



A Path to Prosperity: New Directions for African Livestock

The Impetus Strategy Paper



Protecting Livestock – Saving Human Life



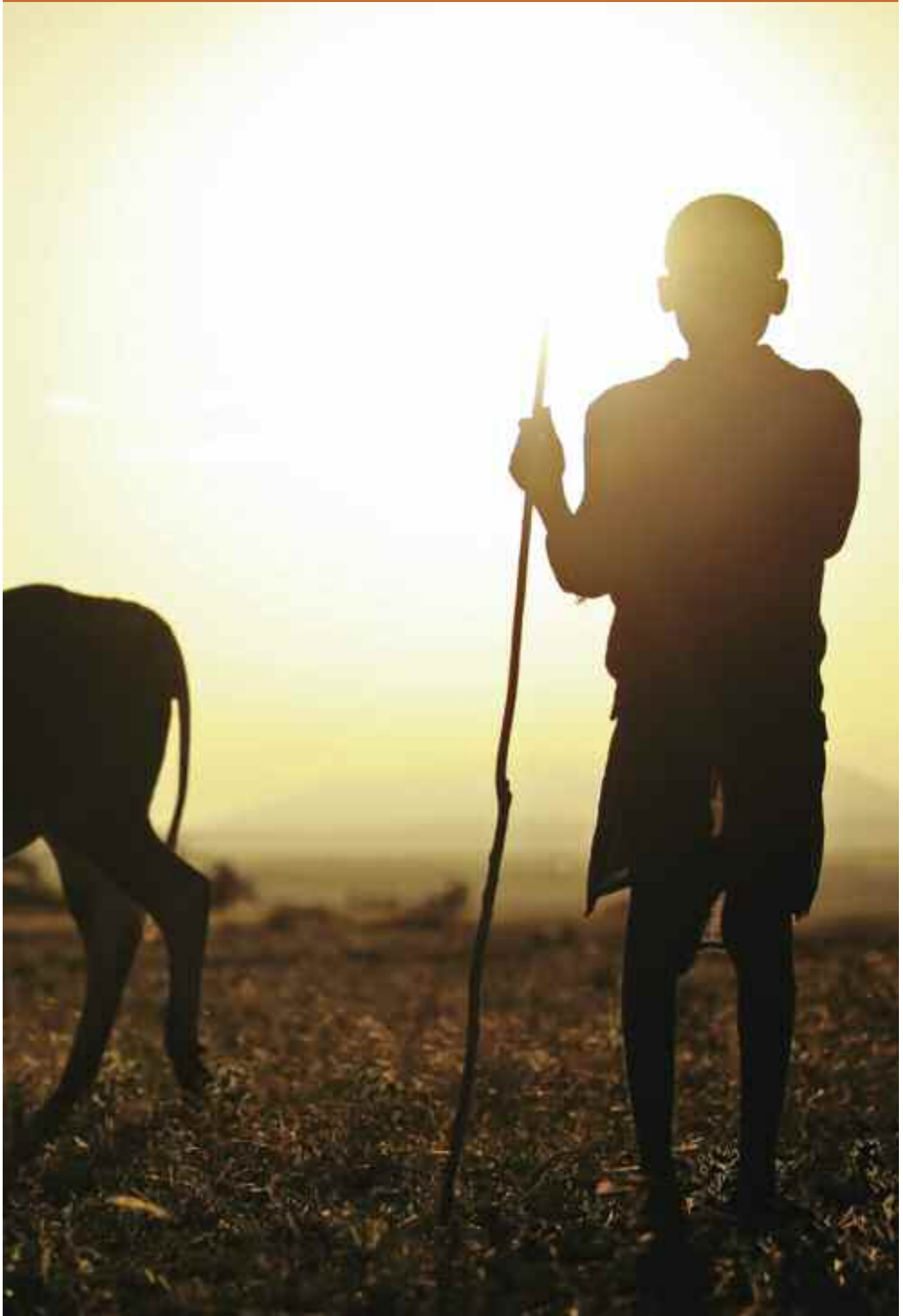
Acknowledgements and Disclaimer

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The opinions expressed in this paper do not necessarily reflect the views of GALVmed.

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Impetus Strategy Paper

“All of us yearn for practical solutions to address the major cause of our continental poverty – an agricultural sector that has languished, but is now poised to be so much more productive and dynamic. We know that the path to prosperity in Africa begins at the fields of African farmers who, unlike farmers almost anywhere else, do not produce enough food to nourish our families, communities, or the populations of our growing African cities.”

Kofi Annan, speech delivered at the launch of the Alliance for a Green Revolution in Africa (AGRA), 2007

Executive Summary

This 'Impetus Strategy Paper' highlights areas that can immediately improve livestock development in Africa. The paper does not try to describe every driver of change, future projection or challenge facing the sector today. The paper recognises and draws from the excellent analyses recently carried out by FAO, the World Bank and African Union's Inter-African Bureau of Animal Resources (AU/IBAR) on African Livestock and Global Livestock Sector Development, along with detailed analysis by the World Organisation for Animal Health (OIE) on animal health and veterinary governance⁴². Such analysis was carried out and formulated by large teams of subject areas specialists and this paper recognises their expertise and robust analysis of the issues.

The paper attempts to focus on trends and issues that are of relevance to GALVmed now and in the future. GALVmed is a public private partnership that makes available animal health products to poor livestock keepers in low-income countries that are affordable and technically suitable. GALVmed's role is primarily one of facilitation; working with a range of partners to identify, research and register effective products that can be commercially manufactured and distributed. GALVmed has a strong, but not controlling, vested interest in registered veterinary products being used by low-income farmers and this requires a conducive investment environment. This paper brings together information, evidence and examples from a range of key informants, studies and literature to assist GALVmed and its partners to identify potential areas where they might extend their work to best support livestock productivity improvement primarily for resource poor farmers in low-income countries.

Agriculture remains important to the livelihoods of 80% of the 800 million people living in Africa and approximately 160 million poor people who keep livestock in Sub-Saharan Africa (SSA). Whilst the sector is vital to the continent's ability to feed itself and lift people out of poverty, investment in agriculture has until recently been falling.

Following the 2008 and the 2011 global food crises, investment is rising but remains sluggish, as donors and the private sector are now faced with the challenge of how and where to invest. Agricultural policies and legislation are commonly out dated, absent or not enforceable. Infrastructure is weak and climate change increases the challenges yet further. Eighty per cent of African agricultural labour is provided by women who are often marginalised and un-educated. Markets remain informal and unsophisticated. With food consumption growing rapidly, driven by high population growth and rapid urbanisation, African governments are increasingly adopting policies to energise markets. However, the agricultural transformation required to feed the masses and create rural wealth has yet to happen, particularly in SSA's livestock sub-sector, where capacity to address policy gaps is often inadequate. Imports of all livestock products have been growing almost exponentially as demand outstrips supply. SSA currently spends around US\$3.6 billion, or 0.5% of its GDP, on livestock imports. There is a critical need to improve the efficiency of production in the livestock sector. The sector is under performing in terms of yields, price and quality and there is a danger that governments may become reliant upon cheap imports and perhaps neglect initiatives that could transform domestic livestock production.

Yet, when looked at more closely, there are tremendous opportunities within agriculture in SSA. The Comprehensive Africa Agriculture Development Programme (CAADP), coordinated by the NEPAD Planning and Coordinating Agency (NPCA), is gaining momentum; is consultative and does have the support of nearly all the major development agencies. Powered by improved political and macroeconomic stability and microeconomic reforms, real GDP in Africa rose 4.9% per year from 2000 through 2008, double its pace in the 1980s and '90s. The African Development Bank has forecast that gross domestic product growth could reach about 7% in 2011 from a predicted 5.5% growth for 2010. Agriculture accounted for 12% of the GDP growth from 2000–2008 with a compounded annual growth rate of 5.5%. Because African countries are starting from a relatively low base and can benefit from more widespread adoption of existing technologies, high agricultural growth rates are being achieved in particular where there is sufficient and well-targeted public investment and supportive policies, including measures aimed at increasing private sector investments in agriculture.

The paper reviews the key players working to develop the sector and concludes that whilst there is a well ordered structure from global to continental to regional to national level, certain voices seem to be missing from the policy process. More needs to be done to build institutions able to incorporate the voice of farmers, small businesses and entrepreneurs into policy process. There is also a lack of livestock development organisations engaged with, and able to support, the private sector and the livestock value chains they are engaged in. With strong links to the private sector, the research community in SSA and South Asia, plus good understanding of policy process, GALVmed should consider further how it can work with development partners to support and advocate for small businesses working in particular value chains. With the great variation in production systems across Africa, the paper focuses on topics deemed to be relevant to GALVmed's core business. In each there is already some momentum in terms of political will, evidence of impact and existing linkages that GALVmed might build upon. They include improving the quality, accessibility and sustainability of privatised veterinary services in rural areas; further work on neglected zoonoses; new feeding technologies for ruminants; ideas on how agricultural innovations systems might be used to support research uptake by small farmers; and working on particular value chains to support

contract farming, agri-business investment and expanded national and regional trade.

Animal health remains fundamental to improved livestock production, market access and product quality. Notable successes have been achieved in controlling transboundary animal diseases in Africa, with rinderpest eradication setting the gold standard. However, in terms of poverty reduction, veterinary services in Africa's remote and marginalised areas, fail to adequately meet the needs of poor and small farmers. The animal health section explores some of the reasons for this situation and asks what can be done, where are the quick wins in terms of improving animal health in rural areas and who is addressing some of these issues. The section focuses on access to and quality of medicines and vaccines used by private vets, accreditation of quality veterinary medicines and increased delivery of privatised veterinary services to rural areas. These are all areas in which GALVmed has a strong vested interest, some existing involvement and potential opportunities for greater impact are identified. The section also provides a short review of zoonotic disease control, both emerging and neglected zoonoses. Neglected zoonotic disease particularly affects the poor and GALVmed should consider doing more to develop new medicines, vaccines and diagnostic tests for them in any second phase work it embarks upon, as well as facilitating the development of new paradigms for dealing with zoonotic disease control.

Technologies that allow greater utilisation of human-inedible feeds are going to be increasingly required in SSA. Child malnutrition in Africa is already high and is predicted increase to around 50 million children between now and 2050. Ruminants are the livestock of choice for consuming crop by-products. Recent successes for small dairy farmers accessing milk markets show that feeding technologies can make a vital difference to profitability. Good nutrition is also a fundamental pre-requisite for good animal health. Several feeding technologies are highlighted that take advantage of crop by-products and forage crops which have proven to be effective on experimental farms but have not been adopted by small farmers at scale. Lessons from these experiences are reviewed and some new technologies deemed appropriate for small farmers in Africa are put forward. In addition, it is suggested that GALVmed and partners could usefully enhance research uptake and value chain support by utilising the latest lessons from agricultural innovation system (AIS) approaches.



In terms of livestock trade, the review of Africa's experiences and capacity to export livestock products beyond Africa to global markets concludes that the pressing priority at this time is to develop domestic and intra-regional livestock trade. Examples of export trade, regional trade harmonisation efforts and domestic trade are provided and the need to support small and female farmers to access markets is stressed. The majority of livestock trading in SSA is still informal. Unlike in other developing regions, supermarkets have not yet captured significant market share, but their stake is increasing. The number of households in SSA with discretionary income is projected to rise by 50% over the next ten years, reaching 128 million. By 2030, it is estimated that the continent's 18 largest cities could have a combined spending power of \$1.3 trillion. This rapidly urbanising population is likely to demand high quality and safe livestock food that will require higher input costs per unit of product. This trend potentially works against small farmers in favour of larger producers. Contract farming appears to offer a way to support small farmers' access to markets and the different forms of contract farming are described.

There is evidence that in the developing world contract farmers have, in most cases, higher profits per unit of output than independent farmers. Examples of contract farming enterprises that incorporate smallholders in high-value supply chains are provided, but there are very few examples in the livestock sector in SSA. GALVmed and its partners may have a role in working with the private sector and policy makers to scale up contract farming as markets become more sophisticated. Supporting others to organise value chain analysis or "talking shops," might be one way of doing this. GALVmed should also consider how it might support the new African Agribusiness and Agro-Industries Development Initiative (3ADI) which has the potential to significantly influence African livestock production and health to the advantage of poor livestock keepers.

This paper is intended as a key document to the convening of a "Livestock 2012: the turning point," conference to which a wide range of livestock development stakeholders will be invited.

1 Introduction

The preparation for this paper included interviewing subject area specialists and partner organisations, and undertaking a literature review to assess the key challenges facing agriculture and the livestock sector in Sub-Saharan Africa. The challenges facing the sector are summarised in the first two sections of the paper. The following three sections focus on topics that are seen as relevant to GALVmed, in that they could yield quick wins in terms of improving livestock development. Each section includes some discussion on priority areas and any possible expanded or supportive role that GALVmed might have.

GALVmed, as a not-for-profit organisation, develops new animal health products, primarily vaccines, to the point where they can be distributed, on a commercial basis, to poor and small livestock farmers in low-income countries. Since 2007, GALVmed has received funding from private foundations and government development agencies. The organisation uses private sector expertise to carry out rigorous review of best-bet or near-complete technologies. GALVmed's thorough understanding of key production constraints allows them to inject human and financial resources at key pivotal points. Much of its work consists of networking and facilitation of partners, including the private sector. GALVmed is often seen as a neutral party and is in a relatively good position to bring its networking skills to bear on new challenges.

Once GALVmed veterinary "products," are registered for use, significant investment is still required before they are available for purchase by a farmer. This end-stage investment comes from private funds and is therefore largely outside GALVmed's control.

Yet this final stage is crucial if GALVmed is to have an impact on poverty and food security. Therefore GALVmed has a strong vested interest in ensuring an optimal investment environment.

As will be seen in the overview of agriculture and livestock production in Sub-Saharan Africa (section 2), there are many significant challenges to overcome before a vibrant market place for new veterinary products can be achieved. If GALVmed were to support the process of creating this optimal investment environment through new partnerships, renewed collaboration and advocacy, it needs to ask in which geographical areas and at what level, regional or national, and in which livestock sub-sectors are most gains likely to be made. These are some of the questions the Impetus Paper sheds light on. This is a major undertaking in a continent as large and varied as Africa. The paper identifies areas where both progress is being made and GALVmed may have a greater supporting role; and also gaps in the development process that GALVmed might be well placed to help fill. The document is not prescriptive, preferring to make suggestions for discussion by GALVmed and subject area specialists and partners. Such discussions will support GALVmed to clarify and agree its future support role within the international framework of livestock sector development.



2 Overview

2.1 Agriculture and Food Security in Africa

Agriculture is vital for promoting growth and reducing poverty in Africa and essential to the achievement of Millennium Development Goals (MDG). Agriculture currently supports the livelihoods of 80% of the African population, provides employment for about 60% of the economically-active population, and employment for about 70 % of the poorest people on the continent².

Development is vital. The human population of Sub-Saharan Africa (SSA) is approaching 800 million people³ and is growing at around 2.2% per annum, compared to the global average of 1%. This fast-growing population is becoming increasingly urban, with the overall share of the population living in urban areas growing by 1.5% per year; which means another 1.2 million people in cities next year. This percentage of urban growth is similar to other developing regions. However, the predicted GDP per capital growth rate for the next 20 years is far lower for SSA, at around 1.6%, compared to 4.7% for South Asia and 5.3% for East Asia and the Pacific⁴.

Agricultural growth is a proven driver of poverty reduction. When agriculture stimulates growth in Africa, the growth is twice as effective in reducing poverty as growth based in other sectors. In China, agriculture-based growth is 3.5 times more effective in reducing poverty than growth based on other sectors. In Latin America, the effectiveness is 2.7 times⁴. Agricultural growth also means greater food security. Sub-Saharan Africa currently has the highest proportion of undernourished people in the world, at 30 % of the population.

At current rates, it is estimated that Africa will be unable to adequately feed half its population by 2015². Agricultural GDP per farmer has over the last two decades risen by 2% per annum in Asia, nearly 3% in Latin America but less than 1% in Africa. In Africa farmers have been working harder and more people have taken up farming, but productivity has not increased. Most of the growth stems from increases in the land area under exploitation rather than from increases in productivity.

Africa is endowed with a wide diversity of agro-ecological zones. These zones range from the heavy rain-forest vegetation with bi-annual rainfall to relatively sparse, dry and arid vegetation with low uni-modal rainfall. This diversity is a tremendous asset, but it also poses a substantial challenge for African agricultural development.

On the one hand, it creates a vast potential with respect to the mix of agricultural commodities and products which can be produced and marketed in domestic and external markets. On the other hand, the diversity implies that there are no universal solutions to agricultural development problems across the continent. Consequently, any interventions must be tailored to the particular conditions of the different agro-ecological zones and to prevailing socio-economic conditions of rural households within individual countries.

Over the last three decades, increases in agricultural output in Africa have come largely through extending rain-fed crop cultivation, particularly food crops, on to more and more marginal soils and/or by reducing traditional fallow periods in cropping cycles.

Under conditions of rapid human population growth, rural households have been forced to adopt agricultural practices that guarantee their survival. Unfortunately, raising the productivity of crop enterprises through intensification per unit of land cultivated – i.e., through increasing crop yields per hectare – has not been adequately promoted as an important household food security strategy.

Apart from commercial agriculture which covers a relatively small share of livestock crop production, the use of agricultural inputs – that is, improved seeds and breeds, animal health, inorganic fertilizers and pesticides – has been much lower in Africa than in other parts of the developing world. Inorganic fertilizer use is often less than 10kg per hectare. Use of agro-chemicals and/or integrated pest management techniques to deal with plant diseases and pests is still largely confined to export crops².

1 World Bank, World Development Indicators.

Food security remains an extremely serious issue in Africa. Dr. Josue Dioné, Director of the Food Security and Sustainable Development Division at the United Nations Economic Commission for Africa (UNECA) commented in 2004 that:

“Sub-Saharan Africa was, in general, more food secure and self-sufficient four decades ago than today. This deterioration of the state of food security is associated with several factors, including natural disasters (droughts, floods, etc.), conflicts, epidemics (HIV/AIDS, malaria, Tuberculosis), and poor economic policies and strategies. Notwithstanding the real contribution of all these factors, Africa’s failure to achieve food and nutritional security is primarily due to the continent’s failure to trigger and sustain agricultural development and transformation. For the majority of African households, domestic food and agricultural production remains an overriding determinant of overall income, availability of, and access to food. About three-quarters of the total population and 70% of the total number of the poor live in rural areas². Their income and food security depend primarily on agriculture, which employs directly or indirectly 90% of the rural labor force.”

Whilst Dioné’s view is arguably pessimistic, it cannot be disregarded. Agricultural growth in Africa does remain highly variable (Table 1) and some reported figures up to 2008 are very encouraging. The African Union’s goal for overall agricultural growth in Africa is 6% per annum by 2015. The World Bank estimates about a 7 % annual agricultural growth rate is needed to achieve the MDG poverty reduction target and states this as a high target when viewed from an historical and global perspective. For example, India has rarely exceeded a five-year average agricultural growth rate of over 5%. China achieved agricultural growth above 5 % following 1978 reforms, but the rate subsequently settled back to between 3% and 5% and has remained there. Because African countries are starting from a relatively low base and can benefit from more widespread adoption of existing technologies, growth of 5 % annually is achievable with sufficient and well-targeted public investment and the maintenance of a supportive policy framework, including measures aimed at increasing private sector investments in agriculture¹⁴².



A key challenge in coming decades will be to maintain Africa’s agricultural growth in the face of climate change. Over the past four decades, SSA’s agricultural growth has hardly kept pace with population growth. IFPRI⁶ predict that climate change will cause yield declines for most important staple crops and livestock feed. For example, in SSA, over the period 2000–2050, the yield declines with climate change for rice, wheat and maize are estimated to be 15%, 34% and 10 % respectively. Without climate change, meat consumption in Africa is predicted to rise from its 2000 level of 11kg per person per year to 18kg. However, with climate change, meat consumption is predicted to reach just 16kg, or 18% less than expected, because of increased commodity prices and reduced production.

SSA is the only region where child malnutrition is predicted to increase over the next 40 years. The number of malnourished children in South Asia is predicted to fall from 75 million (2000 level) to 52 million in 2050 if there is no change in climate and to 59 million with climate change. In SSA, child malnutrition numbers are expected to rise from the 2000 level of 32.7 million children to 41.7 million by 2050 with no climate change. With the impact of climate change factored in, the 2050 figure is estimated to be 52 million, a further 10 million children.

² This is higher than the global average for developing countries, which is 60% of the poor living in rural areas

2.2 African Livestock Overview

The livestock sector is vital for millions of people. Approximately 160 million poor people keep livestock in SSA⁷. The livestock sector accounts for over half of the agricultural capital stock in Africa and on average accounts for 30% of Agricultural GDP. The contribution of the livestock sector to GDP is in fact higher in most areas because the value of animal traction and organic manure to mixed agriculture-livestock systems have not been taken into account in the above figure. The Africa Union estimates that with other animal resources (fisheries and wildlife) included, the contribution to agricultural GDP approaches 50%⁸.

The growth in SSA's livestock sector has averaged 2% over the past four decades and is not keeping pace with population growth⁹. This growth rate compares unfavourably with other regions, for example China 7%, SE Asia 4.7%, Middle East and North Africa 3.2% and 3% in Latin America¹⁰. Yet, around 10% of the human population is primarily dependent upon livestock in SSA and another 58% at least partially depend on livestock.

Table 1 Examples of Reported Annual Growth Rates for the Agricultural Sector in Selected African Countries Covering the Period Leading up to the Global Economic Recession in 2008¹¹

Country	Annual % Growth Rate	Year Reported	Country	Annual % Growth Rate	Year Reported
Angola	16.6	2007	Kenya	2.3	2007
Benin	3.9	2008	Lesotho	-0.8	2008
Botswana	8.8	2008	Madagascar	3.1	2008
Burkina Faso	4.6	2008	Malawi	8.3	2008
Cameroon	5.9	2007	Mali	9.1	2008
Cape Verde	6.7	2007	Mauritania	3.6	2008
Central African Republic	0.7	2008	Mauritius	5.2	2008
Chad	-4.5	2007	Niger	8.6	2008
Cote d'Ivoire (Ivory Coast)	3.0	2008	Nigeria	7.4	2007
Equatorial Guinea	0.8	2008	Rwanda	0.8	2007
Eritrea	1.3	2007	Senegal	11.4	2008
Ethiopia	7.5	2008	Sierre Leone	6.0	2008
Gabon	2.4	2008	Somalia	3.9	2006
The Gambia	4.0	2007	South Africa	2.9	2007
Ghana	6.1	2007	Swaziland	-2.4	2006
Guinea	3.6	2008	Tanzania	4.0	2007
Guinea-Bissau	-12.9	2007	Togo	4.9	2006
			Tunisia	3.5	2008
			Uganda	1.7	2007
			Zambia	-0.1	2008
			Zimbabwe	-5.4	2006

Box 1 **A View from a West African Farmer**¹²

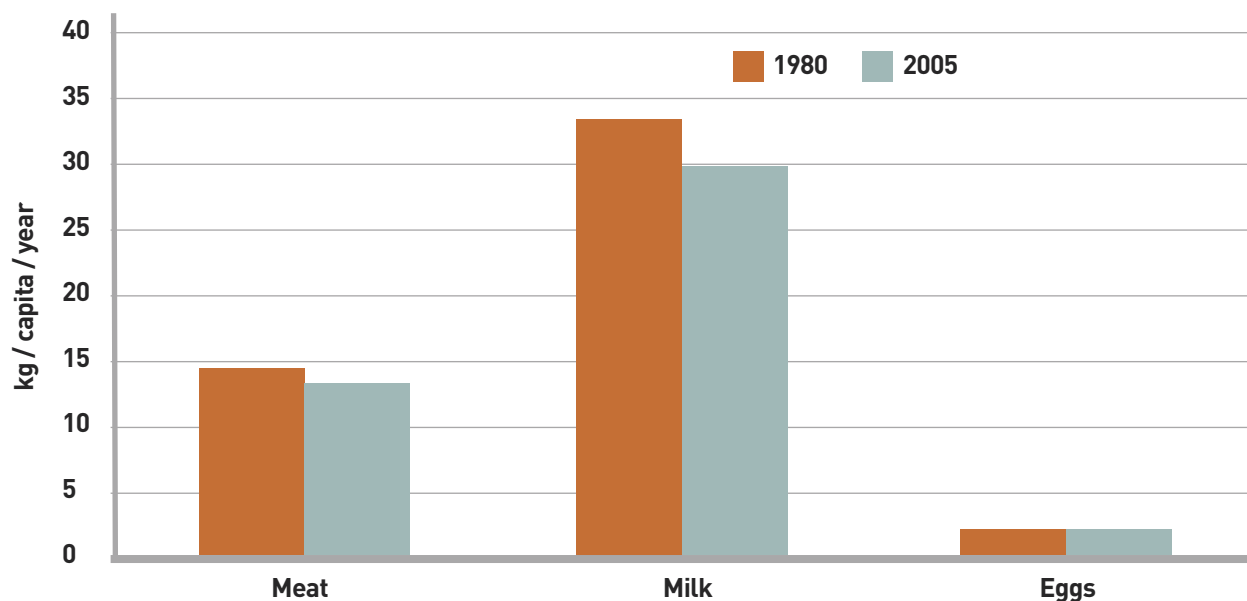
“You know, our farming with hoes is a way of hiding shame. It’s so you don’t just sit at home every morning and become the laughing stock of the village. In fact, it’s thanks to poultry, sheep and goats that I manage to feed my family and pay for school fees and even medical care. For example, when a member of my family is ill, I sell a sheep or a goat so that I can pay for fuel for the ambulance to take the person to a medical centre. When the children ask for school supplies, the solution’s simple: I sell chickens or guinea-fowl.” This testimony indicates that livestock rearing even via informal sales is a practical way of bringing people out of the cycle of poverty.

