



Pro-Poor
Livestock
Policy
Initiative



An Appropriate Level of Risk: Balancing the Need for Safe Livestock Products with Fair Market Access for the Poor

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PREFACE

This is the 23rd of a series of Working Papers prepared for the Pro-Poor Livestock Policy Initiative (PPLPI). The purpose of these papers is to explore issues related to livestock development in the context of poverty alleviation.

Livestock is vital to the economies of many developing countries. Animals are a source of food, particularly protein for human diets, they provide income, employment and are important assets for the poorer sectors of societies. For low-income producers, livestock can serve as a store of wealth, provide draught power and organic fertilizer for crop production and a means of transport. Consumption of livestock and livestock products in developing countries is increasing, and many regions of the developing world have the natural resources necessary to improve livestock productivity.

Of particular importance to this study is the role of livestock products as commodities of trade, responding to the demand and higher prices that many external markets offer, and at the same time providing important contributions to the development process in poorer countries. But this opportunity is not without its threats. Much of the Western world has, over the last half century in particular, invested an enormous amount of money in controlling and eradicating many infectious diseases of livestock, and building up healthy and highly productive animals, the products derived from which earn them very large sums of money on world markets. Such countries are not about to take risks that could threaten their animal health status, and their healthy domestic and export markets.

The developing world possesses abundant livestock resources, and wishes to be part of the action! For many developing countries, however, the presence of infectious animal diseases makes potential trading partners think twice about importing their livestock products, understandably. What is needed is a balance between the indisputable need to keep animal diseases out of countries from which they have been eradicated, but at the same time seek ways to promote the safe trade of livestock products from developing countries.

We hope this paper will provide useful information to its readers and any feedback is welcome by the author, PPLPI and the Livestock Information, Sector Analysis and Policy Branch (AGAL) of the Food and Agriculture Organization (FAO).

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Keywords

Livestock products, markets, poverty

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LIST OF ACRONYMS

ALOP	Appropriate level of protection
ASEAN	Association of South East Asian Nations
BSE	Bovine spongiform encephalopathy
Codex	<i>Codex Alimentarius</i> Commission (Codex)
CBPP	Contagious bovine pleuropneumonia
CGIAR	Consultative Group on International Agriculture Research
COMESA	Common Market for Eastern and Southern Africa
CVO	Chief Veterinary Officer
EC	European Commission
ECOWAS	Economic Community of West African States
EU	European Union
FAO	Food and Agriculture Organization (United Nations)
FMD	Foot and mouth disease
GATT	General Agreement on Tariffs and Trade
HACCP	Hazard Analysis and Critical Control Point system
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
IPPC	International Plant Protection Convention
ISO	International Organization for Standardization
ISSO	International Standard-Setting Organizations
LDC	Least Developed Country
MERCOSUR	Mercado Común del Sur
NGO	Non-Governmental Organization
OECD	Organisation for Economic Cooperation and Development
OIE	<i>Office International des Epizooties</i> (World Organization for Animal Health)
RECs	Regional Economic Communities
RVF	Rift Valley fever
SADC	Southern African Development Community
SPS	Sanitary and Phytosanitary
STDF	Standards and Trade Development Facility
TBT	Technical Barriers to Trade
TQ	Tariff Quota
TSE	transmissible spongiform encephalopathies
UAE	United Arab Emirates
WHO	World Health Organization
WTO	World Trade Organization

EXECUTIVE SUMMARY

As the world struggles to adjust to the ideal of a fairer international trading system, one with fewer trade-distorting tariffs, some fear that non-tariff barriers (such as health and food safety standards) will increasingly be used as alternative means of restricting free and fair trade. For the global trade in livestock and livestock products, the World Trade Organisation's SPS Agreement¹ sets out the principles and rules governing this US\$33 billion a year business. However, the WTO and the standard setting bodies responsible for developing the specific international standards, although in principle democratic membership-driven organisations, are in fact dominated by developed countries. Effective participation by developing countries in these organisations is acknowledged to be very limited and as a result the rules and standards emanating from them are often loaded in favour of developed countries' interests.

With the Millennium Development Goals focusing increased attention on global poverty, the idea that improving the access of small-scale developing country farmers to global markets could help reduce poverty has gained currency. For livestock and livestock products achieving this presents a significant challenge. Live animals, meat and meat products might be accompanied by disease causing organisms, which can pose a highly significant risk to the health of animals and people in importing countries and inflict potentially huge economic damage. The risk is especially great for those countries, such as the most developed ones, that have invested enormous amounts of time and money in eradicating such diseases, or which, by good fortune, have not previously been affected by them.

This report presents the results of a scoping study undertaken by the International Livestock Research Institute (ILRI), on behalf of the Food and Agriculture Organisation's Pro-Poor Livestock Policy Initiative, on the impacts of WTO rules, SPS regulations and other non-tariff trade barriers on access to livestock markets by developing countries. The main points and issues raised during the study have been synthesized into a series of strategic questions, which are considered here in turn:

What are the ingredients of success for effective participation by developing countries in global livestock product markets?

This study has highlighted a number of 'success stories', examples where developing countries have succeeded in exporting livestock or livestock products to external markets. An analysis of the factors governing their success revealed some commonalities: all were driven by strong private sector partners who contributed capital, management expertise and entrepreneurial flair; most concerned livestock products, rather than live animals, which matched the market's requirements; many had developed strong brand identities which had become synonymous with quality, safety and dependability; and many were vertically integrated systems, incorporating small and medium scale outgrower producers. Often these successes have been achieved despite the absence of effective support from the public sector, such as national veterinary authorities.

The urgent need for inclusiveness: how can developing country scientists, experts, administrators and representatives of livestock commodity trading bodies play a more active and effective role in setting and adjudicating trade rules and standards?

There is a pressing need for the standard setting bodies of OIE and *Codex Alimentarius* Commission (Codex) to be extremely pro-active in understanding and responding to

¹ The Agreement on the Application of Sanitary and Phytosanitary (SPS) Measures

the needs of developing countries, for which livestock play an especially critical role in livelihoods, economic growth and poverty reduction policies. For the WTO, the need to consider the special requirements of developing countries is a key part of the SPS Agreement, but for OIE and Codex, acting on behalf of the WTO, this obligation is not explicitly part of their mandate.

One of the key findings of this study is the disparity between the push for global harmonisation of animal health standards for trade, and the lack of capacity of developing countries, particularly LDCs, to meet these standards. The study considers how this might be rectified and concludes that building capacity of regional bodies to create regional centres of excellence with regard to SPS matters may be the most practical way forward. Such regional bodies can also help in rectifying the sometimes blatant abuse of the SPS agreement by neighbouring countries or those within the same region when, despite a disease being present in both countries, products or animals are refused entry on the basis of the disease presence in the exporting country.

How can the poor, including poor livestock producers, best participate in livestock commodity value chains?

While urban poverty is growing in many developing countries, it is the rural areas in which poverty is often most severe. And it is in the rural areas where livestock play such an important role in the livelihoods of poor people. Livestock industries in developing countries, including those with export capacity, can play an important role in national economic growth, but what is the role of the poor within those industries? Should it be as small-scale livestock producers contributing directly to commodity value chains or are the poor better served through the creation of employment?

One element of the “success stories” was vertical integration, achieved both through company-owned units with high biosecurity and contract outgrowers. Under certain conditions in some developed countries high biosecurity units, or assemblies of them, can be recognised as “compartments”, and deemed safe for external trade despite animal disease existing in the external environment. Some fear that for many developing countries, any future insistence that livestock products emanating from environments that are not free from certain animal infectious diseases must be derived from compartments, rather than ensuring that the products are safe regardless of the source, is likely to tip the balance away from contract farming by smallholders, and this could have severe direct negative effects on many rural livelihoods. A better understanding of the implications of vertical integrated systems, compartmentalisation and indeed of other value-chain models on both risk implications and poverty reduction is required for different products in a variety of developing country settings.

How can developing countries become better equipped to deal with the challenges and complexities of the global trade in livestock products?

SPS issues can be highly complex and dynamic, and failure by developing countries to understand fully the SPS Agreement and its implications can put these countries at a real disadvantage compared to more SPS aware competitors and trading partners. Capacity building is required at a wide range of levels, including within the private sector at the level of the producer and processor, and in the public sector covering policy makers, service providers and competent authorities. The Competent Authority plays a central role in gaining the trust and confidence of importing countries regarding the overall animal health status of an exporting country and the certification of products emerging from it, but it is widely acknowledged that public sector veterinary services, especially in the least developed countries, are very weak in this regard. The report proposes various measures to enhance the credibility of the Competent Authorities.

Is the commodity-based trade approach safe and pro-poor?

Most of the 'success stories' identified were trading in livestock commodities, and many of these were not derived from recognised disease-free zones. This demonstrates that commodity-based livestock trade is with us today, and permitted within the current "rules of the game". Enabling developing countries to engage in external trade in livestock products, even when they do not have disease-free zones recognised under current OIE standards, is likely to have significant pro-poor implications. The challenge is to gain a much better understanding of the risks posed by different commodities originating from developing country settings. This needs to be coupled with a better scientific understanding of the effect on these of the 'background' animal disease environment from which they are drawn, supplemented by an understanding of how these risks can be evaluated effectively, and how they can be mitigated to the satisfaction of importing countries in an economically viable manner.

A key to the success of a commodity-based approach is effective animal health and food safety service provision to the value chain. In many of the pockets of excellence, this is largely provided by private veterinary services, in some cases sponsored by a vertically-integrated organisation. But how can such private services be better integrated with public services and gain greater acceptance by the Competent Authority?

Is animal welfare a threat or an opportunity to developing countries' participation in global livestock products markets?

Generally speaking, developed countries put far greater emphasis on animal welfare issues than do developing countries. However, many consumers in developed countries are extremely concerned, some even passionate, about animal welfare. As a result, supermarkets in developed countries are likely to be extremely cautious in stocking livestock products that may be linked to 'cruel' practices, such as inhumane transport or slaughter procedures. However, many supermarket chains have identified animal welfare as an opportunity, and sell premium priced, 'welfare-enhanced' livestock products, such as meats and eggs produced in less intensive, sometimes organic, production systems, under a specific brand label. These threats to, and opportunities for, livestock producers in developing countries need further evaluation.

For each of the strategic questions, specific recommendations have been formulated to address the issues raised.

1. INTRODUCTION

This report presents the results of a scoping study undertaken for the Food and Agriculture Organisation (FAO) Pro-Poor Livestock Policy Initiative (PPLPI) on the impacts of World Trade Organisation (WTO) rules, sanitary and phytosanitary standards (SPS) and other non-tariff trade barriers on access to livestock markets by developing countries, on consumers in developing countries, and on evolving domestic markets. It comes at a time when concern is being expressed about the ability of the world to meet the Millennium Development Goals of halving poverty by the year 2015, and when considerable global interest is being expressed in the role of greater market access for agricultural products from the developing world in helping to meet this target.

Livestock play an important role in the lives and livelihoods of more than 600 million of the poorest people on earth. The poor in developing countries derive a larger proportion of their incomes from livestock than do the wealthier. Even the landless can keep livestock and the smaller, less demanding livestock species, such as poultry and goats, are often kept by women, children and other marginalised sectors of the population. Informal trade in livestock products can make an important contribution to incomes of poor households and provides poor consumers with products they can afford and often prefer.

At a time when demand for livestock products in developed countries is virtually static, demand in many developing countries is rapidly increasing, fuelled by trends of urbanisation, growing populations and rising incomes. Although demand in developed countries is not increasing, the lure of premium prices means that many developing countries aspire to access these markets. But there are many constraints to them achieving this, including exacting animal and public health requirements - so called SPS requirements.

Given that many developing countries are net importers of livestock products it is open to question whether cultivating demanding external markets is in their best interests and whether meeting the costs of compliance with international standards makes economic sense. Despite this, increased access to markets, including regional and high value ones, by developing countries is often cited as a promising approach to tackling poverty. However, it is far from clear how the poor would benefit even if or when this is achieved. Some authorities believe that it is the large-scale producers and processors in developing countries who would be the major beneficiaries, with the poor enjoying only secondary benefits derived from employment and, perhaps, enhanced public services due to increased tax revenues.

As more countries join the World Trade Organisation (WTO), there is increased pressure for developing countries to impose rigorous international standards in domestic and regional markets. In many cases this is likely to threaten the ability of poor and small-scale livestock producers and processors to continue their traditional trade and may also price livestock products out of the reach of poor consumers.

Liberalised trade in livestock and livestock products, and the wider application of more exacting SPS standards, will produce sets of winners and losers. And the stakes are high: the value of the global trade in meat and live animals (excluding intra-EU trade) is estimated to be US\$ 33 billion. This report examines the impact of the WTO's SPS regulations on access to external markets by developing countries for their livestock products, with a particular focus on impacts on poor producers and consumers. The report is based on a scoping study that included literature reviews,

analyses and modelling and commissioned case studies². It also benefits from the outputs of an international workshop, hosted by FAO, which served to discuss an earlier draft, identify key priority issues and make policy, institutional, capacity building and research recommendations to address these.

The overall objectives of the study were to:

1. Identify current WTO rules and SPS regulations affecting (directly or indirectly) or relating to, trade in livestock and livestock products.
2. Determine, through a series of case studies, the effects of regulations, and changes in them, on livestock sector policy making and implementation, livestock sector development, local and international livestock product trade, and consumer access to livestock products.
3. Assess the impact of issues identified under 1 and 2 on the vulnerability of different strata of livestock producers and on livelihood diversification options.
4. Develop and propose policy options, institutional changes and research needs at the domestic and international levels that could lead to pro-poor outcomes of globalising livestock markets and international trade rules.
5. Identify suitable entry points to achieve the adoption and implementation of the policy and institutional changes identified under 4, and the strategies required to exploit such opportunities.

² See Appendix 1 for a full listing of the series of activities undertaken in the scoping study

2. TRADE, POVERTY REDUCTION AND SPS

In simplistic terms, the story is as follows. There is a huge opportunity for the developing world to satisfy world demand for livestock products. Demand is growing in several developing regions due particularly to growing, more affluent and more urban populations in certain countries. In the developed world livestock product demand is generally not growing but the market is a significant one because it is high value. These external markets in both the OECD countries (including the European Union, which imports a significant proportion of its livestock products) and the faster growing economies of the developing world attract higher prices than the domestic markets of the actual and potential exporters. They also offer a range of advantages other than price: attractive domestic employment opportunities and development incentives to improve technical capacity and infrastructures to meet the demands of the new external markets. Exporting to them may also raise domestic prices for producers and provide new possibilities for small-scale producers to contribute to the different value chains. The opportunities for developing countries to contribute to this demand have been well articulated, and are being exploited by many of them.

But the story has another side to it. All such external markets are demanding and require certain economies of scale for exports even to get off the ground, let alone be sustained. So it is often only the larger commercial producers and service industries that have a chance to engage with such markets. While providing employment opportunities for poorer sectors of society, these enterprises demand quality animals at regular and predictable intervals. This means that the small-scale producers often struggle to cope as effective contributors given, among other constraints, their small enterprise size, poor management of animals, lack of consistency in terms of animal quality, and the inadvertent occasional use of drugs with residue potential. So it is often just a small select band of wealthier producers and support industries that can participate in these external market opportunities.

Given this mixed picture, which initiatives deserve international support as *bona fide* poverty reducing mechanisms, and which may not? The key to answering the question is to understand how market access at different levels affects national economic growth and its distributional impact on the poor. What contribution to poverty reduction is made by different production and marketing scenarios (such as vertically integrated systems versus multiple smallholder out-growers)?

Strangely enough, this is where the definition of poverty becomes important. In general a distinction is made between poverty and inequality, but both are important and both are used as indicators in measurements of changing human well-being in developing countries. Furthermore, each can be measured in both absolute and relative terms (Ravallion, 2003).

Access to external markets for livestock products has often been associated with positive contributions to the national economies of the countries concerned, but with a distinct lack of clear direct benefits to the poorer sectors of society, particularly poor rural smallholder producers. The benefits received by them are often intangible, and termed 'trickle-down'.

Does such a scenario contribute to a reduction in absolute or relative poverty and inequality? To some the answer appears to be 'no', but things are certainly not that simple. Nin Pratt and Perry (2005a) review the current understanding of the links between trade and poverty reduction, with a consideration of the impacts of SPS measures.

The conclusion is that a lot depends upon the specifics of the case: there are circumstances in which investment to exploit export potential can be justified in

terms of poverty reduction and those where it cannot. The issue then becomes one of identifying empirically the cases that fall into the first group. There are three separate but closely interrelated questions. What options exist in meeting SPS measures: is it possible to identify different types of export market that require different standards (with different costs of compliance and poverty impact) and offer different rewards? What are the links between SPS compliance (at different levels) and poverty reduction? And which developing countries are likely in practice to succeed if they seek to export to the potential markets? This is the challenge to which attention is turned in the rest of this section.

The demands for high standards of animal health in order to gain access to external markets present a double-edged sword to poverty reduction. It provides obvious incentives to raise domestic standards and modernise the product export enterprises of developing countries, but these standards are themselves a moving target, and increasingly more difficult to meet for many countries. Emerging from this apparent dichotomy is the need to identify policies and strategies that raise standards in receptive developing countries with export market potential, but also ensure that the standards are truly science based, are developed with the full participation of developing country partners, and are focused on structured risk evaluation and management.

Health and safety standards for livestock products vary between export markets with different levels of sophistication, producing different impacts on poverty reduction. The market that has received most attention is the one in the OECD countries. Their animal health and food safety standards are becoming increasingly demanding.

