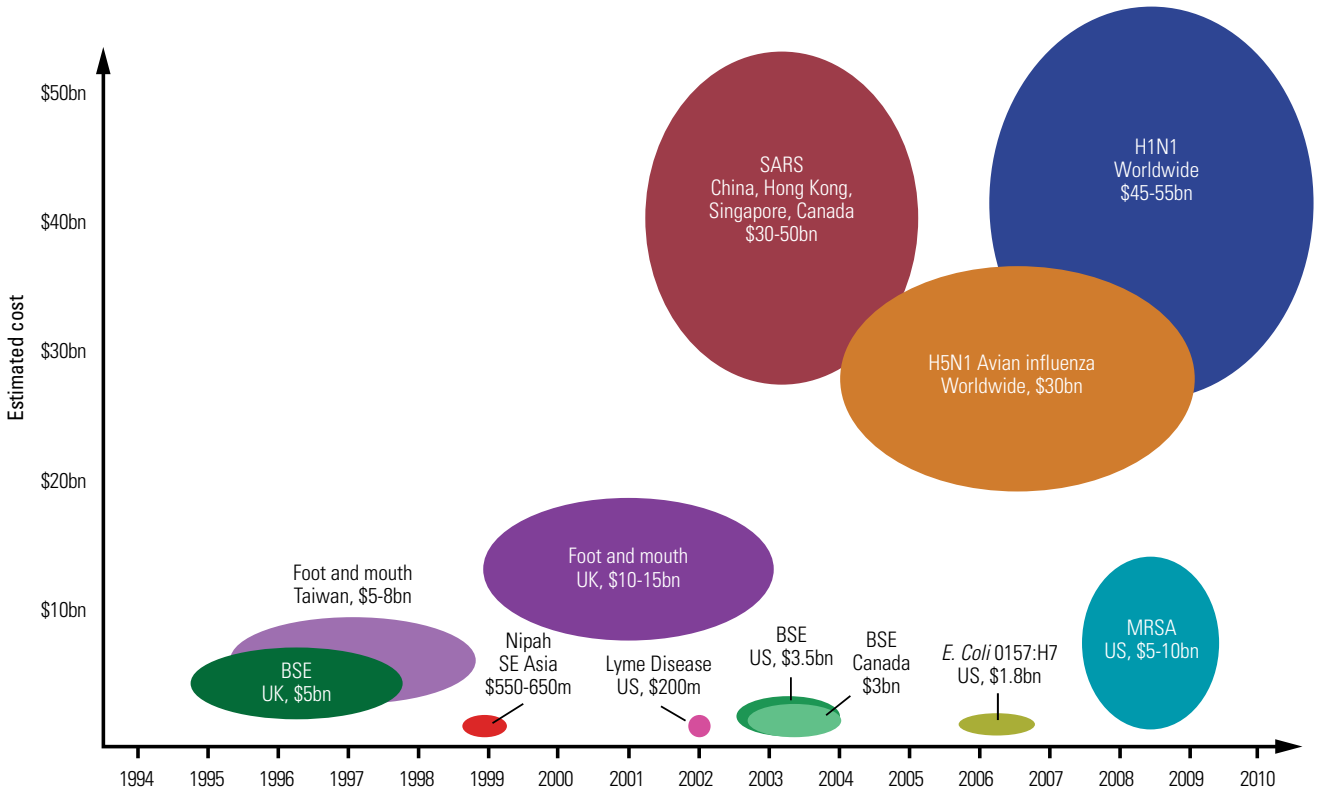
### Policies that factor in public health risks – including their economic impact

Livestock can be a source of human diseases. Zoonotic diseases result from the transmission of pathogens between species at the interfaces between wild animals, domestic animals and humans. The likelihood of emergence is influenced by livestock production and food preparation practices, as well as the societal context within which animals and their products are handled and the specific ecosystems within which interaction takes place.