In SSA, nearly 60% of the value of edible livestock products is generated by cattle (meat and milk), while small ruminants (meat and milk) and poultry (meat and eggs) generate around 20% each. Pigs only play a minor role in food production at this time. The annual growth in the consumption of meat, milk and eggs in SSA between 1992 and 2002 was around 2.4%, which was low relative to the rest of the

developing world at 6.5%¹¹. Meat production over the same period grew at 2.5% per annum. Again, this is low compared to the rest of the developing world at 4.8%. The situation is similar for milk, with SSA at 2.7% growth and the developing world at 4%, and egg production increase at 1% and 8% respectively. (Figure 1)

Figure 1 **Ly and Opio from FAO Stat presented to AU Ministers Responsible for Animal Resources Conference, Entebbe, Uganda. May 2010**

Per capita consumption of livestock products in Sub-Saharan Africa



2.2.1 Livestock Sector Policy

Livestock sector policy covers a multitude of issues and there are no studies that compare how effective livestock policy is, relative to other agricultural sub-sectors, in supporting poor and small farmers. A key finding of a 1998 review of best practice in the livestock sector¹³ was that there was little evidence to show that livestock projects had achieved sustained benefits for poor livestock keepers. A few relatively successful projects stood out as achieving sustainable change. Common features of these “institutional,” projects were a combination of community-based approaches, private sector involvement and the creation of enabling policy and legislative environments. One response to studies such as these has been to initiate more policy focused initiatives, such as FAO’s Pro Poor Livestock Policy Initiative¹⁴ and AU/IBAR’s Alive partnership¹⁵.

In 2004, AU/IBAR reported on a livestock policy landscape study¹⁶. Senior policy makers from eastern Africa were asked to assess policy and institutional constraints in the livestock sub-sector as part of an initiative to develop a regional programme focusing on policy reform and targeted at poor producers. The IBAR team spoke to Ministers, Permanent Secretaries, Heads of Livestock Departments and a range of other stakeholders in five countries. The key findings from the consultation were as follows:

- There was a general lack of proper recognition of the contribution of the livestock sub-sector to the sector, national economies and in securing livelihoods for the poor. The latter is an issue that continues to cause concern¹⁷. Causes for this lack of recognition included past emphasis on crops and poor information on the role that livestock play. Lack of useful data is a perennial problem that has recently been recognised by the BMGF, who are supporting the World Bank, working in collaboration with AU/IBAR, ILRI and FAO, to improve the quality of data on livestock in Africa to enhance the understanding of the roles of livestock in poverty reduction¹⁸.

- The policy-formulation process in all the countries studied had the following characteristics:
 - A strong top-down orientation, with heavy government influence.
 - Inadequate participation of the poor in the policy-making process.
 - Many government functionaries admitted that they needed knowledge on policy-making processes.
 - Policy makers were not always able to respond to frequent changes requiring updating or making of new policies.
- The biggest group of livestock policies were actually missing or outdated policies.
- Policy monitoring and evaluation mechanisms were grossly inadequate.
- The study also indicated weak and poorly-coordinated institutional arrangements for pro-poor policy formulation and implementation.
- Unfortunately, the livestock policy and institutional support programme IBAR planned in 2004 was never funded and many of the problems identified in 2004 remain key to livestock development in 2011.



2.3 Livestock Sector Development Actors

One of the aims of the Impetus Strategy paper is to assess where GALVmed fits into the “livestock development architecture.” A short review of the key players working to support the sector is provided as Annex 1 to this document. The review provides an overview of relevant regional, continental and global development agencies and how they are working to develop the livestock sector. Not all actors are reviewed, for example, some of the NGOs such as Vétérinaires Sans Frontières, Heifer Project International and Farm Africa and market orientated organisations such as Technoserve, Land O’Lakes and ACDI VOCA have not been mentioned in detail.

The review confirms that there is a well-ordered structure from global to continental to regional to national level. Nearly all of the key organisations are signed up to the Comprehensive Africa Agriculture Development Programme (CAADP) and its goal of achieving 6% annual growth in agricultural production by 2015. The western donor community has signed up to CAADP and is supporting it through several indirect and direct means. For example, a CAADP Multi-donor trust fund (MDTF) has been established, and is managed by the World Bank in close collaboration with the NPCA, to channel financial support for CAADP processes (but not investment programmes) at regional and country levels. There remains strong commitment at national level to use the Poverty Reduction Strategy Papers (PRSP)³ and national development plans to advocate for increased investment in Agriculture.

Agricultural development assistance dropped from 17% of official development assistance in the 1980s to 4% in the early 2000s. Whilst well co-ordinated through the Global Donor Platform, donor support to agriculture remains sluggish. The 2008 food price crisis did concentrate efforts to reverse the global decline in donor support to Agriculture and the on-going 2011 food crisis will reinforce this effort. However, the Director General of the FAO recently complained that whilst the world’s 20 most

developed countries pledged to invest \$22 billion in aid to agriculture between 2009 and 2011, thus far only \$425 million has been spent. He further stated that while all the movement in terms of aid is in the right direction, the pace needs to be accelerated.

The main weakness in the well-ordered development structure described in Annex 1 appears to be the absence of the views of small farmers and downward accountability, most particularly to women, who provide up to 80 % of agricultural labour. There is tremendous political will to support small farmers from African Heads of State through recommendations at AU summits, to statements made at global gatherings. For example the July 2009 G8 L’Aquila Joint Statement on Global Food Security, calls for specific interventions to ensure that the small producers are not excluded from economic growth and social progress. Private foundations such as the BMGF are convinced that small farmers are as productive as large, commercial farmers and these foundations are working to provide the necessary production inputs and market access for them to not only improve their own livelihoods but also improve the Continent’s food security.

The other missing voice is Africa’s private sector, particularly companies working at national and regional level that succeed in spite of the State rather than because of State policies. It is important to help give such companies a voice in policy process and institution building. It is also necessary to recognise the increasing interest being shown in African agriculture by trans-national companies, funds and banks. This interest is a reflection of concerns about future supply chain sustainability, recognition of the growing demand for processed foods from city dwellers and the opportunity of utilising relatively cheap land and labour. Africa still contains much underutilised agricultural land. Most of the recent increase in agricultural productivity in Africa has come from expanding the acreage of production rather than production per acre.

³ Poverty Reduction Strategy Papers describe a country’s macroeconomic, structural and social policies and programs to promote growth and reduce poverty, as well as associated external financing needs. PRSPs are prepared by governments through a participatory process involving civil society and development partners, including the World Bank and the International Monetary Fund (IMF).

An international response to Africa’s under-utilised land, rising global food prices and investment opportunities are the recent land acquisitions (so-called “land grabs”). Whilst countries that do not have enough land and water to feed their populations have gained most publicity for their efforts to invest in African land, companies from relatively food-secure countries are also making investments, because they predict increasing and shifting demand for food, feeds and fuel.

(See Table 2). The World Bank has now developed (voluntary) guidance on such investments in an attempt to ensure Africans, particularly local people and the poor, see some livelihood and food security benefits.¹⁹ In a continent with insufficient foreign direct investment there are hopes that these acquisitions will help improve domestic productivity. However, deep concerns remain about how even-handed these land lease initiatives are²⁰.

Table 2 Selected Foreign Investments in Agricultural Land in Selected African Countries²¹

Country	Investors	Country of Origin	Objectives	Size
Madagascar	Daewoo Logistics	South Korea	Grow food to reduce Asia’s dependence on US and South American imports	1.3 million ha (negotiations aborted)
Madagascar	Sekab	Sweden	Biofuel production	100,000 ha (under negotiation)
Sudan	Jarch Capital	USA		400,000 ha
Sudan	UAE Government	UAE	Grow alfalfa, used in animal feed, and probably corn, beans, and potatoes	28,000 ha
Tanzania	CAMS Group (energy firm)	UK	Produce 240 million litres of ethanol a year from sweet sorghum	45,000 ha
Ethiopia	Flora EcoPower	Germany	Bio-fuel production	13,000 ha
Ethiopia	Tendaho Sugar Enterprise	India	Agriculture, horticulture and sugar estates	
Angola	Dole Food Co and Chiquita Brands	USA	Banana industry	(under negotiation)
Nigeria Kenya Zambia Uganda Senega Sudan		China	Establishment of “Baoding Villages,” which employ locals and Chinese at a 1:1 ratio to ensure local support	between 400 to 2,000 Chinese farmers to move to Africa to take advantage of agribusiness opportunities



2.4 Discussion

The challenges facing African Agriculture and the livestock sub-sector are huge and will be increasingly compounded by climate change. Significant investment is required if the continent is to feed itself and tackle rural poverty⁶. Whilst acknowledging the scale of the problem, it is also important to recognise the positive economic signals that are appearing. Many African economies have shown greater resilience after the 2008 financial crisis than after past financial downturns and have experienced relatively high levels of growth in recent years. There is also an unprecedented continent-wide effort under the CAADP to improve policy planning, implementation and capacity to invest in agriculture. The CAADP national consultation process described in Annex 1 does not include consultation with farmers and the private sector, but generally much more needs to be done to strengthen farmers' organisations, particularly the voice of women farmers and involve Africa's private sector in policy process and institution building. There appears to be a dearth of livestock development organisations engaged with and able to support the private sector in Africa. With farmer and private sector organisation involvement, future livestock sector interventions need to be more multi-faceted, malleable and shaped by local context and the perceptions and attitudes of all those involved. There needs to be a move from mere technical assistance to institution building; particularly where this includes investing more in local institutions that support learning and advocacy.

There need to be further livestock policy landscape reviews linked to training of senior livestock officials in effective policy process and formulation.

Since its inception, GALVmed has been building partnerships with international and African development agencies, the private sector including African companies, with academia and industry for technology portfolio review, research investment and product commercialisation. There has been significant internal capacity building and building of alliances (see Annex 3 for an overview of GALVmed). GALVmed, like many other development agencies, has observed that key bottlenecks are commonly policy related and has built its capacity to train policy makers in successful policy process. This engagement with policy makers needs to be scaled up both directly and through partnerships with mandated organisations. Furthermore, GALVmed needs to consider how it can support others where links with the private sector remain weak. The International Fund for Agricultural Development (IFAD), the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) and donors such as the EC are already supporting regional farmer organisations. GALVmed, as a not-for-profit, could usefully develop a role working with and supporting Africa's private sector, particularly small businesses in the livestock sector. There is an important advocacy role for such organisations in value chain and policy development. The following sections discuss some of the areas where GALVmed might look for openings to do this.

3 The Competitiveness of Livestock Production

African livestock production remains highly un-competitive in global terms. Several parameters reflect this:

- > Livestock yields are relatively low, for example:
 - Young weaned cattle gain no more than 50 kg per year in the transhumant system in West Africa, which means that it takes five or six years to produce a 250-kg animal¹²⁵.
 - Sub-Saharan Africa records the lowest milk and meat production per animal (6.8 kg of meat and 24.8 kg of milk per animal per year in the mixed farming systems)¹⁰.
- > Prices are relatively high, for example:
 - Brazil exports chickens at a cost 25% below that of Senegal's poultry industry, due to the competitiveness of its production stream, which has low labour and raw materials costs²².
 - Brazil, Argentina or Australia are able to ship beef carcasses to Africa at about US\$1/kg (carcass price for the producer), which is 40% less than the going price in West Africa.²²
- > Import/export figures:
 - SSA accounts for less than 2% of globally traded livestock products.
 - African production is not keeping pace with demand. Net imports of all livestock products are growing rapidly (see Figure 2) and cost the continent approximately US\$ 5 billion in 2007.

Three key problems are holding back competitiveness:

- 1 Low on-farm productivity in terms of:
 - output per animal,
 - the cost of production (labour, feed, electricity etc, influenced by scale of operations),
 - on-farm efficiency. Animal mortality, morbidity, reproduction rates and feed conversion are all impacted by animal health and nutrition. An example of one disease's (trypanosomiasis) impact on production is shown in Box 2.

This applies to nearly all key production systems in SSA

- Pastoral systems, typified by a negative policy environment, low levels of infrastructure, remoteness, poor access to markets, services eg. veterinary, access to credit, education and seasonally poor nutrition with recurrent disease and drought shocks.

- Small family-based livestock operations (poultry, dairy animals, etc.), often run by women, have proven themselves able to generate additional income and cover on-farm consumption. However, without support, they struggle to supply consistent demand for higher quality products in a reliable manner (see Nestlé case study Box 7, Section 6.3).
- Intensive systems, mainly found near towns and cities, include intensive production of poultry and pigs plus dairy operations, struggling to meet international sanitary, feeding and technical standards.

2 Market access:

- transaction costs are high with large numbers of intermediaries; road transport is expensive due to poor road condition and milk or live animals being transported long distances (if walked they lose condition).
- the cost of doing business is high (local taxes, regulations, licenses, cost of compliance of adhering to SPS standards).
- Africa's producers are generally not competitive in global markets. (However, whilst high logistical costs raise prices and are a significant barrier to exports, these same logistical costs also provide a shield for domestic producers from imported commodities).

3 Product quality:

- Difficulty in adhering to technical standards, quality attributes (size, type of cut, etc), lack of downstream infrastructure (agro-industry) such as abattoirs, processing plants, eg. wholesale butchers able to supply structured markets such as tourism and the public sector.



Box 2 **Multiple Impacts of Trypanosomosis in Crop/Livestock Systems in Africa from Swallow 2000** ²³

Direct impacts of Trypanosomosis on livestock productivity

- > reduced calving rates: 11–20% in susceptible animals
- > increased calf mortality: 10–20%
- > small ruminants: lambing/kidding rates decreased 37% in susceptible animals
- > decreased milk production (cow): 10–26% in tolerant animals; land-area affected: 83%
- > decreased animal offtake (herd): 5–31%; land-area affected: 97%
- > drug use (sub-Saharan Africa) US\$35 million

Impacts on livestock risk management

- > decreased cattle numbers: arid areas 14%; sub-humid areas 27%; humid 77%
- > grazing changes

Impacts on agricultural and other products

- > decreased draught efficiency: 40%
- > increased crop production when trypanosomosis is controlled: +25–45% per unit land; +140–143% per unit labour
- > decrease in agricultural production in affected countries from 5–10%

Effects on natural resource use

- > change in migration/settlement patterns; variable effects
- > limited to moderate changes in biodiversity associated with tsetse control
- > Impacts on human welfare
- > loss of income and assets related to impacts above

Plus

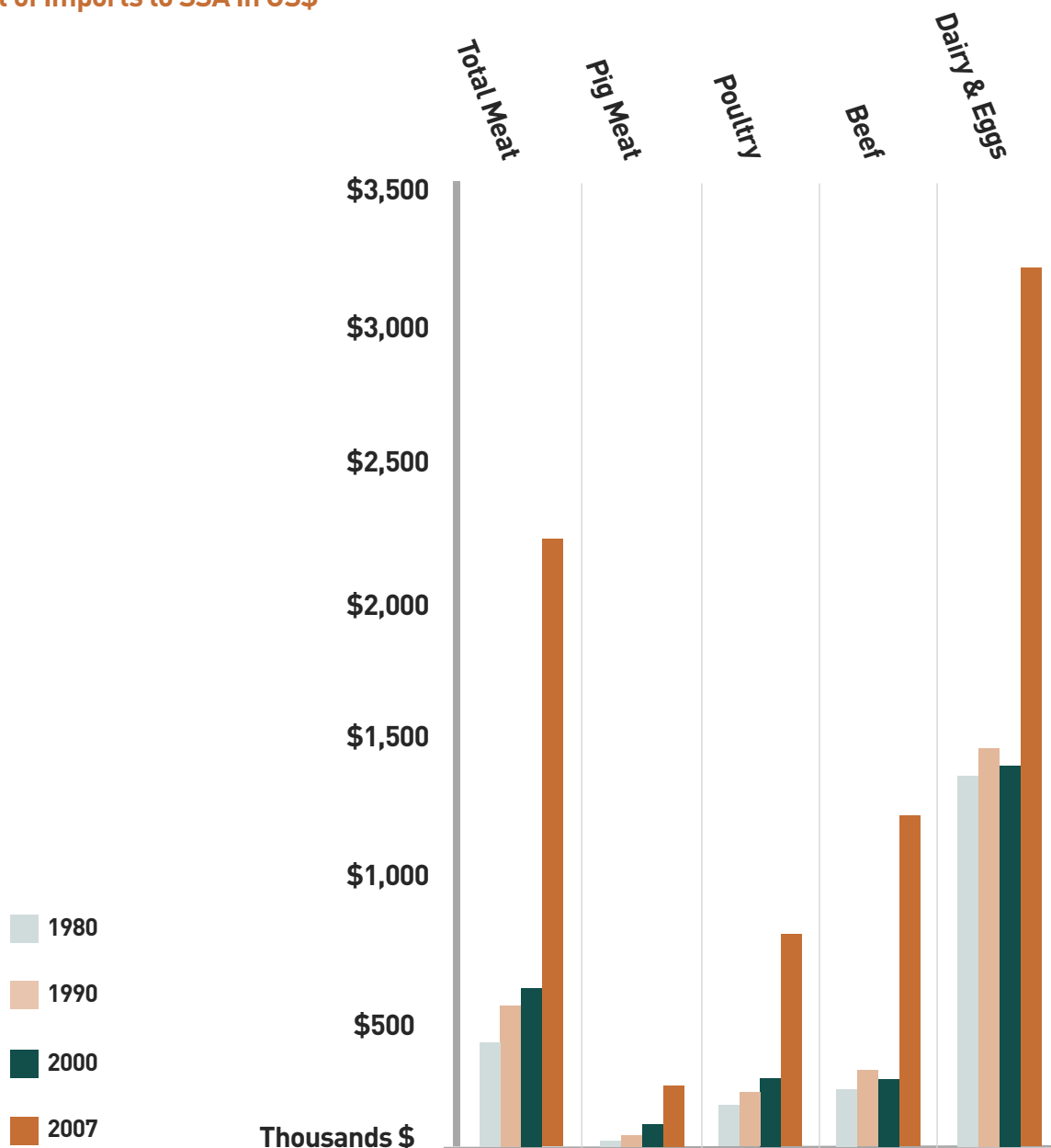
Livestock act as a reservoir of human sleeping sickness: in eastern, western and southern Africa

3.1 What Can Be Done to Improve Productivity

Year-on-year increases in livestock imports show that livestock demand is outstripping local supply. If local production can be improved simultaneously with market access and quality – there are great opportunities awaiting development agencies and the private sector. With improved understanding of demand trends and careful analysis of value chains there could be excellent returns from investments in livestock agriculture.

Figure 2 Cost of imports to SSA in US\$ 1980–2007 Figure from World Bank figures, ARD 2010

Cost of Imports to SSA In US\$



What kind of investments are likely to benefit rural populations in Africa and the urban poor? Global analysis of the agricultural development suggests small farmers will ultimately be removed from the market place by competition from larger-scale farms^{4 24}. This is particular so in countries where production has already scaled up, for example in Brazil and Thailand. However, analysis by the IFPRI and the World Bank suggests this scaling up is not going to happen for some time in Africa. Their analysis also suggests that smallholder livestock producers can compete with larger producers. Smallholders do frequently pay higher prices for inputs due to economies of scale, receive lower prices for their output due to higher transaction

costs, and carry more of their environmental costs. However, due to the savings smaller farms make on overhead items, particularly lower labour costs per unit and more intensive supervision, they can achieve relatively high profit efficiencies²⁵ Both the IFPRI and the World Bank have concluded that strengthening producers' associations and promoting contract farming can help smallholders deal with events beyond the farm gate. This includes growing retailer demand for consistency and demonstrable safety that might eventually displace them even if they are relatively efficient producers²⁶. Box 3 provides an example of scaled-up small farmer access to milk markets in India. Similar work with small farmers is now beginning to have an impact in East Africa.

Box 3 India's National Dairy Development Board

The dairy sector provides a great example of a sector where, in an enabling policy environment, small farmers who are well linked to the value chain can deliver a competitively priced and high quality product. India's National Dairy Development Board has led the way. This body now has 13.9 million farmer members, of whom 3.9 million are women. It has been largely responsible for increasing milk production fivefold from 21.2 million MT in 1968-69 to 110 million MT in 2008-09. As a result milk production in India has grown 2% faster than population growth and per capita milk consumption has doubled over the past 30 years. Key innovations to achieving this success were:

- > Commitment to providing support services in health, feed, fertility and marketing to small farmers rather than overlooking them and focusing on development of large dairies.
- > Bulk vending – saving money and the environment.
- > Milk travelling long distances to deficit areas using rail and road milk tankers.
- > Preserving quality and reducing post-procurement losses using “Automatic Milk Collection Units” and “Bulk Milk Coolers,” at local level.

East Africa is a region where demand for dairy products outstrips supply. Kenyans have the highest milk consumption per capita in Africa at 140kg per capita. This is four times the average for SSA. From 1997 to 2005, development partners and the Kenyan government worked together to ensure market liberalisation was effectively regulated and small farmers, transporters and retailers benefited from new milk quality schemes. With the correct policies and institutions in place, the sector has flourished. A relatively recent initiative, the East Africa Dairy Development Project, supported by the Gates Foundation and led by Heifer International, utilises a consortium of partners to develop rural-based milk cooling plants based on a business hub model that

offers a wide variety of business development services, including artificial insemination, to under-served farmers. More than 13,000 producers are already earning nearly \$5 million a year for milk deliveries to these hubs. A further case study (Box 7, Section 6.3) shows how trans-national food companies can support small dairy producers through contractual schemes to improve product quality and market access. All the above initiatives take advantage of small farmer use of low cost feed and an overall “low-tech,” approach to milk production. Cows fed on crop residues, such as straw, are significantly lower-cost producers of milk than high-yielding, grain-fed dairy cows.

3.2 Building on Success

In the East African dairy sector, small farmers have become key producers within a profitable supply chain. Similar examples of small farmer involvement can be found in export-oriented horticultural and nut sectors, for example, green beans, baby corn and cashews. It is unlikely SSA livestock production will be competitive internationally for some time. Major challenges in meeting SPS standards still need to be overcome (see section 6). Successful support to SSA's livestock sector in the coming decade needs to utilise the comparative advantages of small farmers and improve their capacity to consistently and profitably produce quality produce, as defined by African consumers. A dynamic smallholder sector generates local demand for locally-produced goods and services. In turn, this can spur sustainable non-farm employment growth in services, agro-processing and small-scale manufacturing. Doing this at scale and to the benefit of the poor will require improved infrastructure and appropriate policies at regional and national level. Public policy has a key role to play in assisting the private-sector to reduce the transaction costs that increasingly exclude smallholders from participating in growing livestock markets. Policies that support the voice and build the capacity of inclusive farmer organisations to exert pressure and increase demand for appropriate research and other services must also be enacted.

As Scoones and Wolmer recently concluded...

There is an enormous amount of policy talk about what constitutes a “pro-poor,” policy. But much of this descends into confusion and circularity as everything is brought into the fold. Nearly everything can be justified as “pro-poor,” as long as you include some (often wildly heroic) assumptions about how the benefits trickle down, link and multiply. What is needed, instead of these vacuous and generic statements, is a more rigorous framework for asking what intervention is likely to have a wide, sustained impact on poverty reduction and livelihood improvement²⁷.

The following sections (4, 5, 6) focus on areas that appear to be some of the “low-hanging fruit,” in terms of improving production and market access for small livestock farmers in SSA. These areas have been identified through consultations with key informants and literature review. They are areas that need to be successful if GALVmed is to achieve its own goal of “making available animal health products to poor livestock keepers in low income countries that are affordable and technically suitable.” The companies needed to invest in the commercialisation of GALVmed's new products will continue to shy away whilst the livestock sector in SSA remains uncompetitive.





Some areas have not been covered in the paper because they are, arguably, either deemed to be adequately covered by others or too broad for a livestock-specific paper. Examples of pressing issues relevant to Africa's livestock sector but not discussed directly in this paper include:

- Emphasising small livestock: these often require less start-up capital and can be easily raised by poorer people with limited land resources. This paper does specifically address the need to target small livestock species as this has been adequately discussed by others^{28 29 30}.
- Payment for ecosystem services in dryland areas: in 2007 carbon markets made transactions worth more than US\$64 billion. Because of global concern with climate change, it is expected that carbon markets will develop more rapidly and with deeper financial backing than other markets for ecosystem services. Management practices that increase organic matter inputs to Africa's vast areas of rangeland soils are well understood but not well known about. There are therefore potentially huge investments to be made if rangelands become eligible under the clean development mechanism (CDM) of the Kyoto agreement and other pre-compliance carbon trading systems, as they are likely to do so. Currently, the only purchasers of rangeland carbon credits are in the voluntary market³¹.
- Provision of effective extension services: support for sustainable agricultural intensification is being spearheaded by the newly-established Global Forum for Rural Advisory Services (GFRAS), which is made up of various stakeholders worldwide with an interest and role in rural advisory services. The Forum provides a voice for advisory services within global policy dialogues and supports the development and synthesis of evidence-based approaches and policies for improving the effectiveness of and investment in rural advisory services³². GFRAS also supports the African Forum for Agricultural Advisory Services (AFAAS) which is housed within the Forum for Agricultural Research in Africa (FARA).
- Index-based livestock insurance through the creation of insurance markets: weather-related events, such as drought, whose occurrence can be calculated and associated to a defined index, are being researched and advocated as a way to make the benefits of insurance available to poor and small farmers. The International Livestock Research Institute in Nairobi, in collaboration with US-based universities and insurance companies, is spearheading research and pilot trials in Africa³³. The World Bank has piloted a similar scheme in Mongolia³⁴. The International Fund for Agricultural Development (IFAD) and the World Food Programme (WFP) have also documented recent lessons learned in weather-index insurance³⁵. An alternative to weather-related insurance is epidemic livestock disease insurance. The OIE continues to investigate the feasibility of disease outbreak schemes for developing countries. Existing schemes are dependent upon an established government disease prevention and control programme being in place and the structure and degree of commercialisation of the livestock sector³⁹.
- Land Tenure: this remains a fundamental requirement for nearly all agricultural investment and sustainable agricultural intensification and is being addressed by numerous international development agencies.
- Animal genetic resources: these are an essential component and biological basis for agricultural intensification in the developing world. The genetically diverse and well adapted traits of Africa's livestock do need to be better harnessed to meet the continent's needs in coming decades. FAO continues to spearhead initiatives to conserve animal genetic resources so that breakthroughs in livestock reproductive technologies and functional genomics can be applied^{36 37}. They are supported by key partners such as ILRI and specific projects; for example the Dairy Genetics East Africa project³⁸, designed following a comprehensive review of animal genetic resource constraints by the Bill and Melinda Gates Foundation.