But while access to high priced OECD markets might be the ultimate goal for some, there are many other growing markets that present lucrative options for developing countries. Some of these do not, for the moment at least, have the same rising level of standards to meet. This group includes many regional markets, such as Central America, the Middle East, South Asia and South East Asia. Some of these still have their own domestic disease problems to deal with, but all have growing total and urban populations demanding livestock products. These present attractive options for their less developed regional neighbours, and the prospect that market arrangements can be made on a bilateral basis recognising the specific capacities and needs of the two countries.

However, there is pressure on such 'regional importers' to meet internationally agreed animal health standards rather than maintain those developed through bilateral negotiations. This is especially true of countries seeking membership of the WTO, although their main reason for joining has often been for greater exploitation of trading opportunities in non-agricultural products such as textiles rather than livestock products. The accession process has tended to involve applicants being required to accept more stringent trade-related regulations than do many existing members. So the choice before meat-producing countries unable to satisfy OECD SPS requirements may no longer be between improving their standards or exporting only to regional markets. Rather, it may be between raising their standards, or not exporting at all (or at least only to other countries where the same animal health problems are endemic and prices are generally low).

Clearly the potential for a given developing country to trade with other countries varies considerably depending on its economic status, and there is a need to subdivide the broad grouping of "developing countries". Numerous classifications of developing countries that have been developed by, for example, the World Bank and, most recently, in Panagariya (2005). Recognised groupings are those of Least

Developed Countries³ (LDCs), Other Low Income Countries, and those developing countries that are part of the Cairns Group⁴ of countries.

In this study we attempt to group countries on the basis of their common interests with regard to livestock commodity trade, and the potential importance (or otherwise) of SPS issues (see Appendix 2). The classification shows potential as an analytical tool.

- **Poor exporters** are likely to develop a dual production sector with segmented domestic markets, differentiated products, low domestic demand for export quality products and poor food safety. Market integration, price transmission, and domestic market access of smallholder producers are often central issues. Examples included as case studies in this report are Ethiopia, Kenya and Vietnam.
- **High income exporters** have better infrastructure allowing stronger market integration and price transmission. Commercial producers tend to have a dominant position in domestic and export markets. Growing domestic demand provides an alternative destination for high quality products. Poverty issues might be related to urban consumers and market access of poor producers. Examples included as case studies in this report are Costa Rica, Namibia and Thailand.
- **Specialised importers** in higher income states will not be concerned in general with international SPS regulations but with assuring their supply of livestock products of a certain quality that comply with the minimum standards of that country. Examples included as case studies in this report are the Philippines and South Africa.
- **Poor country importers** are likely play a role in urban markets and affect domestic production supplying these markets but, depending on market integration and price transmission, do not necessarily affect domestic markets in rural areas, with their lower demands for food safety and quality. An example included as a case study in this report is Honduras. Others in the regions studies are Mozambique, Lesotho and Uganda.

Links between SPS constraints and barriers to poverty reduction

Animal health issues affect market access in three main ways. The health of livestock products can directly affect the health of other animals at the market destination if carrying disease agents, the most well known example of which is foot and mouth disease (FMD). Second, the health of the product may directly affect the health of humans along the value-chain (e.g. anthrax) and at the market destination (e.g. bovine spongiform encephalopathy (BSE)/variant Creutzfeldt-Jakob disease (vCJD), brucellosis, cysticercosis and trichinellosis). Third, if not handled in the appropriate way, contamination of livestock products along the market chain may affect the health of humans in the value-chain and at the destination (e.g. botulism and staphylococcal infections).

These externalities are the justification for the technical sanitary measures affecting domestic markets and international trade. What are the trade consequences of implementing these measures? What are the mechanisms through which compliance

³ This group of 50 nations contains virtually all the countries of sub-Saharan Africa (but excludes the case study countries of Kenya, South Africa and Namibia), as well as Afghanistan, Bangladesh, Bhutan, Cambodia, Lao Peoples Democratic Republic, Maldives and Nepal from Asia, along with Haiti from the Americas. See <http://www.un.org/special-rep/ohrls/ldc/ldc%20criteria.htm>

⁴ As far as developing countries are concerned, this group contains Argentina, Brazil, Chile, Colombia, Costa Rica, Indonesia, Malaysia, Philippines, South Africa, Thailand and Uruguay.

effects pass to poor households, affecting income and consumption? How might these household-level changes influence poverty alleviation?

In summary, sanitary measures affect poor households through trade shocks that result in price changes of the commodities they produce and sell, as well as those that they purchase and consume. SPS measures (or the lack of them) may also affect consumption patterns, productivity and the supply of livestock products in the domestic market. A quantification of the relationship between SPS measures and poverty requires an understanding of what influence these effects have on the income and expenditure (welfare) of those households whose standard of living is currently below the poverty line.

The link between SPS measures and poverty is complex, and the effects differ between exported and imported products. Examples of factors affecting the impact of SPS measures on poverty are:

- the magnitude and direction of direct price changes and effective transmission of price changes to domestic markets;
- the access of poor producers to domestic markets;
- the domestic policy environment affecting competitiveness and market access of poor producers;
- the multiplier effects of the livestock sector in the economy (second round effects) and their impact on input markets, wages and employment;
- the poverty structure and the importance of livestock producers among the poor, and/or wages as a source of income of the poor in order to benefit from second round effects;
- the effect of SPS measures on the demand for regulations and processes that could affect production, access to markets, and/or consumption patterns of the poor.

Countries with a higher potential to reduce poverty through access to international markets for livestock products are those with:

- a comparative advantage in livestock, which means higher potential to increase domestic livestock prices when complying with SPS;
- integrated domestic markets (infrastructure, adequate institutions and policies);
- high participation of poor producers in domestic markets;
- high multiplier effects of the livestock sector, normally related to a well developed crop sector, feed, services and labour markets;
- significant rural poverty with high share of livestock producers among poor households.

Opportunities for external trade in livestock products by developing countries

In cases where enhanced exports could reduce poverty but the SPS requirements of foreign markets are beyond a country's current capacity, financial and technical assistance could help. But which countries have the potential to export successfully? Improved domestic SPS standards may be considered a development priority independently of any trade dimension (to protect human and animal health). But a justification for expenditure that relies to any degree on anticipated trade benefits must include a robust assessment of export feasibility. Which developing countries can expect to maintain or increase their livestock product exports to which market?

This is a surprisingly difficult question to answer, partly because the current pattern of trade is heavily distorted and partly because of the speed at which SPS standards are changing. The first makes it difficult to be sure which countries will be able to export competitively in future. The second means that the costs of accessing foreign markets as well as the prices to be obtained may be different in future.

The current trade pattern

The location of markets is a function of both international and domestic demand for the products of a given developing country, and of whether exports are constrained by import restrictions. The status quo is fairly clear; what may change are the supply of an exportable product in developing countries (a function of relative changes in domestic supply and demand), changes to the policies that are distorting world markets, and any changes to SPS requirements that would affect the relative competitiveness of particular developing countries.

The main global exporters and importers of livestock products are as follows (derived from Dyck and Nelson, 2003).

- For beef: the main exporters by volume are Australia, the USA and, until 2001, the EU, while the USA and Japan are the largest importers;
- For pork: the main exporters are the EU, Canada and USA, and Japan is the main importer, followed by Russia and the USA;
- For poultry meat: the USA is dominant as an exporter, followed by Brazil, EU, China and Thailand; major importers are Russia, China, Hong Kong and Japan.

Whilst the EU is not among the world's largest importers (because of its protectionist import regime) it does provide a lucrative market for those countries able to exploit gaps in its protectionist defences.

Identifying economic potential

Which developing countries have the potential to increase their exports to such markets? Economics has several well-developed tools to help answer such a question including two which have been applied in this study with results described below: revealed comparative advantage (RCA) and gravity modelling. But such analysis needs to take full account of the way in which current patterns have been distorted by two sets of related policy interventions: protectionist barriers that reduce (or suffocate altogether) imports from some sources, and preferences that allow (or even enhance) imports from others. This can be done either by building such considerations into the modelling or by undertaking a parallel analysis so that the results from one are interpreted in the light of those from the other. This study has followed the second approach. First we describe the results from using the standard economic tools, and then we consider how these need to be interpreted to take account of future changes to the pattern of protectionism and preferences.

The RCA approach uses indices that are grounded in conventional trade theory and the concept of comparative advantage. These indices measure a country's trade of a commodity relative to its total trade and to the corresponding export performance of a set of countries. In this context the index is used to characterize the historical performance of developing countries in these markets, which depends on comparative advantage, policies of exporting and importing countries, and other factors. This past performance measured by the RCA index is then used to highlight consistent differences between regions that might contribute to an understanding of the potential for different developing countries to access and compete in international markets. The RCA can change over time, and is influenced by policy interventions.

The gravity model approach has long been used to predict trade flows between countries based on their relative economic sizes and proximity. The models can be run

using different specifications and dummy variables to take account of country specificities, trade agreements between countries, tariffs, etc. in order to differentiate these effects from non-tariff barriers. Potential exports for a particular country can then be calculated using the estimated coefficients of the model. Gravity models perform well in estimating trade flows. It is also possible to deal with binary variables (such as *allowed* or *banned*) or with discrete variables, which often are the only characterization of SPS measures and non-tariff barriers.

The estimation of RCA indices for beef, pig and poultry meat in a group of developing countries shows the following:

- There is a clear regional pattern of comparative advantages and specialization in beef trade. The MERCOSUR countries in South America, along with countries in Central America, southern Africa, eastern African and India, show a revealed comparative advantage in beef trade. On the other hand, West and North African countries, Middle East countries, the Philippines and Malaysia all show revealed comparative disadvantages.
- Only a small group of developing countries appear to have advantages in trade of pig meat: Vietnam, China, Thailand, India and Sri Lanka in Asia; Brazil and Chile in South America; Zimbabwe and Kenya in Africa.
- Trade in poultry shows two main global exporters revealing clear comparative advantages: Brazil and Thailand. A small group of countries show comparative advantages but these are well below those of Brazil and Thailand. Countries with comparative disadvantages are mainly in West Africa and the Middle East.
- In East Africa, Sudan, Madagascar, Ethiopia and Kenya appear to have comparative advantages for beef. These countries are exporting low volumes of this commodity but it is likely that some of them could have potential to develop an export sector where SPS issues might play a major role
- In southern Africa, Namibia, Botswana and Zimbabwe have comparative advantages for beef, already being major exporters in international markets. South Africa, on the other hand, has been a net importer of beef, pig and poultry meat. The questions here appear to be: what is the potential for these countries to further expand exports, and what role could a regional market (with South Africa as an importer) play in the future?
- In Central America, Nicaragua is the country with the largest advantage for beef trade. Honduras, Costa Rica and Guatemala also show advantages, but they have seen their advantages deteriorate in the past years. In general, the region has no advantages in trade of other meats with the exception of Costa Rica, which has performed well as an exporter of all meats. El Salvador has clear disadvantages for trade in beef and pig meat and is a net importer in the region.
- In South East Asia, Vietnam shows a consistent performance as an exporter of pig meat. China and Thailand are also competitive. Both Vietnam and China appear to have had their advantages eroded in the past years, which is probably related to the development of other areas of the economy and growing exports in other sectors. The Philippines shows comparative disadvantages for meat trade and has been a consistent specialized meat importer in the past years.

This potential of different countries revealed by the RCA estimation was further developed using a gravity model to estimate potential trade of livestock commodities for selected countries in the different case study regions. A specific feature of the estimated model is the inclusion of animal health variables to estimate the impact of animal health status on trade.

A 'health index' was calculated by determining the number of years since the last outbreak for the former OIE List A diseases for each country. Results of the estimated models show the following:

- The impact of animal health on trade is quite significant. Countries with high animal health standards export significantly more and import less than expected according to their size and the distance to their partners.
- Achieving the status of an FMD-free country has a significant impact on trade of beef from that exporting country; FMD-free countries export seven times more beef than non-free countries *ceteris paribus*. But FMD status will not necessarily impact trade of pork and live sheep and goats. This may reflect the greater importance of other components of the health index for pork and live sheep and goats. A 10% increase of the health index results in a 12% and 28% increase in the trade of pigs and sheep respectively compared to an increase of only 7.7% for beef.
- FMD-free countries with FMD vaccination export 40% more beef than non-FMD-free countries.
- Border effects related to regulations and barriers imposed by countries on livestock trade are also estimated in the model. In general, border effects affecting trade of beef, pork and live sheep and goats appear to be higher on average in developing countries than in the EU, NAFTA and Japan.
- Finally, the model estimates specific effects on trade between countries in different regions not captured by other variables. Trade between developing countries in the same region (Sub-Saharan Africa, South East Asia and the Middle East) is significantly lower than expected according to volume of supply and demand and distance between countries, reflecting the difficulties developing countries might face to develop these regional markets.

Estimated parameters of the gravity models were used to calculate the potential trade in beef, pork and live sheep and goats for selected developing countries not included in the sample used to estimate the model (out-of-sample methodology) given values of livestock production, GDP per capita, animal health status, and of these countries to the market. Results of trade potential estimations show the following:

- The potential of regional markets, as alternatives to markets in developed countries, is limited due to their small size and to specific limitations (such as infrastructure, transport costs, institutions, etc). The EU, NAFTA and Japan still offer the best options and potential to expand exports of beef and pork from developing countries.
- Ethiopia, Kenya and Sudan show potential for an expansion of their beef exports, while Ethiopia and Sudan also have considerable potential to develop exports of live sheep and goats to Middle East markets.
- Japan is the only market in Asia offering significant expansion of pork exports; according to our estimates, the potential of other importing markets in the region is very low. Vietnam is the country with greatest potential to export to this market. Philippines also has potential, taking advantage of its geographical location, but this is lower than that of Vietnam.
- GDP per capita of exporting countries is a crucial factor determining export potential, especially when considering the dynamics of the process and future export possibilities. For each 1% increase in GDP per capita a country's exports are expected to fall by 3.53% for pork but by only 0.31% for beef. This is not easy to explain, but could reflect a tendency with the growth of GDP for greater attention to be paid to non-agricultural exports.
- Finally, Nicaragua shows trade potential for beef below its actual exports, reflecting the declining performance of Central American countries as exporters and pointing to the problems they might face expanding their exports in future. Namibia's trade potential to the EU is also below its actual exports meaning that this country has likely reached the ceiling in this market. Export expansion could

be achieved by accessing new markets as reflected in the estimated potential exports to the US, and its current negotiations with that market.

Assessing policy change

How is this picture affected by protection and preferences? It would be unwise to invest heavily in SPS measures in a country that appears to have potential to increase exports without checking whether or not this potential is likely to remain unrealised either because of protectionist barriers in the target market or, more subtly but more pervasively, because competitors (that may have a less marked comparative advantage) are given competitive advantages through preferential trade agreements. In particular it is important to check how future changes might alter the pattern of trade. Changes to both protection and preferences are quite frequent. The current WTO Doha Round springs to mind as one source of change, but it is not the only or necessarily the most substantial one.

Take the case of sub-Saharan African beef exports. The states of the region currently export to the EU under three different regimes. The 'most preferred' are the least developed countries (LDCs) which could, if they were able to meet the SPS requirements, export unlimited quantities duty-free under the Everything But Arms (EBA) scheme. Next come the southern African states that can export a fixed quantity free of ad valorem duty and at reduced specific duty under the Beef Protocol of the Cotonou Agreement. Finally, the remaining non-LDCs can export unlimited quantities free of any ad valorem duty, but with the full specific duty to pay.

It is widely believed that all this will change in 2008. It is expected that the EU will offer identical access terms to EBA to all countries that join the Economic Partnership Agreements (EPAs) that it is currently negotiating with the region. In that case, all countries could export unlimited quantities of beef to the EU completely free of duty. This would seem to make the outlook for investment in SPS measures extremely bright. All countries of the region would have access to the high priced EU market if they could meet the standards. The 'potential' revealed by the gravity analysis could be exploited.

But how 'high priced' will the EU market remain? There are two types of change that might result in lower prices and alter the cost-benefit analysis on the viability of the SPS measures needed to sell to Europe's consumers.

One is the change to the Common Agricultural Policy (CAP) that is tending to shift the way in which farm support is given in the EU. The relative importance of direct payments to farmers is increasing whilst that arising from artificially high consumer prices is decreasing. Whilst EU beef prices are unlikely to be depressed markedly by the current reforms, they are unlikely to rise much and future reforms could push them down further.

The other is change to trade policy that could improve the competitiveness of sub-Saharan Africa's rivals to supply the EU market, leading to price competition between them. Multilateral liberalisation under the Doha Round is one source but not the only one. Whilst the EU's trade negotiations with Mercosur appear currently to be stalled, any resumption could remove the competitive disadvantage under which Argentina, Brazil and Uruguay currently export to EU. At present, Africa does not have to match Mercosur prices because of its preferences; in future it might have to do so.

Analysts thus have to deal with two moving targets. One is the level of future SPS requirements and, hence, the cost of meeting them. The other is the price that successful exports are likely to receive. Change to either could turn an economically feasible SPS project into an infeasible one; change to both would exacerbate this squeeze.

The problem of future prices arises because the 'advantages' conferred on countries that are the beneficiaries of preferences come in two, related forms. Whether or not they exceed the 'costs' of the underlying protection depends partly on the terms of the preference agreements and partly on the supply characteristics of the exporting states.

One advantage is that prices in the destination market will be artificially inflated by protectionism; tariff preferences can exist only in cases where there is a tariff against imports from non-preferred sources - and the higher this tariff the greater the potential for preference. Some of the 'economic rent' created by the protection may accrue to the preferred exporter either through higher prices or through increased demand or a combination of the two. The other advantage is that preferred exporters are insulated from direct competition with less preferred ones, allowing them to take a larger market share than otherwise would be possible.