The movement of people and animals, as well as of disease-causing agents (pathogens) and the insect vectors that carry them, has a substantial influence on the epidemiology of zoonotic diseases (especially if pathogens exist in wildlife), as do human behaviour and modifications to natural habitats (expansion of human populations and their encroachment on wildlife habitat). For decades the risk of disease has been a constraint to human travel and trade, and a stimulus to the development of public health measures that prevent exposure or mitigate impact. The presence of certain diseases and their vectors – whether zoonotic or not (e.g. trypanosomosis, African swine fever) – limits the potential for efficient livestock production in certain ecosystems; in fact, some countries historically identified protected areas for wildlife, partially based on the land's unsuitability for livestock production due to endemic diseases. The migration of wild animals, including birds, and the movement of animals as a result of human displacement, can also influence disease risk (11, 12).

The risk of exposure to disease is linked to the degree with which those rearing livestock are able to ensure adequate biosecurity measures. These are essential for the safeguarding of livestock health and to protect against the introduction and spread of pathogens that move from animals to humans. Diseases for which biosecurity measures should be in place include familiar zoonoses (such as bovine tuberculosis and brucellosis), newly emerging infectious diseases (such as severe acute respiratory syndrome [SARS] and novel influenza viruses), transboundary animal diseases (such as Rift Valley fever and trypanosomosis) and foodborne diseases. Zoonotic diseases represent a major challenge for the one billion poor people whose economies depend on livestock. They are estimated to cause one billion episodes of illness and millions of deaths in humans each year (13).

A zoonotic disease outbreak in one location – especially if associated with a new pathogen – can quickly have a major impact on worldwide trade in products from specific animals, precipitate an uncertain (but potentially serious) public health threat, damage the confidence of consumers, undermine the profitability of livestock production systems, and have a negative impact on efforts to conserve particular species if they are thought to pose a threat to human health (14). Globally, six major epidemics of zoonotic disease were reported between 1997 and 2009: Nipah virus (Malaysia), West Nile fever (United States), SARS (numerous countries across Asia, Europe and the Americas), H5N1 highly




BSE: bovine spongiform encephalopathy
MRSA: methicillin-resistant *Staphylococcus aureus*
SARS: severe acute respiratory syndrome

**Fig. 3**
**Economic impact of selected infectious diseases**
*Source*: Bio-Era, 2008 (17)

pathogenic avian influenza (Asia, Europe, Middle East, Africa), bovine spongiform encephalopathy (United States, United Kingdom, Canada), and Rift Valley fever (Tanzania, Kenya, Somalia). They contributed to economic losses valued at around US$80 billion (excluding indirect costs). Foodborne diseases also have a major economic impact: in the United States their annual cost has been estimated at between US$77.7 billion (15) and US$152 billion (16). Figure 3 indicates the economic impact of different zoonotic diseases and demonstrates that this is sometimes out of proportion to the levels of illness and death that they cause.

## Policies that take account of wildlife health and safety

Wildlife has been an important source of infectious diseases transmissible to humans; about 60% of emerging infectious diseases that affect humans are zoonotic and about 70% of those originate in wildlife (18).

In many settings the interaction between human populations, their domestic animals and wildlife is increasingly intense, with human community expansion and development (including deforestation, reforestation and other habitat changes) leading to growing levels of overlap and contact (11). Recreational activities such as hunting, hiking and camping also bring people closer to wildlife and thus may represent risk factors for acquiring zoonoses. The consumption of wildlife (e.g. bush meat) can also bring dangers to those who prepare or eat it.

Inadequate biosecurity measures – both at the site of livestock operations and in the larger 'livestock value chain' (including collection points, transport and markets) – make livestock systems vulnerable to the introduction or spread of disease agents, including those from wildlife. They can also contribute to the spread of pathogens from livestock to wildlife, sometimes with serious consequences.