4 Animal Health

4.1 Animal Health in Africa

Literature review and interviews carried out for the compilation of this paper reveal that improved animal health remains vital for Africa. It ensures livestock production is competitive and addresses the significant transboundary animal diseases and zoonotic disease challenges facing the Continent. African veterinary services are relatively poorly financed and equipped to deal with the challenges³⁹. Some commentators and organisations felt that animal health, particularly the control of trade-significant transboundary animal diseases, have been supported by policy makers and donors to the detriment of more mundane and arguably more challenging husbandry issues such as livestock nutrition, genetics and pasture management.

In terms of poverty reduction, all agree that veterinary services in Africa are failing to adequately meet the needs of poor and small farmers, particularly those living in remote and marginalised areas. This section explores some of the reasons for this situation and asks what can be done, where are the quick wins in terms of improving animal health in rural areas and who is addressing some of these issues.

The scale of the disease problem certainly warrants concern. Africa hosts more serious diseases than any other continent. More than 90% of the diseases of livestock and poultry listed by the World Organisation for Animal Health (OIE) occur in Africa. Most serious and neglected zoonoses occur throughout SSA, eg. anthrax, rabies, brucellosis,

bovine TB, zoonotic trypanosomosis, echinococcosis, cysticercosis and leishmaniasis. Sidibé estimated livestock mortality alone is costing an estimated US\$2 billion per year in SSA⁴⁰ and others estimate losses due to preventable livestock diseases amount to US\$4 billion per year – this is about a quarter of the total annual productive value of livestock in Africa⁴¹.

In October 2007, a conference co-organised by the World Bank and OIE in collaboration with FAO entitled “Global Animal health Initiative: the Way Forward,” concluded that the current state of veterinary services and preparedness levels in developing/transition countries continues to pose a real threat to the ability of preventing and controlling major disease⁴². Just how unprepared African veterinary services are is not easy to determine. Even relatively simple numerical evidence, such as numbers of veterinary personnel per livestock unit, is not obtainable. The only significant systematic data available on personnel is reported to the OIE by member countries. However, review of this data³⁹ showed that it is commonly inaccurate and, to date, the reporting format has not allowed differentiation between different categories of veterinary personnel, whether public, private or para-professionals. Recent performance of veterinary services (PVS) reviews carried out by OIE are now obtaining more accurate information. PVS is a comprehensive, staged approach to providing targeted support for the systematic strengthening of veterinary services based on international standards and is described in more detail in Annex 1.



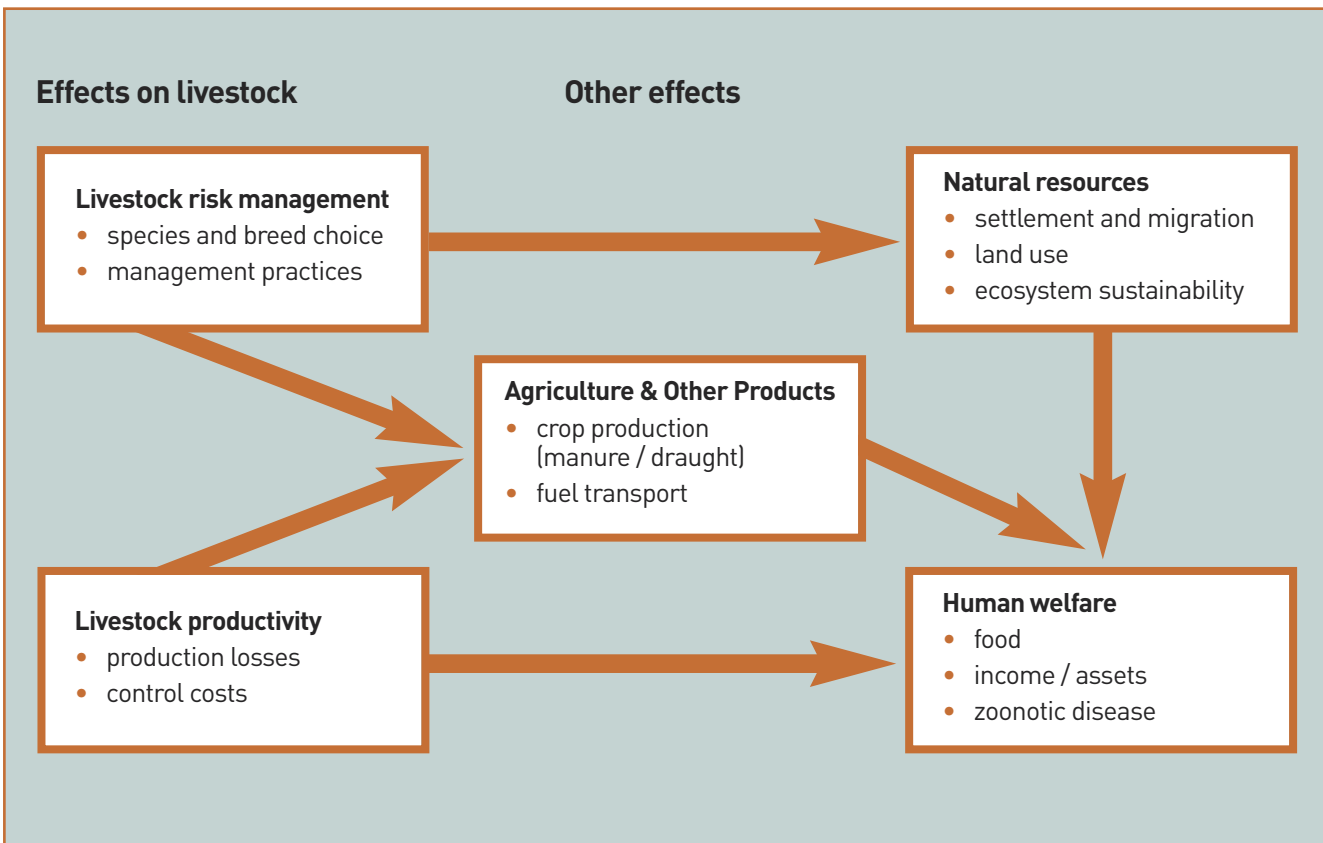
4.2 Veterinary Services and the Poor

The extent to which poor farmers believe animal health is a vital production issue cannot be generalised because of the great variation in farming systems across Africa. Perry *et al* 2001 grouped diseases into categories based on the way they constrain poverty alleviation⁴³. Whilst the voice of the farmers is largely missing from published literature, few people who have engaged with farmers that depend on livestock for a proportion of their livelihood would disagree that they nearly always rank animal health as a major problem. This ranking is often recorded using participatory appraisal tools as part of project planning by NGOs^{44 45 46}. A schematic of the socio-economic consequences of disease in mixed livestock/crop farming systems is shown in Figure 3.



Cartoon courtesy of AU/IBAR Conference on Primary Animal Health Care in the 21st Century: Shaping the Rules, Policies and Institutions (http://www.eldis.org/fulltext/cape_new/MombasaProceedingsEnglish.pdf)

Figure 3 **Multiple Effects of Animal Disease on Livestock, Agricultural Production, Natural Resources and Human Welfare in Farming Systems**²³



It is difficult to gauge the views of senior veterinary policy makers on the need to improve veterinary service delivery to poor farmers. A survey carried out in 1995 of 56 CVOs attending an OIE conference⁴⁷ encouragingly suggested that, compared to European CVOs, the needs of small-scale farmers were uppermost in the minds of African CVOs.

In the same study, CVOs felt that private vets should be delivering services to small farmers and in line with this, privatised veterinary services have been steadily growing in Africa since the mid 1980s. They initially failed to flourish in most countries due to a complex mix of reasons that included:

- poor macroeconomic conditions;
- weak incentives for the State veterinary services to withdraw from supplying veterinary care;
- difficulties in establishing profitable private practices in rural areas despite major privatisation schemes;

- unsupportive legislation and poor enforcement of supportive legislation;
- resistance of senior veterinary policy makers to agreeing a role for veterinary para-professionals in private practice;
- competition from 'over the counter sales' of veterinary drugs by pharmacists and agro-dealers;
- Counterfeit and poor quality drugs.

Unfortunately, some of these challenges remain and whilst private practices can be found in nearly all urban and peri-urban areas, they only infrequently reach poor and small farmers in rural areas. Since 2007, 43 African countries have benefited from an initial PVS evaluation of their veterinary services. As these reviews are repeated and gaps in veterinary services are filled according to international standards, coverage should improve.



4.3 Zoonotic Disease and the Poor

Zoonotic diseases particularly affect the poor because of the strong links between poverty and living closely with animal reservoirs of disease, inadequate access to effective treatment, diagnostic difficulties and having to carry the dual burden of human ill health and poor animal productivity⁴⁸. Zoonotic diseases tend to be under-diagnosed, particularly among poor people and their livestock, and this under-diagnosis reflects the limited capacity and coverage of both human health and veterinary services.

Concern about emerging zoonotic and food-borne disease has increased dramatically in recent years. Of the 35 leading communicable human diseases, as identified by global disease burden studies⁴, Fifteen are either zoonoses or have a zoonotic component⁴⁹. Over the past 15 years, 75% of human diseases that have emerged as epidemics have been of animal origin and overall, 60% of human pathogens are considered to be zoonotic⁵⁰. Animal-source foods are also the most common cause of food poisoning globally, a major cause of lost economic output and a further challenge to small producer market access.

4 Global burden of disease (GBD) studies carried out by WHO, measure burden of disease using the disability-adjusted life year (DALY). This time-based measure combines years of life lost due to premature mortality and years of life lived in states of less than full health.

The highly pathogenic avian influenza (HPAI) scare stimulated unprecedented funding to support research, control and eradication activities and spurred greater integration of human and animal health systems in an ecosystem context – the One World One Health (OWOH) strategy (now commonly known as ‘One Health’). Whilst excellent progress has been made in terms of coordination, preparedness and response to HPAI, there are still many institutional problems facing OWOH responses, both in developing and developed countries. Analysis of HPAI field responses in Asia has demonstrated that the standard technical and policy solutions often don’t work as planned. The major lesson from this is that greater account of local context needs to be taken into consideration when protecting public health. This includes understanding the economic structure of production and the political context. Field studies have shown there are clear winners and losers when protecting the public good and it is often the poor that lose out if they are subject to top-down technocratic, expert driven solutions. Scoones and colleagues have put forward a series of changes designed to ensure that future responses to zoonotic disease outbreaks, including OWOH, are effective, equitable and resilient⁵¹. The suggestions are long-term goals as they contain four ambitious transformations that will require generational change to standard outbreak response. They include for example:

- 1 Greater emphasis on managing disease in endemic settings and identifying hot spots for disease outbreaks;
- 2 Taking a more multi-disciplinary approach and examining the zoonoses from a livelihoods and socio-ecological systems perspective;
- 3 Taking a much more adaptive and learning approach rather than top down surveillance and control approach;
- 4 Utilisation of more decentralised and localised organisations.

In contrast to the attention lavished on emerging diseases such as HPAI, the so-called “neglected zoonoses,” still remain neglected. WHO has classified seven zoonoses as neglected: anthrax, bovine TB, brucellosis, cysticercosis and neurocysticercosis, cystic echinococcosis or hydatid disease, rabies and human African trypanosomiasis. The integrated control of neglected zoonoses (ICONZ) group works on the control, in animals, of the seven neglected zoonosis of WHO and leishmaniasis. ICONZ unites experts from 21 European and African partner institutes but has no private sector involvement.

The role of the private sector, particularly large pharmaceutical companies, in the control of emerging and neglected zoonoses from the animal disease perspective appears to be relatively small. The human pharmaceutical industry has benefited from reliable markets that incentivise investment in the manufacture and sale of human medicines and vaccines for zoonoses. Industry experts have commented that some pharmaceutical companies are more interested in the livestock sector, as a result of the profits made from responding to emerging disease threats in humans. However, this could not be verified. It is likely that the creation of reliable markets through government-sponsored animal disease eradication programs/vaccine or antigen banks will remain key factors in driving significant investment in veterinary products. Big pharmaceutical companies have a good corporate social responsibility (CSR) track record for human disease. Recent examples include the October 2010 announcement by GlaxoSmithKline of its commitment to donate albendazole (400 million treatments per year) to treat children at risk of intestinal worms for the next five years and the 2009 commitment by Pfizer and Mylan to reduce the cost of antiretroviral and tuberculosis treatments for HIV/AIDs sufferers in the developing world. GALVmed has been successful in working with pharmaceutical companies on veterinary health issues of relevance to poor farmers. Further understanding and promotion of “One Health” approaches could in future help justify increased CSR activities for neglected zoonoses.



4.4 Improving Animal Health Services in Rural Areas

Improving veterinary services to the rural poor is a pressing need in terms of improved productivity, controlling zoonoses and putting in place mechanisms to allow the prompt detection and control of epizootics. Three topics have been identified as key to advancing effective veterinary service delivery to rural areas.

4.4.1 Assuring Quality of Veterinary Vaccines and Medicines

Farmers, even poor farmers, are normally willing to pay for efficacious veterinary medicines. They also have strong brand loyalty for quality products and yet all those consulted before compiling this strategy paper agree that the quality of veterinary medicines reaching small farmers in Africa is poor and getting worse. The situation for larger commercial farmers is tolerable, as they generally have close links to distributors who are more likely to stock quality products. For small farmers, quality remains a significant issue. Most analysis on drug quality has been done on trypanocides because of the growing resistance to the limited number of compounds available to treat this disease. In countries with trypanosomiasis, trypanocides represent 40–50% of the market for veterinary medicinal products⁵², worth an estimated \$35–40 million per annum across SSA⁵³. However in West Africa, analysis showed that 70–100% of trypanocides did not conform to what was stated to be in the product according to the data sheet supplied⁵⁹. Similar analysis of other therapeutic groups suggests as many as two thirds of antibiotics and anthelmintics do not conform. This includes products bought from formal and informal markets. Analysis carried out in East Africa showed that some anthelmintics contained no active ingredient at all and the researchers concluded that “many anthelmintic preparations marketed in Kenya are clearly of very poor quality”⁵⁴.

In addition to development of drug resistance, drug quality is vital because the poor can't afford to waste their money on sub-standard products. Those small farmers who invest in improving the quality of their stock, either nutritionally, genetically or through improved housing, need veterinary products to protect their investments and match their improved outputs. Whilst it is difficult for private vets and veterinary para-professionals to build reputations when selling sub-standard products, industry commentators state that many vendors of veterinary drugs knowingly sell sub-standard products either because the profit margins are higher or because they can't compete on price if they stock quality products. It appears to be a race to the bottom with lack of regulation and reduced purchasing power speeding up the process. Furthermore, major pharmaceutical companies are unwilling to invest in research and commercialisation of new Africa-specific products if they risk being undermined by the inability of national authorities to protect their investment from counterfeits, doctoring of the product and generic copies.

Lack of functioning regulatory and quality control mechanisms are a key concern⁵⁵. West African commentators cited lack of legislation for veterinary medicines⁵⁶ as a key driver to improved and harmonised legislation⁵⁷. In east and southern Africa, industry representatives state that legislation is adequate, what is missing is the capacity to enforce the regulations⁵⁸. Chronically underfunded and weak registration authorities remain a factor in poor quality control, as the parameters for registration are either poorly defined or not utilised and unregistered products are not removed from the market. Senegal, for example, has 140 veterinary drugs registered but more than 1000 different veterinary drugs marketed⁵⁹. This is typical of most countries in SSA, with the exception of S. Africa and Namibia⁵⁸.

4.4.1.1 International Veterinary Medicine Initiatives

There are currently several quality control and assurance efforts being made that can usefully be linked up and supported. Experts consulted for this paper believe a regional approach is most appropriate and practical, as it takes advantage of limited budgets, expertise and laboratory capacity. This view is supported by the success of the regional model adopted by Europe. Efforts to harmonise drug registration globally through the “International Cooperation on Harmonisation of Technical Requirements for Registration of Veterinary Medicinal Products,” (VICH) will be useful, although African states and regional economic communities (RECs) are discovering slightly different models suit their needs.

In Africa the eight states comprising the West African Economic and Monetary Union (WAEMU) or the L’Union Economique et Monétaire Ouest Africaine (UEMOA)⁵ are relatively advanced in their regional harmonisation of regulations governing veterinary medicines. Lessons learnt from UEMOA can support decision making in other RECs. Making such regulatory and quality control systems operational is important and could be a relatively quick win for animal health services in Africa. Annex 4 highlights progress made on harmonisation of veterinary medicines regulations and policy in the UEMOA region, some of the lessons learnt in Europe over the past 30 years and provides an overview of VICH.

Another important collaboration, started by FAO, the United Nations Industrial Development Organization (UNIDO) and the International Federation for Animal Health (IFAH), focuses on the quality control and quality assurance of trypanocides. This initiative has the potential to support on-going efforts within RECs to harmonise veterinary medicines legislation and build enforcement capacity. If it succeeds, the initiative will boost the confidence of farmers, practitioners, national authorities and pharmaceutical companies

that quality veterinary products can be identified and recognised. The collaboration began in 2001 and although slow to pick up momentum, it is now gaining support and interest as pharmaceutical companies recognise a growing but challenging market in Africa. The initiative, building on experience from the human health sector, has developed “monographs,” for two important trypanocides⁶. These monographs, once agreed, will be published by the OIE and possibly in the international pharmacopoeia⁶⁰. This will allow two key opportunities:

- 1 Small drug companies with the necessary lab facilities can use the details published to manufacture the drugs in Africa (as patents have expired).
- 2 Laboratories can analyse the trypanocides on the market against the international standard and publish the results.

The project partners have identified two laboratories, one in East and one in West Africa, to carry out this analysis but further funding is required to equip them and ensure the results are widely distributed. To ensure success, the project still requires improved enforcement capacity at national level, private sector involvement and the means to raise awareness at all levels. For example, farmers need to be informed of the dangers of using sub-standard products. This initiative is complementary to and reliant upon regional initiatives such as the one in UEMOA.

If the project is successful with the two trypanocides, the same principle can be used for veterinary anthelmintics, antibiotics, acaracides and insecticides. However, quality tests will not protect stakeholders from counterfeit products. To counter this problem there needs to be a system of marking genuine products in some standardised and unique way. Commentators have suggested that the African Union’s Pan-African Veterinary Vaccine Centre (PANVAC) might have a role in assuring which products are genuine.

⁵ Benin, Burkina Faso, Côte d’Ivoire, Guinea Bissau, Mali, Niger, Senegal and Togo

⁶ diminazene aceturate and isometamidium

4.4.2 Accreditation of Quality Products

The African market is still overcrowded by huge quantities of fake and low quality “generic,” veterinary drugs⁵⁹. As farmers demand higher levels of veterinary service, they will stop using low-quality generics. This is a time when unscrupulous manufacturers are likely to increase production of counterfeits of quality products. There is growing interest in Africa and Asia in the use of mobile phone and bar code technology to avoid fake products. Ghana, for example, is testing a system where a drug purchaser simply sends a code embossed on the body of the product in a regular SMS to a dedicated access number, the buyer then receives a real time response authenticating the product. One way of scaling up and harmonising novel systems might be through the existing Pan African Veterinary Vaccine Centre (PANVAC).

PANVAC was established in 1986 with FAO support and played a key role in quality assuring rinderpest vaccine throughout the Pan-African rinderpest campaign (PARC). A review of PARC declared: “The recent success of PARC clearly demonstrated that no amount of vehicles, syringes, trained personnel, communication materials, would have eliminated rinderpest if the vaccine batches used were of poor quality”⁶¹. The secondary and independent level of quality control assessment assured by PANVAC played a major role in rinderpest eradication and a sustained improvement in the quality of vaccines against rinderpest and contagious bovine pleuro-pneumonia produced in Africa⁶².

Over the years, PANVAC has received funding support from numerous donors including UNDP, Japan, the EC and FAO. In 2004 the Centre was officially launched as an African Union regional centre, with its headquarters at Debre Zeit (Ethiopia) and funding contributed by the Department of Rural Economy and Agriculture.

Notable achievements of PANVAC include⁶³:

- Improved vaccine production by PANVAC-supported laboratories through a vaccine quality assurance programme that led to priority vaccine (CBPP, RP, PPR vaccines) pass rates close to 80%, as opposed to less than 30% at the inception of PANVAC;
- The establishment and maintenance of an African repository of well characterized reference biological materials from which supply to most of veterinary vaccines production laboratories of the region has been accomplished;
- The training of over 300 veterinarians and technicians from vaccine production laboratories in Africa, Asia, Middle East and Europe;

- The development and transfer of new vaccine technologies e.g. the Xerovac process for the manufacture of heat-tolerant live vaccines;
- The building of an extensive range of scientific collaborative linkages and partnerships with leading international institutions and organizations.

PANVAC was recently given a vote of confidence by African Ministers, with calls for further staff and resources that will give PANVAC a key capacity-building role and assuring that all stocks of rinderpest vaccine are removed from African labs.

PANVAC was founded in the belief that “the health of livestock in Africa can be substantially improved by the use of good quality vaccines and diagnostic reagents.” This view was re-endorsed by 43 African countries attending a 2010 regional training for OIE focal points for veterinary products in Africa⁶⁴.

The same belief can be extended to veterinary medicines. Although PANVAC focuses on vaccine production and quality, its mandate could be extended to include veterinary medicines, should the African Union Commission decide that this would be practical and useful. PANVAC’s mission statement already includes the provision of international independent quality control, standardization and harmonization, transfer of technologies, provision of training and technical support services to quality control laboratories and the production and distribution of essential biological reagents.

The involvement of PANVAC in veterinary medicine quality control could lead to continental oversight of vaccine and medicine quality that would support the harmonization efforts of the RECs, AU/IBAR and VICH. This oversight could extend to assessments for new veterinary dossiers and products, whereby PANVAC hosts a pool of recognised experts that countries can utilise on a “per application,” basis. An opportunity for an enhanced role for PANVAC opened up in 2011 through the EC-funded programme “reinforcing veterinary governance in Africa.” This programme has the specific objective of creating an institutional environment conducive to the provision of affordable, accessible and sustainable quality veterinary services in Africa. Whilst programme results include harmonisation of regulatory frameworks at regional level with RECs, to what extent this will include veterinary drug quality regulations has yet to be determined.

4.4.3 Improving Veterinary Service Delivery in Rural Areas

Developing countries face significant challenges upgrading veterinary service delivery; these include growing technical requirements, consumer expectations and opportunities for international trade. The capacity of veterinary services to address changing production and consumer systems, globalisation and shifting institutional perspectives have been described in detail by the OIE⁶⁵. Consultations carried out for this paper highlighted the urgent need to establish profitable and effective private veterinary practices in rural Africa where the vast majority of farmers operate (See farmers' quotations in Annex 2). These practices need to complement public veterinary services through the contracted provision of surveillance and disease control services. Such contracting of services, commonly known as provision of a sanitary mandate, have proved effective in supporting the viability of private practices in some African countries⁶⁶. Private practices also need access to quality drugs and vaccines.

How to privatise vet services in rural Africa has challenged policy makers, veterinary associations and donors for the past 25 years^{67 68 69 70}, with successes in areas of high agricultural potential. However, the expansion of private practices to more marginal areas with lower productivity and wealth creation is weak. In Kenya, for example, marginal areas cover about 80% of the country and possess the bulk of the national livestock biomass. These areas have the greatest potential for both domestic and export livestock trade, but the majority of livestock producers in these areas still don't have access to adequate disease control⁷¹.



Cartoon courtesy of AU/IBAR Conference on Primary Animal Health Care in the 21st Century: Shaping the Rules, Policies and Institutions (http://www.eldis.org/fulltext/cape_new/MombasaProceedingsEnglish.pdf)

The reasons for the lack of coverage in rural areas are fairly straight forward. In common with many farm animal veterinary practices in industrialised countries, the profitability of emerging veterinary practices in rural areas of Africa is largely determined by the volume of drug sales, rather than hands-on clinical work. It is often physically impossible to access communities who may be hundreds of kilometres from the nearest urban centre and who can only be reached by poor roads or on foot. Where they can be reached by road, Farm Africa showed that it costs four times more for a vet in a car to travel 14km to treat an animal than for a local para-professional to do the same job⁷².