The disadvantage against which these benefits must be balanced is that meat demand generally, and import demand in particular, is depressed in the destination market by the artificially high prices and import controls. Exporters get higher prices than they would under a free market but sell a smaller volume.

The balance of advantage/disadvantage will vary between countries: countries that are highly preferred and have limited supply capacity will tend to gain relative to those that are less preferred and can supply competitively much more than they are allowed. This will alter the trade patterns of both preferred and non preferred exporters to both protected and non protected markets.

How might such considerations be integrated into the RCA and gravity analysis? Consider the finding reported above that in southern Africa, Namibia, Botswana and Zimbabwe have a comparative advantage in beef but South Africa has a comparative disadvantage. Botswana, for example (together with Namibia and Zimbabwe) has preferential access to the high priced EU market for beef which makes exporting attractive; it also has a ban on imports of beef. Hence, figures on net trade show high exports relative to imports. South Africa, by contrast, has no such preferential access and has significant imports (under a duty draw-back system that aims to channel imports to processed food in order to mitigate competition for domestic farmers). Hence, South Africa's trade balance on beef is less favourable, showing a deficit in red meat, whilst burgeoning domestic demand for meat in Botswana (that cannot be satisfied by imports because of the ban) is crippling its export industry.

Are these differences in policy and market access explaining the different roles that these countries play in international markets? Or are these policies simply reinforcing what results from the "natural" comparative advantages of these countries? The answer to these questions is not intuitively obvious, and a look at the trade regime under which the four countries operate suggests that policies have played a role in their past trade performance and in the determination of future trade potential. The analysis of current trade flows indicates that Botswana and Namibia export primarily high value cuts to Europe and that the relevant SPS standards that they must meet are those of the EU. But it does not follow that investment in SPS should necessarily be based on the assumption that this is the future pattern of trade. A fall in EU prices, for example, could make a middle-income state a more attractive market; its SPS requirements would be the relevant ones and, if these are different from those of the EU, the investment needs would be different. Alternatively, Botswana might cease to export beef altogether (save for low value cuts and processed meat to South Africa) under the pressures of rising domestic demand and costs plus falling export prices. In this case the appropriate SPS requirements would be those considered by Botswana to be necessary to protect domestic health.

The first step in dealing with this complex interrelationship of underlying economic advantage and overlying policy distortion is to look at international trade policy in beef, pork and poultry products from the point of view of trade agreements, import restrictions and tariffs. The objective of this initial step is to highlight how these affect future external market potential. Once the broad picture has been painted it becomes feasible to focus on those country/product combinations thrown up by the economic analysis for which prima facie evidence exists that the pattern of trade may be affected by policy. The tricky analysis of how trade might alter as a result of policy change can then be undertaken on a case by case basis.

Vietnam, the Philippines and Thailand have no preferential access to any of the four major international markets considered (EU, US, Japan, Korea). All four markets have what are known as most-favoured-nation (MFN) tariffs which represent the highest import tax that the country can impose on any WTO member. The commercial viability of their exporting to these markets depends, therefore, both on the level of the MFN tariff and, critically, on whether or not potential competitors face the same import regime or have more favourable access. Ethiopia, as an LDC, is eligible for the EU's 'Everything but Arms' regime, and as a member of the Africa, Caribbean and Pacific group (ACP) it receives the benefits of the Cotonou trade regime.

The lesson for the livestock analysts in all the non-African focus countries (and possibly South Africa) is therefore that US SPS regulations are highly relevant. If these non-tariff barriers can be met (or modified) then there is prima facie evidence that the tariff barriers are not insuperable. For the African states, though, there is little point facing full-frontal competition in the US market, given favourable access to the EU, unless the USA's SPS requirements were significantly easier to meet, which seems implausible.

Japan is the main global importer of pork, and its non-preferential tariffs are in the main non-constraining. So there is a prima facie case that Vietnam should focus on this market. China is also an important market. Japan is also a major poultry market and, again, has relatively low tariffs. It would appear to be a natural market for Thailand, which, though, also has significant exports to the EU which could be developed further if the lack of preferences does not make this commercially infeasible. China has steadily been displacing Thailand from the poultry export market to Japan. Thailand has transferred a higher percentage of its total exports to the EU to compensate for this. Chinese production costs are lower per kg than those of Thailand.

For Ethiopia and Sudan the issue is whether or not it is feasible and cost effective to meet EU SPS rules for sheep meat. Both have unlimited duty-free access to the market if standards can be met. Namibia could also export lamb to the EU, subject to further investigation of the size of the tariff quota (TQ). The USA would appear to be the natural international market for Central American beef.

Having identified the potential exporters and the markets that appear most attractive at present the next preparatory step is to consider whether there are other markets which currently offer lower prices but also impose less onerous SPS requirements. Following this, an attempt must be made to gaze into the crystal ball to discern future changes in relative prices and compliance costs. As explained above, investment plans on SPS have to take into account not only the current relativities but also the future ones.

Under current incentives, for example, if Ethiopia and Sudan were able to meet the SPS requirements of both the EU and Saudi Arabia and its neighbours, it could make perfect sense for them to export not to the close, regional market but to the distant, European one. In Saudi Arabia, UAE, Egypt and Jordan, for example, tariffs on imports of beef and lamb are generally low (excepting only small number of items in Jordan

that attract a 30% tariff). Whilst these low tariffs would appear at first sight to make them attractive markets, in the topsy turvy logic of protection and preferences, it actually makes them relatively unattractive markets for Ethiopia and Sudan. Because tariffs are low, any preferential access to selected suppliers (such as Asian Free Trade Area [AFTA] members for Egypt and Gulf states for UAE) confers only a modest competitive advantage. Hence, prices will tend to be set by production costs in the most competitive global suppliers. These will be lower than can be obtained in the EU by Sudan and Ethiopia by virtue of their preferential access.

If, however, SPS regulations are different in the regional and European market, then Ethiopia and Sudan may not have the choice. They may be able to meet the regional standards but not the European ones. Alternatively, both sets of standards may be technically attainable, but the extra cost of meeting the European ones may be greater than the price differential after transport costs are taken into account. Hence, the actual pattern of trade will be determined by three sets of relativities: of production (and transport costs), of market access regime, and of SPS requirements.

All three relativities may change over time! In particular, if there were multilateral liberalisation then European prices would tend to fall relative to Middle Eastern ones. The lower tariffs would increase competition in the European market and divert some of the supplies currently sent *faut de mieux* to the Middle East. Prices in Europe would tend to fall and those in the Middle East to rise, narrowing (but probably not eliminating for some time) the gap between them.

How do other important developing country markets compare in terms of protection and preferences to the EU, USA and Japan? Hong Kong offers duty-free access for pork as do Singapore and Malaysia. China imposes moderately high tariffs (between 12% and 20%) on pork but offers some preferences to ASEAN and some African countries. Russia has substantial tariffs (of up to 80%) on pork and provides preferences only to FSU states. In Mexico and El Salvador tariffs on beef, pork and lamb tend to be relatively low, with a few quite hard spikes. Preferences are given to some other Latin American states.

With the exception of Russia, therefore, this tends to confirm the picture painted by the analysis of Ethiopia/Sudan and the Middle East/EU. The major developing country markets will tend to be relatively open and, hence, relatively low priced. This makes them attractive to those countries such as Argentina, Brazil and Australia that are low cost producers, have a significant supply capacity and are relatively disfavoured by OECD trade preferences. By the same token, they will tend to be unattractive to African countries.

3. THE WTO AND THE SPS AGREEMENT

The World Trade Organisation (WTO) has, since 1995, been the international body that sets and oversees the rules controlling trade between its members. It is the successor to the General Agreement on Tariffs and Trade (GATT), which served the same role from 1948. The WTO is responsible for the implementation of the GATT 1994 comprising the results of the Uruguay Round of Multilateral Trade Negotiations (1986-94), the main objectives of which were to reduce tariffs and other barriers to trade and to eliminate discriminatory treatment in international trade relations.

As tariff barriers are gradually being dismantled, more attention has shifted to non-tariff barriers that can also restrict trade flows. These fall into three broad categories (Sandrey, 2003):

- Measures put in place to protect the health and safety of peoples and the environment.
- A variety of trade policy regulations including export taxes, import licences, import quotas, production subsidies, state trading and import monopolies and tax concessions.
- A looser group of administrative disincentives to export, such as customs clearance delays, lack of transparency and consistency with customs procedures, overly bureaucratic or arbitrary processing and documentation requirements and high freight charges.

Central to the workings of WTO is a series of agreements, negotiated and signed by most of the world's trading nations and ratified by their governments. One such is the Agreement on the Application of Sanitary and Phytosanitary Measures (see Appendix 3 for the full text of the SPS Agreement), which came into force in January 1995. Previously GATT included an article that allowed members states to take actions 'necessary to protect human, animal or plant life or health'. However, with ever increasing international trade in agriculture commodities, and in view of the goal of achieving substantial reduction of tariffs and other barriers to trade, it was feared, particularly by the US, that some importing countries would use SPS measures in place of tariff barriers to restrict imports.

The SPS Agreement was intended to address these fears and specifically to ensure that when SPS measures are applied, they are used only to the extent necessary to ensure food safety and animal and plant health, not to unduly restrict market access for other countries. However, at the same time the Agreement recognises the sovereign rights of governments to set the level of health protection they deem appropriate, so long as this is done within the rules governing the Agreement. The WTO defines SPS measures as actions (including laws, decrees, regulations, requirements, processing requirements, certification, inspection, testing and health-related labelling) applied to:

- Protect human or animal life or health from risks arising from additives, contaminants, toxins or disease-causing organisms in foods, beverages or feedstuffs.
- Protect human health and life from plant or animal carried diseases.
- Protect animal or plant life from pests, diseases or disease causing organisms.
- Prevent or limit other damage to a country from the entry, establishment or spread of pests.

The key principles of the Agreement are non-discrimination and scientific justification: the acceptance of legitimate measures to protect the lives and health of

consumers, the wider population, animals and plants, provided that they can be justified scientifically, and that they do not unnecessarily impede trade.

The SPS Agreement recognises, and in effect designates, three separate bodies as having responsibility for the development and promotion of international standards, guidelines and recommendations in their respective areas. In each case the standards are set by leading international scientists and government experts and are subject to international scrutiny and review. In the area of food safety it is the joint FAO/WHO Codex Alimentarius Commission, which covers food additives, veterinary drug and pesticide residues, contaminants, methods of analysis and sampling, and codes and guidelines of hygienic practice. For animal health and zoonoses it is the World Organisation for Animal Health (Office International des Epizooties, OIE), and for plant health it is the International Plant Protection Convention (IPPC) of the FAO. Each of these organisations is run in a different way. FAO and WHO are both agencies of the United Nations, and IPPC is part of the FAO. The OIE is an independent body with its headquarters in Paris. Under the SPS Agreement, WTO member states are encouraged to base their sanitary measures on international standards (where they exist), and these are set out in the OIE's Terrestrial Animal Health Code (TAHC, published annually) for mammals, birds and bees, and the Aquatic Animal Health Code for fish, molluscs and crustaceans. Although the Agreement allows countries to choose the level of protection against pests and diseases that they consider appropriate, when the measures they apply do not conform to international standards the importing country must provide scientific justification as to why the measures are needed.

The Agreement created a framework to facilitate communication between WTO members regarding SPS issues - notably the formation of the SPS Committee - and provide a forum for settlement of disputes. The SPS Committee of the WTO also has responsibility for the implementation and review of the SPS Agreement. Meetings of this committee are attended by government officials of WTO member countries. The OIE, Codex Alimentarius Commission and IPPC have observer status at these meetings.

The specific instruments of the SPS Agreement are summarised below (the Articles and definitions are presented in full in Appendix 3).

Risk assessment

If an SPS measure is not based on an international standard, then it must be backed by a risk assessment that provides scientific justification for the measure chosen. The SPS Agreement encourages the use of systematic risk assessment and also clarifies the factors to be taken into account in the risk assessment. The OIE has developed handbooks on import risk analysis for animal products (OIE, 2004).

Rules on setting protection measures

A risk assessment is a necessary but not sufficient condition for an SPS measure to be in conformity with the Agreement. In addition, a measure must be the least restrictive to trade among the available alternatives, and shall be no more restrictive to trade than necessary to achieve the desired level of protection and must be applied in a consistent manner.

Exceptions in case of insufficient evidence

When scientific evidence is insufficient, a member country can use measures based on 'available pertinent information'. These must be temporary, and additional evidence must be sought to review the measure after a 'reasonable period of time'.

Harmonisation

This instrument is of importance in the development of international standards, and the adoption of these by member countries. The adoption of international standards

(developed by the designated bodies: OIE, IPPC and *Codex Alimentarius* Commission) by member countries fulfils the requirement for a risk assessment, but are not mandatory. However, international standards are presumed to be consistent with the WTO SPS Agreement, whose rules are legally binding on all members of the WTO. Article 3.4 of the Agreement instructs members to play a full part in standard setting, the interpretation of which is the responsibility of the designated bodies.

Equivalence

This instrument encourages the use of measures that are not identical, but yield the same level of sanitary and phytosanitary protection. This potentially allows for economising on the costs of meeting SPS regulations without compromising human, animal or plant health. The SPS Agreement does not state how equivalence might be achieved, and the SPS Committee developed guidelines for this in 2001. The OIE has been encouraged to develop more elaborate guidelines. Equivalence is a standard item on the SPS Committee agendas.

Regionalisation

Many pests and diseases do not follow national borders, and countries may have areas free of them from which they wish to export products. This instrument can potentially facilitate trade by giving member countries the opportunity to designate areas free of pests and diseases based on internationally established guidelines and having designated pest- and disease-free areas recognised by trading partners. At the SPS Committee there has been an active discussion of this issue since 2003, with a debate as to whether the committee should be providing more substantive guidelines on regionalisation. One view is that the WTO should focus on trade-related aspects, while the standard-setting bodies (OIE) should concentrate on technical guidelines. The OIE tabled revised chapters of the TAHC on zonation and compartmentalisation in May 2005.

Transparency

This instrument sets out the provisions for openness in disease occurrence, standards and other measures that may affect trade. The Agreement contains a notification procedure through which members are obliged to make public any changes in their SPS regulatory frameworks.

Dispute settlement

Disagreements among members of the WTO concerning the SPS Agreement may be brought before the Dispute Settlement Body. There are designated procedures for this, and disagreements generally go through informal channels before submission to the body. In the case of animal health, the OIE can serve as the first step in this process, then the SPS committee of the WTO. Wilson and Thiermann (2003) have summarised the procedures for dispute settlement regarding animal health matters. During SPS Committee meetings, members have the opportunity to table their concerns about other members' import restrictions. Bilateral meetings outside the formal committee setting are encouraged.

The special treatment of developing countries

In addition to the specified instruments summarised above, the special situation of developing countries is addressed in the Agreement. This refers particularly to the implementation of the Agreement, and to the obligations for the provision of technical assistance to other members and trading partners. The preamble to the SPS Agreement states that WTO Members recognize: 'that developing country Members may encounter special difficulties in complying with the sanitary or phytosanitary measures of importing Members, and as a consequence in access to markets, and also in the formulation and application of sanitary or phytosanitary measures in their own territories, and desiring to assist them in their endeavours in this regard.' A number of

specific measures are included in the Agreement that are intended to address this issue. Firstly, Article 9, dealing with Technical Assistance, notes that 'Members agree to facilitate the provision of technical assistance to other Members, especially developing country Members, either bilaterally or through the appropriate international organizations'. Article 9.2 goes on: 'Where substantial investments are required in order for an exporting developing country Member to fulfil the sanitary or phytosanitary requirements of an importing Member, the latter shall consider providing such technical assistance as will permit the developing country Member to maintain and expand its market access opportunities for the product involved.' Secondly, Article 10 describes Special and Differential Treatment, which is intended to 'take account of the special needs of developing country Members, and in particular of the least-developed country (LDC) Members.' This allows scope for the phased introduction of new SPS measures and longer time-frames for compliance for developing countries, so they can continue to export in the meantime. It also states that 'Members should encourage and facilitate the active participation of developing country Members in the relevant international organizations'.

In summary, the SPS Agreement is intended to balance the desire for free, fair trade with the need to minimize the exposure of importing countries to unacceptable risks to human, animal or plant life from pests or diseases. There is a great deal at stake for both exporting and importing countries: access to premium markets by exporting countries and the risk of negating enormous investments and achievements in eradicating diseases and pests, or allowing the entry of new ones, for importing countries. The potential impacts of the SPS Agreement on access to markets for livestock and livestock products by developing countries are considered in detail in the remainder of this report.

Prior evaluations of the impacts of the SPS Agreement on developing countries

There is now an extensive literature on the effects of the SPS Agreement on developing countries, and much of it is very critical. Most are general assessments (see for example Josling et al., 2004; Henson et al., 2000; Athukorala and Jayasuriya, 2003; International Trade Forum, 2002; Jensen, 2002; CTA, 2003; Embassy of India, undated; World Bank, 2005). There have been few assessments specific to livestock products (such as Hall et al., 2004), although livestock disease issues, particularly bovine spongiform encephalopathy (BSE), foot and mouth disease (FMD) and avian influenza have featured in many of them.

There is much repetition of the key issues emerging. A fundamental theme is that the rapidly rising standards in the developed world are forming the basis for the international standards to which all countries must comply, so marginalising the capacity to trade for many developing countries. In addition, some developed countries impose standards higher than the international norm. This raises the question of what defines, in precise terms, an international standard, opening the door to imposing the highest set of standards currently feasible, rather than the optimum necessary to minimise risk, determined on a scientific basis.

Clearly there are many developing countries participating in export markets, some to high value markets such as the EU, but it is the costs of compliance with demanding and changing standards that raises much concern (see for example Redmond, 2002 and Rich, 2004). Complying can have positive developmental implications where it is technically possible, but comes at a cost that some countries cannot afford. But in many countries, the infrastructures and testing facilities are just not present, immediately eliminating such countries from competing in these markets.