## Policies that take account of how climate change affects livestock production

In its 2009 report, *The State of Food and Agriculture: Livestock in the Balance*, FAO concluded that climate change affects livestock production in several ways (Table I):

– it will affect forage and range productivity: higher temperatures tend to reduce animal feed intake and lower feed conversion rates (20)

– it will increase the probability of extreme weather events which can lead to breakdowns in systems for production, processing and marketing (and result in severe losses for producers); these impacts will be tempered in non-grazing production systems where animals are confined (often in buildings where temperature and humidity are controlled)

– it will reduce agricultural yields, which will lead to higher prices for animal feed, specifically the grain and oilcakes which are primary feed sources in non-grazing systems

– it will increase the costs of keeping animals cool

– it will contribute to the emergence and spread of vector-borne diseases and animal pathogens at the animal–human–ecosystem interface; higher temperatures and more variable precipitation will increase the probability of unexpected diseases in locations where they had previously not occurred and may encourage the emergence of new pathogens

– it may contribute to new mechanisms for disease transmission and novel host species; all countries affected by climate change are likely to be subject to increased incidence of animal diseases, with poor communities most at risk

**Table I**
**Direct and indirect impacts of climate change on livestock production systems**
*Source*: FAO, 2009 (19)

| Type of impact | Grazing systems | Non-grazing systems |
|---|---|---|
| **Direct impacts** | – Increased frequency of extreme weather events<br>– Increased frequency and magnitude of drought and floods<br>– Productivity losses (physiological stress) due to temperature increase<br>– Change in water availability (may increase or decrease, according to region) | – Change in water availability (may increase or decrease, according to region)<br>– Increased frequency of extreme weather events (impact less acute than for extensive systems) |
| **Indirect impacts** | – Agro-ecological changes and ecosystem shifts leading to :<br>i) alterations of fodder quality and quantity<br>ii) changes in host–pathogen interactions resulting in an increased incidence of emerging diseases<br>iii) disease epidemics | – Increased resource prices, e.g. feed, water and energy<br>– Disease epidemics<br>– Increased cost of animal housing, e.g. cooling systems |

– it will require the adaptation of breeding programmes to produce climate-resistant animals and this will require increased attention to the conservation and exchange of animal genetic resources.

### Policies that take account of genetic issues

Microbial changes or adaptation, including mutation, also influence the epidemiology of zoonoses with a wildlife reservoir. These changes may make it easier for these pathogens to transmit from wildlife to humans, either directly, or indirectly through domestic animals (for example, avian and human influenza) (11). The broad use and misuse of antibiotics and other chemotherapeutic agents – leading to antimicrobial resistance – may increase the potential of such mutations not only to emerge but to endanger human health.

### Policies that contribute to a transparent investment framework

Private investments – both domestic and foreign – are increasingly becoming important drivers of productivity in agriculture. This is certainly true of the livestock sector. Investment frameworks increasingly focus on the whole value chain, linking patterns of demand to production systems, seeking to minimise risk and to take account of the challenges associated with increases in production. The value chain approach is being used to improve the scale and impact of private-sector investments, including investments made by smallholder farmers (21).

However, for smallholders to benefit fully from increased demand, policies must focus on the context within which increased production takes place in ways that contribute to sustainable food and nutritional security, increased incomes for rural households, and national economic growth. This calls for investments in the infrastructure required for intensification of livestock production. Roads, ports, refrigeration systems and cold chains must all be in place to facilitate market access and reduce the costs of getting products safely from producers to consumers while optimising transportation and storage and minimising spoilage and waste (22). It also calls for more attention to the capabilities of professionals – and the functioning of their institutions – so that regulations are fairly enforced, threats to health, safety, the environment and animal welfare are minimised (and, when they do occur, are promptly addressed), and that there are transparent and explicit roles for the government on the one hand and private producers or processors on the other.

Functioning and principled partnerships between government (with its policy and regulatory responsibilities), producers (especially organisations of small-scale livestock producers), agri-business enterprises and consumers will increase the likelihood that risks are minimised, technical innovations are available to all who can use them, and the growth in demand is satisfied in a predictable way while maintaining high standards of animal health and welfare, and public health.