One of the problematic issues over the past decades has been the reluctance of the veterinary establishment to allow private vets to legally utilise veterinary para-professionals (para-vets) to boost their business viability. The para-vet can increase the area a private practice covers, build links with widely-dispersed and often inaccessible clients, increase turnover and make a business profitable^{73 74 75}. This reluctance is based on concerns about quality of service, accuracy of diagnoses, un-controlled drug distribution, the possibility of drug residues and the quality of advice given⁷⁶. These are legitimate concerns that do need to be managed. The concerns are compounded by fears within the profession of not being able to replace para-vets with vets once para-vets are legally recognised. However there is some evidence that attitudes are slowly changing. Since 2004, OIE guidelines allow for veterinary para-professionals^{7 77}. A survey of chief vets carried out by OIE in 2009 showed a generally positive attitude towards para-professionals and CAHWs and that these

cadres were the preferred options to leveraging and extending the services available by vets to small farmers⁷⁸. Unfortunately, these favourable attitudes are rarely supported by regulatory change. Senior vets may turn a blind eye to the use of para-vets for surveillance and outbreak control in remote areas because they know there are few practical alternatives, but don't provide the legal recognition that a private practice would need to utilise para-vets as business strategy. The scaling up of private practices that utilise para-vets therefore remains slow, despite strong evidence of their effectiveness^{79 80 81 82 83} (Box 4). Scaling up profitable private practice in rural Africa using veterinary supervised para-vets is, arguably, a quick win in terms of addressing producer competitiveness and complementing improved drug quality. Despite the evidence mentioned in Box 4, the sustainability of mechanisms using teams of veterinarians supported by veterinary para-professionals in remote areas still needs further testing in SSA .

7 A Veterinary para-professional: means a person who, for the purposes of the OIE Terrestrial Code, is authorised by the veterinary statutory body to carry out certain designated tasks (dependent upon the category of veterinary para-professional) in a territory, and delegated to them under the responsibility and direction of a veterinarian. The tasks for each category of veterinary para-professional should be defined by the veterinary statutory body depending on qualifications and training, and according to need.

Box 4 **Para-Professionals Improving Access to Veterinary Services**⁸³

In Senegal, the increasing presence of private veterinarians in the pastoral zone of Linguère led to the emergence of supportive links between these veterinarians and CAHWs that clearly fitted economic theory⁸⁴. A survey conducted in 2000 showed that 90% of CAHWs interviewed were working with a private veterinarian and 87% reported that veterinarians were not their competitors.

In northwest Kenya, a private veterinarian has been profitably running a private practice for the past eight years, which uses animal health assistants who in turn, supervise and supply a network of CAHWs in areas inhabited by Pokot pastoralists⁸⁵. The practice is of interest because its location enables it to service both transhumant pastoralist communities and sedentary farmers.

A study in Kenya in 2002 assessed the performance of para-vets who both ran private pharmacies and were employed by the government⁸⁶. The overall system was overseen by the District Veterinary Officer. At the time of the study, the system had been operating for more than three years without any external assistance and was judged according to financial indicators, the technical competence of CAHWs and farmers' perceptions of CAHWs relative to other service providers. Farmers consistently ranked the community-based animal health workers (CAHWs) higher than other types of service provider in terms of three main indicators viz. affordability, accessibility and outcome of treatments, and a clear mutually-beneficial arrangement existed between the CAHWs and their supervisors. The study suggested that the proximity of CAHWs to the community increased the likelihood of successful treatments.

In 2008, five veterinary pharmacies received credit from a Nairobi-based veterinary drug distributor. These pharmacies then acted as a source of high-quality medicines for CAHWs. A participatory impact assessment of this initiative reported the following results⁸⁷:

- On average, the CAHW veterinary stock turnover increased from 19.5% before the revitalization of the pharmacies to 80.5% at the time of the assessment.
- 51,000 animals were profitably treated over a 10-month period; each CAHW treated around 177 cases per month and received sufficient financial incentive to keep them motivated and working.
- Case fatality rates in CAHW-treated herds were significantly lower than owner-treated herds (at the 95% confidence level) for 9 out of 11 diseases assessed. This was partly attributed to the quality of drugs the CAHWs were using.
- In addition to treatment, the CAHWs regularly reported disease outbreaks to the government veterinary services.
- Nairobi-based veterinary drug distributor (Vet Agro) is planning to expand to new remote areas using a similar model.

Box 5 A Franchise Approach to Livestock Service Delivery

In 2011, Sidai Africa Limited (<http://sidai.com/>), a social enterprise owned by FARM-Africa, with support from the Bill and Melinda Gates Foundation, announced plans to establish 150 branded, quality assured livestock service franchise outlets across Kenya.

Over a period of 4.5 years the scheme plans to train 150, mainly veterinary, franchise operators and help 300,000 under-served livestock keepers in rural Kenya gain access to affordable livestock products and services.

The outlets will supply quality veterinary drugs, vaccines, feed, breed and farm inputs and have the flexibility to source and test new products such as diagnostic tools and insurance, or services such as training and data capture, that add value to the franchisees' business and their customers.

Whilst livestock keepers that are under-served by existing service providers will be targeted, the businesses will also serve wealthier livestock keepers and revenue from these customers (such as commercial dairy farmers or customers with large herds in pastoralist areas) will ensure the financial viability of each franchise outlet and the overall franchise business. The overall franchise aims to provide a nationwide delivery infrastructure for vaccines developed by GALVmed, as part of their "Protecting livestock, saving human life" project.

If successful, the franchise predicts that it could reduce livestock mortality rates from 25% (currently) to 15% by year 5. If the model proves successful, it could be scaled up to other countries.



4.5 Discussion

The building blocks of effective veterinary services are medicines and vaccines that work and a cadre of trained professionals and para-professionals who know when and how to use them appropriately. Efficacy and safety for a reasonable price are crucial. Current efforts to improve quality are centred on building the correct policies and institutions to ensure effective registration processes, enforcement of legislation and quality testing. Findings of OIE PVS reviews have reinforced OIE's advocacy of improved governance of veterinary services, including the modernisation and harmonisation of veterinary legislation^{88 89}. A number of important initiatives have started in Africa that need to be scaled up and linked together. Key lessons are being learnt in the UEMOA region that could be utilised by other RECs. Progress by VICH to harmonise the technical requirements for registration of veterinary medicines internationally need to be relevant to developing countries. FAO/IFAH efforts to produce veterinary drug monographs that can be used both for quality checking and local manufacture need to be expanded and publicised. To counter increasingly sophisticated counterfeit schemes, there needs to be a widely recognised assurance system, perhaps building on the success of PANVAC's work with vaccines.

Concurrent to efforts to improve drug registration and quality, Africa's livestock policy makers still need to support private veterinarians providing services to small farmers in rural areas. There is tremendous demand for such services, but the conventional model of private practice is not economically viable. There is strong evidence that veterinary-supervised para-professionals, including CAHWs, allow private practices, even in the most remote areas, to be profitable. Once in place, such practices can be contracted to provide vital support to government epidemio-surveillance and outbreak control responsibilities. There is momentum in this area, with numerous local and national initiatives; the most recent being the veterinary franchise initiative supported by Farm Africa and the BMGF in Kenya (Box 5). But these need to be linked up to

policy and legislative change at regional level. Only a minority of vets will risk employing para-professionals, particularly CAHWs, to carry out tasks that are considered illegal. This is an area where AU/IBAR has considerable experience. IBAR housed the participatory community-based animal health and vaccination (PARC-VAC) project from 1997 to 2000 and the community-based animal health and participatory epidemiology (CAPE) project from 2001 to 2005. Both projects were instrumental in influencing policy and establishing private veterinary practices that are still operating today. In the Horn of Africa the Intergovernmental Authority on Development's (IGAD) Livestock Policy Initiative, has developed policy hubs to address issues such as the harmonisation and regulation of training standards governing para-professionals across seven member states.

Overarching all the above efforts to improve drug quality and availability in rural areas are the OIE's PVS process, Gap Analysis and its work to upgrade and harmonise veterinary legislation. The 2011 reinforcing veterinary governance in Africa programme, funded by the EC, is in line with IBAR's medium term strategy and the CAADP country and regional compacts. It builds on OIE PVS reviews and FAO's national medium term priority frameworks and will be implemented by AU/IBAR and its ALive partnership, in collaboration with RECs and AU member states, with technical support from OIE and FAO. The specific objective of the programme is to "create an institutional environment conducive to the provision of affordable, accessible and sustainable quality veterinary services in Africa". The bulk of the funding focuses on awareness creation, decision making and policy formulation in animal health, and includes a set of pilot activities to be implemented at national level aiming at creating examples of good practices replicable at least at regional level. It is hoped that some of these pilot activities will focus on issues of veterinary medicine quality and service delivery to remote rural areas.



To achieve its goals, GALVmed has a vested interest in ensuring both the establishment of effective, profitable private veterinary practices in rural areas and workable mechanisms for ensuring drug quality. Ensuring both would encourage investment by pharmaceutical companies in Africa and build upon the product research work that GALVmed is currently doing and may do more of in a second phase of its work. GALVmed has existing links with all of the key players working in this area and is well positioned to facilitate a discussion on how to bring the various work streams in line and bring in new expertise and voices as necessary. For example, GALVmed recently co-funded the 2010 regional training for OIE focal points for veterinary products in Africa. During the training, GALVmed convened a side event on the future of harmonisation for vaccine registration in Africa. The event established that there is strong support for a process of mutual recognition of vaccines in Africa, where one country's regulatory authority has issued a licence for a vaccine, other countries would consider recognising that assessment and authorisation, thereby reducing the significant duplication of registration efforts that currently exist. This could reduce regulatory costs and speed the passage of essential vaccines to the people who need them most.

In terms of improving the control and prevention of neglected zoonotic disease, all commentators agree, this requires multidisciplinary, intersectoral and cross-cultural efforts by health, agriculture, environment and other sectors of society at the national and regional level. Effective control of zoonoses also needs strong international cooperation as exemplified by ICONZ and the collaborations between OIE, FAO and WHO⁹⁰. The role of the private sector needs to be better clarified and this presents some possibilities for GALVmed to consider. Given that GALVmed is already working with partners to develop new vaccine and treatment regimes for porcine cysticercosis and bearing in mind the relatively high impact of zoonoses on the poor, GALVmed might well consider greater involvement with other neglected zoonoses. There is also scope for GALVmed to consider commercialising new penicillin diagnostic tests for neglected zoonoses and to use its links with the pharmaceutical industry to increase industry support for the control of neglected zoonoses.

5 Ruminant Nutrition and Innovation



Livestock nutrition is fundamental to improving productivity and competitiveness. Nutrition also plays a vital role in supporting an animal's capacity to resist illness.

A key challenge for SSA is how to intensify production using locally-available feed, when that feed often lacks quality. With increasing rates of child malnutrition, increased utilisation of land for bio-fuel production and increases in cereal prices as oil-based input costs rise, SSA needs to maximise its use of human inedible feeds. This means improved ruminant nutrition. The efficiency of production of human edible products per unit of human-inedible products is higher for ruminants than for monogastric animals. In India, through the efforts of the National Dairy Development Board, milk production has been sustainably increased by feeding diets containing crop by-products: cereal straws and roughages and oilseed cakes, none of which compete with human food. In Africa, cereal residues are abundantly available, with 340 million tonnes per year in SSA, while production of oilseed cakes is 7.4 million tonnes per year⁹¹.

5.1 Lessons from Technology Adoption

There is an enormous amount of information on animal nutrition technologies available. Their introduction to farmers in the developing world has had varying degrees of success.

Some have been highly successful and produced significant impact on livelihoods. Others, whilst showing great potential, have failed to take hold despite numerous adoption attempts. Valuable lessons on how to support resource-poor farmers through the introduction of new technologies are available and are very relevant to GALVmed and its partners.

One technology that has yielded lessons is the treatment of straw with urea. For cereal crop residues, urea treatment increases organic matter digestibility by 5–10% units, nitrogen content of dry matter by about 1% and ad libitum intake by 25–50%⁹² resulting in cost-effective increases in growth and milk yields. Furthermore, the ammonia has a preservative effect on crop residues that allows them to be stored for use during lean feeding times such as the dry season. It all looks impressive on paper, yet despite proven results on research farms and repeated efforts to introduce the technology over the past 30 years, small farmers have not taken it up. Another impressive technology with a disappointing level of adoption by small farmers is silage production. Similarly, urea molasses multi-nutrient block technology has had mixed results, with success confined to regions that provided market opportunities for the animal products. Discussion on why these technologies have not been adopted by small farmers are summarised in Box 6.

Box 6 Lessons Learnt from Unsuccessful Efforts to Introduce Feed Technologies to Small Farmers ¹⁰⁰

- 1** It is important to understand the social context in which small farmers operate. They tend to have very low risk thresholds. Even when farmers agree it is a good technology, they may not use it. Subsistence farmers have many other priority jobs apart from livestock husbandry. It is vital to realise that women commonly do more than 70% of livestock-based activities and they are usually already over-burdened, have little time to spare for extra work and may never have been consulted about the new technology.
- 2** New technologies must be as simple and easy as possible. For example, when compounded cattle feed is introduced its uptake is normally fast (particularly for the dairy sector) as it requires no additional labour, there are clear delivery mechanisms and the availability of credit and the awareness of a quick economic return on the investment are relatively easy to realise.
- 3** The quick economic return is vital. There must be a direct effect on income generation, competitiveness with other farm enterprises in terms of land use and labour. Market linkages or the value chain needs to be in place. The availability of a market for the animal products has facilitated the adoption of nutritional technologies.
- 4** Understanding and developing partnerships is important. Business–farmer–scientist–extension worker interactions need to be strong and participatory. All these actors have particular experience and understanding of how they interact, their working practices and the policy environment in which they operate. Understanding these interactions can help to remove bottlenecks to technology adoption.
- 5** Institutional mechanisms need to be in position. This could be the capacity to provide extension services or model farms and certainly appropriate policies that provide incentives for key actors in the value chain.
- 6** The use of nutritional technologies at cooperative level (or farmers' association level) enhances adoption of technologies.



5.2 Agricultural Innovation Systems Approach

Recognition and understanding of factors that lead to successful adoption of feed and other agricultural technologies is constantly growing. Indeed the lessons shown in Box 6 are all encapsulated in the “agricultural innovation systems,” (AIS) approach, advocated by a number of agricultural development agencies⁹³, particularly the World Bank and research organisations, particularly the ILRI⁹⁴. The AIS approach is the result of lessons learnt from national agricultural research system and agricultural knowledge information system approaches of the 1980s and 90s. Essentially AIS is designed to make better use of new knowledge and design interventions that successfully build on research investments. The AIS approach has the following characteristics⁹⁵:

- It goes beyond strengthening of research systems per se and emphasizes development outcomes and growth arising from technology, knowledge generation and adoption.
- It draws attention to the totality of actors and factors needed for innovation and growth. The AIS approach is a less science-driven process.
- Emphasizes innovations deriving from an interactive, dynamic process that relies on collective action and multiple knowledge sources.
- Emphasizes the importance of interactions within a sector – is more inclusive and leverages the resources of different actors, e.g., the private sector role is more prominent, and civil society and farmer’s associations play an important role in facilitating collective action.
- Consolidates the role of the private sector and agribusiness – value chains are particularly important in the context of AIS.
- Brings to the fore the need to build the innovative capacity of the diverse actors, including agricultural education, in a coordinated manner.

- Is context specific and allows identification of opportunities and binding constraints and thereby develops more tailor made, incremental support and investments that respond to the development phase of the country, region or sector.

If an AIS approach had been taken 30 years ago with some of the nutrition technologies mentioned in section 5.1, understanding of where they could have been successfully adopted and why would be much stronger today. Recent analysis supported by the BMGF on which agricultural research has had developmental impact concluded that research works best when it is complemented by infrastructure development, institutional development, partnerships and policy support⁹⁶. A key objective of the AIS approach is to identify opportunities and binding constraints as the first step in designing more effective support and investments⁹⁷. Innovation system approaches are themselves constantly evolving. The US\$60 million Department for International Development (DFID)-supported ‘Research Into Use’ Project has recently described itself as an experiment in innovation and established a central research team to learn lessons from the project’s activities⁹⁸. Several of these lessons support GALVmed’s existing approach and provide ideas for possible future work. For example, focusing on supporting emerging nodes of creativity or experimenting with venture capital investment-style selection processes to identify business models and public-private sector partnerships.

GALVmed’s portfolio approach of bringing researchers and policy makers from public and private sectors together to discuss opportunities and constraints is not dissimilar to an AIS approach. As the organisation looks to the future and assesses how it might work with others to support small businesses and livestock farmers, it will be worth GALVmed not only increasing its capacity to support small businesses and farmers to have a voice in policy making but also becoming adept at using the latest AIS techniques to support livestock value chains and the opportunities mentioned in subsequent sections of this paper.



5.3 New Nutrition Technologies for Africa

There are a range of simple and highly technical feed technologies that might benefit from both an AIS and GALVmed portfolio review approach. An example of a simple technology with a potentially very high impact is the utilisation of oilseed meals/cakes in African ruminant production. It is a technology that has been adopted in South Asia but has not been adopted at scale in SSA. Most cereal crop residues are deficient in the protein, sulphur and other minerals vital for proper functioning of the rumen. Oil seed cakes supplement the deficiencies to improve rumen function and significantly increase productivity. For example, supplementation of a low quality pasture hay with cottonseed meal (CSM) can produce a four fold increase in liveweight gain when fed at 0.5% of body weight. Leng⁹⁹ showed that daily oilseed cake supplementation at 0.35% of body weight to steers produced a response of 1.2 kg live weight gain per kg of the supplement. This efficiency of conversion of oilseed cake to body weight is better than that of grains obtained in pigs. Whilst such a level of production will be affected by breed, animal health and other livestock management practices, the conversion of oilseed cakes to useful products should not be undervalued when compared to feeding human-edible grains to pigs or poultry. Such growth rates could make small holder production much more competitive. Furthermore, the technology could be utilised by both large and small ruminants.

FAO AGA has calculated that in 2007, 264,515 tonnes of oilseed cake were exported from sub-Saharan Africa and if this was strategically used within the continent, an additional 132,258 tonnes of meat could be produced. This could

reduce Africa's annual meat imports by 12.6%. Furthermore, importing oilseed cakes would be an attractive option. As one tonne of oilseed imported has a value of US\$208 in sub-Saharan Africa and one tonne of oilseed cake, when strategically fed, produces 0.50 tonne of meat (with a value of US\$1691 when exported and \$610 when imported into sub-Saharan Africa) a substantial value addition could be achieved by using oilseed cakes for meat production.

There would be further significant spin offs to oil seed cake supplementation. Supplementation has shown to reduce the age of first calving from 4 – 5 years to 1.5 – 2 years and inter-calving interval from over 2.5 years to 1 – 1.5 years. Enhancing reproductive efficiency alone results in an approximately two-fold increase in the number of calves for fattening. Higher immunity due to good nutrition could decrease the occurrence of diseases. In addition, good nutrition of the dam would decrease the number of calves that die at birth or soon after birth. This higher productivity would decrease emissions of methane per unit of animal product formation. Finally, use of crop residues could decrease pressure on pasture lands.

Of course, introduction of this technology isn't simple. It relies on the value chain being developed and areas with easy access to oil seed cakes taking the lead. FAO therefore plans to sustainably intensify livestock production using strategic supplementation of crop residues and oilseed cakes. If an innovations systems approach is taken, this will require a range of actors with concerted efforts to bring their experience and knowledge to designing more effective support and investments in this type of feed supplementation.

In addition to relatively simple supplementary feeding technologies mentioned above there are a range of highly technical feed technologies that might benefit from a GALVmed portfolio type approach (as described in Annex 3). These were recently reviewed and discussed by FAO¹⁰⁰ and include the following:

- Treatment of fibrous crop residues with exogenous fibrolytic enzymes is an emerging technology that shows potential. However there remains inconsistency in the response to enzyme use and part of this has been attributed to lack of adequate characterisation of enzymes products prior to use. More research to develop or refine *in vitro* bioassays that reflect ruminal conditions is required.
- Densified feed block technology, where straw-based feed blocks contain other nutrients such as oilseed cake, minerals, etc, making them easily transportable. This technology is starting to be taken up in areas where the green fodder shortage is acute.
- The use of probiotics and plant based additives holds potential for enhancing rumen efficiency, leading to increased productivity and decreased emission of pollutants.
- Research and development work on using the by-products of biofuel and brewery industries as livestock feed.
- Modern genetic approaches to plant breeding – traditional plant breeding in cereals has been for higher grain yields and decreased straw to grain ratios, yet high grain-yielding varieties of the Green Revolution have not been widely adopted by small-scale farmers for a number of reasons, including their lower yields of crop residue which is needed for feeding livestock. There is considerable potential for breeding cereal crops with residues of higher nutritive value in developing countries, but the extent to which this has been done appears very limited¹⁰¹.

As a foundation for any new technologies, dictionaries of the nutritive value of available feed resources in different parts of Africa are required. Feed dictionaries form the basis for livestock ration formulation and can be a means of minimizing feed costs.

5.4 Discussion

Child malnutrition is already high in SSA and set to increase to around 50 million children between now and 2050. Technologies that allow greater utilisation of human inedible foods as animal feed are going to be increasingly required. Ruminants are the livestock of choice for consuming crop by-products.

Meat and milk from ruminants have a ready and growing market in Africa. As we have seen from the dairy sector, increased efficiency of production using improved feeding technologies allows small farmers to maintain and increase their market access. Important lessons have been learnt about adoption of feeding technologies over the past thirty years that need to be applied to existing and emerging feed technologies. Good feed is crucial to an animal's health. In terms of taking forward improved nutrition of Africa ruminants, key organisations such as IBAR, FAO, research bodies and small businesses in Africa could consider adopting a portfolio approach to commercialising new feeding technologies for ruminants.

GALVmed, with its experience in working with pharmaceutical companies, researchers and policy makers in both South Asia and Africa, is well placed to support others to commercialise emerging feed technologies that have potential to impact on poverty and food security. Agricultural innovation systems require input from a wide range of stakeholders – particularly those that understand public-private partnerships, the discipline and coherence of the private sector and policy process. GALVmed is well placed to increase its capacity to use AIS to work with partners, particularly for capacity-building policies and institutions, along with livestock value chain development at national level.

6 African Livestock Trade

6.1 Continental Trade, Production and Consumption

The Forum for Agriculture Research in Africa (FARA) estimated that Africa produced on average (over the period 2000–2006) 11.9 million tonnes of meat and 31.0 million tonnes of dairy products annually. However, consumption outstripped demand by 12.8 million and 36.4 million tonnes respectively¹⁰². Since 2000, volumes of imports of meat into Africa have doubled, whilst imports of dairy products have risen by over one third. Over the same period, livestock exports have declined. In 2003 Africa was purchasing 14% of globally-traded dairy products¹⁰³.

Seven per cent of meat and 15% of the dairy products consumed in SSA are imported. Figure 4 below shows the trend¹⁰⁴. It is estimated that African exports account for 2% of world trade in meat and 3.8% of world trade in dairy products. These exports, along with live animal trade, earned Africa US\$0.9 billion in 2006, whilst Sub-Saharan Africa's import bill came to around \$4.5 billion. The deficit of \$3.6 billion is equivalent to 0.5% of SSA's GDP. These FARA figures are supported by FAO's 2007 figures, which estimate Africa spent slightly more, 2.1 and 3.3 billion US\$ for meat and dairy product imports¹⁰⁴ (see Figure 2, section 3.1).

Figure 4 Volumes of Meat and Milk Imports into Africa 1961–2006

Net Importer – Africa



There has been significant analysis of why Africa is not meeting its own needs in terms of livestock product consumption in the face of increasing demand ^{102 105} and the issues are discussed in section 3.

The situation is serious. In the absence of effective measures to improve productivity and stimulate internal livestock trade, governments and RECs may find it harder to capitalise on national and regional opportunities arising from a growing demand for livestock products. As imports from outside Africa become even more competitive than similar products from within Africa, aspirations and incentives to develop the sector might actually reduce.

There has been debate in recent years on whether Africa should focus on accessing global markets for livestock products. Apart from higher profits, export trade is reputed to have the additional benefit of transferring the good agricultural practices required to meet higher quality export standards to domestic production. There is some evidence that this is the case in the horticultural sector¹⁰⁶. The reputed success of southern African beef trade has been a driver of political interest in developing livestock export trade for many SSA countries. Only two southern Africa states, Botswana and Namibia, have significant international trade in beef (over 10,000 tonnes) at this time. Both countries have comparative advantages in beef production that most other SSA countries lack^{107 108}. They are also highly dependent upon preferential tariff conditions granted by the EC¹⁰⁹. The Namibian Meat Board is currently attempting to include small farmers in its value chain and market a niche “development” label product for ethical shoppers in Europe. Analysis of African livestock commodity trade suggests that niche markets are the most likely opportunity for African livestock exports at this time¹⁰⁷.

Another export success story for Africa is live cattle, sheep and goats from the Greater Horn of Africa to Gulf States. This trade is dominated by live sheep exports from Sudan and is reliant upon geographical and cultural proximity^{109 110}.

The export market generates up to US\$200 million for Somalia and Sudan, some US\$50 million for Ethiopia, and around US\$20 million for Kenya per annum¹¹¹. Live animal trade provides support to the extensive pastoral livestock owners of the Greater Horn of Africa¹¹² who depend heavily on income from livestock production, often selling in order to buy food staples. However, there is some evidence to suggest that the export trade is being captured by the wealthier herd owners, with poorer herders relying more heavily on non-livestock economic activities, working as contract herders, or leaving extensive grazing areas¹¹³. The implication of this is that development agencies need to be careful in their trickle-down assumptions when supporting the infrastructure and expertise for export trade.