Another fundamental theme is the inadequate participation by developing countries in standard setting, which has many aspects to it, and will be revisited in detail later in

this report. In addition, the importance of “technical assistance” emerges, and the inconsistencies in interpreting what this entails, and how far it should go.

4. A SERIES OF CASE STUDIES IN ASIA, AFRICA AND LATIN AMERICA

A series of case studies was carried out in different developing countries in four regions of the world. These were:

- South East Asia: Vietnam, Thailand and the Philippines (with a focus on pork and poultry products)
- The Horn of Africa: Ethiopia (with a focus on mutton, goat meat, beef, live sheep goats and cattle) and Kenya (with a focus on private sector exports of pork products).
- Southern Africa: Namibia and South Africa (short studies, with a focus on beef, lamb and goat meat)
- Central America: Costa Rica, Guatemala, Honduras, Nicaragua, with a focus on beef and dairy products.

Why these regions and countries? Several factors contributed to their selection. In general terms, these included:

- Representation of the different developing country groupings with respect to livestock trade (namely poor exporters, high income exporters, specialised importers and poor importers).
- Representation of LDCs and the developing country members of the Cairns Group of countries:
 - LDCs: Ethiopia & Vietnam
 - Cairns Group members: Costa Rica, Philippines, South Africa, Thailand
 - Other developing countries: Guatemala, Honduras, Kenya, Namibia, Nicaragua
- The active interest in the country in developing better market access for certain livestock products (for all)
- Coinciding with PPLPI regional activities (for South East Asia and the Horn of Africa)
- The availability of regional collaborating institutions and projects (the FAO regional office and the OIE regional FMD control office in Bangkok, Thailand; the focus of the African Union/Inter-African Bureau of Animal Resources (AU/IBAR) on export trading opportunities for livestock products from the Horn of Africa; and the existence of a Common Fund for Commodities (CFC) regional project on enhancing beef productivity, quality, safety and trade in Central America).

Export of poultry from Thailand

Prior to the outbreak of avian influenza in 2004, Thailand was the world's fourth largest exporter of frozen and processed poultry. In 2003 the total value of Thai poultry exports was close to US\$1.2 billion, 59% of which was frozen poultry meat.

There are three types of poultry farms in Thailand: vertically integrated units owned by the large poultry companies, large independent farms and small-scale farms, some of which operate as contract growers for the large poultry companies. Of the total of 17,000 poultry farms in the country that supply the large-scale poultry processors, 14,500 have a capacity of more than 500 birds. It is estimated that more than 160,000 people earn their living throughout the poultry value chain, from the feed mills to the factories producing cooked poultry products, and a further one million are engaged in the production of the raw feed materials such as maize and soya beans. The poultry exporting companies can trace back all products from the food factories to the farm of origin, and on their own integrated production facilities employ strict biosecurity

procedures. As a result no avian influenza cases have been detected on farms owned by the large poultry companies.

Following the avian influenza outbreak in Thailand, the major importing countries, such as Japan and the EU, no longer accepted frozen poultry meat from Thailand, although cooked chicken products were still permitted, subject to slightly varying requirements as to the core temperature attained in the cooking process (for the EU this was 70°C; for Australia the requirement of 74°C for 165 minutes was impractical and represented an insurmountable SPS barrier). The Thai poultry industry rapidly adjusted by increasing the amount of poultry processed into cooked products: in 2003 157,074 tonnes of cooked products were exported and in 2005 it is estimated that the corresponding figure will be 300,000 tonnes. This rapid shift in production has taken advantage of the availability of relatively cheap but highly skilled labour in Thailand. For 2005, with only cooked poultry products being exported, it is estimated that Thailand will export poultry worth \$850 million, around 70% of the total value of exports (including frozen poultry meat) for 2003 - an impressive recovery.

Previous to the avian influenza outbreak, Thailand had to adapt to the EU's requirement, imposed in 2002, to monitor for nitrofurans metabolites in poultry meat - previously monitoring had been done for the parent compound. Following the EU's notification of the requirement to monitor for the metabolite in mid-March 2002, Thailand was able to start its monitoring programme by May of that year and by December had adequate testing capacity installed for its entire export poultry volume. The investment in the capacity for metabolite testing was jointly made by the Thai Government and the poultry exporting companies; there was reportedly no financial contribution from the EU.

Export of bacon, sausages and hams from Kenya

Farmer's Choice is a private Kenyan company which specialises in the production of a wide range of sausages, bacon, ham and other predominantly (but not exclusively) pork based products. It was established in 1980, initially targeting the domestic market, but by the late 1980s had invested in a slaughter and processing plant licensed for export by the Kenyan Government. Today 30% of its total output (8-9,000 tons per year) is exported, mostly to UAE, Mauritius, India, Tanzania, and Uganda. For the domestic market, Farmer's Choice produces both high quality and economy products.

The company has imported high quality breeding stock from Denmark and breeds both for its own farms and to supply its out-growers, 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, coming 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 third party 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.

In addition to problems caused by escalating production costs, especially for fuel, electricity and labour, and lack of supportive agricultural policies in Kenya, pig producers in Kenya were affected by an outbreak of African swine fever in 2000 and FMD also affects pig production from time to time. 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 processed.

The company's integrated production facilities are run as closed units for enhanced biosecurity. It also has its own Hazard Analysis Critical Control Points (HACCP) and Total Quality Management standards which are accepted by its export partners, including the veterinary departments of UAE, Mauritius and India. Currently it is trying to promote a commodity based approach to product marketing outside Kenya, and

hopes eventually to enable its vertically integrated, closed production units to gain approval for export of designated low-risk products, such as frankfurters, to a broader range of markets.

Export of live cattle, sheep and goats and carcasses from Ethiopia

Ethiopia, an LDC, has the largest cattle population in Africa (estimated at 44 million) in addition to large flocks of sheep and goats (47 million). Hides and skins are currently the country's second most valuable export after coffee (average value of hides and skins exports were US\$35 million per annum between 1996 and 2000).

Ethiopia has a long tradition of exporting live cattle, sheep and goats to the Middle East, although the production and marketing systems are not well developed. Most of the animals destined for export are produced by pastoralists in the arid and semi-arid parts of the country who sell their animals to small-scale traders. Six million food-insecure pastoralists are highly reliant on sales of livestock for their incomes or for bartering for food but livestock are not primarily produced for sale and tend to be disposed of as the need arises or as a last resort.

In the past Ethiopia exported canned corned beef to Europe, and more recently it has begun exporting sheep and goat carcasses to the Middle East and beef to Egypt, in addition to the trade in live animals. Much of the later is informal, with most animals (up to 350,000 cattle and 1.15 million sheep and goats annually) being trekked to Somalia for shipping. Currently Ethiopia has five export abattoirs with more planned or under construction. The government also plans to establish feedlots and is investigating the potential for creating disease-free zones.

Over recent years the export of live animals from Ethiopia has been severely affected by disease related problems. The risks of rinderpest, Rift Valley fever and FMD have resulted in a ban on the export of cattle and beef, as well as sheep and goats, to Saudi Arabia, despite the fact that the latter two diseases are also reported to exist in Saudi Arabia. Ethiopia has weak veterinary services with insufficient qualified staff and budgetary allocations. It also has a low capacity to negotiate export protocols, which puts the country at a disadvantage in relation to potential importing countries. For example, some importing countries do not appear to apply appropriate risk assessment when determining measures to be applied and as a result effectively constrain trade through restrictive SPS barriers. Limited air freight capacity currently also limits the emerging trade in chilled meat. Australia and South America are Ethiopia's main competitors for the Middle Eastern meat market.

The Philippines: a net importer of pork and poultry products

The Philippines, one of the developing countries in the Cairns Group of countries, is a large-scale net importer of live animals and meat. In 2003 the country imported live animals worth US\$38.4 million along with meat preparations amounting to US\$135 million. In the same year exports were just US\$1.8 million for live animals and US\$700,000 for meat.

Pigs are the largest source of meat in the Philippines with total production in 2003 amounting to 1.73 million tonnes, worth US\$1.65 billion. Chicken production is second to pork, with total production in 2003 of 1.19 million tonnes, 60% of which came from local breeds reared in backyards and by small-scale producers. Ninety per cent of meat is sold in wet markets, with only 10% sold through supermarkets. Poor consumers are unable to afford high quality products and are reliant on the wet markets: around 60% of households lack refrigerators and tend to cook meat soon after slaughter.

Strong domestic demand for pork and the low efficiency of pig producers limits the capacity for export. However, the Philippines enjoys several export related advantages: The southerly island groups of Mindanao and the Visayas have been

recognised by OIE as being free of FMD, and currently more than half the country's pig population has the potential to be exported. The country is free from avian influenza, allowing it to export poultry products and live chicks. Several large processors have obtained HACCP accreditation for their meat processing plants and are equipped to market their products in international markets (currently exporting poultry meat products to Japan) but the majority of small-scale producers are unable to meet the necessary standards and have no access to such markets. Hindering greater involvement in the export trade are the absence of a trace back scheme, which precludes access to the Hong Kong market for example, and lack of a fully functional antibiotic residues monitoring programme.

Trade liberalisation, including further dismantling of tariff barriers, is likely to impose stiff competition for local pig and poultry producers in the future; high production costs, high tariffs on feed ingredients, low tariffs for finished meat products, fluctuations in price and an inability to penetrate ASEAN markets are all concerns affecting the Philippines' poultry industry.

Vietnam: a growing domestic market

Consumption of meat in Vietnam, an LDC, is low in comparison to other countries in the region although demand is growing driven by trends of population growth, increasing urbanisation and higher incomes: *per capita* consumption for 2003 was 22.4 kg for pork and 4.6 kg for poultry. Poultry was the fastest growing sector up until 2004 due when the impact of avian influenza affected consumer confidence and demand. The preference in domestic markets is for fresh pork and live or fresh poultry bought in wet markets.

Production of pork and poultry occurs mainly on very small farms, where up to 70% of production is for home consumption. Eighty per cent of pigs are kept on farms with one to three sows or up to 15 fattening pigs and 94% of poultry on farms with flock size less than 50. Only 0.3% of farms have flock sizes above 500 birds. Farms with around 200 birds are the fastest growing sector. Because of the very small farm size, marketing pigs and poultry is inefficient and both species pass through many intermediaries between farm and consumer. The result is low prices for producers and high prices for consumers. Other factors constraining development of the pork and poultry sectors are high feed costs, lack of effective veterinary services, poor infrastructure and lack of market information.

Vietnam appears to have low competitive advantage for exporting livestock products due to high production costs and the small-scale of operations. Despite this the Government prioritises export of pork and between 1990 and 2001 Vietnam exported an average of around 13,000 tonnes of pork per year mainly to Hong Kong, Russia and China. Demand in the domestic market is predicted to be strong and growing. However, with membership of the WTO in 2007 and progressive dismantling of tariffs, domestic producers may be vulnerable to increased competition from more efficient producers in other countries in the region.

Accession to WTO is currently a driver of food safety reform in the country but Vietnam's capacity remains low: it lacks facilities, funds and expertise to undertake risk assessment studies or to assess the equivalence of other countries' SPS measures; it has yet to establish a functioning National Enquiry Point and Notification Authority on SPS issues; and attempts to establish a disease-free zone to produce livestock products for export suffer from lack of adequate finance or technical capacity. Vietnam is currently requesting technical assistance to enable it to implement its SPS obligations upon accession to WTO.

Central America: increasing disparity between rich and poor

Countries within Central America vary widely in the degree of poverty, with Honduras at one extreme with poverty rates of 70% and Costa Rica, a member of the Cairns Group of developing countries, at the other with a poverty rate of 30%.

The Central American region used to be an important exporter of beef, mainly industrial cuts to the US market, but production in the region has declined and is now barely sufficient to meet domestic demand. Dairy and dual purpose cattle systems are meanwhile increasing. Milk production has increased significantly, and, although the region is still dependent on imports of dairy products, there are small exports outside the region.

The Central American case study revealed large and growing differences between small- and large-scale producers and also poor and more affluent consumers. Large-scale producers supply the certified industrial beef and dairy plants, which produce export quality products. Small-scale producers supply small and micro processors and informal slaughter houses, which supply products to low income consumers. In the latter cases, compliance with good practice in relation to the environment, animal health or food safety is almost nil.

Poor rural consumers depend principally on fresh raw milk and locally produced white cheese. Poor urban consumers enjoy access to relatively cheap products based on imported powdered milk. As incomes rise, more processed products are consumed: *per capita* consumption of livestock products by the poorest of the rural poor is just one fifth that of the wealthiest sector of the population. In urban areas supermarkets have become increasingly powerful and they impose strict conditions, sometimes higher than WTO's SPS requirements, on their suppliers.

Future prospects for the region are mixed. Whilst there will be growing demand for livestock products, there is also likely to be increased competition for the domestic market and the competitiveness of small-scale producers is likely to worsen. It is considered a priority to identify alternative production and employment opportunities for the regions small-scale producers.

Export of beef from Namibia

Namibia has a cattle population of around 2.5 million, and produces well over 55,000 tonnes of beef per annum. Namibian livestock production is geared towards supplying external markets; it exports about 80% of its beef production. The livestock sector employs around 70% of the country's population and earns 11% of its GDP.

Namibia enjoys a number of advantages in livestock production. It has extensive, grassland farming systems, large livestock populations, low disease incidence including internationally recognised FMD-free zones, good infrastructure and a well organised agricultural sector with relatively low labour costs. It also has an export quota to the EU of 13,000 tonnes a year of boneless beef, exempted from *ad valorem* duty, under the Cotonou Agreement (the successor to the Lomé Convention), which continues until 2007. Expectations in Namibia are high that preferential access to the EU market will continue after that date. The awarding of the EU beef export quota stimulated investment in and transformation of the sector: prominent beneficiaries were communal farmers whose participation in livestock marketing had previously been minimal. Despite this boost, Namibian beef production has been falling steadily since 1996 (from close to 500,000 beef cattle for local and export markets in 1996 to half this number today) and the country has never succeeded in meeting its full beef quota. In addition to vulnerability to periodic drought, factors associated with declining production include: bush encroachment, increased emphasis on game farming for hunting and photographic safaris, and land reform under which farmers

more used to rearing weaner calves (for export to South Africa) than slaughter oxen are acquiring land.

To meet the requirements of the EU market, Namibia has successfully demonstrated freedom from FMD, BSE and residues of drugs and other contaminants, implemented a trace back scheme based on branding and movement permits, and complied with labelling requirements. Satisfying the EU's exacting requirements has been facilitated by establishing the Farm Assured Namibian Meat (FAN Meat) Scheme, administered by the Meat Board of Namibia (a non-profit organisation, funded partly by livestock levies, which acts as a forum for industry cooperation, business support and provides technical advice) and certified by the Directorate of Veterinary Services, which brings all components together under one organisation. The trace back system is about to be upgraded by introducing ear-tagging linked to both a hard copy register and a computerised national database to supplement branding. Efforts are also underway to upgrade the national veterinary service to enable Namibia to continue to meet the EU's requirements and to facilitate possible access to the US beef market. In addition to meeting EU hygiene and slaughter standards, Namibia also meets ISO9002 standards as well as the individual meat specifications from its customers.

South Africa: a net importer and niche market exporter

South Africa is a net importer of livestock products and also imports large numbers of live animals from Namibia: currently around 400,000 cattle, 200,000 goats and 900,000 sheep annually. However it also exports some livestock products, including beef, lamb, goat and pork, targeting high value niche markets. Although the commercial sector is probably close to maximum production, 40% of the national herd belongs to emergent black farmers. Increasing the productivity of and market access by this sector of the national herd is seen as essential to provide the volumes of meat needed by growing international, regional and domestic markets, and will also make a positive contribution to poverty alleviation in this previously disadvantaged sector of society. One example of this approach is the production of high quality goat kid and lamb carcasses for both the domestic and export markets, such as Middle Eastern countries, by the Kalahari Kid Corporation⁵. This is a joint initiative between the private sector, the Northern Cape Provincial Government and emerging farmers in the Northern Cape.

The South African Meat Industry Company (SAMIC), established in 1997, is the national representative organisation of the South African red meat industry and serves as an umbrella organisation in order to promote the effectiveness and growth of the South African meat industry. Its membership includes representatives of the commercial red meat and pork producers as well as the National Emergent Red Meat Producers' Organisation, brokers, processors, abattoirs, distributors and consumers. In addition to promoting red meats in the domestic market, SAMIC is responsible for the industry's export market development programme. The Red Meat Export Committee, under the chairmanship of SAMIC, includes representatives of the Departments of Foreign Affairs, Trade and Industry, Veterinary Services, the Association of Meat Importers and Exporters (AMIE) and National Ostrich Processors of South Africa (NOPSA) and has as its main task to address obstacles and barriers that have an influence on export performance.

One example of SAMIC's achievements was the successful application to the United States for tariff-free exports under the African Growth and Opportunities Act. SAMIC sent a delegation to the US to argue for tariff-free exports and in doing so represented the meat industries of all 34 sub-Saharan countries. SAMIC also played an active role

⁵ www.kalaharikid.co.za

in re-establishing the export of beef to Saudi Arabia after a ban was imposed in 2000 due to rumours of rinderpest in South Africa.

The Department of Agriculture has assigned SAMIC the responsibility of ensuring that appropriate meat classification standards are applied by those abattoirs that register voluntarily for the classification of their meat products. SAMIC charges abattoirs a fee for this service and registered abattoirs are subjected to at least four unscheduled spot-check visits per year. As a result several abattoirs have been prosecuted for fraudulent practices.