To ensure an optimal context for investment in the livestock sector, governments seek to establish systems of laws, regulation and governance; increasingly, these are designed to establish fair and competitive markets and systems for trade in animals and their products, in ways that reduce the risks faced by producers, processors and consumers, minimise the financial uncertainties for investors and help everyone – especially the most disadvantaged – to realise their human rights.

### Policies that encourage effective governance of the livestock sector

Policies for livestock development should help to establish appropriate incentives for good practice and transparent investment frameworks that take all of these potential benefits and risks fully into account. If such policies are not developed and then applied in an equitable manner, the livestock sector will grow without adequate governance. The situation at present is that agricultural policies tend to focus primarily on the intensification of crop production: generally, only those with a direct interest in livestock issues focus on the implications of intensification. One important point of reference is the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security, which were endorsed by the Committee on World Food Security (CFS) on 11 May 2012 (23). These are particularly relevant to pastoralists, indigenous farmers and small-scale livestock keepers.

## The One Health approach in livestock policy and practice

The One Health approach was first described in 2004 through the 'Manhattan Principles' developed by the Wildlife Conservation Society. It has been implemented – to varying degrees – in different local, national and global settings. Its application to the prevention and control of zoonotic diseases with pandemic potential has gained momentum in the past three years as governments and other stakeholders have increased their emphasis on health risks that emerge at the human–animal–ecosystem interfaces as part of a longer-term strategy to prepare for severe outbreaks of human disease.

Proceedings of three recent international ministerial conferences on animal and pandemic influenza (IMCAPI) (New Delhi in December 2007, Sharm El-Sheikh in October 2008, and Hanoi in April 2010) (24) reflected this shift, with policy-makers and practitioners from national governments and international organisations seeking to build on the experience with influenza pandemic preparedness to address other potential health threats at the animal–human–ecosystem interfaces. The livelihood, economic and development impacts of these threats are increasingly being factored into the dialogue and are starting to feed through to recommendations for both practice and policy. Multiple stakeholders are engaged in this effort, including livestock producers and their organisations, business enterprises, civil society and consumer groups and members of the scientific research community.

Their approaches reflect experience accumulated during decades of preparing for and responding to influenza outbreaks. They seek to incorporate One Health thinking and practice into ongoing health and veterinary services, into regulatory institutions, into production and processing systems, into their work with retailers and consumers, and – increasingly – into the formulation of policy. Incorporation of lessons learned with influenza pandemic preparedness in this way avoids the need for time-wasting and expensive re-invention of procedures. The United Nations system supports a geographically dispersed network of preparedness practitioners who focus on pandemic and other health threats. Members of this *Towards a Safer World Network* adopt the One Health approach – promoting learning across sectoral boundaries. They are experienced interface workers who are prepared to share practices that prevent the emergence of threats at the interfaces and encourage effective use of resources for preparedness.

In this paper the authors suggest that the One Health approach also has a major place in the formulation and adaptation of policies for sustainable, safe and equitable livestock rearing practices – both now and in coming decades. It encourages a systematic focus on the links between agricultural livelihoods (especially those of smallholders), animal health and welfare, wildlife conservation, people's food security and the accessibility of nutritious foods, and both local and global public health. It requires constant attention to mitigation of – and adaptation to – climate change, to land tenure and to efficient and safe uses of water, access to energy and infrastructure and the maintenance of environmental services. It takes account of current moves to climate-smart and sustainable agriculture, especially in relation to communities affected by recurring crises due to severe climatic events (especially drought and floods) and to those whose livelihoods depend on pastoral farming systems. This focus on linkages is an increasing feature of policy dialogues everywhere, including intergovernmental efforts under way now to establish priorities for development and disaster risk reduction after 2015, when the new Sustainable Development Goals and Disaster Risk Reduction frameworks will be approved, building on the achievements of previous frameworks. The One Health approach has an important place in these high-level policy formulation processes.