The only other major livestock export from Africa is hides and skins. Although Africa has 18.1% of the world livestock population, it only accounts for a very small percentage of world trade in hides. Most of the trade that exists consists of raw hides and skins and semi-finished leather. Prices commanded by African products are generally low, partly because of low quality and partly due to destructive competition. The exports are primarily from the Horn, particularly Sudan, Kenya, Tanzania and Ethiopia¹¹⁴. Ethiopia is the only country that has managed to add value to this export trade by producing trademarked leather. For example, Cabretta leather, prized for golf gloves, because of its strength and elasticity, brings the Ethiopian goat herder US\$2 for the skin needed for one glove, US\$5 to the exporter of the leather, and \$25 to the retailer of a glove manufactured outside of Ethiopia¹¹⁵. The Ethiopian Leather Industries Association (ELIA) provides a good example of multiple businesses working within the same supply chain to improve competitiveness in their products and services. ELIA convenes annual trade fairs, has the support of international development partners such as USAID, GTZ, UNIDO and the World Bank¹¹⁶ and is a member of the regional Eastern and Southern Africa Leather Industries Association.



6.2 Regional and Domestic Livestock Trade

Most analysts agree that the best future market for African livestock lies within Africa itself. Africa's meat demand is projected to increase, albeit more slowly than other developing regions. Rosegrant *et al*¹¹⁷ predicted it would triple between 1997 and 2025, from 5.5 to 13.3 million metric tonnes. Given relatively high income elasticities for livestock products, this increase will likely be even greater if SSA is able to accelerate its economic growth in the future. Demand for dairy products and eggs is also high.

In coming years, African urban markets will offer ever greater trade opportunities. They are substantially larger than export markets for most products and they are growing faster. Africa's total urban market was estimated to be worth close to US\$17 billion for smallholder producers in 2002, compared with US\$4 billion for agricultural export markets¹¹⁸. Demand for food, particularly meat, milk and eggs, is predicted to increase substantially as discretionary income is projected to rise by 50% over the next ten years¹³⁴.

Both CAADP and AU/IBAR development strategies include improvement of intra-regional and domestic livestock trade. These strategies make sense. To fully exploit the diversity and comparative advantages of ecosystems and production systems, African countries need to accelerate regional market integration. The development of regional markets could create the economies of scale needed to make higher levels of processing feasible and profitable. These might then promote exports to other regional and global markets.

Currently, most countries maintain national trade policies that disregard regional diversity and utilisation of comparative advantage.

6.2.1 Kenyan Beef Trade

Kenya has a tariff-free quota to export beef to the EC, but is no longer able to meet this quota due to

high sanitary standards. Kenya instead exports some frozen beef to Gulf States who have less stringent disease regulations, but faces strong rivalry for these markets from established global exporters and its neighbours Ethiopia and Sudan. Kenya has managed to establish a profitable export trade in live cattle to Mauritius, but again faces stiff competition in this area from Ethiopia, Somalia and Sudan. The domestic market for beef looks like an attractive and reliable option for Kenyan producers. Domestic beef consumption levels are currently increasing at an annual rate of 2.75%. The bulk of this consumption occurs in the cities. Recent marketing studies estimate that Nairobi and Mombasa collectively consume about 850,000 animals per annum. Over the next five years, the deficit between beef demand and beef production in Kenya is anticipated to grow by 3% per annum, an overall increase of 15.9% by 2014, despite population growth estimates being a more moderate 8.8% for the same period. The estimated production deficit will therefore be almost 50,000 tonnes¹¹⁹. Novel ways of meeting this demand and accessing Gulf State markets are already being drawn up by the private sector within Kenya (see Box 7). It could be profitable for Kenya to recognise that neighbouring states (Somalia, Ethiopia, Sudan and Tanzania) have traditionally met Kenya's demand through informal cross-border movement of cattle. Formalising this trade could address domestic demand and perhaps gain consistent quality supplies for export markets.

6.2.2 Sahel and West Africa (SWA) Trade

Unlike East Africa and the Horn, West African States have made concerted efforts to take advantage of regional livestock movements, particularly ruminants from extensive pastoral grazing areas. The main ruminant exporters are Burkina Faso, Mali and Niger, and the main importers are Côte d'Ivoire, Ghana and Nigeria. There are virtually no exports to countries outside the region.

West Africa's animal production potential remains both under-exploited and complex. This is illustrated by the region's persistent dependence on imports of cheap dairy products and poultry meat. Dairy product imports have doubled within 20 years, increasing from US\$223.7 million in 1984 to US\$529.4 million in 2004. There are regular import surges. For example, poultry imports to Senegal rose from 506 tonnes in 1996 to 16,900 tonnes in 2002¹²⁰. Besides a loss of State revenue, many argue imports of animal products have been detrimental to the development of local production chains¹²¹. There are significant challenges to face if local production is to meet demand. Milk production in coastal west Africa is constrained by trypanosomosis and most large consumption centres for milk are at a distance from production zones and milk does not travel very well. The import of milk powder does support networks of small traders. With respect to poultry meat, most imports are chicken legs, which in the many OECD countries are surplus to demand, and thus difficult to beat pricewise by local African producers. One positive aspect of this is that it provides the urban poor access to chicken, which otherwise they could not afford.

Growing annually by 4%, it is estimated the demand for animal products in the Sahel and West Africa should increase by more than 250% by 2025. West Africa's population, currently estimated to be 300 million, is predicted to reach 383 million by 2020, with more than half that figure living in towns and cities. Currently, the animal product supply growth rate is in line with the rest of Africa at 2%. Consumption, as in other regions, is being driven by city dwellers, who increasingly demand higher-value products, standardised product quality, food safety and convenience.

West Africa's Sahelian countries have a comparative advantage in rearing extensively grazed cattle and small ruminants, while the coastal countries, except for Nigeria, provide more pig farming products, producing 21% of the regional tonnage (330,097 tonnes in 2005) in 2005. Inputs for short-cycle livestock and unconventional species are relatively abundant in some countries (Côte d'Ivoire, Ghana and Nigeria for poultry, both broilers and layers, Benin for cane-rats and Côte d'Ivoire for fish-farming). Nigeria is the regional leader in egg production, accounting for 68% of produced tonnage¹²¹. Bushmeat trade remains vibrant in West Africa, with negative environmental and zoonotic disease impacts¹²². Programmes to promote raising of poultry, cane rats and other sources of meat could mitigate unsustainable bushmeat trade.

Realising the various comparative natural advantages of the region were poorly exploited, the Sahel and West Africa Club (SWAC) and the Commission of the Economic Community of West African States (ECOWAS) have engaged in a long-term process of strategic thinking, in partnership with the Permanent Inter-State Committee for Drought Control in the Sahel (CILSS), the West African Economic and Monetary Union (WAEMU) and the Network of Farmers' and Agricultural Producers' Organisations of West Africa (ROPPA) to develop ways to ensure regional supply of meat, dairy and other products meets growing urban demand and at the same time addresses food security and poverty reduction. PRSPs in this region do tend to acknowledge the important poverty alleviation role of the livestock sector.

There has been some progress in improving livestock productivity. For example, collaboration between livestock and crop farmers has increased¹²³. In semi arid areas farmers have shifted the composition of their herds from cattle to small ruminants¹²⁴ and begun finishing stock for slaughter, particularly sheep for Muslim festivals. Where available (Senegal) cotton seed cake is being utilised for cattle production and short-cycle feedlots have grown up to take advantage of occasional feed shortages in the Sahelian countries. Significant private investment has been made in Nigeria's industrial-scale integrated poultry enterprises though these were hit quite badly by the 2006 outbreak of highly pathogenic avian influenza¹²⁵.

More needs to be done and an extensive review of the situation by SWAC in 2008 made a series of detailed policy, legislative and investment recommendations^{121 125} that are summarised in Annex 5. Similar regional strategies to promote trade are clearly needed across Africa. Once these are complete, lessons and experiences can usefully be transferred between regions. A common theme should be developing the incentives to support small farmer integration into new or revitalised value chains. Smallholders are most likely to be integrated into modern food retail markets where there is a receptive business sector with a stake in engaging with them on fair terms; where there are organized smallholder farmers capable of upgrading and organizing their production and marketing processes; and where there is a facilitating public sector to create the needed conditions for the business sector and smallholder farmers to engage¹²⁶. Review of the available literature suggests that contract farming and promotion of related agro-industries are key tools once the correct policy environment is developed. These could be considered low-hanging fruit as far as the livestock sector is concerned.

6.3 Contract Farming

Informal, traditional markets for livestock products are still dominant in most of SSA. For example, 90% of Ghana's beef supply is channelled through the informal markets. Smallholders can compete in informal or 'spot' markets because they have lower quality standards and the markets don't depend on regular supply from a given producer. However, rising incomes and expectations of urban consumers promote more sophisticated and formal market arrangements. This is symbolised by the growth of supermarkets across the developing world. Though Africa lags behind other regions, supermarkets and the value chains they represent are slowly becoming a reality. In the early 2000s, supermarkets had 50–60% of the market in Latin America, 10–30% in S.E. Asia and increasing market share in eastern and southern Africa. In Kenya, for example, they had a 20% share of the processed food market¹²⁷. These figures are now probably higher.

As markets develop they expect four key requirements that all involve higher costs per unit of product for small farmers and potentially allow larger producers to capture the market. These are:

- Quality and safety standards, which often require on-farm investments;
- Uniformity of the product, requiring investments in breeding, feeding, and veterinary health;
- Reliability of supply, which requires product specialization and/or higher level of production; and
- Verifiability of origin, which requires traceability systems¹²⁸.

Of course, not all small farmers will be able to meet the requirements of a formalised market and will either drop out of farming or continue supplying informal local markets. In Brazil in the 1990s supermarketisation was directly linked to the exit of small dairy farmers. Sixty thousand farmers ceased production in ten years and the average farm size increased by 55%, with similar patterns in Argentina and Chile¹²⁹. Whilst Africa is still a long way from value chains being dominated by supermarkets, policy makers and agri-business do need to determine how to assist those small farmers who are willing and capable of meeting higher standards and how to create the jobs for those who are not. Experience from the horticultural sector suggests small African farmers are able to meet higher standards and thrive when supported to do so.

The three ways for supporting small farmers commonly cited are first, strengthening cooperative action between farmers, secondly, contract farming and thirdly, strengthening farmers associations. Cooperative farming systems can be very successful. For example: the National Dairy Development Board in India; Fonterra, the world's largest exporter of dairy products and owned by 13000 New Zealand dairy farmers; Land O'Lakes, the USA's second largest cooperative serving 300,000 farmers and the Development Foundation of Turkey (TKV) working with 2500 broiler producers. However, these tend to be exceptions. Most cooperatives are unable to compete with private companies¹³⁰ and their establishment is both complex and relatively slow.

Contract farming appears to offer more potential and there is evidence to suggest that in the developing world contract farmers have, in most cases, higher profits per unit of output than independent farmers (both large and small). Contract farming can incorporate smallholders in high-value supply chains that require specialized inputs and sell to markets for specialized outputs. The three main types of contract farming have been described by Minot¹³¹ as:

- 1 Market-specification contracts** – where the contract involves an exchange of technical and market information about the product quality required, timing and prices for specified markets.
- 2 Management-providing contracts** – where the farmer is assisted in terms of least-cost production practices to attain higher quality and control the timing of output. The contractor recoups the costs of extension provided from the proceeds of marketing a higher-quality product.
- 3 Resource-providing contracts** – where credit, inputs and/or agricultural services are provided by the contractor who then recoups outlay through marketing of the product.

Which type of contract is needed will vary by value chain and depend upon the circumstances of the farmers. While vertically integrated systems that depend on contracts sound like an excellent solution to improving market access and the capacity of small livestock farmers, there are unfortunately very few examples of them functioning in SSA. (Box 7 provides some examples of successful contract farming arrangements). This lack of examples is perhaps related to the fact that contract farming requires effective enforcement of a clear legal framework and this is a problem in many SSA countries. Interestingly, contract farming is the norm in the developed world for poultry and pork value chains. How to develop contract farming operations in SSA is a key challenge.

Box 7 Contract Farming – Case Studies

Farmer's Choice Ltd – East Africa

Farmer's Choice was founded in 1980 and primarily produces pork products with a keen interest in expanding its beef sales. It has offices in Uganda and Tanzania, with headquarters in Nairobi. The company initially targeted the domestic market, but by the late 1980s had invested in a pig slaughter and processing plant licensed for export by the Kenyan Government. It now supplies a range of domestic, regional and international outlets. Within Kenya, about 50% of its products go to the mass market, 30% goes to retail establishments and about 20% to tourist hotels. In addition, the company supplies external markets, notably in Dubai and Bahrain, where it ships two tons of products by air weekly and 10.5 tons by sea weekly. The company slaughters some 1500 pigs weekly in its own slaughterhouse. It uses a third party to slaughter cattle, but plans to build its own export-licensed, halal-certified slaughterhouse with the cooperation of Nortura, a Norwegian meat processor and increase its exports of beef.

The company has imported high quality pig breeding stock from Denmark and breeds both for its own farms and to supply out-growers (approximately 700), in an attempt to ensure a consistent supply of well-proportioned, lean pigs. Currently it rears half of the pigs it processes; the remainder, some 40,000 pigs per year, come from third-party growers. Farmer's Choice produces its own feeds for pigs, which it also supplies to its out-growers at cost. A team of company-employed pig specialists regularly visit the out growers, offering advice on all aspects of pig health and production. The company employs over 1,000 staff on its farms, feed mill, and slaughter and production facility.

The company's main problems are caused by escalating production costs, especially for fuel, electricity and labour. Lack of supportive agricultural policies in Kenya have also been cited, as well as significant expenditure to control disease including African swine fever and foot and mouth disease. The presence of both these diseases in Kenya constrains export of pork products to many high-value markets, despite the fact that its export products are processed¹⁰⁷.

The Kalahari Kid Corporation – South Africa

Kalahari Kid is a joint venture between commercial promoters, South Africa's Northern Cape Provincial Government and small farmers in the Northern Cape. The company works with 956 small farmers, contracted into 55 registered co-ops to supply sheep and goats that the company processes into superior-quality goat and lamb products for both the local and international markets. The company aims to market the meat, offal, leather, milk and fibre products of one million goats per year.

Kalahari Kid's "vertical integration," model works with both emerging and commercial goat farmers across South Africa. Both types of farmer are contracted to breed kids. The company provides an active training and supervisory service, especially among new goat farmers, by employing a team of dedicated Regional Agricultural Officers, who work closely with extension officers of the Provincial Departments of Agriculture. These Regional Officers are responsible for contracting goat farmers to deliver on specific dates, specific quantities and to a certain quality. Training in goat management is offered, and a mentorship programme is provided to support new farmers to comply with company standards. The company also supports farmers to form cooperatives and does cite this as a challenging exercise.

Whilst the company has found export markets, it claims its prices are uncompetitive due to a strong Rand and therefore concentrates on regional and domestic markets into Africa.

Five neighbouring countries have expressed interest in adopting the Kalahari Kid Corporation Model, to integrate communities and to "uplift," farmers. The countries have requested KKC to share the experiences and carry out training and development on their behalf. However, the company has elected to concentrate on implementing its work in South Africa.

The company puts a lot of effort into developing its brand and looking at innovative ways of introducing goat meat products to consumers and studies consumer trends and requirements.

Box 7 Contract Farming – Case Studies

Nestlé Milk Procurement and Farm Assurance Schemes

Milk marketing has been at the core of Nestlé's business interests since 1866. After expanding through Europe and the USA, Nestlé started businesses in South America and the Caribbean from 1921 and in Asia from 1961. Globally Nestlé purchase five million tonnes of milk daily, primarily direct from farmers. The company is very aware that small-scale milk producers have competitive production costs and thus, if organized, have the potential to compete with large-scale, capital-intensive "high-tech," dairy farming systems in developed and developing countries.

Over the decades the company has come to understand that the challenges of buying direct from small farmers vary with the level of development of the country. For example, in middle income countries where production of livestock is rapidly increasing along with demand, there is greater use of agro-chemicals, whilst effective regulation of their use is still weak. The company therefore invests in developing monitoring schemes for contaminants in raw materials, often in close collaboration with the authorities. In least developed countries, where the purchasing power of the population is limited and farmers are still producing for informal markets, more emphasis is placed on supporting farmers to achieve good agricultural practices. Less emphasis is required on contaminants in milk, but there may be more feed contamination e.g. mycotoxins due to poor storage conditions.

To manage challenges, Nestlé have developed five key tools:

- 1 Quality control schemes, including monitoring of contaminants
- 2 Specifications for acceptance and rejection of raw materials
- 3 Farm quality assurance schemes
- 4 Supplier assessment and selection
- 5 Supplier education and development

In Pakistan, for example, Nestlé works with farmers in 3000 villages over an area of 70,000km² with each farm providing on average 10kg of milk per day. Nestlé is responsible for the collection and processing of the milk and employs a further 2000 people in that process. The company also works with the farmers to increase their expertise and has recorded increasing yields per farm. These have increased significantly over the past decade, obliging Nestlé to open a new milk processing plant¹³².



6.4 Agro-industrial Development

The political will to support agro-industrial development was recently boosted by African leaders approving an “African Agribusiness and Agro-industries Development Initiative,” (3ADI) in Abuja in March 2010. 3ADI is a collaboration between the African Union Commission, FAO, UNIDO, IFAD, the African Development Bank and the United Nations Economic Commission for Africa. The goal of 3ADI is to have “an agriculture sector in Africa which by the year 2020 is made up of highly productive and profitable agriculture value chains that effectively link small and medium-sized agricultural producers to markets, supply higher-valued food, fibre, feed and fuel products, contribute to increasing farmers’ incomes, utilize natural resources in a sustainable manner and generate increased and high quality employment.”

A key objective of 3ADI is to increase private sector investment flows into the agriculture sector in Africa by mobilizing resources for agribusiness from domestic and international financial systems. The initiative is fully in line with CAADP, in particular its Pillar II – improving rural infrastructure and trade-related capacities for market access. The initiative will adhere to the CAADP strategy of RECs taking a lead role and supporting their member states and for the initiative to target regional and domestic trade rather than export trade. FAO estimate that over US\$600 million of private investment is required between now and 2050 to build sufficient agro-industry in SSA. With this in mind, 3ADI will support African governments in the following areas:

- identification and dissemination of investment opportunities in the agri-food sector;
- actions to reduce the risks of private sector investments in the agribusiness and agro-industrial sub-sectors;
- improvement of the regulatory and policy frameworks, or the enabling environment, for investments in agro-industries and agribusiness development;
- support for institutional innovations that are conducive to entrepreneurship development; and
- co-funding and guarantees to reduce start-up investment costs.

Whilst the 3ADI programme outline has been described¹³³, the details of implementation have yet to be formulated. Partnerships and roles are still being formulated; for example, 50 agri-business experts from East Africa met in Tanzania in March 2011 to discuss 3ADI implementation. If successful, the initiative will be very influential in terms of raising value chain finance and could significantly improve the livelihoods for rural Africans. Agro-industries have proven to generate strong backward and forward linkages, promoting demand for and adding value to primary agricultural production. They also play a central role in employment generation, being characterized by a marked presence of women in their workforce. Which components of the livestock sub-sector can be developed first will reflect consumer demand for specific livestock products and therefore vary by country and region.

6.5 Discussion

Whilst not underestimating the scale of the challenges Africa faces as it tackles rural poverty and malnutrition, with one in three Africans hungry, most African economies are growing relatively quickly. Powered by improved political and macro-economic stability and microeconomic reforms, real GDP in Africa rose 4.9% per year from 2000 through 2008, more than twice its pace in the 1980s and '90s. The AfDB has forecast that GDP growth could reach about 7 % in 2011 from a predicted 5.5% growth for 2010. Natural resources (minerals) accounted for 24% of the GDP growth from 2000 to 2008 and agriculture for 12% over the same period, with a compounded annual growth rate of 5.5%¹³⁴.

African governments are increasingly adopting policies to energise markets. They are privatising state-owned enterprises, reducing trade barriers, cutting corporate taxes and strengthening regulatory and legal systems. Although many governments have a long way to go, these important steps are enabling private businesses to succeed. As a result, agricultural markets are becoming more sophisticated.

Businesses with resources to invest are increasingly aware that African economies provide opportunities to create markets, establish brands, shape industry structure, influence customer preferences, and establish long-term relationships. The rise of the African urban consumer will fuel long-term growth. Today, 40% of Africans live in urban areas, a proportion close to China's and continuing to expand. The number of households with discretionary income is projected to rise by 50% over the next ten years, reaching 128 million. By 2030, the continent's top 18 cities could have a combined spending power of \$1.3 trillion¹³⁴.



The question for the livestock sector is how and where to take advantage of this. Understanding of livestock value chains by development agencies remains weak and the crucial middle men who often play important roles moderating product flow and communicating with all parties are rarely consulted. Vertical linkages between actors in any given livestock market can be improved. Few organisations have the facilitatory skills and expertise to strengthen whole value chains. The Bill and Melinda Gates Foundation uses high-powered consultancy companies such as McKinsey and Dalberg to carry out value chain analysis (“talking shops”), where all the players from production to processing to retailing come together to agree on the demand, production parameters, growth, centres of excellence, competitive advantages, consumer trends, bottlenecks and incentives, etc. These initiatives prioritise multiple interventions that cut across a particular value chain, usually in a particular country. Such work needs to be massively scaled up and applied in numerous countries with different livestock markets and with a full range of private sector involvement. However, there is little expertise within SSA to do this at the moment. GALVmed, with its private sector experience, policy expertise and network of key partners, is well placed, working in partnerships and promoting alliances, to help raise capacity to carry out this work.

The nuts and bolts of how to support value chains seems clear. FAO, for example, have check-lists of issues to address when linking producers to markets¹³⁰. With the current political will toward small farmers, facilitating linkages, scaling up value chain analysis and provision of effective support to particular livestock markets seems to be an important activity that could produce quick wins. The dearth of contract farming in the livestock sector suggests there is a gap in this area. GALVmed, with its experience in identifying pivotal bottle necks and addressing policy gaps could usefully become involved in assessments of potential contract farming schemes.

Supporting private sector livestock investment through the African Agribusiness and Agro-Industries Development Initiative (3ADI) is also potentially one of the more effective ways for the GALVmed alliance to work with and influence African livestock production and health to the advantage of poor livestock keepers. 3ADI is still formulating partnerships and roles and GALVmed has links with several of the key parties managing the initiative.

7 Conclusion

Food security in Africa remains a vital issue for millions of poor people as we move further into the 21st Century. Predictions that child malnutrition will continue to grow for coming decades are of great concern. The challenges facing SSA, compounded by climate change, to improve its agricultural productivity are both great and will require large investments, new enabling policies and institutions. Whilst being a vital source of livelihoods and nutrition for millions of urban and rural poor, the livestock sector remains uncompetitive in global terms, with small farmers poorly linked to domestic and regional markets. Yet, despite this rather gloomy situation, many of the trends, policy responses and new initiatives within the livestock sector and African agriculture as a whole are encouraging. These include:

- improved political and macroeconomic stability and microeconomic reforms that has raised real GDP growth in Africa to 4.9% per annum;
- a compounded annual growth rate of 5.5% in the agricultural sector as a whole over the past decade;
- strong and growing demand for livestock products, driven by increasing populations, urbanisation and incomes;
- proven capacity of small farmers to increase productivity and participate in agriculture markets when their risks become manageable;
- strong political will to support small farmers;
- high global food prices and agro-food businesses increasingly realising that their commercial interests are best served by a long-term approach that focuses on social and environmental sustainability;
- under-utilisation of land and productive capacity;
- a Comprehensive Africa Agriculture Development Programme (CAADP) that has the support of all the key players;
- good alignment between most of the key livestock development agencies at global, continental and regional levels;
- lessons from past experience on adoption of new technologies, how to encourage investment and promote equitable growth;
- recent initiatives, such as the new veterinary governance programme implemented by IBAR, OIE and FAO, along with the 3ADI, to encourage agri-business investment, that build on lessons of the last decade.

Aware that action to increase livestock productivity and market access is urgently needed, this paper has attempted to identify some areas that have momentum in terms of recognition of the problem, consensus on how to address them and a likely positive impact on poverty and food security.

The areas identified in the paper include gaps in the policy process required to enable sustainable intensification of livestock production, notably the missing voice of small agricultural businesses and farmers, particularly women. There are few livestock development organisations purposefully engaged with and able to support the private sector in Africa. With farmer and private sector organisation involvement, future livestock sector interventions could be more multi-faceted, responsive and shaped by local context.

Agricultural innovation systems approaches are identified as extremely useful in linking research, public and private actors, value chains and policy. There needs to be a move from mere technical assistance to institution building; particularly where this includes investing more in local institutions that support learning and advocacy. Further livestock policy landscape reviews linked to training of senior livestock officials in effective policy process and formulation would be a positive development. Ministries of Agriculture still require more capacity and skill in marketing and business development services, as well as in forging the public-private-civil society partnerships that typify the State's new roles. These skills must extend well beyond Ministries of Agriculture to local governments and a range of other Ministries that have important complementary roles in commercial agriculture.

In the animal health sub-sector, the paper concludes that quick wins can be achieved through continued collaborations to build the correct policies and institutions to ensure effective registration processes, enforcement of legislation and quality testing for veterinary vaccines and medicines. The paper cites a number of global, continental and regional initiatives in this area that are likely to have positive future impact if they are scaled up.

The delivery of veterinary services to small farmers in rural areas through private vets is identified as a priority area. There is evidence of successful utilisation of veterinary para-professionals and public-private partnerships to meet rural veterinary service needs, but such services need to be scaled up through improved veterinary governance. It was noted that neglected zoonoses are particularly relevant to the poor. Whilst GALVmed is working on several zoonoses already, including a newly-funded initiative on African trypanosomiasis, more might be done in this area that takes advantage of GALVmed's strong links with the pharmaceutical industry.