SAMIC is also involved in the audit of premium quality brands of meat products. Branding as a marketing tool is becoming increasingly important in the South African meat industry and several suppliers have successfully developed niche markets for their branded products. Traceability is an integral part of branding and it is therefore important that the traceability system of a brand is verified by an independent authority. SAMIC verifies registered trademarks/brands on behalf of the brand owners and is responsible for ensuring that these brands are applied correctly from farm-to-fork. Currently a range of brands are audited by SAMIC including Woolworth's 'Free Range' meats, Pick 'n Pay's 'Country Reared' beef and lamb and the Kalahari Kid Corporation's 'Desert Lamb'. SAMIC is therefore a good example of a private sector organization that undertakes independent quality audits for livestock products.

5. KEY ISSUES EMERGING FROM THE CASE STUDIES

The capacity for certain developing countries, particularly the LDCs, to meet and sustain the stringent market requirements of current and potential trading partners, let alone the SPS requirements, is very low. In addition, many developing countries are net importers of livestock products. Nevertheless, as net importing countries like South Africa have demonstrated, cultivating niche markets for high value products overseas can have very positive benefits to the national economy, and provided they are underlined by policies relating to employment and/or involvement of small-scale producers in supply of livestock, can make a demonstrable contribution to pro-poor growth. A good example of this is the Kalahari Kid Corporation, a joint initiative between the private sector, the Northern Cape Provincial Government and emerging (small-scale) farmers in the Northern Cape, which produces high quality goat and lamb products for local and export markets, especially the Middle East.

Different issues emerge from the different regions, given their different levels of development and infrastructure, product specialisation, trading partners and animal health status. The South East Asia markets for pork and poultry products are growing fast, both in terms of the production potential of Vietnam, Thailand and Philippines, and in terms of the growing demand domestically and from their neighbouring and regional trading partners. The obstacles to greater access to the higher priced regional markets are manifold, and include comparative advantage (such as cost of feed and production efficiency), SPS issues (particularly in the case of the target markets of Japan and South Korea) and high tariffs (particularly with South Korea). Among the SPS issues, at the top of the agenda are the highly infectious diseases of FMD, classical swine fever and avian influenza. The case of the Philippines illustrates some of the complexities. The Philippines has been progressively moving towards regional freedom from FMD, recognised by the OIE, based on its island setting. So, on the one hand it is setting itself up with the potential to export pork products from its zones that are now internationally-recognised as free from the most important of the livestock infectious diseases, but on the other hand, it is a gross importer of livestock products, and without a clear comparative advantage in pork production given the high cost of feed.

It seems likely that the current regionalisation protocols of the OIE/ASEAN South East Asia FMD programme⁶ will be difficult to achieve for Vietnam or Thailand (and the other non-case study countries involved in these initiatives) in the short term. These countries are engaged in the development of FMD-free zones, with strategic coordination through the regional initiative of the OIE and ASEAN. Interestingly, Vietnam currently has export markets for pork products to Russia and Hong Kong, holding a bilateral veterinary agreement with Russia that, for example, has much less demanding requirements for exports (no FMD within a 10 km radius, for example). But to enter new markets such as Japan, Vietnam acknowledges that it also needs to address improving productivity, a factor that would also constrain its competitiveness in any future access to the EU market.

A very important issue here is that some of these diseases, particularly FMD, are being addressed on an individual disease basis, rather than a product safety basis (see later). Lifting one constraint (with the first on the list being FMD) does not necessarily mean that another might not emerge. With regard to pork products in the South East Asia region, after FMD come classical swine fever, and then the possibility of residue issues (already an issue in some pork product exports from the region). As far as improving market access is concerned, these would probably be better addressed, in

⁶ The OIE/ASEAN regional FMD control programme is aiming to develop a series of FMD-free zones that meet OIE zonal freedom status. These include the Myanmar-Thailand-Malaysia (MTM), Upper Mekong and Lower Mekong zones.

terms of the policy and institutional needs, as a package of constraints to market access, rather than as a progressive list of disease control programmes.

In the case study countries of southern Africa, both Namibia and South Africa have OIE-recognised FMD-free zones that cover the vast majority of their countries, permitting the export of de-boned matured beef to high value markets in Europe and elsewhere, and live animals to certain countries through bilateral arrangements. Namibia, a sparsely populated country, is a net exporter of livestock products amounting to some 55,000 tonnes of beef and 30,000 tonnes of sheep meat per year. Namibia has a quota of 13,000 tonnes per year to the EU exempt from ad valorem duty under the Cotonou protocol for ACP countries. It is worth noting that of the southern African countries which have been granted EU quotas for de-boned beef (Zimbabwe, Swaziland, Botswana and Namibia), none have consistently met their full quotas. This has been due partly to production constraints, such as droughts, but also to economic and policy considerations. Sometimes prices in other markets are more attractive for the products they have at the time, and at such times some exports are redirected away from the EU. Or, as in the case of Namibia, until recent policy changes resulting in investment in national slaughterhouses, there has been a huge exodus of live cattle and sheep to the feedlots of South Africa.

Table 1: EU imports from southern Africa, 1995-2000, all beef items by volume (metric tonnes per year)

Supplier	Quota	1995	1996	1997	1998	1999	2000
Botswana	18,916	11,966	10,373	11,851	13,012	11,518	11,140
Namibia	13,000	10,177	8,546	7,142	8,898	10,365	8,641
Swaziland	3,363	379	520	326	303	417	728
Zimbabwe	9,100	10,766*	6,266	7,120	6,797	6,762	7,047

Sources: Eurostat 1998, 1999, 2000, 2001

* Under the quota protocol, flexibility is allowed for exported quantities to be shifted between years to deal with fluctuations in supply.

Similarly, although some Central American countries, such as Costa Rica, have been granted export quotas of beef to Mexico under free trade agreements, actual exports have been very limited. So, even where developing countries can meet SPS and other requirements imposed by high value markets, and they enjoy preferential access, this does not mean that is always either possible or desirable to export to those markets.

South Africa does not come under the Cotonou protocol, and is a net importer of beef (much from Namibia, both as meat and on-the-hoof destined for feedlots), but it does export small volumes to certain high value external markets such as Norway (as does Namibia). Norway imposes stringent conditions with respect to freedom from *Salmonella* spp., which entail significant costs of compliance. The scope for expansion of beef exports from South Africa is severely limited because the carrying capacity of natural pastures is already over utilised. In addition South Africa has one significant SPS issue: its BSE risk status was changed in July 2004 by the European Food Safety Authority to level III. This classification means that it is 'likely but not confirmed that domestic cattle are infected with the BSE agent'. This revision comes both from probable importation of infected cattle from the UK in the mid and late 1980s, and

importation of meat and bone meal in the mid 1980s and late 1990s (European Food Safety Authority⁷, July 2004).

In the Horn of Africa, Ethiopia has the largest livestock population of any African country, contributing some 12-16% of GDP, and almost 35% of agricultural GDP. It is currently engaged in exports of live cattle, sheep, goats and camels, as well as beef, sheep and goat meat. SPS issues are extremely significant in limiting the export of live animals to the largest market in the region, Saudi Arabia, apparently on the basis of the combined threat of transmission of rinderpest, Rift Valley fever and FMD. Ethiopia currently has five export abattoirs, and more under development, providing sheep and goat meat, in particular, to markets in Yemen, United Arab Emirates, Saudi Arabia and recently beef to Egypt. Interestingly, SPS issues do not appear to be a major constraint to these operations.

Cross-cutting technical issues

Animal identification and traceability

The area of animal identification and traceability is becoming increasingly important, both in terms of specific health hazards, in particular for BSE, but also from non-specific demands from consumers, to which supermarkets, in particular, have been important drivers of change. These issues have all been given much coverage in the international media, resulting in widespread awareness of the importance of product traceability. At present a variety of different systems are being used in different countries of the developed and developing worlds, but with a dramatic trend in developed country value-chains for increasingly sophisticated systems (Souza-Monteiro and Caswell, 2004). Australia, for example, is currently introducing a mandatory National Livestock Identification System (NLIS), based on an electronic radio frequency identification (RFID) system. This uses either electronic ear tags or rumen boluses which contain microchips and that allow permanent, rapid, lifetime traceability of cattle. The system is designed to support and enhance the competitiveness of the Australian beef industry, as well as reduce the impact of any introduced or emerging animal diseases. Each animal movement is recorded in a national database, and the system can provide data on the individual animal and on its location, including movement through markets and ownership changes⁸. The Government of Botswana has also recently enacted legislation requiring that all cattle must be electronically identified before slaughter or sale. As well as meeting EU requirements for traceability, their Livestock Identification and Trace-Back System (LITS), which like Australia's NLIS uses RFID boluses, has also significantly reduced incidence of livestock theft. But many developing countries are likely to find it difficult to implement such sophisticated and expensive trace back systems and making these mandatory will inevitably adversely affect their ability to trade. However, under the SPS Agreement the requirement for such measures by importing countries would be recognised as legitimate if they are based on a sound risk assessment. The Philippines, for example, allegedly experiences difficulty penetrating the export market of pork to Hong Kong on the basis of demonstrating an adequate trace back system in place⁹.

For developing countries, therefore, a key question is what level of identification and traceability is required for optimal assurance of the safety of consumers, and investigation and management of any hazard or disease detected in the value chain? This question has yet to be answered. Another key question is: will there be a price

⁷ <http://www.efsa.eu.int>

⁸ <http://www.mla.com.au/content.cfm?sid=131>

⁹ Dr. Edna Gray, Head of the Meat Import and Export Division, National Meat Inspection Services, Philippines

premium for products that are fully traceable? Some might argue that without such a premium, it will not happen. A good example of a few years ago was in three southern Africa countries (Namibia, Botswana and Zimbabwe), all exporting de-boned beef to the EU, and all using different identification and traceability systems but exploring improvements driven by what appeared to be market demand, however, without a 'gold standard' to work towards. Namibia has had a system based on individual animal branding, with traceability to the cattle owner, in addition to a system of movement permits. The country is now replacing this with a computerised national ear tag identification system (eventually to be upgraded to a bar-coded system), coupled with the movement permit, to include all cattle, including those managed communally (Paskin, 2004). But who pays for such systems? In order to tease this out, Souza-Monteiro and Caswell (2004) identify three categories of benefits in terms of human and animal health. These are a) public health benefits that relate to reduction in food-borne illness; b) private benefits associated with avoidance of bans on sales, loss of reputation and other breakdowns in quality assurance systems; and c) both private and public benefits from faster identification of the emergence and spread of new animal and human health threats. In Namibia the new system is being funded under a cost-sharing programme, with the EU investing some € 350,000 for computers, training and publicity costs, commercial farmers purchasing the ear tags (at a cost of approximately US\$ 1 each), and the Namibia Meat Board sponsoring ear tags and training for communal farmers, among other investments.

It is one thing to identify and track live animals, but it is quite another to track the various cuts and products that emerge from them. This becomes technically complicated but for those advocating greater focus on the commodities that emerge from the production and processing stages of the value chain, it is of course very important. Thailand is an example of a developing country which has implemented a trace back system that allows processed poultry products to be traced back to the farms of origin. However, if after a careful process of identification and tracking of an animal to the slaughter house, followed by the transfer of these identities to bulk meat packages, the packaging is then removed at its export destination as the meat is processed into other commodities such as hamburgers and sausages, it potentially makes a mockery of the efforts made earlier in the chain. This issue will be a particular challenge for the furthering of the livestock commodity trade concept.

In Central America, enforcement of traceability is not currently required for intra and extra regional trade or by supermarkets, although the concept is beginning to take root. Some maintain that, given the very large number of holdings where cattle originate, it is not possible to implement a comprehensive system. However, some exporting slaughter houses are already reducing the number of producers they deal with, concentrating only on large scale operators, and these are likely to be able and willing to be part of a cattle/beef traceability system. Clearly in this case the small-scale producer is likely to face yet another challenge to continued involvement in the value chain.

Differential safety and infectivity of products versus live animals

Although external trade in live animals is very important in some regions of the developing world, particularly the Horn of Africa, parts of Central America and certain regions of South East Asia, it is the trade in specific livestock products, including a variety of processed meat products, for which there is the greatest demand in higher priced markets, and even in regions in which live animal trade has been traditional (such as Ethiopia), there is a trend of increasing the role played by meat products.

There is clearly a quite different set of risks associated with each of these. However under the current set of international rules, live animals and meat products are in many respects treated as one, whereas they form just two examples of a wide range of livestock products, each with different levels of endogenous and exogenous risks to

other animals and to humans. This has major repercussions on trade. Live animals from countries in which certain infectious diseases are widely prevalent (as is the case in many developing countries) usually present a risk that is considered too high to be taken by potential importers, even by neighbouring countries where the same diseases are endemic, let alone by neighbouring or more distant countries free of such diseases. This is the basis for the OIE's Terrestrial Animal Health Code (TAHC), in which the animal disease status of a country generally determines the capacity to trade externally. But should all livestock products emerging from that country be treated in the same way as live animals in terms of the risk to animals and humans? From the scientific point of view, the difficulty has been in establishing the risks associated with different products, and as a result there has been a general acceptance of the convenience of basing standards around the disease status of a given country. Given the need for scientific justification and non-discrimination in the SPS Agreement, many would argue that this convention of considering all products on the basis of national disease status is open to challenge. The export of processed poultry products from Thailand to the EU (subject to a 70°C core temperature being attained in the cooking process), despite the presence of avian influenza in the country, is a topical and very powerful illustration that the disease status criterion is not inviolate.

The greatest advocates of a commodity approach to trade in livestock products have been Thomson et al. (2004), who laid out in general terms the advantages of a commodity-based approach to trading standards. What they did not present was how this approach could be translated into practice for specific products from specific regions of the developing world in which substantive trading opportunities with specific trading partners have been identified. As a result, the OIE's public response has been predictably cautious (Thiermann, 2004), and reflects the need for a meeting of the minds between standard setters and traders. For this approach to become more widely accepted there is a need to develop international standards, based on appropriate risk assessment, for the treatment, packaging and handling of a wider range of livestock products for the purposes of infectious disease risk mitigation, irrespective of the disease status of the exporting country.

An example of the application of this concept is given in Table 2 below. The EU has recently established and published a clear set of treatments for certain products commonly traded within the community in order to eliminate the risks of specific animal diseases. However, there are still areas for improvement, even in the example provided above. The processing of meat products often involves a series of treatments rather than a single treatment, which may have interactive effects with respect to pathogen survival, both positive and negative (Deboosere et al., 2004).

Table 2: Table 2. Treatments to eliminate certain animal health risks, by product. (Derived from EU Council Directive 2002/99/EC).

Meat treatment (*)	Animal disease					
	FMD	Classical swine fever	African swine fever	Rinderpest	Newcastle disease	Avian influenza
Heat treatment in a hermetically sealed container with an F_0 of 3,000 or more (**)	+	+	+	+	+	+
Heat treatment at a minimum temperature of 70C, reached throughout the meat	+	+	0	+	+	+
Heat treatment at a minimum of 80C reached throughout the meat	+	+	+	+	+	+
Natural fermentation and maturation of not less than 9 months for boneless meat, resulting in the following: Av value of not more than 0.93 or a pH of not more than 6	+	+	+	+	0	0
Same as above, but meat may contain bone (*)	+	+	0	0	0	0
Hams & loins: treatment involving natural fermentation and maturation during at least 190 days (hams) or 140 days (loins)	0	0	+	0	0	0
Heat treatment ensuring a core temperature of at least 65C for the time necessary to achieve a pasteurization value equal to or more than 40	+	0	0	0	0	0

+ Effectiveness recognised

0 Effectiveness not recognised

(*) All necessary measures must be taken to avoid cross-contamination

(**) F_0 is the calculated killing effect on bacterial spores. An F_0 of 3,000 means that the coldest point in the product has been heated sufficiently to achieve the same killing effect as 121C in 3 minutes with instantaneous heating and chilling.

Beyond these specific attributes of products with respect to pathogen survival is the need to ensure safety of products in a broader context. Central to this is the use of Hazard Analysis Critical Control Points (HACCP) principles. There are seven of them:

- Hazard analysis to identify potential food safety risks
- The identification of critical control points to prevent such hazards
- The establishment of critical limits
- Monitoring of the critical control points
- Corrective actions if something goes wrong
- Verification to assess whether monitoring occurs correctly, and corrective actions are taken in time and effectively
- Documentation of the entire process.

When it comes to minimising the risks to importing countries from livestock products, these HACCP principles offer a most valuable management framework. HACCP was developed as a way of ensuring human food safety by identifying the critical control points in a production process and the management of these, so ensuring adequate risk reduction. For risk mitigation of fresh or processed livestock products in respect to infectious animal diseases and other risks, the principles are essentially identical.

Animal health status at product source

One element of understanding the risk associated with a given livestock commodity emerging from a developing country setting is to know which animal diseases do and do not occur in the environment from which they are derived, at what frequency, and with what patterns. While most developing countries have national legal requirements for the reporting of infectious animal diseases, as well as international reporting responsibilities to OIE, many do not have the capacity to do so effectively. Over the years, there have been various attempts to delineate the main 'surveillance' requirements of different developing countries, and how these might be met (see for example FAO, 1994), but a steady decline in public sector funding and an (understandably) inadequate response by the small livestock-orientated businesses has meant that traditional passive animal disease surveillance systems have virtually collapsed in many countries, and active surveillance is a luxury that is seldom used and that few can afford.