The One Health approach combines a focus on the long-term sustainability of our planet's natural resources, the provision of secure access to nutritious food at all times, the protection of global public health, and the resilience of poor communities' livelihoods when faced by multiple stresses or shocks. The approach is relevant to all in society concerned with sustainable human development – governments, youth groups, businesses, civil society and consumer groups – at local, regional and global levels.

The approach offers a consistent focus on the risks people face and their options for maximising benefits – both now and in the future. This kind of cross-sector way of working has led us to a growing realisation that interfaces – between people, species, systems, professions and cultures – are a vital area for policy debates, and that sector-specific thinking can lead to their being ignored. Effective policy-making and practices that focus on what happens across professional or geographic boundaries and concentrate on the risks at interfaces are vital for human security and need attention, despite the continuing pressure to prioritise the 'core activities' of different professional groups or government departments. Such work is not easy to sustain within institutions, but individuals committed to such working are increasingly linked in networks of practice; the next challenge is to ensure that they are well-enough positioned to influence policy-making.

Now is the time for One Health concepts and approaches to be incorporated fully into policy-making for livestock sector development. Interfaces are risky and can be dangerous, particularly when bureaucracies are under pressure to cut their costs and exposure. Dangers flourish when mandates and accountability are rigid. Risks of ill health at interfaces need to be more widely understood. The well-being of individuals, households, societies, governments, nations, and cultures depends on paying attention to good care of health at interfaces. That is why the authors value One Health working and seek to promote it.

Their experience to date suggests that the following practical steps can be used to better apply the One Health approach in the formulation and implementation of policies:

– start at a local level, with experience from communities and countries, focusing on their realities and needs and seeking at all times to better enable them to realise their human rights

– link the response to local needs to the prevention and mitigation of global risks and the promotion of global

goods, while sustaining the principle of leadership from national governments

– include livestock issues in all discussions on sustainability and climate change, poverty reduction and equity, food security and safety, access to nutrition, and risk management in value chains

– focus on the resilience of individuals and societies in the face of risks by analysing the links and interfaces that affect their livelihoods

– advocate the engagement of the whole of society in garnering evidence for policy development and effective implementation systems

– nurture networks of professional practitioners that span the interfaces and are well positioned to influence policy development

– ensure that national and global institutions provide a strong anchor for policy development and implementation

– work towards a multi-stakeholder process for policy implementation by establishing principled partnerships (farmers, consumers, business people committed to responsible investments, researchers, youth groups) that focus on aligned action, innovation and equity

– establish and maintain a transparent framework as a basis for investments with a strong policy and regulatory base

– seek long-term financing mechanisms that support essential institutions and well-regulated investments.

## Acknowledgements

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# La contribution potentielle de l'élevage à la sécurité alimentaire et nutritionnelle : la méthode « Une seule santé » appliquée aux politiques et aux pratiques de l'élevage

D. Nabarro & C. Wannous

**Résumé**

Pour des centaines de millions de personnes dans le monde, les produits d'origine animale sont absolument indispensables, non seulement pour se nourrir et pouvoir continuer à le faire, mais aussi parce qu'ils représentent une source de revenus et un filet de sécurité en cas d'adversité. La part de l'élevage parmi les revenus agricoles dans le monde s'élève à 40 %. La demande en produits d'origine animale va continuer à augmenter au cours des trois prochaines décennies, de même que leur prix de marché. En l'absence d'une gestion rigoureuse, cette hausse mondiale de la production de produits d'origine animale se traduira par une intensification de la pression exercée sur les ressources naturelles (en particulier l'eau et les terres), avec une augmentation significative des émissions de gaz à effet de serre et un risque accru de maladies zoonotiques dans les populations humaines.