Bearing in mind the high levels of malnutrition in SSA, the paper highlighted the importance of improved ruminant feeding. Ruminants generally utilise human-inedible food and a number of emerging technologies were identified that might increase feed utilisation and productivity. There are good examples of how this has been done in the small holder dairy sector, but more needs to be done to test and adopt new technologies on a commercial basis. Finally, domestic and regional market access for small holders is considered crucial for sustainably intensifying livestock production in an

equitable manner. A dynamic smallholder sector generates local demand for locally-produced goods and services. In turn, this can spur sustainable non-farm employment growth in services, agro-processing and small-scale manufacturing. Doing this at scale and to the benefit of the poor will require improved infrastructure and appropriate policies at regional and national level. Public policy has a key role to play in assisting private-sector firms to reduce the transaction costs that increasingly exclude smallholders from participating in growing livestock markets. Few examples of contract livestock farming were found in SSA and yet there is evidence that contracting small farmers increases profitability and productivity. Inclusion of small businesses and agro-industry in market development and value chain analysis remain key challenges that GALVmed has expertise in.

GALVmed has an interest in building alliances, understanding and agreeing on how best to ensure these areas succeed, because a vibrant and successful livestock sector is vital to GALVmed's core business. The paper is designed to stimulate discussion and partnerships to support Africa's livestock sector development.



Annex 1

Overview of Livestock Development Players in Africa

The 'players' that aim to make the livestock sector efficient, sustainable, productive and competitive in Africa can be placed into four geographical groupings: national, regional, continental and global. At national level there is the typical array of government, NGO, farmer organisations, academia and private sector working with variable degrees of coordination and collaboration depending on historical, cultural, political and economic conditions in each country.

The key regional livestock development bodies are the Regional Economic Communities (RECs). The RECs commonly overlap in terms of countries they represent but eight are recognised by the African Union,⁸ the continent's principal political, security and development body. There are few livestock businesses

that operate regionally. Some farmers' organisations have regional representative bodies, for example: the East African Farmers' Federation – EAFF; Plateforme sous-régionale des organisations paysannes d'Afrique Centrale – PROPAC; the Network of Farmers' and Agricultural Producers' Organisations of West Africa (Réseau des organisations paysannes et de producteurs de l'Afrique de l'Ouest) – ROPPA; plus the Southern African Confederation of Agricultural Unions – SACAU. However these networks don't have specific livestock components in their structure. The European Commission and IFAD have long-term initiatives to build the institutional capacity of regional farmers' groups. The EC-funded 'reinforcing veterinary governance in Africa programme' initiated in 2011 aims to support linkages between these farmers groups and specific livestock commodity-based stakeholder organisations.

Box 8 Regional Farmer Organisation Profiles, SACAU and EAFF

Courtesy of Agriculture and Natural Resources Policy Analysis Network (FANRPAN)⁹

The East African Farmers' Federation (EAFF) is a network of farmers' organizations in Eastern Africa, the equivalent of the Southern African Confederation of Agricultural Unions (SACAU) in Southern Africa. Formed in 2001, the main role of EAFF is to voice legitimate concerns and interests of farmers of the region, with the aim of enhancing regional cohesiveness and improving the socio-economic status of farmers. The federation endeavours to promote the regional integration of farmers, notably through trade, and in the process, enabling the representation of farmers at regional and international levels. EAFF membership originates from Burundi, Rwanda, Kenya, Uganda, Democratic Republic of Congo and Tanzania, and the federation is at an advanced stage of formalising membership from Djibouti, Sudan, Ethiopia and Eritrea as its scope extends to the horn of Africa.

SACAU is a non-profit-making farmer organization representing the common interests of national agricultural unions in the SADC region. SACAU was formed in 1992 and mandated to represent farmer organizations in all SADC countries. It has since expanded its membership to include 11 SADC countries¹⁰. The key interests in the formation of SACAU were marketing and trade, regional development of the sub-continent, land settlement and environmental issues; security, law and order; labour, research, extension and training and organizational issues.

SACAU is guided by the following strategic pillars:

- > Strengthening the capacity of farmer organizations in the region to effectively address the needs and concerns of their members;
- > Affording a platform through which farmers interact, meet, receive information and exchange views with various stakeholders on agricultural matters;
- > Providing information on all farmer organizations in the region through a comprehensive database.

Capacity building of farmer organizations is now on the agenda of SADC and NEPAD, as well as being a central component in other developmental organizations dealing with agriculture in the region, for example IFAD. SACAU is forming strategic alliances to ensure that members are provided with stronger lobbying and negotiating skills.

⁸ CEN-SAD, COMESA, EAC, ECCAS, ECOWAS, IGAD, SADC, UMA.

⁹ <http://www.fanrpan.org/documents/d00036/>

¹⁰ Botswana, Lesotho, Madagascar, Malawi, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe.

Regional Economic Communities

The RECs all have agricultural strategies that reflect the needs of their member states. For example, the Common Market for Eastern and Southern Africa's (COMESA) strategic agricultural goal is to achieve improved food security in the region, with member states recognising that attaining food security is not possible without achieving agricultural sector competitiveness. Unfortunately, most RECs tend to be severely handicapped by staff shortages and are often heavily reliant on project funded staff to achieve results. One REC addressing this is the Economic Community of West African States (ECOWAS), a regional group of fifteen. ECOWAS Heads of State recently broke with the past by deciding to trans-form the ECOWAS Secretariat into a Commission. This will not only see an increase in the number of officers at management level; it means ECOWAS becomes a supranational body capable of formulating Acts that are binding on Member States and the institutions of the Community.

At the continental level, the Comprehensive Africa Agriculture Development Program (CAADP) provides overarching guidance to livestock sector development and the Interafrican Bureau of Animal Resources [AU/IBAR] provides specific technical and coordination support.

CAADP

The African Union's Directorate for Rural Economy and Agriculture (DREA) is responsible for continental-level strategy development and coordination of food security, livestock, environment, water, natural resources and desertification. DREA oversees the CAADP which is coordinated by the NEPAD Planning and Coordinating Agency (NPCA), formerly known as the New Partnership for Africa's Development (NEPAD) Secretariat. CAADP was established by the AU assembly in 2003. It originates from the failure of previous agricultural interventions on the continent, which have been largely attributed to their weak ownership by African States. DREA also supports AU/IBAR in Nairobi.

CAADP is important. It is an African-led and African-owned idea for agricultural development. It brings together diverse key players at all levels and has significant support. African governments have

agreed to increase public investment in agriculture by a minimum of 10% of their national budgets¹¹. CAADP plans to raise agricultural productivity by at least 6% by 2015. This 6% increase is to be achieved through the following outputs:

- Dynamic agricultural markets within countries and between regions in Africa;
- Farmers taking part in the market economy and enjoying good access to markets so that Africa, capitalising on its comparative and competitive advantages, becomes a net exporter of agricultural products;
- Rural populations having more equitable access to land, physical and financial resources, and knowledge, information and technology for sustainable development;
- Africa playing a strategic role in agricultural science and technology, meeting the growing needs and demands of African agriculture; and
- Environmentally sound agricultural production and a culture of sustainable management of natural resources as a result of better knowledge, more information and the application of technology.

CAADP is not a set of supranational programmes, but a framework embodying a set of key principles and targets. In line with analysis developed in the 2008 World Development Report on Agriculture, CAADP recognises that no single agricultural development process fits all countries. Countries are guided to implement the CAADP agenda in their own way through a national-level consultation process that results in a 'Compact'. The consultations generally use CAADP's four "Pillars," to guide them, these are:

- 1 Extending the area under rural infrastructure and reliable water control systems;
- 2 Improving rural infrastructure and trade-related capacities for market access;
- 3 Increasing food supply, reducing hunger and improving responses to food emergency crises; and
- 4 Improving agriculture research, technology dissemination and adoption.

¹¹ To date eight countries have reached or surpassed the 10 % target

As of August 2010, 22 countries had signed CAADP Compacts. The compacts, signed by all key partners, agree how the country will do the following:

- align state policies with regional priorities and CAADPs four Pillars;
- exploit synergies, discuss economic bottlenecks between neighbouring countries and decide appropriate action on those matters;
- identify gaps in donor funding needed to achieve agreed priorities;
- initiate work to monitor and evaluate CAADP's progress at the national, regional and continental levels;
- make long-term commitments to finance agricultural investment programmes that are aligned with CAADP principles and targets.

The country roundtable process is flexible and is being constantly adapted. Success will be measured by the extent to which policies and investment programmes change, but there is, to date, little evidence of impact. A recent review of the CAADP roundtable process suggests the need for significant improvements in the procedures in order to ensure national governments really own the Compact commitments. There appears to be a concern that the roundtable process can become mere window dressing for increased donor support¹³⁵. The review suggests more detailed follow up of each compact is required in terms of expenditure reviews, institutional capacity building and strengthening capacity for evidence-based policy making.

The RECs have an important role in terms of guiding countries on how best to implement CAADP, providing funds to support the roll-out of CAADP in regions and countries and monitoring progress towards CAADP targets in their region. The RECs are also designing and implementing CAADP Compacts at regional level, sometimes with the support of a specialist networking organisation. For example, the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) supports a range of organisations and governments, including COMESA, to build linkages and partnerships between government and civil society, improve policy analysis and policy dialogue and support demand-driven policy research.

Inter-African Bureau of Animal Resources [AU/IBAR]

The AU's IBAR is the key technical advisory and coordinating body for the livestock sector in Africa. IBAR pre-dates the OAU; formed in 1951, it has played a significant role in the eradication of rinderpest through the Pan-Africa Rinderpest Campaign. IBAR's 2010–2014 strategic plan commits it to aligning its programming with the principles and strategic focus of CAADP. It also affirms that IBAR is planning to cover all aspects of animal resources (i.e. the livestock, fisheries and wildlife, including the management of the natural resource base on which they depend). This marks an important shift from AU-IBAR's previous bias toward animal health initiatives. IBAR has strong partnership agreements. It is actively involved in agenda setting with global organisations such as WTO, OIE, WHO and FAO. It supports the RECs who, under AU strategy, are its principal partners, whilst retaining close links with AU member states, particularly veterinary departments. IBAR also manages the "ALive Partnership," a networking and policy initiative that brings most stakeholders, including civil society and donors, together to discuss a range of issues affecting the sector¹².

Over the next four years IBAR is focusing on the following strategic areas:

- 1 Reducing the impact of trans-boundary animal diseases (TADs) and zoonoses on human livelihoods and public health in Africa.
- 2 Enhancing Africa's capacity to characterize, conserve and sustainably use its animal resources and their resource base.
- 3 Improving investment opportunities in, and competitiveness of, animal resources in Africa.
- 4 Promoting development of standards and regulations and facilitation of compliance.
- 5 Improving knowledge management in animal resources for informed and timely decision making.
- 6 Facilitating development of policies and institutional capacities for improved utilization of animal resources in Africa.

IBAR has €50 million to spend on existing projects to support the above areas and new programme funding in the pipeline. In 2011 AU/IBAR will guide the implementation of a programme for "reinforcing veterinary governance in Africa," funded by the EC.

¹² ALive has produced a number of policy documents. A survey conducted by ALive in 2007, showed few countries included livestock as a specific issue in their Poverty Reduction Strategy Papers. Out of 34 Sub-Saharan countries, only four had a specific PRSP on livestock while ten had no mention at all of the sector and the remaining countries only dedicated a few paragraphs to the sector in their PRSP.



African Development Bank

The African Development Bank (AfDB) is another important player in African agriculture, by providing loans and grants to African governments and private companies investing in member countries. Since its establishment in 1964, the Bank has financed 2,885 operations, for a total of US\$47.5 billion. In 2003, it received an AAA rating from the major financial rating agencies and had a capital of US\$32 billion. The infrastructure sector has traditionally received the largest share of AfDB lending and remains a key component of agricultural development. The Bank's Agriculture Sector Strategy 2010–2014 provides an excellent analysis of the challenges facing Africa in terms of meeting its food security needs. The Bank states that “at current rates, it is estimated that Africa will be able to feed less than half its population by 2015.” The bank is fully committed to working in tandem with CAADP by building partnerships based on complementarity, comparative advantage and specialization in two key areas:

- i) improving rural infrastructure, including water management and storage, and trade-related capacities for access to local and regional markets; and
- ii) extending the area that is being sustainably managed to improve the resilience of the natural resource base, and thereby protect investments.

The Bank's President, Donald Kaberuka, recently summed up the challenges facing African agriculture: ¹³⁷

“two years ago, in 2008, the food price hikes demonstrated our vulnerabilities to shifts in the structure of world demand and supply for food. It has since abated somewhat, but the problem has not gone away.

The African Development Bank has, at all times, been a major player in agriculture, even when other partners downsized their portfolios. Today we continue to play our part, especially in irrigation

and water management, where we have first-class experience. But our Continent remains food insecure, even though our farmers work harder and longer hours than their counterparts elsewhere. Analyses as to what went wrong, and what to do is common knowledge. The science is available. It is true, in the past years, distorted macro-economic policies and an overbearing State depressed farmers' income. But that was corrected. But, paradoxically, what constituted a problem then, may now be part of the solution. Fast urbanization across the continent, and the distorting policies now corrected, offer unique opportunities to the farmer. The terms of trade have shifted in favour of the farming world. So what is missing? The State.

CAADP, Africa's agriculture plan, has spelled out the whys and how. Many Governments are coming forward with national plans. Time is now ripe for the state to again firmly step in to provide the farming sector the level of support it now needs. Yes, it is roads, irrigation – it's finance, research and extension services, and yes, why not targeted, exit-timed subsidies for inputs and fertilizers? The nature and vehicle of delivery of such state support will of course, be country specific. But in scaling up that state support, we must be aware of major shortcomings of the past; for donors; the inadequate division of labour among IFIs. For Governments, governance issues in parastatals which were meant to support but ended up stifling agriculture. And for all of us? The biggest shortcoming of all? The inadequate attention that was given to the majority of farmers, the women farmers, to gain higher productivity, access to finance, move up the value chain, and run viable agricultural SMEs alongside the menfolk. Food security will not be possible – gains in agricultural productivity is unlikely, unless gender is put at the center of a modernized agriculture. We have learnt this at our expense, but it can now be corrected. At the same time, as we remobilize for agriculture, our continent is getting hotter and drier, rains more unreliable due to climate change.”

Global Bodies

The main global bodies working for livestock development in Africa have complementary and relatively well defined mandates.

The World Organisation for Animal Health (OIE)

The OIE is an autonomous intergovernmental body that pre-dates the UN. Its mission is to guarantee the transparency of animal disease status world-wide, manage veterinary scientific information and provide expertise in and promote international solidarity for the control of animal disease. The OIE, as the WTO recognized official and sole intergovernmental global animal health and zoonosis standard-setting body, supports and maintains international expertise on the international standards, available to all OIE Members. As such, a major role of the OIE is to produce scientifically-based standards and guidelines. Since the recognition of animal health standards, by the WTO, as the scientific reference points for the safety of international trade of animals and animal products, the development of OIE standards for international trade has assumed a prominent role.

The work of the OIE on standards can be divided into two broad categories:

- Standards contained in the Terrestrial Animal Health Code and Aquatic Animal Health Code, dealing with prevention and control of animal diseases including zoonoses, animal welfare, sanitary safety (including animal production food safety), and sanitary safety of trade in animals and animal products; and
- Biological standards contained in the Manual of Diagnostic Tests and Vaccines for Terrestrial Animals and Manual of Diagnostic Tests for Aquatic Animals, which provide, as a companion document to the Codes, a harmonised approach to disease diagnosis by describing internationally agreed laboratory diagnostic techniques. The Terrestrial Manual also includes requirements for the production and control of biological products (mainly vaccines).

Furthermore, the OIE guidelines and recommendations are given in specific publications separate from the Codes and Manuals.

The OIE also increasingly focuses on assisting developing countries in areas of animal health capacity building, as related to the enhancement of efficient veterinary services under good governance, a global public good, to regulation and legislation, laboratories and the strengthening and evaluation of public veterinary services. The OIE has developed a tool for the review of performance of veterinary services (the PVS Tool), using OIE international standards on quality and evaluation.

The OIE PVS Tool promotes a culture of raising awareness and continual improvement, which can be used depending on the level of interest, priorities and commitment of the veterinary services and their stakeholders. The PVS Pathway involves the systematic evaluation of veterinary services to international standards (PVS Evaluation), a costed plan based on integrating the evaluation with national priorities (PVS Gap Analysis), access to OIE resources, strategies and services (veterinary legislation, public/private investments, veterinary education and laboratories), and a consistent mechanism for the monitoring and evaluation of progress (PVS Pathway follow-up mission). It can support round tables with donors and partners and support the preparation of investment programmes/pre-appraisal of projects and possible modernisation of veterinary legislation.

OIE has almost 180 member countries and their delegates, mostly Chief Veterinary Officers, have supported the secretariat to keep abreast of developing animal health issues. The organisation is, in addition to its work on trade standards, examining issues of importance to developing countries. These include the impact of climate change on animal diseases and production and developing guidance on animal identification and traceability, animal welfare and private standards related to animal health.

OIE has built strong links with livestock industry and other relevant bodies. It has over 40 cooperative agreements with international governmental and non-governmental organisations (NGOs), such as the safe supply of affordable food everywhere (SSAFE) Initiative and informal agreements for cooperation with other organisations.

The 2003 Avian Influenza crisis stirred FAO, WHO and OIE to strengthen their partnerships around a “One Health,” agenda. All commentators agree this has been constructive and resulted in improved surveillance and response to emerging diseases, for example The Global Early Warning System for Major Animal Diseases, including Zoonoses (GLEWS) which has initially adopted a list of 25 diseases of common interest, 76% of which are zoonotic¹³⁸ and the OIE/FAO Network of expertise on animal influenzas (OFFLU) implemented in close cooperation with WHO.

In coming years the, OIE will collaborate with AU/IBAR to implement a programme for “reinforcing veterinary governance in Africa,” funded by the EC. This will build on PVS findings and will assist governments with policy analysis and formulation, develop legal frameworks and integrate a wider group of stakeholders in decision making. This is a timely and important initiative as discussed in section 4 (animal health).

International Fund for Agricultural Development – IFAD

IFAD, a specialised UN agency, provides low-interest loans and grants to developing countries. Since starting operations in 1978, IFAD has invested US\$11.5 billion in 838 projects and programmes that have reached some 350 million poor rural people and raised nearly double this amount through co-financing. Since 1978, US\$738 million has been used for livestock development activities. Currently, IFAD spends just less than 9% of its budget on livestock-related projects. IFAD tackles poverty not only as a lender, but also as an advocate for rural poor people, using its multilateral base as a platform to discuss important policy issues that influence the lives of rural poor people. IFAD recently produced a flagship “Rural Poverty Report 2011,” that provides comprehensive analysis of rural poverty, its global consequences and the prospects for eradicating it¹³⁹.

Currently, almost 50% of IFADs funding goes to Africa. As of the end of 2008, IFAD’s current portfolio of projects had trained just over one million people (65% of whom were women) in new livestock production practices/technologies. IFAD was one of the first UN agencies to undergo reform, having

closed many of its underperforming projects, IFAD is now meeting and exceeding most of its own targets. It is expanding its country presence and has begun to work more closely with the private sector through both grants and the promotion of private sector investment in rural areas. IFAD is acutely aware of the need to address challenges associated with climate change and supports smallholder farmers and rural entrepreneurs, particularly women, to engage in and influence relevant policy processes, including through South–South partnerships and knowledge-sharing among countries and regions¹⁴⁰. IFAD’s livestock strategy shares the above approach. The livestock team in IFAD recently initiated a community of practice for pro-poor livestock development that provides a useful forum for discussion and building links. The forum currently involves more than 150 organizations and 450 resource people.

The Food and Agriculture Organization of the United Nations (FAO)

FAO’s great strength is that it assembles, in one organization, a larger number of professionals dealing with food and agriculture than any other international organization. FAO’s challenge is to get these professionals working across disciplines and focusing on areas where it has comparative advantage. The organisation benefited from a detailed independent external evaluation that provided significant advice on how to do this in 2007. Whilst it will take time for the recommendations of this evaluation to be adopted, the organisation has begun to take them on board. The work of the Animal Health and Production Division (AGA) was positively reviewed and the evaluation recommended significantly increased support to the livestock sector. This encouragement was recognition of the good work of AGA, particularly in the transboundary disease control and pro-poor livestock policy, the fact that FAO had been cutting the livestock budget for many years¹³ and the fact that the livestock sector is growing rapidly in the developing world. AGA, like other divisions, has a wide remit, ranging from emergency response to production of guideline and best practice to sector analysis. AGA staff have proven to be especially useful in the formulation of ideas contained in this Impetus paper.

¹³ Falling by almost 40% as a proportion of the budget between 1994–05 and 2006–07.

AGA is building on its strong linkages with other FAO divisions and in recent years been collaborating with the private sector. AGA has succeeded in developing working relationships with most of the major livestock industry global bodies, such as SSAFA and the International Feed Industry Federation. The 2009 State of Food and Agriculture Report on Livestock saw a significant shift in the thinking on animal health in FAO, with much greater emphasis on supporting livelihoods and food security of the poor. This fits well with the latest recommendations of the FAO governing agriculture body, the Committee for Agriculture (COAG). The 2010 meeting of the Committee was attended by 111 countries and recommended that FAO should, with a wide range of stakeholders, sharpen the definition of the livestock sector's objectives, "taking into account the disparities between production systems, the proliferation of private standards, countries' economic development, role of smallholders, importance of export, and status of natural resources," in order to identify issues that could require intergovernmental action. The Committee's emphasis was on collaboration, as it went on to recommend "that FAO, together with actors at all levels, establish the research, technical, institutional, financial and policy conditions necessary for the delivery of goods and services from the livestock sector which would support food security, nutrition, livelihoods, economic development, environmental sustainability and public health."

Overall, the Committee recommendations included requests for FAO to:

- undertake analytical and policy assessment on smallholder integration in market organizational structures;
- collaborate with ministries of agriculture and other relevant ministries to develop their capacity to support improved market access by smallholders;
- support business-oriented activities by farmers' organizations and promote development of value chains that are inclusive of smallholders;
- develop close relationships with the private sector that best serve the needs of smallholders.

FAO will collaborate with AU/IBAR to implement the programme for "reinforcing veterinary governance in Africa," funded by the EC. This will build on FAO's national medium-term priority framework analyses and transboundary animal disease control work.

World Bank

The Agriculture and Rural Development (ARD) Department develops livestock strategy for the Bank. ARD was responsible for the World Development Report (WDR) 2008: *Agriculture for Development*, which has provided a platform from which to discuss "more and better," investment in agriculture and rural development by stakeholders in both developing countries and donor organizations, including the World Bank. After years of decline, the World Bank now predicts a significant increase in support to agriculture from the whole group including the International Finance Corporation (IFC), from a baseline average support in FY2006–2008 of US\$4.1 billion annually to between US\$6.2 and US\$8.3 billion annually over the next three years. The group's livestock work fits within a 2010–12 strategy that builds on lessons arising from the WDR 2008 report. This new strategy puts greater emphasis on the critical need to increase agricultural productivity, especially of poor smallholders in SSA, whilst retaining a strong commitment to strengthening its work at regional, national and local levels including community-driven development programmes. The Bank has a strong commitment to CAADP and will continue to advocate that Poverty Reduction Support (PRSP) processes and Country Assistance Strategies give due attention to agriculture¹⁴². ARD's efforts to analyse livestock sectors' contribution to rural development and the key livestock policy areas to address¹⁴³ have been recognised within the Bank and the 2010–12 strategy which commits to further work on livestock sector development, notably:

- Closing the livestock productivity gap: by (i) expanding veterinary services; (ii) matching grants for adoption of new breeds, building on the success of artificial insemination for genetically improved livestock – an approach that has helped nearly two million farmers in East Africa achieve higher milk yields (see section 3.1); and (iii) expanding extension of advisory services to improve animal and rangeland management practices.
- Protecting assets against catastrophic loss: by supporting weather index insurance initiatives in SSA. The IFC is also supporting the creation of a Global Index Reinsurance Facility which will support crop and livestock insurance for smallholders.
- Reducing the risk of major livestock disease outbreaks: Building on the Global Program for Avian Influenza the Bank will support the strengthening of livestock disease surveillance and the capacity to provide rapid response if outbreaks occur.

ARD in collaboration with AU/IBAR, ILRI and FAO is leading a BMGF-funded effort to improve the collection and access to accurate livestock data that can support market-driven opportunities for smallholder livestock keepers.

Consultative Group on International Agricultural Research (CGIAR)

The International Livestock Research Institute (ILRI) heads up CGIAR's livestock work. It aims to bring high-quality research and capacity building to bear on poverty reduction in the developing world. ILRI works in seven key areas:

- Vaccine and diagnostic technologies for orphan animal diseases;
- Animal genetic resources;
- Climate change;
- Emerging diseases;
- SPS and market access within broader market opportunities for the poor;
- Sustainable intensification in smallholder crop-livestock systems.

ILRI has partnerships with all the above mentioned organisations and national agricultural research centres. Under the recent reform programme of the CGIAR, ILRI will be working on a series of "mega programmes," and developing its own food security programme for livestock and fish sectors. This will focus on the following areas:

- Increasing productivity in small-scale livestock and fish production and marketing systems;
- Increasing access to affordable animal source foods (ASF) to enhance food and nutrition security for the poor, especially women and children;
- Enable participation in, and access to, pro-poor production and marketing systems that promote uptake of productivity-enhancing technologies and increase value generation, with emphasis on addressing current gender disparities;
- Secure household and community livestock and fish assets for sustained livelihoods, and conserve livestock, fish and forage/fodder biodiversity as public good assets that will provide genetic diversity for continued growth and adaptation;
- Protect the natural resource base and its ability to continue providing ecosystem services;
- Strengthen capacity to enable public and private sector actors to support and exploit appropriate research and development efforts for sustainable intensification of small-scale livestock and fish production, and marketing systems that provide equitable benefits to men and women.