All member countries of OIE have an obligation to report their animal disease status, and the terms of this are set out in Chapters 1.1.2 of the TAHC (OIE, 2004). The OIE has recently abandoned its former disease groupings (List A, List B), and all diseases are now assembled in one listing. The obligations centre on notifications of significant changes in disease status which must be carried out within 24 hours, weekly reports to follow up notifications, six monthly reports on general disease status, and annual questionnaires. It will clearly be important to harmonise the new demands of OIE on disease reporting with the capacities and national responsibilities of different developing countries. In this regard it is significant that OIE has recently recognised veterinary para-professionals (such as community-based animal health workers) as part of a country's overall veterinary service, provided they are subject to legal disciplinary provisions and tasks delegated to them are under the responsibility and direction of a qualified veterinarian.

As a result of the generalised deficiencies in animal disease surveillance, there has been a tendency for a more simplistic disease status categorisation to be undertaken, and as described above, the disease status of a country is the first level of evaluation in the TAHC. In the TAHC, the general requirements for declaring freedom of a country (or zone) are specified (Article 3.8.1.2). In the case of recognised historical freedom from a given disease, there is no need to formally apply to OIE, or to apply a specific surveillance programme. However, if a disease has been present within the

last 25 years specified surveillance programmes must be in existence to document the freedom. It seems that these requirements really only apply to certain diseases (these are rinderpest, contagious bovine pleuropneumonia, BSE, scrapie and FMD), for which there are specific procedures published by OIE for the international recognition of a disease-free country or zone. For other OIE listed diseases there are, as yet, no specific internationally agreed procedures for recognition of disease freedom (with the exception of African horse sickness, for which there are specific conditions of freedom specified in the relevant TAHC chapter, 2.5.15). In these circumstances, it is presumably an issue between bilateral trading partners, should their diseases status be questioned.

One of the key issues emerging from this is the need to recognise disease status in countries, zones or compartments¹⁰. For some countries, where there are either very homogenous ecosystems or extensive livestock production and movement, this national classification may be quite justifiable. But in others, within a country there are dramatic physical, climatic and ecological differences, accompanied in some cases by physical barriers, which justify the division of the health status of a country into smaller entities. This has been the basis, in some cases, for the creation of "disease-free zones", and the concept is integral to Article 6 of the SPS Agreement. However, there are significant differences in interpretation of what a disease-free zone might comprise. On the one hand are the quite specific criteria of an OIE-recognised disease-free zone, applied to the six specific diseases mentioned above, with demonstrable physical and other such barriers (such as the OIE recognised FMD-free zones in Namibia, Philippines and South Africa). On the other hand are the broader conceptual disease-free zones, such as those tabled by Ethiopia, Kenya and Vietnam, for example, which refer to areas of perceived absence or low prevalence of an undefined group of infectious diseases, which may (or may not) include the key diseases for which OIE has published specific criteria.

Critical to all these concepts is the challenge of how developing country animal health services, with limited resources and capacity to direct at information gathering, can meet the requirements for animal disease surveillance to support different product value chains, and at the same time meet the requirements of surveillance and reporting to OIE. Many engaged in developing country animal health services have in the past argued that the animal health surveillance information of most importance to a developing country is that which describes the constraints to, and ways of improving, the fundamental lot of the poor producer, i.e. the endemic diseases. However, arguably most of these constraints are now at least known, and for the purposes of development, it is exploiting available information to make things happen that many believe should take priority. The priority area for animal disease surveillance information in many developing countries may now therefore be that which facilitates greater market access. This can be in acquiring reliable estimates of prevalence, incidence, distribution and dynamics for the key diseases influencing market access, sufficient to understand, and document scientifically, the threat posed to any livestock product emerging from a region or zone. In addition, for certain regions this may extend to demonstrating, in a scientifically-sound manner, the freedom of certain diseases from areas from which higher market access is considered desirable. Within the case studies, examples of such settings where there appears to be a demand for such surveillance include the Red River Basin in Vietnam and Region 2 in Thailand, catchment areas providing animals to the export abattoirs in Ethiopia, the proposed export zones of Kenya, and also the areas from which animals are derived under contract farming arrangements that contribute to vertically-integrated livestock product value chains for export.

¹⁰ The OIE equates the term 'regionalisation', used in the SPS Agreement, with 'zonation' (TAHC Chapter 1.3.5). A 'compartment' applies to a subpopulation of animals with different animal health status for the purposes of international trade *when management criteria are applied* (sic), while a 'zone' refers to a subpopulation defined on a geographical basis.

Research in animal disease surveillance has seen a major leap forward in developed countries, with a drive to maintain and expand export potential of livestock products through demonstration of freedom from a wide range of animal diseases, supplemented by the need to detect any disease incursions quickly, so minimising their impacts on trade (see for example the EpiLab series of research activities in Denmark¹¹). There is much to learn as to how best to use different types of data derived from different sources to help develop and document scientifically sound assessments on disease status and disease freedom.

Animal health service provision to the value chain

There has been much debate over what to do about the steady decline in the quality of livestock services, including veterinary services, in many developing countries. With widespread structural adjustment programmes, and the recommendation for reduced state intervention and greater reliance on the creative forces of private entrepreneurship, the World Bank produced guidelines on service privatisation. But the private sector has not been able to respond in the way anticipated, and some feel that these measures have had a disproportionate negative impact on poor small-scale farmers (see for example the Intergovernmental Group on Meat and Dairy Products, 2004).

Some have been quick to respond to the failure of the private sector to pick up effectively the services to poorer sectors of society, and drawing on principles of economic and social rationales for livestock services, have put forward the 'public good' nature of many aspects of veterinary services in developing countries, encouraging a return to investment by the public sector. The OIE, for example, recently signed a MoU with the World Bank recognising national veterinary services as a public good. Generally these messages have not resulted in a return to significant levels of public sector funding to livestock services. Despite these recognised declines in capacity, when it comes to evaluating potential trading opportunities, the evaluation of the national veterinary services of an exporting country is still a critical part of the process under the terms of the TAHC of OIE (Chapter 1.3.4), and not surprisingly in many cases in developing countries these are deemed inadequate. The question is, should it be the public veterinary services of the country as a whole that are evaluated, or rather the animal health service provision specific to the commodity value chain being considered, within a broader context of national backstopping capacity and responsibility. Such an approach would open the door to specific specialised public-private partnership services, perhaps funded jointly by the value chain enterprise and state veterinary services. Clearly there would need to be some independent national, regional or international body that certifies the quality of the private services provided, but the point is that it may not be necessary to condemn individual private value chain enterprises on the grounds of inadequate national public services.

Product certification

As part of the scoping study on which this report is based, Thomson *et al.* (forthcoming) reviewed current certification requirements. In his review he suggests that prerequisites for certification include the existence of a clear set of standards and competent, objective and independent certifiers who need to be in possession of all the relevant facts to reach a conclusion with respect to compliance. It is argued that the present system is deficient, and represents an unnecessary barrier to export of livestock products by developing countries.

¹¹ <http://www.dfvf.dk/Default.asp?ID=9699> EpiLab provides a framework for intensified epidemiological research with a view to securing the production and export of animal produce of high quality and food safety by improvement of the scientific preparedness as part of the Danish contingency plan.

The review identifies three major difficulties faced by exporters of livestock products from developing countries:

- The frequent need to prove the country or zone of origin free of transboundary animal diseases (TADs) irrespective of the export commodity in question.
- Lack of standards for products that have been processed that take the risk reduction of processing sufficiently into account.
- The certificates exporters obtain from the official veterinary service frequently lack credibility as far as the importing country is concerned and are therefore unacceptable to the importer.

The present system, which is based on demonstrating freedom from disease in countries, zones or compartments, may not be necessary in the case of livestock products for which processing destroys pathogenic organisms. What is required is for OIE to develop international standards, based on sound science, for a wide range of livestock based commodities. However, in some cases the science on which such standards could be based is lacking. A shift to standards based on safe commodities, rather than freedom from disease means that veterinarians under the auspices of the national veterinary authority are not necessarily the most logical choice for certification; where processing of livestock products is concerned in many cases they will not be qualified or equipped to audit such processes. This also calls into question whether the competent veterinary authority is the appropriate body to certify the safety of livestock food products. It could be argued that a statutory food safety body, perhaps working together with the competent veterinary authority, is better placed to do so.

There is, perhaps, some cause for concern regarding the appropriateness of state veterinary services certifying the disease status of their own countries - and in effect their own performance - an issue equally relevant to developed as developing countries. There are also undoubtedly real issues of trust and unfortunately low paid public officials can be particularly susceptible to bribes offered by unscrupulous operators. Finally, it is clear that many developing countries require assistance in regard to negotiation of fair and reasonable bilateral trade protocols for livestock commodities and devising ways in which exported commodities can be credibly and independently shown to have met reasonable international standards.

Animal welfare

Animal welfare is an area of great concern to many consumers in high value markets, and therefore also needs to be an area of concern for developing countries targeting these markets. Although there are no provisions in the SPS Agreement regarding animal welfare - indeed it is probably beyond its mandate - OIE has been paying increasing attention to this issue in recent years. In May 1992 it resolved to incorporate animal welfare considerations within its major functions and to assume the responsibility for developing international standards and guidelines leading to good animal welfare practice. In the same year it formed a permanent Working Group on Animal Welfare. Initially OIE is targeting transportation and humane slaughter, with housing and management being addressed at a later stage. Four *ad hoc* groups have been established by OIE to develop animal welfare guidelines concerning the land and sea transport of animals, the slaughter of animals for human consumption and the humane killing of animals for disease control. In developing these guidelines it is clearly desirable to balance the introduction of higher animal welfare standards with the ability of developing countries to adopt the same. The guidelines developed by these groups are expected to be presented for possible adoption at the May 2005 OIE General Session. If this occurs they will then be included in the Terrestrial Animal Health Code, besides the existing section on principles of animal welfare and specific guidelines for the welfare of animals during transport by air. These guidelines will then provide the foundation for the elaboration of specific recommendations and

eventually international standards. It is not known whether there was effective developing country participation in the development of these guidelines.

The European Commission has consistently raised the issue of animal welfare in the WTO negotiating rounds. It did this in Seattle in 1999 and continued to press for international acceptance of animal welfare concerns during the WTO ministerial conference in Doha in November 2001.

In the context of the participation by developing countries in trade of livestock and livestock products, animal welfare considerations can be regarded as both a threat and an opportunity. The low priority afforded to considerations of animal welfare in most developing countries could limit the ability of these countries to access high value markets: western supermarkets would be unwilling to risk a consumer backlash by knowingly stocking livestock products produced in conditions that could be regarded as cruel, or that involved inhumane methods of slaughter, for example. In contrast, non-intensive livestock rearing systems and availability of abundant low-cost labour, both more common in developing than developed countries, could provide an environment of enhanced animal welfare standards, which would be attractive to western consumers. However extensive rearing systems commonly used for rearing cattle, sheep and goats in developing countries, whilst providing considerable freedom, can also compromise animal welfare especially during drought conditions when availability of feed and water are likely to be sub-optimal. None-the-less the opportunity exists for developing countries to develop premium priced, enhanced animal welfare brands, perhaps aligned to the Fairtrade movement (currently Fairtrade livestock products, except honey, are largely absent). Certification by a competent authority and a credible inspection and audit procedure would be essential requirements for such an approach.

6. CROSS-CUTTING SPS ISSUES EMERGING

Given the central nature of the SPS Agreement to this scoping study, issues emerging from the case studies, the commissioned studies and the two workshops are now considered in the context of some of the different Articles of the Agreement.

Article 3: Harmonisation

Harmonisation is one of the fundamental principles of the SPS Agreement, and requires that the nations of the world move towards acceptance of the same international standards. To this end, as described earlier, three separate bodies, the OIE, the *Codex Alimentarius* Commission and the IPPC, are given responsibility for the development and promotion of international standards, guidelines and recommendations in their respective areas. A key question for consideration in this report is whether a set of international standards for livestock products is in the best interests of both the developed and developing worlds in order to a) protect the human, animal, plant and environmental health of all countries, while at the same time b) provide fair, science based opportunities for trade in livestock products for all countries. The answer is: it depends! It clearly depends in particular on whether the international standards are indeed science based, fairly developed and applied, and not standards demanded by those countries who can afford to have nothing but the best. At present it would appear that there are major advantages to many developing countries to continue engaging in direct negotiations on a bilateral basis with countries with which they trade or intend to trade, and establish health and food safety standards that are mutually agreeable for the commodity in question. This is because the international standards for livestock products are becoming increasingly difficult to meet and maintain, they present a moving target, and the costs of meeting such standards are in many cases beyond the means of many developing countries.

So how can the current perceived advantages of bilateral trading arrangements be reversed? The simple answer is by greater participation of developing countries in international standard setting, a general statement that has been made by many (see for example International Trade Centre/Commonwealth Secretariat, 2003), but the devil is in the detail of how that might be achieved.

Article 3 of the SPS Agreement states that 'all (WTO) members shall play a full part in the relevant international organisations and their subsidiary bodies'. There are many elements to this simple statement, and the PPLPI commissioned a separate study on the organisational and institutional issues surrounding international food safety of livestock products¹². The first is of course membership of the 'responsible organisation', and the OIE and Codex both do well at this level (Henson et al., 2000). The OIE currently has 167 members, and the Codex 166 (WTO membership is currently 148 countries of which 31 are LDCs). The next level is participation at meetings (the turning-up factor), which is still quite impressive. In the case study countries, all are members of the OIE, and all are represented by their Chief Veterinary Officers (CVOs) at the annual General Session in Paris. Attendance is funded by the OIE, which is itself funded by its member nations. But how are decisions made? Again, in both of these organisations majority voting (one country, one vote) at the annual (or biannual in the case of Codex) meeting follows good democratic principles. However, what contributions do developing country delegates make to the drafting of the standards put before the general session for approval?

¹² Michael Byron Nelson, 2005. International Rules, Food Safety, & the Poor Developing Country Livestock Producer. PPLPI Working Paper, forthcoming.

“The case study for Namibia shows that it is able to attend only the meetings of the apex body (sic) of OIE. It has not participated in the technical work on the preparation of standards, as it does not have personnel with the necessary scientific background. Namibia attends OIE annual meetings, possibly because travel and other costs are made available by the organisation. Namibia is not yet a signatory to IPPC and has not participated in meetings of the Codex” (International Trade Centre/Commonwealth Secretariat, 2003). Clearly even countries like Namibia struggle to participate in standard setting and the other scientific debates surrounding it, highlighting the even greater plight of the 50 LDCs.

This raises several issues. In the case of OIE, countries are represented by their CVO, generally senior experienced individuals whose key responsibility is national animal health policy and strategy development. Many delegates (CVOs) from the developed world are accompanied by a team of specialist advisers, and also have the capacity for instant communication with other specialists back at home. Furthermore, behind these individuals the national technical capacities for disease diagnosis, control and surveillance are excellent, relatively well-funded, science-based and continuously improving. By contrast, most developing country CVOs are the sole representatives of their country and their livestock industries at the meeting, and while perhaps able to communicate home, most will not have the technical back-up necessary for them to make a meaningful contribution to the debate. One case study participant felt that issues were “steamrolled through without adequate time for digestion and debate”.

OIE does have regional commissions, namely Africa, Asia and Oceania, Europe and the Americas. These groups meet on one morning of the Annual General Session in May, and usually have an additional annual or biannual meeting in their region. While in no way detracting from the value of these meetings, the groupings of countries are very large, the agendas are often developed centrally and, with the exception of Africa, contain a mixture of developed and developing country representation, making it very difficult for developing country voices on technical issues to be heard.

OIE looks after the animal and human health implications of trade in livestock products for the WTO. But ironically the ‘trade’ is not officially represented in the drafting of guidelines and standards, or in their review at the Annual General Session of the OIE. Some would argue that private sector representation of trading organisations have no place there, lacking technical knowledge and with potential vested interests. But is such reasoning outdated? Elsewhere in this report we argue for a much stronger role for the commodity processors and marketing agents in developing countries, working in partnership with governments to facilitate safe, legal and certified trade.

But beyond the institutional and managerial issues of OIE’s role as a guardian of the level playing field for the WTO in the development and promotion of international standards, guidelines and recommendations in the area of animal health and zoonoses, is the chronic lack of technical specialisation in many developing countries in animal disease surveillance, risk assessment, livestock product quality and safety, livestock product standards and trade and market economics. The gap between developed and developing countries is therefore widening in most of these areas.

Finally it must be said that the lack of understanding and appreciation of circumstances, constraints and opportunities in developing country settings by representatives of the developed world in the sub-committees and standard setting working groups is also a contributor to this widening abyss.

Article 4: Equivalence

Even the developed country members of WTO acknowledge that equivalence, although a useful principle in theory, is difficult to implement in practice (WTO, 2000). In 2001 the WTO, responding to criticism from developing countries, detailed the procedures leading to agreements of equivalence (WTO, 2001). This is an area in which the participation of developing countries in equivalence standards is critical (Jensen, 2002).

The OIE has published guidelines for reaching a judgement of equivalence of sanitary measures in the TAHC (Chapter 1.3.7; OIE, 2004). This documents the prerequisite considerations in a judgement of equivalence, in which risk assessment plays a key role, and opens the door for a wide variety of alternative measures, infrastructural, programmatic and technical, to be used by an exporting country in order to meet the appropriate level of protection demanded by an importing country. The chapter then goes on to define the principles for judgement of equivalence, and the sequence of steps to be taken in a judgement of equivalence.

While considerable use of these has been made by developed country trading partners, this has not been the case in developing countries. In the case study countries there have been no examples of equivalence in practice that have emerged, and it is clearly a priority area for future research and development. The concept of para-professionals, such as Community-based Animal Health Workers, as a contributing force to surveillance has been recognised by the OIE (OIE, 2004a; Allport *et al.*, in press), but there was no involvement of such groups in the successful value chains of livestock products encountered in this study.