Ces aspects sont désormais considérés par les gouvernements à un moment où ils encouragent l'intensification contrôlée des productions de l'élevage. Ils essayent donc de tenir compte de la contribution des populations les plus pauvres à la croissance des économies rurales. Ils réfléchissent aussi aux moyens de mettre en rapport la productivité agricole et l'efficience des systèmes alimentaires, le développement des infrastructures, l'accès à l'énergie, à l'eau et à des soins de santé abordables, et la pérennisation des apports de l'environnement (y compris l'atténuation des facteurs d'aggravation du changement climatique).

L'application durable de la méthode « Une seule santé » dans le cadre d'une gestion contrôlée de l'intensification des productions animales permet en outre de mettre l'accent sur l'atténuation des risques sanitaires à l'interface entre les

animaux et l'être humain dans différents écosystèmes. Elle serait un facteur d'incitation à la collaboration chez des acteurs différents aux intérêts multiples, qui travailleraient ensemble à la poursuite d'un objectif commun : en finir avec la pauvreté et la malnutrition.
Les auteurs formulent le vœu que la méthode « Une seule santé » devienne une composante des politiques de santé publique, de santé animale et de santé environnementale de toutes les nations du monde et qu'elle soit également inscrite dans les programmes de formation initiale des futurs médecins et vétérinaires. « Une seule santé » doit également faire partie des plans de préparation et d'urgence ainsi que des exercices théoriques et des simulations sur le terrain afin de se préparer à l'éventualité d'une gigantesque catastrophe, aussi improbable soit-elle.

**Mots-clés**
Alimentation – Élevage – Maladie zoonotique – Sécurité alimentaire – Une seule santé.

# Posible contribución del ganado a la seguridad alimentaria y nutricional: aplicación de los planteamientos de «Una sola salud» a las políticas y praxis ganaderas

D. Nabarro & C. Wannous

**Resumen**
Los productos de origen animal son esenciales para la nutrición, la seguridad alimentaria, el sustento y la resiliencia de cientos de millones de personas de todo el planeta. La ganadería supone el 40% de la renta agrícola que se genera en el mundo. Todo indica que la demanda de productos animales (y su precio de mercado) seguirán acrecentándose en los próximos 30 años. Si no se gestiona cuidadosamente, el incremento mundial de la producción de artículos de origen animal se traducirá en una mayor presión sobre los recursos naturales (en particular el agua y los suelos) y traerá consigo un sensible aumento de peligrosas emisiones de gases de efecto invernadero y un mayor riesgo de que las personas contraigan enfermedades zoonóticas.
Los gobiernos están tomando en consideración estas realidades al alentar una intensificación controlada de la producción ganadera. Por un lado, tratan de aplicar fórmulas que tengan en cuenta la contribución de las poblaciones más pobres al crecimiento de las economías rurales, y por el otro buscan el modo de vincular entre sí el trabajo sobre: la productividad agrícola; la eficacia de los sistemas alimentarios; el desarrollo de infraestructuras; el acceso a la energía, el agua y una asistencia sanitaria asequible; y la continuidad a largo plazo de los servicios ambientales (lo que supone, entre otras cosas, mitigar los efectos de todo nuevo estímulo que induzca cambios en el clima planetario).
La intensificación controlada de la producción ganadera también exigiría la aplicación duradera de los planteamientos de «Una sola salud», uno de cuyos objetivos es el de reducir los riesgos sanitarios en la interfaz entre animales y personas en diferentes ecosistemas. Ello alentará la convergencia de múltiples intereses en pos de un designio común: el de acabar con el hambre y la malnutrición.

Los autores desearían que la filosofía de «Una sola salud» impregnara las políticas de salud pública, animal y ambiental de todas las naciones, así como los planes de formación de todos los estudiantes de medicina y veterinaria. Además, es imperativo incorporarla a las labores de preparación, planificación para emergencias, ejercicios teóricos y simulaciones (ya sean a distancia o *in-situ*) encaminadas a prepararnos para el próximo megadesastre, por improbable que este pueda parecernos.

**Palabras clave**
Enfermedad zoonótica – Ganado – Nutrición – Seguridad alimentaria – Una sola salud.

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