Annex 2

The Voices of Livestock Keepers

It can be difficult to represent livestock keepers' views adequately. AU/IBAR captured the views of livestock owners on video for a 2002 conference on Primary Animal Health Care in the 21st Century: Shaping the Rules, Policies and Institutions¹⁴. Here are some of the responses.

The key questions asked were:

- **What kinds of veterinary service do you have at the moment?**
- **What kinds of veterinary service do you want?**
- **How do you feel about paying for services?**

In West Pokot, Kenya and Mulu, Ethiopia, community-based animal health programmes had been established. In these places, people were also asked how they felt about these programmes.

Kajiado, Kenya (less than 100 km from Nairobi)



"The only time I see government veterinary services is during vaccination campaigns. Otherwise they are nowhere to be found. When an animal is sick, it's very hard for me to know how to use a drug. When there is nobody to ask and nobody to help, I just take a risk and assume this amount of drug is enough, and I do it myself."

Kati, Mali



"The government veterinary service is not effective because it cannot store enough drugs to treat our animals. But some of us have learnt the basic things, like some treatments and vaccination, so there is no problem at that level. Even me, I know how to do some of it."



"I'm convinced that if you could train someone to be a paravet, who would be well trained in our community and know how to use drugs properly, we would pay. This is precisely what we are asking for. We need these veterinary workers to be well equipped and close to us. It is proximity that is important to us."

Baringo District, Kenya (150 km north of Nakuru, Kenya's second largest town)

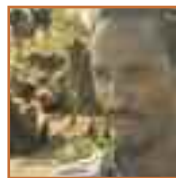


"A long time ago, vets used to come but now they don't. By the time you've found one the cow is dead. If a cow gets sick you have to go asking around for the medicine. Then you get the medicine and inject it. Sometimes it heals and sometimes it kills. What can we do?"

Mulu, Ethiopia



"Maybe once in a year vets came from the agricultural bureau on some field trip and treated a few animals. Other than that we just see the animals die."



"Our life depends on animals. These diseases kill them and make them sick. If we need a vet, well, we live in areas like this! We can't get transport to town and it's difficult for us to drive sick animals there. But since the community animal health worker started working, they come to us. There has been a great improvement."



"Before these people were trained, we used to lose a lot of animals at the time of disease outbreaks. But now we are better – the community animal health workers are here."

West Pokot, Kenya



"Before, there was a big problem. Government officials used to come maybe once a year and vaccinate, and then vanish. Sometimes they wouldn't even vaccinate all the animals before they disappeared. When we started selecting and training these community animal health workers, that's when we started seeing some light. If you call the community animal health worker, it means that you're prepared to pay for the treatment. Everyone is aware that these drugs are not free of charge – everybody is paying for it. It has been agreed – no free treatment. That's what we are fighting for."



"Before the community animal health worker came, there used to be a lot of diseases in this area, affecting the cattle, the goats, all the livestock. But since he came, the disease situation has improved."



"Since the community animal health worker came, he has done well. We've not had any problem from him. We drink milk and eat good meat. When the calves are born, they are active and healthy."

Annex 3

Overview of GALVmed

GALVmed is a registered charity that began operations in November 2005. Since its inception GALVmed has supported the Millennium Development Goals by playing a major role in poverty reduction and livelihood enhancement through livestock interventions. The charity's mission is to protect livestock and save human lives by:

- Developing, registering and launching several vaccines, pharmaceutical and diagnostic products over the next 10 years
- Partnering with organisations in developing countries to ensure sustainable research, production and delivery of new products to poor livestock keepers
- Informing stakeholders on the links between livestock and poverty and the role of livestock health in achieving the Millennium Development Goal of eradicating extreme poverty and hunger
- Facilitating dialogue and collaboration in research efforts for new livestock vaccines, medicines and diagnostic systems

GALVmed focuses its efforts on sub-Saharan African and Southern Asian countries afflicted by both extreme poverty and animal diseases.

GALVmed prides itself on engaging with stakeholders through core values of integrity, pro-poor empathy, focus, professionalism, competency, transparency, commitment and progressiveness. Since its launch, GALVmed has grown considerably. The organisation receives financial backing from the Bill and Melinda Gates Foundation, the UK's Department for International Development (DFID) along with specific project funding from numerous other sources. GALVmed has partnerships with the pharmaceutical industry, non-governmental organisations (NGOs), government organisations and international agencies and foundations. These partnerships are vital to GALVmed's existence and the success of its mission. GALVmed strives to ensure that its decisions are driven by regular dialogue with community stakeholders.

GALVmed's work is guided by a Board of Directors and observers to the board. The board members reflect a wide range of nationalities and expertise from the private and public sectors, along with research and civil society communities. The current list of directors and observers can be found on GALVmed's web site¹⁵. The Board has four sub-committees: policy and external affairs; finance /audit; technical; and global access. GALVmed is further supported by external advisers: an Expert Scientific Advisory Committee reviews all GALVmed research plans and a unique Global Access Advisory Committee, that includes internationally-renowned experts from several countries on regulation, quality control, manufacturing, government, distribution, development, policy, sociology and other related areas, provides advice to GALVmed on all non-scientific aspects of its work. This includes, for example, the development of socio-economic impact tools for the livestock sector, strategic partnerships, production, commercialisation and sustained delivery of new products, advocacy, farmer engagement and communications.

GALVmed has a number of qualities that makes it an effective organisation in terms of impacting the lives and livelihoods of poor livestock farmers in Africa and South Asia.

These strengths include the following:

- GALVmed is relatively new and relatively creative in its approach. This has helped GALVmed engage with a number of persistent problems in the animal health and development world and formulate solutions.
- Galvmed has a very business-orientated approach. This reflects GALVmed's private sector links and staff experience. GALVmed is careful about what it invests in. When investments are made they are closely monitored against a business plan that includes milestones and outputs against agreed timelines. This allows GALVmed to alter course rapidly to invest in success and pull out if results are not possible. GALVmed is lucky to have donors that understand and support this flexible and output-orientated approach.

¹⁵ <http://www.galvmed.org/about-galvmed/leadership>

- GALVmed is constantly thinking about sustainability. For example, when assessing research, the end product use and its commercialisation are also examined. This downstream approach requires good understanding of value chains, networking and partnership.
 - GALVmed's "portfolio approach," is proving to be highly successful. Using experienced staff and consultants, GALVmed reviews a menu of available opportunities to solve a particular problem, whether it be a new vaccine, medicine or policy. GALVmed then works in a very transparent manner with those organisations best equipped or mandated to research or solve that problem, whilst linking the anticipated solution to the next step in a sequence that will eventually benefit poor livestock farmers, small businesses and national economies. This value chain approach requires a vision, excellent understanding of key technical and policy bottlenecks, the ability to approach all stakeholders in a transparent and open manner, to advocate for change and convening power.
 - GALVmed invests in maintaining close contact with farmers and listens to their expectations first.
 - GALVmed staff are a vital asset who bring long years of experience. The staff have varied backgrounds and complementary skills. The Chief Executive, Steve Sloan, has been instrumental in helping the organisation grow, following a career in voluntary sector management. He is supported by a team of directors, assistant directors and consultants, whose experience ranges from chief scientific officer of a major African research laboratory, to senior government officers in Africa and south Asia, representatives of regional development organisations, pharmaceutical, advertising and communications industry representatives, legal and intellectual property experts, ex donors and a range of animal health specialists.
- For a latest list of GALVmed's portfolio of projects and achievements, it's best to check their web site and most recent newsletter. Recent reported achievements included:
- Increasing the profile and membership of the Community Animal Health Network (CAHNET) through partnership working with FARM-Africa.
 - Providing critical support to the Africa Union livestock vaccine centre in Malawi to enable the centre to manufacture and supply quality-assured East Coast fever vaccine throughout the region in a sustainable manner, and helping secure an additional US\$ 6.9million grant from the European Commission to strengthen vaccine labs in Botswana, Cameroon, DRC, Ethiopia, Ghana, Kenya, Mali and Senegal.
 - Bringing new skills, through the Pfizer Fellowship Program, three experts in different aspects of vaccine production and marketing have been seconded to GALVmed for six months.
 - Linking experts across the continent through compilation of a database of veterinary vaccine regulatory authorities and developing a global database of veterinary vaccines in an innovative partnership with the Innocul8 team at the Moredun Research Institute, Scotland.
 - Organising the first Pan-African meeting of veterinary vaccines regulators in collaboration with OIE and brokering an agreement that mutual recognition should be the first step towards harmonisation and formulating roadmaps for technical and political support at all levels.
 - Developing and using a robust model for exploiting intellectual property and obtaining Freedom to Operate for the benefit of poor livestock keepers.
 - Increasing the awareness of financial incentives, such as Advanced Market Commitments, to stimulate investment in animal health by the private and public sector.
 - Demonstrating proof-of-concept for a combination vaccine for Rift Valley fever and starting registration trials; developing the most appropriate formulation of oxfendazole for the treatment of porcine cysticercosis and successfully conducting animal trials for registration; and driving the process that led to the first registration of the East Coast fever Infection and Treatment Method (ECF-ITM) vaccine in Malawi, Kenya and Tanzania.
 - Supporting and expanding delivery systems: for example, following the success of VetAgro Tanzania Ltd, which has been vaccinating against ECF using ITM in the pastoral areas of Tanzania since 1998, GALVmed is also developing and implementing models for sustainable delivery of Newcastle disease vaccine in Africa and Asia.

Annex 4

Harmonisation of Registration of Veterinary Medicines in UEMOA

The West African Economic and Monetary Union (also known as UEMOA from its name in French, *Union économique et monétaire ouest-africaine*) is an organization of eight West African states. It was established in 1994 to promote economic integration among countries that share the CFA franc as a common currency. UEMOA's objectives include the following:¹⁴⁴

- greater economic competitiveness, through open markets, in addition to the rationalization and harmonization of the legal environment;
- the convergence of macro-economic policies and indicators;
- the creation of a common market;
- the coordination of sectoral policies;
- the harmonization of fiscal policies.

Over the whole UEMOA region, livestock production represents slightly more than 15% of total GDP. In 2002, UEMOA reviewed its legislation, registration and quality control mechanisms for veterinary medicines. The study showed that there were significant problems and it recommended the establishment of a new agency housed in UEMOA HQ. This central agency was to cover nearly all aspects of veterinary drug registration, training and coordination in the region. Whilst this agency was the preferred option, upon appraisal by member states, it was felt that the regulatory framework underpinning the agency's responsibilities was inadequate and the agency would be too expensive to run. The agency therefore remains a goal for the community. As an interim measure, the community still opted for a network of three key bodies¹⁴⁶.



Figure 5 Map showing UEMOA Member States
Map courtesy of World Bank¹⁴⁵

1 a Regional Committee for Veterinary Medicinal Products (CRMV)

The CRMV meets on an *ad hoc* basis to review registration dossiers. The committee comprises scientists recruited for their personal competence. It is supported by a Permanent Secretariat, housed at the UEMOA headquarters. The CRMV is backed up by UEMOA regulations that define the minimum requirements that must be applied by member countries for the production, importation, quality control and operation of veterinary pharmaceutical establishments, plus the marketing and distribution of veterinary medicinal products in the UEMOA region.

2 a Veterinary Committee of CVOs

The committee's duties are broader than drug legislation. It also handles areas of livestock production where a regional approach shows clear benefits eg. animal health, safety of foodstuffs of animal origin, veterinary practice and animal welfare.

3 a network of laboratories to carry out quality testing

Nine laboratories were selected, six to analyse pharmaceutical products and three to analyse immunological products.

The WAEMU institutions and appropriate legislation are now in place and monitoring of their operational capacity by the veterinary committee, neighbouring regions and the pharmaceutical industry will no doubt yield important lessons.

Harmonisation of Registration of Veterinary Medicines in Europe

The regulation of veterinary medicinal products within the European Union is based on harmonised legislation established at European Community level. This legislative framework covers the manufacture, authorisation (registration), placing on the market and subsequent monitoring and maintenance of products.

For over 20 years, a network of three key bodies has regulated medicines. These are the national regulatory authorities of the 27 member states, the European Medicines Agency (EMA) based in London and the European Commission in Brussels.

The harmonised system has several benefits:

- 1 significant reduction in the time and resources required to obtain and maintain registration (in multiple countries);
- 2 a "level playing field," in terms of the application of harmonised requirements throughout the network;
- 3 improved predictability of both timescales and requirements for authorisation.

Three fundamental principles are required for this network or any other region-wide system to operate successfully:

- 1 Subsidiarity in terms of pooling legal powers – which means that the central authority (the European Commission) should only perform those tasks which cannot be performed effectively at national level. This allows national differences to be accommodated.
- 2 A robust system of mutual recognition to prevent duplication of work and maximise the use of scarce resources (for example if a product is registered in one country and the product owner wishes to register it in a second country). The owner applies for mutual recognition of the existing registration by the competent authority of that second country. It is not permissible to apply for separate registration for the same product in more than one member state. If the second state does not recognise registration then there is a time-limited appeals process. Alternatively, the product owner may wish to seek a single authorisation issued by the European Commission, as this is valid in all Member States.
- 3 Mutual trust and transparency is essential if the network is to function rather than merely exist on paper.

In addition to these fundamentals a region requires the physical and human infrastructure to support the network in terms of places to meet, a permanent secretariat to coordinate and ensure the continuity and quality of the work performed, preferably a common language and an effective IT system. Finally you need a common interest in work sharing, pooling of resources and sovereignty in the interests of each and every member of the network.

From Mackay D. OIE Conference on veterinary medicinal products in Africa, 2008¹⁴⁷.

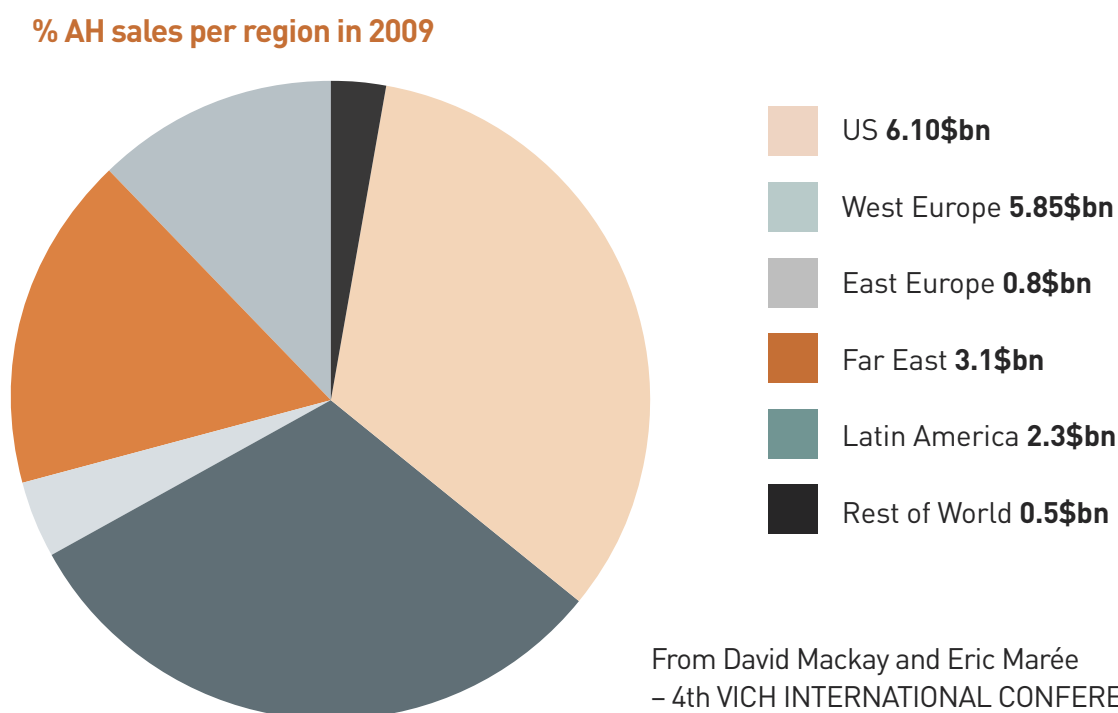
VICH

The “**International Cooperation on Harmonisation of Technical Requirements for Registration of Veterinary Medicinal Products,**” or VICH, was launched in 1996 following the convening of an OIE *ad hoc* group to discuss harmonisation of veterinary medicinal products. Currently, VICH is a trilateral (EU–Japan–USA) programme with regulatory authorities and industry experts from Australia, Canada and New Zealand participating as observers. These three regions and three observers represent 70% of the global market for animal health products. The OIE is an associate member of VICH.

After 14 years of development the VICH is reaching out. VICH’s public meeting of June 2010 provided an opportunity to review progress to date and look to the future. It was concluded that:

- VICH guidelines were useful as they:
 - allow efficient use of resources by avoiding the need for creation of new technical standards;
 - form an internationally recognised basis for mutual recognition;
 - avoid the risk of dual standards;
 - can be referenced by legislators creating new regulatory frameworks:
- Capacity building for effective regulations for authorisation and control of veterinary medicines was essential before any VICH standards could be used and that OIE has a key role in capacity building through the Performance of Veterinary Services (PVS) Scheme;
- There is concern in the developing world that VICH guidelines might not be achievable and fail to cover issues relevant to developing countries eg. diseases not found in VICH member countries or traditional medicines and that guidelines may be imposed on them without an adequate opportunity for engagement in their development;
- There is need for raising awareness on VICH and the development of new guidelines relevant to new stakeholders;
- VICH should work with OIE to develop a framework for capacity building veterinary medicine regulatory systems that fully integrates the standards developed by VICH;
- RECs present a more effective target than individual countries.

Figure 6 % Global Animal Health Product Sales by Region 2009

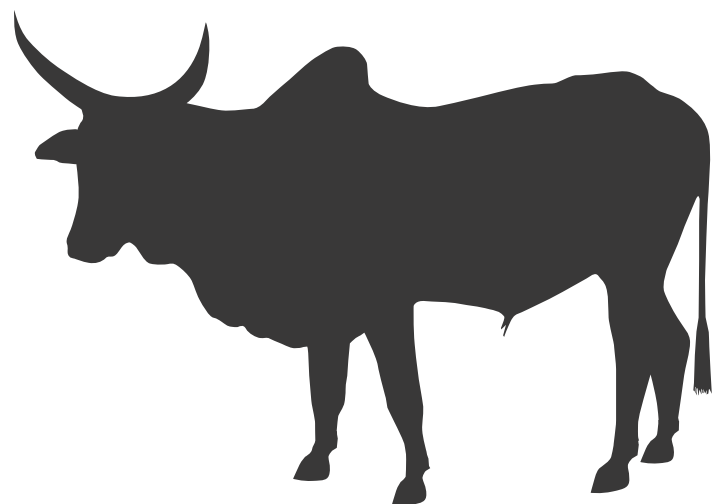


From David Mackay and Eric Marée
– 4th VICH INTERNATIONAL CONFERENCE, June 2010¹⁴⁸

Annex 5

Sahel and West Africa Club Recommendations for Regional Livestock Market Integration ^{120 125}

- Intensify agropastoral systems – by addressing factors that limit production, such as animal feed. Member states were requested to:
 - make inputs accessible through polices to reduce taxes on technical and veterinary inputs, and livestock equipment. UEMOA has already started this in the animal health sector¹⁴⁹.
 - Allow easier access to credit.
 - Strengthen outreach and training programmes for families and private operators. e.g. encourage development of the production of goats' milk, a product that is still not exploited in SWA countries with large goat herds.
- Diversify animal production – to make the most of comparative natural advantages of the Sahel for meat and milk production and coastal countries for short-cycle feedlot operations.
- Encourage the development of intra-regional trade based on finished or processed products, e.g. encouraging vertical integration of the value chain from animal-rearing rural areas, to collection and stocking for finishing, to slaughter and meat-distribution chains in regional markets.
- Improve systems for processing animal products – by renovating and expanding existing infrastructure. In most of the SWA countries, the abattoirs are obsolete and/or have limited capacity. They do not permit enough animals to be slaughtered even to meet domestic demand. Processing centres should be established in countries with a comparative industrial advantage such as Côte d'Ivoire, Ghana and Nigeria.
- Improve internal distribution systems and intra-regional trade. Member states were requested to ensure trade policies focus on better organisation of animal product markets in order to:
 - boost trade flows, eg install one-stop windows for the payment of duties and taxes;
 - improve the competitiveness of products through lower transaction costs and greater tax effectiveness. This includes harmonisation of relevant tax regimes;
 - harmonise animal health policies across the region;
 - promote adequate means of transport – including improving recognised stock routes and reducing the number of barriers on those routes, many of which are traditional;
 - Consider stronger policies for the protection of local production, for example Côte d'Ivoire used to impose countervailing duties on poultry products. As a result, local production performed quite well in intra-regional and extra-regional exports;
- Support the organisation of agro-pastoralists, livestock exporters, and food processors;
- Increase investment in livestock research and development to remove obstacles to improved production, effectively address emerging issues, including the safety of animal products.



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Acronyms

3ADI	African Agribusiness and Agro-industries Development Initiative
ACDI	Agricultural Development Cooperative International
AFAAS	African Forum for Agricultural Advisory Services
AfDB	African Development Bank
AGA	Animal Health and Production Division
AGRA	Alliance for the Green Revolution of Africa
AIS	Agricultural Innovation Systems
ARD	Agriculture and Rural Development
AU	African Union
BASIS-CRSP	The BASIS Collaborative Research Support Program (CRSP) http://www.basis.wisc.edu/basis_crsp/index.html
BMGF	Bill and Melinda Gates Foundation
CAADP	Comprehensive Africa Agriculture Development Programme
CAHW	Community Animal Health Worker
CAPE	Community-Based Animal Health and Participatory Epidemiology
CBAHW	Community-Based Animal Health Worker
CBPP	Contagious Bovine Pleuro Pneumonia
CDM	Clean Development Mechanism
CEN-SAD	Community of Sahel-Saharan States
CGIAR	Consultative Group on International Agricultural Research
CILSS	Permanent Inter-State Committee for drought control in the Sahel ???
COMESA	Common Market for Eastern and Southern Africa
CSR	Corporate Social Responsibility
CVO	Chief Veterinary Officer
DALY	Disability-Adjusted Life Year
DFID	Department for International Development
DREA	Directorate for Rural Economy and Agriculture of the AU
EAC	East African Community
EC	European Commission
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
EEFF	East African Farmers' Federation
FANRPAN	Agriculture and Natural Resources Policy Analysis Network
FAO	Food and Agricultural Organisation of the United Nations
FARA	Forum for Agricultural Research in Africa
GBD	Global Burden of Disease
GFRAS	Global Forum for Rural Advisory Services
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HPAI	Highly Pathogenic Avian Influenza
IBAR	Interafrican Bureau for Animal Resources
ICONZ	Integrated Control of Neglected Zoonoses
IFAD	International Fund for Agricultural Development
IFAH	International Federation for Animal Health
IFI	International Financial Institutions
IFPRI	International Food Policy Research Institute



Acronyms

IGAD	Inter-governmental Authority on Development
ILRI	International Livestock Research Institute
MDG	Millennium Development Goals
MDTF	Multi-donor Trust Fund
NEDPP	National Economic Development Priority Programme
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organisation
NPCA	NEPAD Planning and Coordinating Agency
OECD	Organisation for Economic Cooperation and Development
OIE	World Organisation for Animal Health (formerly Office international des epizooties)
OSSREA	Organization for Social Science Research in Eastern and Southern Africa
OWOH	One World, One Health
PANVAC	The Pan African Veterinary Vaccine Center
PARC	Pan African Rinderpest Campaign
PARC-VAC	Participatory Community-based Animal Health and Vaccination
PPR	Peste des Petits Ruminants
PROPAC	Plateforme sous-régionale des organisations paysannes d'Afrique Centrale
PRSP	Poverty Reduction Strategy Papers
PVS	Performance of Veterinary Services
REC	Regional Economic Community
ROPPA	Réseau des organisations paysannes et de producteurs de l'Afrique de l'Ouest
RP	Rinderpest
SACAU	Southern African Confederation of Agricultural Unions
SADC	Southern African Development Community
SME	Small to Medium-sized Enterprise
SPS	Sanitary and Phyto-Sanitary
SSA	Sub-Saharan Africa (African countries, excluding the countries on the Mediterranean coast of North Africa and the Republic of South Africa)
SSAFE	Safe Supply of Affordable Food Everywhere
SWAC	Sahel and West Africa Club
UEMOA	L'Union Economique et Monétaire Ouest Africaine
UMA	Arab Maghreb Union
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
VICH	International Cooperation on Harmonisation of Technical Requirements for Registration of Veterinary Medicinal Products
VOCA	Volunteers in Overseas Cooperative Assistance
WAEMU	West African Economic and Monetary Union
WDR	World Development Report
WFP	World Food Programme
WHO	World Health Organisation
WTO	World Trade Organisation



Summaries of E Discussion Topics

A Livestock 2012 e-discussion, hosted by GALVmed and moderated by Tim Leyland provided an opportunity for livestock experts to give their opinion about the ideas contained in the *Impetus Strategy Paper*, to share their own knowledge and experience and to strengthen the *Impetus Strategy Paper* as a useful resource, open to all in the sector. The following offers a flavour of these discussions, topic by topic.