There is a need for disease surveillance and reporting systems appropriate for demonstrating the freedom of major diseases of international importance that are realistic and affordable. That is a general statement applied to several animal diseases relevant to trade, but it is of particular importance in the case of BSE. Currently in order to comply with OIE standards and with demands from certain trading partners, many countries undergo elaborate testing protocols for BSE that are prohibitively expensive, even for middle income developing countries such as Namibia¹³. But for all diseases there is a need to develop methodologies that synthesise the varying qualitative and quantitative data from mixed sources to enhance international confidence in the apparent disease free status.

As mentioned earlier, this area of science has become a hot topic in the West, and many new insights are emerging on the use of complex and variable data to demonstrate disease freedom from the EpiLab¹⁴ series of projects using Danish data (see for example Cameron *et al.*, 2004). These have not been applied to developing country settings, where data quality will certainly add complications, but this is an area of research well worth exploring further. They would be of particular relevance to the broader concepts of zones of minimal disease risk, from which meat products could be exported, such as those proposed by Ethiopia, Kenya and Thailand, for example.

The issue of certification has already been mentioned. Government bodies are central to certification approvals under OIE. Again, inspection and certification is inadequate in many countries, where there is often a poor technical understanding and ability to do this, a lack of independence, and a lack of financial support to the process. The Philippines case study identified instances of rejection or delay with poultry product

¹³ Protocols for BSE surveillance requirements include specific diagnoses and BSE testing on all animals of greater than 2 years old dying with clinical signs suggesting central nervous system involvement, all animal sent for emergency slaughter, as well as random samples from abattoirs.

¹⁴ <http://www.dfvf.dk/Default.asp?ID=9699>

export due to inadequate completion of forms and procedures demanded by the importing country. Could there be a role for the development of regional capacity, which might include representation from the private sector enterprises participating in product marketing? This offers prospects for both policy and institutional changes. However, some consider that certification responsibilities cannot effectively be shared on a regional basis, given differences in comparative advantages and trading partners.

Animal identification and traceability are issues that are becoming ever more important, and have been discussed above. What are the basic identification and traceability requirements for the range of livestock commodities being traded, bearing in mind the general need for quality control and trace back, and the specific needs with regard to certain major infectious diseases (such as BSE, FMD, Newcastle disease, etc)? What are the technological options to meet these, and what are the cost implications? These are straight forward questions that require science-based answers.

Slaughter procedures and product certification for export is a specialist operation. Even a country like South Africa has only four licensed abattoirs for export of livestock products to the EU, so how can standards, in terms of quality and adherence to HACCP principles, be met without making economically unviable capital investments in infrastructure? One important element of this enigma is training, and beyond that, recognition of successful training by certification. Two examples of movement towards the equivalence of the highly qualified veterinary meat inspectors working on slaughter lines in the face of lack of such expertise are being explored in South Africa. The first focuses on increasing recognition of Environmental Health Officials, who gain a 6 month diploma and work under the supervision of a veterinarian, and the second is an attempt to bring the informal slaughter sector closer to the formal sector through a training and certification process sponsored by the Red Meat Abattoir Association. This programme is building skills in the basic areas of hygiene awareness, HACCP training and slaughter technique training, and with the intention of having these skill available to export markets.

Article 5: Risk assessment and determining appropriate level of sanitary protection

An SPS measure should be based on a risk assessment. Compliance with the recognised international standards (set by OIE and Codex) are assumed to be based on an acceptable level of protection (ALOP) from risk, and so may be accepted without further risk assessment. When WTO members choose to implement standards over and above those of the international standards organisations, they are required to undertake a risk assessment (taking account of the procedures recommended by the international standards organisations). However if sufficient scientific evidence does not exist, governments may temporarily establish regulations based on the precautionary principle (which means when an activity raises threats of harm to human health or the environment, precautionary measures may be taken even if a scientific cause and effect relationship has nor been established).

Of major concern is the widespread lack of capacity in many developing countries in the area of risk assessment. Much effort has been put in to improving this in developed countries, through courses etc., but many of these are not easily accessible to developing country participants for financial and logistic reasons, and most developing countries do not have posts established for staff in this area, who would be potential participants. The OIE has produced a two volume series on methodologies of risk assessment (OIE 2004b) covering qualitative and quantitative risk assessments. While this is a valuable contribution, some insist that the key to good risk assessment is credibility, which requires specialists who have the necessary training and

experience beyond that gained from a manual. Indeed given its importance to international trade, many consider risk assessment to have become a specialisation akin to those in immunology and epidemiology. The recent example of the successful challenge in the Australian Federal High Court by Australian Pork Ltd. of a risk assessment carried out by Biosecurity Australia clearly illustrates this point. Biosecurity Australia carried out a generic risk assessment on pork product imports, and published their findings. Australian Pork appealed against the results of the risk assessment, which would have allowed a significant increase in pork importations from the United States. There were several elements to the appeal, but central was the risk of post weaning multi-systemic wasting syndrome (PMWS) entering Australia. The appeal was rejected by Biosecurity Australia, and so Australian Pork Ltd then took the matter to the Federal Court, which has just announced its decision in favour of Australian Pork Ltd, citing flaws in the risk assessment.

A further example of the credibility of risk assessments in one of the case study countries was seen when a risk assessment was not accepted by the exporting country, but when the importing country requested a physical site visit of some facilities, this was refused. This was in direct breach of the SPS Agreement. As with the certification issue, this raises the question of whether there is a place for regional or international certified capacity in risk assessment, and consideration of how such a resource would be made available to developing countries.

Article 6: Adaptation to regional conditions

The concept of specific consideration being given to regions¹⁵ rather than countries is of particular importance to animal diseases and pests, which do not follow national borders, while national legislation on SPS issues usually does. On the one hand this looks like a very positive approach for developing countries, providing the chance to demonstrate that a region of the country is quite safe as a source of internationally-traded livestock products. Jensen (2002) commends it as being an excellent application of the SPS principle that a measure must be based on sound science. But on the other hand, obtaining OIE recognition of regional or zonal freedom within a country from a given disease, such as FMD, is extremely complex, and out of reach of many developing countries. Furthermore, the OIE's interpretation of this article is based on the demonstrated absence of certain diseases (namely FMD, CBPP, BSE, rinderpest and scrapie) affecting live animal populations in the region, rather than the safety of livestock products derived from the region. Central to this is the issue of trust. In addition, we still do not know enough about the risks attached to different products from regions or zones in developing countries, and so some might argue that the simple use of the demonstrated absence of a specific animal disease from an area is a valid proxy of product safety until more substantial scientific data has been gathered. However, as the demand to become more involved in international trade picks up pace, and the concept of commodity trade gains further acceptance, this is unlikely to remain acceptable in the long-term.

Even using disease absence as a definitive standard, some inconsistencies can be found. Namibia, for example, has an OIE-approved FMD-free zone, from which it exports matured de-boned beef to the EU. One could argue that they should be able to export bone-in beef, as it is a recognised FMD-free zone. But given the differential in labour costs between Europe and Namibia, that would not make economic sense for most of the cuts required (with the exception of the 'T-bone steak', for example), so there has been no need to dispute the EU's insistence on a de-boned product. But for sheep meat the story is different. Namibia would like to compete with Australia and

¹⁵ The word 'region' can be used both to refer to an area within a country, and to a grouping of countries. In this discussion it is used in a within-country context.

New Zealand in the EU market with bone-in products such as legs or shoulders of lamb, but the EU has maintained its insistence on a de-boned product (Meat Board of Namibia, 2004). This has been on the basis of an EU Directive ((72/462/EEC) which states that because the fresh meat comes from a *country* in which FMD vaccination occurs, meat exported must be matured and de-boned¹⁶. This is despite Namibia having an internationally-recognised FMD-free *zone* in which no FMD vaccination occurs! Through a long series of negotiations Namibia has argued its case, and it appears that recognition of the right to export bone-in sheep meat has now been accepted by the EU. However the timing of initiation of such exports will depend on Namibia demonstrating high standards of HACCP compliance for this product.

Many developing countries are looking at the 'disease-free zone' concept, taking regions of their country perceived to be, or with a potential to be, at a "low risk" of major infectious animal diseases, or of particular strategic importance to regional trade, and in which the potential to meet the supply of livestock products exists. These include the Myanmar-Thailand-Malaysia (MTM) initiative in South East Asia, the Red River Basin initiative in Vietnam (Taylor *et al.*, 2003), the Upper Mekong and Lower Mekong initiatives involving several SE Asian nations, Region 2 in Thailand. These are all primarily focused on achieving OIE-approved FMD-free status. The proposed 'export zones' of Ethiopia and Kenya, among several others, are apparently based on a broader concept of reduced risk to a broader range of infectious diseases (see Dadi and Hargreaves, 2003). It seems likely that the South East Asian initiatives will struggle to attain the standards of disease-specific freedom set by OIE, while the African initiatives will have an even greater struggle if not accompanied by risk assessment and possible risk mitigation measures associated with products emerging from them. However, one can speculate that given the combination of good management, determination, a clear identification of trading advantages for specific products, and scientific evidence of diminished disease risk in certain zonal or production system settings, some of these could form the basis for future OIE-approved product exportation zones whose risks are judged on a new set of standards that combine geographical and product safety characteristics. Again Namibia provides an example, with the export of de-boned beef from the communal land areas in the north of the country in which high quality slaughtering and processing facilities have been constructed to provide market incentives for the small scale farmers of the region in access to the South African market, despite being on the wrong side of the FMD control zone fence.

Article 7: Transparency

This Article aims to ensure that members are notified of a measure before it is implemented. It has many facets. It is based on the requirement for countries to establish Notification Points and Enquiry Points, aimed at improving access to information by all. Some SPS standards are notoriously complicated and undergo frequent change, particularly at the bilateral level, and it is important that these are all well communicated. An example was reported in one of the case study countries, of an exporting developing country reading on a website that their particular product would no longer comply with the import regulations of its bilateral trading partner due to a change in certain standards.

While there is an obligation of developed countries to ensure that standards, and changes, are well communicated in advance in ways accessible to its trading partners, many of the problems faced by developing countries on the transparency issue relate to the lack of financial and human resources necessary to follow, understand and

¹⁶ During the process of *rigor mortis*, the pH of muscle drops significantly to levels that effectively destroy the FMD virus. Thus if cattle are quarantined under observation for a period before slaughter, and the carcasses are de-boned and matured in refrigeration, the beef emerging is a very safe product with respect to FMD virus.

comment upon developments in their trading partners' regulatory frameworks (Jensen, 2002). But there is also room for improvement by developed countries. The posting of a change on a website should not be taken as the end point in transparency for matters relating to changes in standards, for example, and alternative communication channels more appropriate for target developing countries should be considered.

Members (both developed and developing) must inform other WTO Members of any new or modified SPS legislation by submitting a notification to the WTO Secretariat. The prime purpose of notifying proposed regulations is to allow countries that might be affected by them to be consulted during the drafting process. The notification therefore, includes a timeframe for comments and this is usually at least 60 days before the measure comes into force. Upon receiving the notification, interested Members should request the text of the relevant regulation and make their comments. Interested Members can also request an explanation for the measures not based on an international standard, guideline or recommendation (OIE, IPPC and Codex). Furthermore, except in emergency situations, the notifying Member should allow a reasonable period of time between the publication of the measure and its entry into force - this is normally taken to be 6 months. The idea behind this is to allow for affected members to adapt to the new requirements.

Operating and effectively running the enquiry and notification points are a challenge for many developing countries. It is interesting to note that the experience of some countries suggest that extensive resources are not necessary to implement the transparency provisions. For example, the existing equipment such as fax, email, and photocopier is sufficient to operate the enquiry point. What is important, however, is that there is good coordination between government departments and the involvement of industry stakeholders. The staff in charge needs to be well qualified and experienced to be able to identify those notifications which is of outstanding significance in terms of subject matter or potential negative impact on trade. Furthermore, the creation of a network of people with the required knowledge to make comments, replies etc is also very important.

The WTO Secretariat has undertaken several activities to facilitate the further implementation of the transparency provisions. In addition, a project is being funded by STDF on model methodologies for national SPS enquiry points to improve coordination between government departments as well as the Codex, OIE and IPPC national contact points for sixteen African countries.¹⁷ Furthermore, many Members have indicated their willingness to provide technical assistance to enquiry points and notification authorities in least developed and developing countries.

Article 9: Technical assistance

This article provides in general terms for the provision of technical assistance to developing countries by member countries in order that they can better comply with the SPS Agreement. This assistance can be in general terms, or specific to a particular bilateral trading relationship in which technical difficulties emerge.

On the general assistance, the WTO carried out a survey of technical assistance given under the SPS Agreement, which revealed a number of projects supported by individual countries and international organisations (WTO, 1999). Recently the SPS committee of the WTO, in collaboration with OIE, FAO, WHO, World Bank, have launched the Standards and Trade Development Facility (STDF¹⁸). This grew out of a

¹⁷ The African & Middle East Region only account for 2 per cent of all notifications submitted to the WTO for the period 1995-2004.

¹⁸ www.standardsfacility.org

joint communiqué by these organisations at the Doha Ministerial Conference in November 2001, centred on resource mobilisation and coordination in support of greater compliance by developing countries with SPS measures. A business plan was formally adopted in September 2004. The fund provides project preparation grants (approximately US\$ 20,000) and project grants (US\$ 300,000 - 600,000). The STDF hopes to dedicate 40% of resources to LDCs. So far, most proposals have been from the partner organisations. The next deadline for proposal is 1st July 2005.

On the general, but less strategic level, there is a significant need for training in SPS issues, from the general concepts of SPS, the HACCP principles and components, to understanding and conducting risk assessment. But this is not just a case of sending the CVO on a course; it requires addressing strategically in terms of national and regional demands, and appropriate capacity development. Important is the inclusion of the private sector (such as livestock product market authorities and processors), as recipients of training, as partners in capacity development, and as funding partners.

On the specific assistance relating to an existing trading partnership, there are many examples of assistance being provided, but also some questions as to what levels of assistance are appropriate under different circumstances. Already mentioned was the support by the EU to Namibia for elements of its new animal identification and traceability system coming into effect in 2005, which is part of a broader cost sharing public/private partnership initiative. This is a strategic support to maintain existing markets of beef to the EU, but also opens the opportunity for Namibia to engage in negotiations with other potential trading partners.

In the case of a changed standard imposed by a developed country on a developing country (Article 9.2), it is expected that notification should take place (see under transparency), and that some consultation on the implications of changed standards will occur. In the case of changing standards for nitrofurans residues in poultry meat by the EU, Thailand had to respond to changing demands from a major market partner. What were the different responsibilities of the trading partners on this issue? Thailand made substantial investments in diagnostic technologies at both the government and private sector levels to ensure that it could continue its access to this important market, and the EU did provide some technical expertise to advise Thai authorities, but no funding. Was that the correct balance of commitments? What if it had been Vietnam, with a different economic and development status? Where do the technical and financial obligations lie?

Article 10: Special and differential treatment

This article, together with statements in the preamble to the Agreement, makes the case for special treatment of developing countries, and particularly LDC members. Some of these provisions are identified under other Articles (such as technical assistance, regional conditions, equivalence, etc. In Article 10 specific reference is made to allowing longer time to respond or comply, the possibility of allowing time-limited exceptions from obligations, and the facilitation of developing country participation in the relevant organisations.

Many argue that special and differential treatment approaches have not worked well (such as Commission for Africa, 2005). At the Doha Ministerial in 2001, it was agreed "...that all special and differential treatment provisions shall be reviewed with a view to strengthening them, and making them more precise, effective and operational....".

On 1 August 2004, five proposals on special and differential treatment relating to the SPS Agreement were referred to the SPS Committee, with the stipulation that the Committee expeditiously complete the consideration of these proposals and report to the General Council with clear recommendations for a decision, by no later than July

2005. The proposals referred to the SPS Committee suggest interpretations and/or modifications to Articles 9 and 10 of the SPS Agreement, and in particular to paragraph 2 of Article 9, and paragraphs 1, 2 and 4 of Article 10. The underlying concerns of the proposals relate to key difficulties developing countries may face in meeting new or modified SPS requirements of their trading partners. In particular, developing country Members may lack the necessary knowledge, infrastructure or technology to deal with new requirements.

The proposals have previously been considered in various formal and informal meetings of the General Council of the WTO, the Committee on Trade and Development, and the SPS Committee. These discussions are continuing with a final report on clear recommendations from the SPS Committee for a decision expected by no later than July 2005.

In October 2004, the Committee adopted a procedure to enhance both the provision and the transparency of special and differential treatment or technical assistance. This procedure requires the importing Member to consider any requests for special and differential treatment or technical assistance which are made in response to the importing Member's notification of a new or modified SPS measure. The importing Member is to subsequently submit a specific addendum to its notification which indicates that special and differential treatment or technical assistance had been requested; the Member(s) affected; the concern(s) identified; and if special and differential treatment was provided, and if so, the treatment provided. This procedure is intended to ensure that the importing Member consults with any developing country that has expressed a concern regarding the potential effect of the proposed new/modified measure on its exports with the aim of finding a means to address their concerns. The notification of solution ensures fullest transparency, especially for other developing country Members.

The underlying message to all of this is that Members need to be fully aware of the WTO SPS agreement in order to be able to benefit from it. The only way to do this to effectively participate in the meetings and Members need to explore ways on how to better address this issue.

Article 11: Consultations and dispute settlement

The issues already discussed regarding the lack of financial and human resources, scientific data, expertise, etc. are likely to affect severely the capacity of developing countries to participate in the complaints procedures of the WTO, either as a complainant or a defendant. Furthermore, some developing countries are sceptical about the extent to which their cases might be heard objectively. In addition is the issue of asymmetry of sanctions: an OECD country can threaten an LDC with consequences of major economic impact should they question the validity of import restriction on SPS grounds, but the converse is highly improbable. In lieu of effective economic sanctions, if a developing country could mount a valid complaint, win it and receive widespread publicity, it would likely have a huge impact, but at present such a 'name and shame' scenario is highly unlikely.