1 The State of Africa's Livestock Sector

Contributors agreed with the *Impetus Strategy Paper's* (ISP) finding that the livestock sector in Sub Saharan Africa is under performing and with the reasons stated in the paper. These included

- Low on-farm productivity;
- Market access;
- Product quality.

Further reasons for poor performance of the sector were suggested and included:

- poorly resourced and underperforming livestock services;
- unfavourable operating environments (particularly policies, but also investment, technical support and information).

Several participants cautioned that livestock "performance" needs to be defined in a more inclusive manner. Economic indicators for performance may not be meaningful to poor livestock keepers. Benefits such as manure and traction are not captured in the formal statistics. Women use livestock for subsistence and for commercial reasons but nearly always through informal markets which are poorly monitored. Furthermore self consumption and building social capital through gifting or use in ceremonies are important aspects of livestock care for millions of people. It was noted that the poor may keep livestock as a hedge against risk, and many of the recommendations for increased production require capital outlays that increase their risk. It was suggested that *"Africa has the potential to become a major producer of livestock, supplying local, regional and international markets – but this potential can only be achieved if it is recognised and intelligently managed. A holistic approach is needed to address the myriad of weaknesses and challenges that hold down*

the livestock sector whilst remaining appropriately sensitive to the context of African social values and structures. A holistic approach is needed because strengthening just one component such as improving the quality of animal health services delivered, will not have anything like the impact or sustainability possible if production, management, marketing, value added and other relevant aspects are not concurrently addressed."

It was felt that prioritized intervention areas for the livestock sector are missing or poorly presented in the National Agricultural Investment Plans because the planning process is mostly driven by Ministries of Agriculture (irrespective of whether there are Ministries of livestock in the countries or not), with little or no representation of livestock authorities. Several contributors called for the creation of national level livestock sector forums where stakeholders with interests in the sector and with different in-country production systems and zones could meet. The outputs of the fora would include:

- developing livestock policies and consensus as to the best strategies for implementing and realising the full impact of those policies;
- ensuring collaboration and cooperation between all stakeholders, eliminating overlaps and filling gaps.

As mentioned in the ISP, international organisations, such as OIE and FAO, continental bodies, such as AU-IBAR and Regional Economic Communities have a major role to play in facilitating coordinated and complimentary actions by governments, institutions and organisations at national level.

The question was posed...who should be bringing together these different actors in a more unifying and strategic way rather than (there be) mere collaborations on specific projects in a specific country? It was suggested that to do this there needs to be:

- 1 an awareness, common buy-in and understanding of the problem(s);
- 2 champions (individual or organisations);
- 3 commencement at national or regional level (not trying to address the entire continent at one time);
- 4 the demand to cascade and scale up

Others felt there needed to be continued emphasis on building capacity and demand from community level using techniques such as participatory learning and action.

Several contributors called for greater recognition of the role that working animals¹ play in supporting peoples' livelihoods. For example, *"in very many farming systems, draught animals are an integral part of the system – bringing chemical inputs, seeds etc to the farm and fields, transporting fodder to livestock in cut and carry systems and transporting livestock and crop products to markets . How many small scale dairy farming systems could get sufficient quantities of fresh milk to collecting centres without the use of pack or cart donkeys? How do farmers get sick animals to access vet services? Often on the back of a donkey cart? How do vegetables or even coffee for export start their journey to market? Often on pack animals acting as the first point on the marketing chain"*.

It was also noted that working equines, particularly donkeys, make a significant contribution to peoples' resilience during times of drought. However this is rarely recognised by humanitarian aid agencies when they plan and implement relief work.

It was argued that working animals are working under-potential because they seem mainly ignored, their contribution massively under-valued by extension and health services, and by development NGOs. Little attention is given to their good management and nutrition, working practices, harness (design, fitting, repair, management, use) or health and welfare.

Greater work on the specific health problems and medicinal requirements of working animals was advocated, for example epizootic lymphangitis in Ethiopia and working animals' susceptibility to musculo-skeletal problems.

2 Improving animal health services for rural farmers

The discussion on animal health started with an assertion that the role of proper animal nutrition has been neglected by donors, researchers and policy makers in addressing animal health issues. The contributor felt the Impetus Strategy Paper (ISP) needed to provide greater acknowledgment that *"improper or unbalanced nutrition not only affects productivity but also health, behaviour and welfare of animals"*. It was explained that poor nutrition increases the susceptibility of animals to diseases by affecting the immune function, thus increasing the

need of veterinary treatments, posing risks to food consumers, decreasing profitability and endangering the environment. It was argued there is a need to provide greater information on the importance of proper animal nutrition to veterinarians, through changes to the curriculum of veterinary schools. Vets need to be able to use simple tools to advise rural farmers how to prepare a balanced ration using locally available resources.

An example was provided on how nutrition advice had proven to be the most valuable input in a project restocking drought affected vulnerable populations with poultry. *"Besides providing the vulnerable people with poultry and a kit (containing basic poultry inputs), we gave them basic training on poultry nutrition. The training was very short (less than a day), but while following up and reviewing the progress, it appeared that the training component was the most important. From the knowledge gained during the training, the trainees were formulating their chicken feeds using locally available materials (reducing the feeding costs whilst improving productivity)."*

Opinion on whether veterinary para-professionals are effective and sustainable, whilst divided, was generally positive. Indeed, several people said they are the only way forward. Most farmers are willing to pay for good service delivery. Even farmers perceived to be "poor" want quality and timely service and will pay when they see the value in it. There is plenty of evidence that veterinary para-professionals, including Community Animal Health Workers (CAHW), can provide timely services that meet farmers' basic needs, particularly in underserved and remote areas. It was noted that the majority of vets in Africa continue to be uncomfortable calling animal health service providers with only very basic training, such as CAHWs, veterinary para-professionals. Consequently they tend to resist providing them with the necessary legal framework authorising them to carry out designated tasks, even under the supervision of vets. Further evidence of the positive impact of CAHWs was provided from Southeast Ethiopia. The research cited by Tufts University suggested that privatised veterinary services utilising veterinary para-professionals (CAHWs) had significantly increased through an enabling policy environment. This environment included regional government policy statements, federal-level legislative change and publication of government minimum standards and guidelines for privatized CAHW systems.

Calls for the recognition and use of paravets including CAHWs are unlikely to die away whilst a gap in veterinary service delivery and disease surveillance remains across large areas of rural Africa.

Most contributors agreed that World Organisation for Animal Health (OIE) guidance on how paravets should operate was useful and appropriate².

The Terrestrial Animal Health Code is quite clear that it is the responsibility of the Veterinary Statutory Body, normally termed the Veterinary Council or Veterinary Board, of each country to register/licence veterinarians and veterinary para-professionals. E-discussion correspondents called for effective supervision and follow up, improved trust and flexible legislation to govern the use of veterinary para-professionals, including Community Animal Health Workers (CAHW).

The OIE advised that it has been developing a basic standard covering veterinary legislation in OIE Member Countries. This move has been in response, at least in part, to requests from some African countries.

Continual Professional Development [CPD] of both vets and paravets was suggested as one way to ensure continual supervision of veterinary para-professionals, cascading down to the basic levels such as CAHWs. It was suggested that those vets or paravets who do not carry out the CPD would be penalised through “*loss of registration / licence to deliver services*”.

E-discussion correspondents put forward interventions for consideration within any plan to enhance the quality, impact and sustainability of veterinary services^A. Most participants felt the OIE PVS mechanism, the new Interafrican Bureau of Animal Resources [AU/IBAR] veterinary governance project and IBAR’s strategy for livestock development in Africa were key opportunities to build upon.

As advocated in the Impetus Strategy Paper, the OIE PVS Pathway received particular support as a programme for the sustainable improvement of a country’s Veterinary Services and their compliance with OIE standards. It was noted that PVS remains an important foundation for improving animal health, public health and compliance with sanitary and phyto-sanitary standards, at the national, regional and international levels.

It was observed, in line with the findings of the ISP, that whilst drug regulation had been harmonised and improved in some regions, it is not enforced and therefore inadequate. Contributors confirmed that drug acquisition remains largely informal and the quality of drugs continues to fall. Various solutions ranging from training drug vendors, to building branded franchise enterprises (Sidai Africa Ltd) and ensuring drug registration authorities have an incentive to change the way they do business, were put forward.

It was pointed out that the ISP talks of ‘low quality generic’ drugs when it would be more accurate to talk about the quality of generic medicines, counterfeit medicines and brand name medicines. Fake medicines by definition are not even medicines.

In response to a question about how to control neglected zoonoses, participants commented that effective control requires more than improved education and infrastructure. Partnerships with other sectors, particularly human health, but also agriculture, environment, education, local administrations, will be necessary to contain and effectively control zoonotic and food borne diseases that mainly affect the poor. Complimentary biosecurity measures on farms, livestock markets, slaughtering facilities and the control of livestock movement along with surveillance and vaccination programmes were also advocated.

3 Feeding Africa’s Ruminants for food security and prosperity

The *Impetus Strategy Paper* (ISP) advocated the need for Sub Saharan Africa to maximise its use of human inedible feeds and optimise its use of crop by-products to improve ruminant nutrition. Africa has relatively abundant supplies of cereal residues such as straw and stover. Correspondence on the topic confirmed that ruminant nutrition is a problem in SSA. The link between health and nutrition was made by several people. Participants observed that concentrate feeds on sale in the market place commonly do not contain the nutrients advertised. Furthermore pasture available for extensively grazed stock is diminishing due to encroachment of crop production into grazing areas. Pastoralist communities are particularly affected by restricted access to their traditional grazing lands. As it is extremely difficult to reseed or improve pastures in dryland areas they face difficult choices about their future viability. The idea of fodder banks was put forward as one possible solution.

² <http://www.oie.int/international-standard-setting/terrestrial-code/>

There was mixed opinion on whether small scale producers feed a balanced ration to their ruminant livestock. It was generally felt there was room for improvement. Examples of the positive impact of micro nutrient, vitamin and mineral supplements were given.

One correspondent from FAO advocated greater use of annual assessments of available feed resources in SSA. Such assessments generate information on what, how much and when different feed resources are available. This allows policy and management decisions to be taken regarding the use of these resources. In addition, such information could enhance efficiency and profitability of animal feed industry and assist researchers to formulate sustainable feeding strategies. Spatial and temporal assessments of current and forecasted feed resources could significantly assist disaster preparedness and response, as feed could, where practicable, quickly be moved into areas affected by emergencies such as droughts and floods. FAO has developed guidelines and a manual for the assessment of feed resources at national and regional levels and can assist countries in generating national feed inventories.

The ISP had advocated development of dictionaries of the nutritive value of available feed resources in different parts of Africa. Feed dictionaries form the basis for livestock ration formulation and can be a means of minimizing feed costs. However it was noted that animal feed analysis laboratories in SSA rarely have quality control systems in place.

4 **Small livestock farmers increasing their income – trade and market access**

The e-discussion initially focused on market access for small scale producers or smallholders. It was pointed out that access primarily depends on the market being targeted, the product being traded and the direction in which government policies move.

It was noted that African cities with growing populations and growing incomes may provide an accessible market for smallholders for some time to come. The example of Nairobi was provided. Most livestock products sold in Nairobi have either walked

or been carried across national borders through semi-regulated market chains with no formal quality demands. It is the formal marketing chains, like those into supermarkets or for large-scale export, that start to introduce higher quality demands. *“Here the effect may be to push out the smaller producer through more costly requirements for production and certification, or simply to make the market more unpredictable and less attractive to smallholders who cannot bear the risk”.*

It was noted that small scale producers, as well as small scale traders and retailers, seem to survive longest in dairy market chains. Though there are exceptions to the rule. Smallholders and traditional production have been remarkably persistent in parts of Southeast Asia. In Brazil, there has been very little policy support to small scale dairy production and dairying has scaled-up and concentrated in the hands of large producers. However in India and East Africa, policy has largely favoured small holder dairy production, which now predominates. Poultry meat and egg production are very much associated with large-scale operations and big business. Backyard poultry remains a good livelihoods prop when reared on a very small scale for informal markets. In the middle ground, however, small scale commercial operations start up and close down very fast – they seem to be an important part of transition in the poultry sector but not a sustainable long term prospect. It was noted that ruminant meat production could go either way and policy development will be key to pushing production to or from small holders in Sub Saharan Africa. *“Policies that support market infrastructure and training that small scale producers can access, fair contracts, quality regulation of services that small scale producers need, small retail businesses in peri-urban and urban areas, all make it possible for small scale producers to stay in business for longer”.*

Correspondents agreed that harmonisation of intra and inter regional livestock trade policies in Africa should encourage better structured and regulated markets and this could be very beneficial for small scale producers. It was advocated that intra regional trade initiatives need to provide better information, support to producer groups and infrastructure development to enhance trade.

The ISP has advocated greater utilisation of value chain analysis or ‘talking shops’ as one mechanism for promoting contract farming and improved trade policy. Participants confirmed that the links between the different actors in value-chains are weak. Actors rarely have the opportunity to come together and discuss their objectives and challenges. It was agreed that understanding the priorities of different actors in the value chain is important if effective marketing and trade policy is to be developed. It was observed that the priorities of farmers commonly differ to those of service providers particularly veterinarians. For example farmers commonly prioritize production diseases, where as government veterinary services are more interested in transboundary animal diseases and trade limiting issues, international funding organizations are commonly interested in pandemic threats, the private sector in sales, public health officials in zoonoses, researchers in publications etc.

In line with the conclusions of the ISP, it was felt contract farming should be a key mechanism for improving the profitability and production of small scale producers; however greater awareness of contract farming is urgently needed both within farmer organisations and the private sector. The key bottle necks to scaling up contract farming in Sub Saharan where described as;-

- inadequate policies;
- poor awareness and direct involvement of producers;
- lack of producer co-operatives or groups with knowledge about their rights
- inadequate support, particularly micro finance;
- poor infrastructure development – as most livestock products are perishable, goods require cold chain or quick transport to market.

The use of new technologies particularly mobile phones was advocated.

Finally, it was noted that small and poor farmers will inevitably drop out of the market place in coming years and this may not be a bad thing as long as alternative livelihoods options and safety nets are available for the most vulnerable.

The discussion has now closed.

GALVmed would like to thank all the participants who followed the discussion. We know your time is valuable and hope you found some new information and ideas of use. We are particular grateful to those of you who posted comments. We have had many thoughtful, passionate and sincere contributions drawing upon a wealth of experience. These were much appreciated.

Our objective over the past few weeks has been to gather opinion and ideas on how the Impetus Strategy paper (ISP) might be improved. I believe we have, through your constructive criticism and suggestions, achieved that objective.

Please find below some notes on the key issues that arose.

In terms of the overall livestock sector in Sub Saharan Africa:

- The discussants confirmed support for the creation of a livestock forum that provides an opportunity for a range of stakeholders, not just government and international agencies, to voice their opinions. There was strong advocacy for greater synergy and collaboration between key actors, including the private sector and civil society. There is a need to re-appraise the state of the livestock sector in Africa (both successes and failures) if we are strengthen and develop a range of effective livestock policies.
- Contributors reminded us that livestock keeping is not just about monetary gain. Livestock are important social capital for millions of people, providing highly nutritious food to subsistence farmers and the poor, manure for crop production and draft power.
- Greater recognition of the key role that working equines play in supporting peoples’ livelihoods was advocated along with the need to do more for their specific health problems and medicinal requirements.

The highest number of discussion posts made were on animal health issues. Key points included the following:

- Vets, as a first point of contact with livestock owners, have a (largely missed) opportunity to provide information on improved feeding practices.
- Opinion on whether veterinary para-professionals are effective and sustainable, whilst divided, was generally positive. Paravets are useful, particularly in underserved and remote areas. Most agreed that World Organisation for Animal Health (OIE) guidance on how paravets should operate was useful and appropriate. Calls for effective supervision and follow up, improved trust and flexible legislation to govern the use of paravets including Community Animal Health Workers (CAHW) were made. There were calls for effective continuing professional development of vets to help improve service provision and the utilisation of paravets.
- There were several observations made about how paper policies and weak institutions don't lead to positive change for the sector.
- We heard that whilst drug regulation had been harmonised and improved in some regions, it is not enforced and therefore inadequate. Contributors confirmed that drug acquisition remains largely informal and the quality of drugs continues to fall. Various solutions ranging from training drug vendors, to building franchise enterprises (Sidai Africa Ltd) and ensuring drug registration authorities have an incentive to change the way they do business were put forward.
- The OIE PVS mechanism, the new Interafrican Bureau of Animal Resources [AU/IBAR] veterinary governance project and IBAR's strategy for livestock development in Africa were cited as key opportunities to build upon.
- Controlling neglected zoonoses needs more than improved education and infrastructure. Partnerships with other sectors, particularly human health, but also agriculture, environment, education, local administration, will be necessary to contain and effectively control zoonotic and food borne diseases that mainly affect the poor.

The livestock nutrition discussion made numerous points some examples include the following:

- It is important to assess available feed resources at national level.
- Once feed inventory information is available it is possible to generate a feed balance sheet at country level and carry out proper planning for the livestock industry.
- There is a need to put in place quality control systems in animal feed analysis laboratories.
- Many productivity and health problems should be simple to solve. It was pointed out that smallholder farmers rarely feed a balanced ration to ruminants and the need to ensure adequate micro nutrients, vitamins and minerals was stressed.
- Indigenous knowledge and practices on feeding and range management were recognised. There was a call to work directly with communities understand how they utilise local feed resources and how this is changing.
- Improving the nutrition of extensively grazed livestock, particularly in pastoralist societies, appears to be challenging. Whilst there were calls for pasture improvement and fodder banks, it was not clear how to sustainably improve the nutrition of grazed livestock when access to quality grazing lands is increasingly restricted.

During the discussion on market access for small holders it was pointed out that product type and policies are the key issues to consider. For example, small holders and medium sized poultry operations can rarely compete with large scale egg and poultry meat producers however small scale milk and possibly ruminant meat production can be competitive depending on the policy environment. Our understanding of how some small holder markets function remains weak.

Small and poor farmers will inevitably drop out of the market place in coming years and this may not be a bad thing as long as alternative livelihoods options and safety nets are available for the most vulnerable.

The harmonisation of intra and inter regional livestock trade policies in Africa should encourage better structured and regulated markets and this could be very beneficial for small farmers.

Understanding the priorities of different actors in the value chain is important if effective marketing and trade policy is to be developed. It was observed that the priorities of farmers commonly differ to those of the veterinary service providers.

The use of new technologies particularly mobile phones was advocated.

Finally, the idea that contract farming as a key means to improve the profitability and production of small farmers was supported, however the key bottle necks to scaling up contract farming in Sub Saharan Africa do need to be better understood.

Again many thanks to you for your attention and your contributions

All the best

Tim Leyland on behalf of the GALVmed Team

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Chris Daborn suggested that given Africa's large and expanding trade deficit in livestock products it can be argued that both Intensive and Extensive Systems of livestock production are being underserved, most crucially in the field of veterinary services. Initiatives are urgently required to enhance the quality, impact and sustainability of veterinary services delivered by effective public / private / community partnerships. This will require an action plan that combines targeted donor funding with available internal resources to mobilize broad ranging and holistic approaches. The following suggests some interventions that merit consideration within such a plan:

Revenue Support: Government to allocate a % of the revenue collected from the livestock sector, eg veterinary fees / livestock marketing / livestock export, for the direct financing of the veterinary services in underserved areas

Budget Support: Concerned Ministries through to Local Authorities to make provision in their development and recurrent budgets to support the veterinary services in underserved areas

State VS: The Government VS should create an enabling environment for Public / Private / Community partnerships in underserved areas eg by issuing sanitary mandates and enacting inclusive, partnership friendly legal frameworks

Private Sector VS: Contracts need to be extended to private sector veterinarians to deliver services in underserved areas. The contracts should stipulate that veterinary para-professionals may be employed but only under proper professional supervision with regular training in procedures appropriate to the given production system

Research Activity: Applied livestock field research should be revitalized and resourced to utilise and facilitate veterinary personnel in underserved areas to act as field agents collecting information/taking samples

Drug Companies: There are mutually beneficial arrangements that can be developed between drug companies and veterinary para-professionals with professional direction in underserved areas, inclusive of drug efficacy proving trials, drug promotions and marketing.

Donor/Int Agencies: For as long as donor and international agencies are to play a role in capacity building and other forms of assistance for livestock development they must remain faithful to and supportive of poverty reduction measures for livestock keepers in underserved areas . The nature of this support will logically change / develop over time but their financial input into the system will for some time to come remain an important if not essential requirement. One element that will remain constant is the need to support capacity building and continuing professional development.

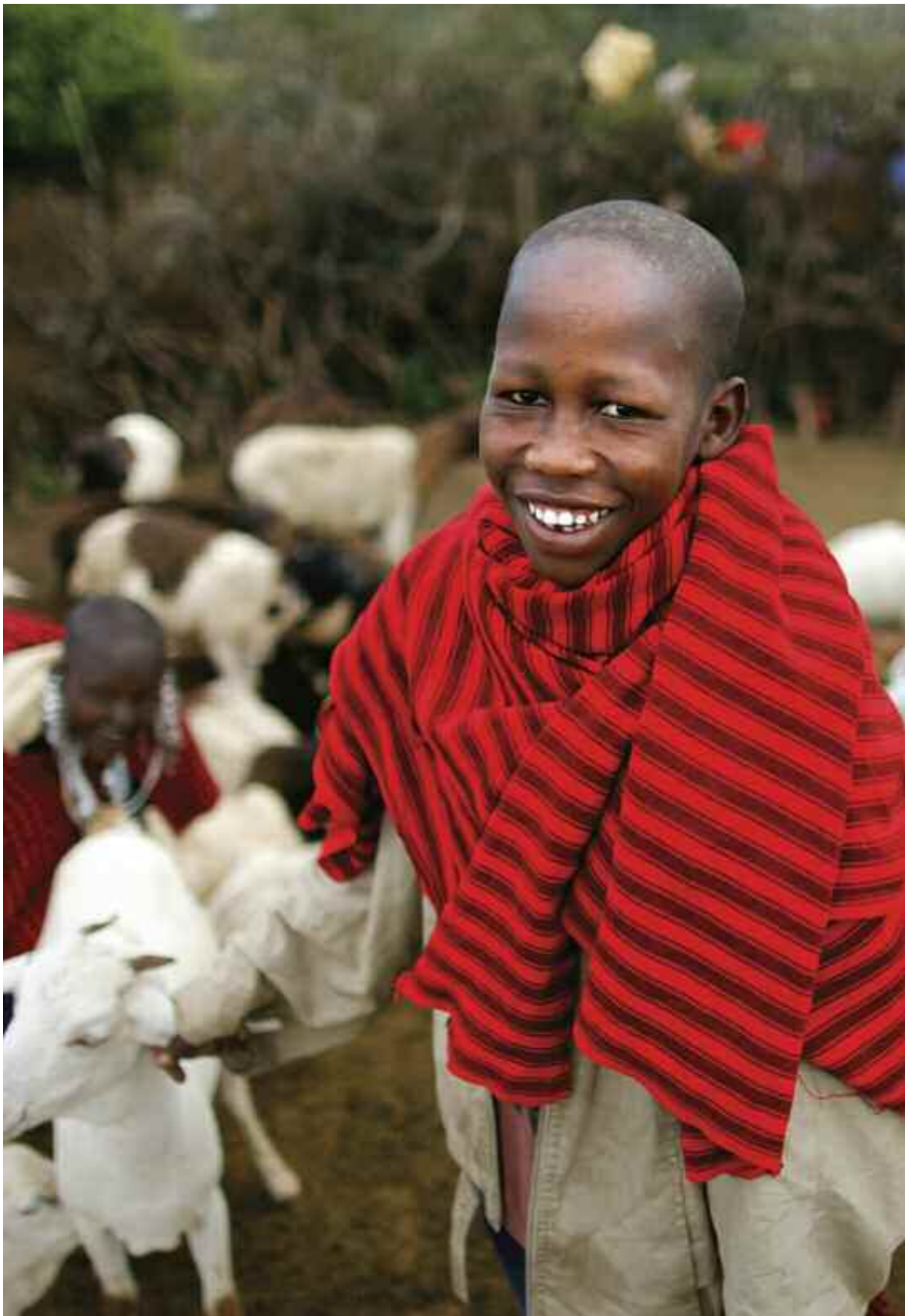
Animal Welfare Organisations: Veterinary para-professionals, with appropriate professional direction, can perform valuable functions as front line agents for Animal Welfare Organizations. The provision of training and equipment in appropriate primary animal health care and simple surgical interventions, from which some form of payment will be received from the livestock owners, will contribute to the sustainability of the service. Functioning front-line veterinary personnel can provide vital livestock surveillance information, most easily captured by mobile phone.

Veterinary Schools: The curricula followed by the veterinary faculties / training schools needs to embrace and teach systems that work in underserved areas as well as having practical outreach, inclusive of resources, to ensure students have immediate and first-hand experience of best practice systems at work

Livestock Producers: Initially a small but with time, an increasing contribution for the work of the veterinary service in underserved areas should come from the livestock producers themselves. Concurrent programmes of support to enable livestock producers realize an increased return from their livestock assets and the acquisition, by veterinary service personnel, of the necessary skills through continuing professional development to support the realization of that return – would have mutually beneficial impacts

Training Agents: Veterinary para-professionals can be trained by veterinarians to deliver specific messages to livestock producers, receiving payment to provide / attend the training course and to provide / attend further training and feed-back sessions

Income Earning: A range of interventions, inclusive of those given above, are required to improve income earning potential for Veterinary personnel and sustainability of services in underserved areas. Key interventions include the need for training / refresher training with a focus on income earning; provision of materials and equipment to enhance the value of the services offered; transport; cold chain; communications and; security for small loans.



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