As far as animal health issues are concerned, the OIE offers a first step in the dispute process; formal dispute settlement through the WTO is an expensive and binding procedure, so the use of OIE as a first port of call is much more cost-effective. The Namibia example of its negotiations with the EU on what it considers to be its "right" to export bone-in lamb to the EU from the FMD-free zone is an example of how discrete bilateral negotiations (in this case between the Namibian Department of Veterinary Services and the EU) can be productive, providing (a big proviso) that the negotiating capacity is present. Although Namibia has apparently made significant

progress in this argument, the EU is still blocking import of bone-in lamb from Namibia citing other unfulfilled requirements.

In the context of the WTO, when a panel is established to consider a complaint, it normally consists of three individuals who are considered to be neutral by the parties, and are selected on their personal merit and knowledge of the WTO (if the parties cannot agree, then the DG appoints the panellists). When scientific or technical experts are needed for their advice, they are usually selected from lists provided by the OIE secretariat for animal health issues (the Codex or IPPC for food safety and plant protection). Again, the parties to the dispute are consulted in the selection of the experts, and regarding the information solicited from the experts.

One of the central provisions of the WTO Dispute Settlement Unit (DSU) is that Members *cannot* unilaterally make determinations of violations or suspend concessions, but should make use of the dispute settlement rules and procedures of the DSU.

When the DSU finds that the party has violated WTO rules, the 'losing' party must bring its policy into line with the DSU ruling or it can offer mutually agreed compensation. If it does not implement the recommendations of the DSU, then the complaining party can ask the DSU for permission to impose *limited* trade sanctions against the other side. The DSU must grant authorization unless there is a consensus against the request. In principle, concessions should be suspended in the same sector as that in issue in the panel case. If this is not practicable or effective, the suspension can be made in a different sector of the same agreement. In turn, if this is not effective or practicable and if the circumstances are serious enough, the suspension of concessions may be made under another agreement. The DSU contains a number of provisions taking into account the specific interests of least-developed countries

There is an Advisory Centre on WTO Law, based in Geneva, that provides advice and assistance to developing and least developed countries with regard to potential WTO disputes. It helps countries determine whether they have a sufficiently strong case to pursue under the DSU. The Centre also puts together evidence/cases and legal arguments at very low costs for developing countries (free for LDCs).

In addition to the various channels outlined, Members can request the Chairman of the SPS Committee to provide "good offices" to facilitate the discussions between the disputing parties. On several occasions in the past, this involvement by a neutral Chairman has helped identify possible solutions to bilateral problems.

Costs of compliance

The technical requirements to meet growing international standards are costly. The question is: are these costs justified on the basis of the returns generated by the market access? There have been very few studies measuring the direct costs of compliance, and the benefits of such investment to the poor. The costs have, however, been estimated using modelling techniques. These models derive a "tariff equivalent", which can be used to determine the impact on trade flows. For example, Calvin and Krissoff (1998) examined the impacts of phytosanitary standards imposed on apple exports from the US, and estimated that the costs of such measures were equivalent to a tariff of up to 51%.

Many issues emerge from this. There are sometimes very significant costs involved in establishing infrastructures and compliance technologies to access certain markets in the first place, and this can be prohibitive. But standards do change, and as illustrated by the need for Thailand to upgrade its technical capacity to test for nitrofurans metabolites in poultry meat exported to the EU, which was estimated to cost Thailand US\$ 2.5 million (Anon, SPS workshop for South East Asia held in Bangkok, 24-25

August, 2004). No benefit costs analysis has been carried out on this, but given approximate exports to the EU of 150,000 tonnes per year of processed poultry meat at an estimated value of US\$ 270 million¹⁹, this would suggest a benefit of more than 100:1. Perhaps this is why the EU were not in a hurry to provide technical assistance in the nitrofurans case?

Redmond (2002) examined the costs of compliance surrounding the export of fresh beef from Botswana to the EU, and drew several conclusions. One of the first was that it was very difficult to obtain, identify and quantify compliance costs, and difficult to attribute costs to a specific market of interest. But beyond that, five main areas of compliance requirements were identified:

- FMD control and surveillance
- Food safety and abattoir hygiene monitoring at the National Veterinary Laboratory
- BSE and meat and livestock traceability
- Division of meat hygiene and quality control
- Botswana Meat Commission compliance processes.

The costs of compliance to Botswana were high, made up of substantial capital outlays (including laboratory extension construction, electric fence construction) and recurrent costs (including FMD vaccination in the vaccination zones surrounding FMD-free zones, fence maintenance, quarantine, permit system administration). Due to difficulties in identifying all costs, and attributing costs to the EU market access, a final figure was not produced.

The case study in Namibia reported a cost of approximately US\$ 45 million over 5 years for the installation of their new identification and traceability system (working out at approximately US\$ 30 per animal per year for 5 years). However, it should be noted that this cost includes the entire budget of the Directorate of Veterinary Services, although in reality the budget covers other functions within the Directorate beyond beef inspection and certification. But even taking this inflated figure, the gross income from the meat trade over 5 years is estimated at US\$ 750 million, indicating a likely significant return on investment.

¹⁹ Figures derived by the authors from the Thailand case study presented by Pornsri Laurujisawat of Thai Poultry Exporters at the Rome workshop, 4th May 2005.

7. SYNTHESIS AND RECOMMENDATIONS

We now synthesise the key points raised in the previous chapters into a series of strategic questions. In an attempt to answer these questions, we identify the next steps in the process of improving access to external market by poor countries, focusing in particular on the role played by animal health constraints.

What are the ingredients of success for effective participation by developing countries in global livestock product markets?

In the various case studies several examples of apparent success emerged at different scales. On a small scale was the Kalahari Kid Corporation in the Northern Cape Province of South Africa, connecting smallholder goat raisers with high value goat meat markets in the supermarkets of Johannesburg and the shops of the Middle East. On a medium scale was Farmer's Choice, connecting small scale pig producers in the central highlands of Kenya with breakfast delights of bacon and sausages for tourists and expatriate workers in the Middle East. On a large scale was the role of the Namibian Meat Board in creating and developing the Farm Assured Namibian Meat Scheme, bringing products derived from communally grazed cattle in Namibia to the tables of Europe. And on a very large scale was the Thai Broiler Processing Association, not only providing quality chicken products at an affordable price to British consumers, and employment and livelihoods for over a million Thais, but also demonstrating impressive qualities of resilience in the face of the outbreak of avian influenza and other challenges. What has characterised their different successes? Can they be replicated, and if so, how?

Firstly, all have played by the rules of the game, and ensured that the products they trade meet internationally recognised standards. Nearly all are exporting commodities rather than live animals, which has the additional advantage of creating employment in the country of origin and capturing more value in the exporting rather than the importing country. However there are also examples of successful live animal trade (such as Ethiopia and Sudan), although these are inevitably more vulnerable to real or imagined threats and measures imposed as a result of animal disease. While some export from recognised disease-free zones (such as Namibia and South Africa from their FMD-free zones), other do not (e.g. Kenya and Thailand). All have been driven by, or had a strong engagement with, the private sector, have been backed by financial investment, and have benefited from good management and entrepreneurial flare. All can be considered "vertically integrated", to a greater or lesser degree. The successful exporters have identified viable opportunities in export markets, some niche, some mainstream, and have developed and provided products that meet the market's requirements in terms of quality, price and product specification. Even in the absence of strong support from the public sector, such as the national veterinary authority, the successful exporters have been able to negotiate equitable export protocols with their trading partners. And many have developed strong brands, which have become synonymous with quality, dependability and trust.

Do these enterprises contribute to poverty reduction? The direct answer must be yes, but the follow-up questions must be: how much do they contribute, in what way, and could they do better? These are important questions for future research.

Recommendation 1 There is a need to identify "pockets of excellence" such as these, determine the key policy, institutional and technical factors responsible for their success, and draw up guidelines to help identify further opportunities in other developing country settings with recognised competitive advantages in given livestock commodities.

Recommendation 2 While these entrepreneurial “pockets of excellence” appear successful, what are their contributions to poverty reduction, and how could these be enhanced? The study recommends a broader assessment of the poverty reduction impacts of different value-chain models for specific products in different developing country settings.

The urgent need for inclusiveness: how can developing country scientists, experts, administrators and representatives of livestock commodity trading bodies play a more active and effective role in setting and adjudicating trade rules and standards?

Developing countries are queuing up to join the WTO if they have not already done so, with all the implications this has of abiding by their rules. But it is important to recognise that in the vast majority of cases the incentive is not related to trading in livestock products, but rather in goods such as textiles. In comparison to most other goods and commodities, trading in livestock and livestock products is very complicated. The jury is still out on whether international harmonisation of standards and rules on trading livestock products are in the best interests of many developing countries, but as WTO members they are obliged to move in that direction.

This means that there is a pressing need for the standard setting bodies of OIE and Codex to be extremely pro-active in understanding and responding to the needs of developing countries, in which livestock play an especially critical role in livelihoods, economic growth and poverty reduction policies. For the WTO, the need to consider the special requirements of developing countries is a key part of the SPS Agreement, but for OIE and Codex, acting on behalf of the WTO, this obligation is not explicitly part of their mandate.

Recommendation 3 It is recommended that the OIE becomes much more responsive to the needs of developing countries trading in livestock commodities, while continuing to safeguard global animal and human health. This includes the need for effective developing country representation in scientific working groups and standard setting committees, including consideration of affirmative action policies to meet this goal. This also includes the need to have greater involvement of representatives from livestock commodity trading bodies – given the demonstration in this study of the key role played by the private sector in developing country trading; a much more effective dialogue between the standard setters and the traders is urgently required.

One of the key findings of this study is the disparity between the push for global harmonisation of animal health standards for trade, and the lack of capacity of developing countries, particularly LDCs, to meet these standards. Given the lack of human capacity and financial resources in so many developing countries, building capacity of regional bodies to create regional centres of excellence with regard to SPS matters is considered a more practical way forward. The regional bodies can also help in rectifying the sometimes blatant abuse of the SPS agreement by neighbouring countries or those within the same region when, despite a disease being present in both countries, products or animals are refused entry on the basis of the disease presence in the exporting country.

Recommendation 4 It is recommended that OIE pursues vigorously its programme of developing regional capacity in relation to livestock product trade, in particular in regard to the threats and opportunities presented in the SPS Agreement, and the specific relevance to commodities traded within a given region. It is also recommended that capacity with regard to SPS matters is strengthened within regional economic communities (RECs), such as SADC, COMESA, ECOWAS and ASEAN, so that they can provide services to their members in support of external and regional trade in livestock commodities.

How can the poor, including poor livestock producers, best participate in livestock commodity value chains?

While urban poverty is growing in many developing countries, it is the rural areas in which poverty is often most severe. And it is in the rural areas where livestock play such an important role in the livelihoods of poor people. Livestock industries in developing countries, including those with export capacity, can play an important role in national economic growth, but what is the role of the poor within those industries? Should it be as small-scale livestock producers contributing directly to commodity value chains or are the poor better served through the creation of employment?

Some see the concept of compartmentalisation²⁰ as an opportunity for developing countries to export despite the occurrence of infectious diseases. Indeed, this is very much part of the Kenyan Farmer's Choice example, whereby a proportion of the pigs entering the licensed export processing facility come from company-owned, self-contained pig units akin to the intensive systems of the West and with an equally strict emphasis on the biosecurity. But, critical to the success of Farmer's Choice, this is not the only source of pigs destined to become export quality pork products; smallholder outgrowers also play a vital role in helping to meet the company's overall demand for pigs. Moreover, this approach supports Kenya's development and poverty reduction policies. So, is compartmentalisation pro-poor?

One element of the 'pockets of excellence' was vertical integration. Farmer's Choice does this with both its own "compartments" and with contract growers. Some fear that insistence that products emanating from environments that are not free from certain animal infectious diseases must come from compartments, rather than ensuring that the products are safe regardless of the source, is likely to tip the balance away from contract farming, and its probable positive and direct effects on rural livelihoods. Indeed, it is understood that in negotiations with an OECD nation on the possible export of processed frankfurters by Farmer's Choice, the OECD country has insisted that they are derived solely from the company's own farms, not from outgrowers.

Recommendation 5 The study recommends that there is an urgent need for a greater understanding of the effect of compartmentalisation on vertically-integrated livestock commodity industries in developing countries, in particular the potential exclusion of small-scale producers and contract farmers.

How can developing countries become better equipped to deal with the challenges and complexities of the global trade in livestock products?

SPS issues can be highly complex and dynamic, and failure by developing countries to understand fully the SPS Agreement and its implications can put these countries at a real disadvantage compared to more SPS aware competitors and customers. Capacity building is required at a wide range of levels, including within the private sector at the level of the producer and processor, and in the public sector covering policy makers, service providers and competent authorities.

The Competent Authority²¹ plays a central role in gaining the trust and confidence of importing countries regarding the overall animal health status of a country and the

²⁰ See the earlier definition. Compartmentalisation is a specific category of zonation for disease freedom originally conceived in developed countries as a mechanism to distinguish between infectious diseases in wild populations of pigs or birds from those in domestic pigs and poultry in the same zone but kept under particular management and biosecurity procedures.

²¹ The Competent Authority holds ultimate responsibility in the certification of animals and products destined for export. This traditionally means the Department of Veterinary Services. In many developed countries this has developed into a set of specialised units that for international reporting purposes still come under the Chief Veterinary Officer (CVO). In many developing countries while the responsibility remains with the CVO, there are no specialised unit reporting to him or her. But beyond that, many of the certification tasks, particularly in the area of food quality and safety, are outwith the expertise of many veterinary services staff.

certification of products emerging from it. However, it is widely acknowledged that public sector veterinary services, especially in LDCs, are very weak in this regard.

Recommendation 6 It is recommended that various measures be taken to enhance the credibility of the Competent Authorities. These include:

- Consideration of the establishment of a national team, within the Competent Authority, dedicated to SPS issues.
- Exploration of the potential for greater involvement along the entire length of the value chains under consideration of recognised national and international audit and certification agencies, licensed and verified by the Competent Authority, particularly in the certification of livestock commodities
- Promotion and support, through technical assistance and other capacity building mechanisms, of national SPS notification/enquiry points and SPS committees.

In addition, there is need to enhance the ability of livestock producers, including small-scale producers, farmers groups and cooperatives and large-scale producers, and livestock product traders and processors, to identify and exploit profitable opportunities to engage in local, regional and international trade in livestock products.

Recommendation 7 It is recommended that capacity is increased in developing countries to enable producers, traders and processors to access more readily information that can facilitate identification of opportunities for engaging in profitable trade in livestock products.

Recommendation 8 It is recommended that there should be greater coordination amongst organisations offering training and other capacity building opportunities intended to make developing countries more effective in regard to understanding, responding to and questioning SPS issues as part of livestock product import and export protocols. Further, research should be done to see whether the capacity building and other technical assistance provided actually enhances the ability of recipient countries to engage in profitable livestock based trade.

Recommendation 9 Governments of developing countries should increase the prioritisation of agriculture and allocate a larger proportion of their national budgets to this important area, including greater support for livestock services and promotion of and support to export of livestock products.

Is the commodity-based trade approach safe and pro-poor?

All of the 'pockets of excellence' identified earlier were trading in livestock commodities, and many of these were not derived from recognised disease-free zones. This demonstrates clearly that following the current 'rules of the game' commodity trade is with us today. Enabling developing countries to engage in external trade in livestock products, even when they do not have disease free zones recognised under current TAHC standards, is highly likely to have significant pro-poor implications. The challenge is to gain a much better understanding of the risks posed by different commodities originating from developing country settings. This needs to be coupled with a scientific understanding of the effect on these of the 'background' animal disease environment from which they are drawn, supplemented by an understanding of how these risks can be evaluated effectively, and how they can be mitigated to the satisfaction of importing countries in an economically viable manner.

Recommendation 10 The study recommends that the OIE formally recognizes the value of the commodity trade approach to livestock products and, with the effective participation of representatives from developing countries, develop guidelines for the safe exploitation of this approach based on sound scientific principles.

Recommendation 11 The study recommends that research be undertaken to evaluate the safety of a series of priority commodities from developing countries. On the basis of the findings, OIE should establish specific international standards for these commodities.

Recommendation 12 The study recommends that research be undertaken on appropriate disease surveillance procedures and methodologies for areas from which livestock products are derived, for example through the use of data from multiple formal and informal sources that, in combination with product risk assessments and risk mitigation procedures, will enhance the scientific basis for livestock commodity trade. In this context, there is a need to promote the understanding, value and use of equivalence, and the concept of labour-intensive, rather than capital-intensive, procedures to meet international standards.

Recommendation 13 The study recommends that research is undertaken on appropriate methodologies for cost-effective animal identification and product traceability. What are the generic minimal acceptable requirements for the major infectious diseases and residues in different species and products, and what are the additional requirements and complications in the case of different commodity trade value chains? Again, there is a need to promote the understanding, value and use of equivalence, and the concept of labour-intensive, rather than capital-intensive, procedures to meet international standards.

A key to the success of a commodity-based approach is effective animal health and food safety service provision to the value chain. In many of the pockets of excellence, this is provided by private veterinary services, in some cases sponsored largely by a vertically-integrated organisation. But how can such private services be better integrated with public services and gain greater acceptance by the Competent Authority?

Recommendation 14 The study recommends a technical and economic evaluation of different public, private and tertiary animal health service provision scenarios to selected export-orientated value chains in LDCs and other developing countries to determine the optimal standards and configurations acceptable to all parties.

Is animal welfare a threat or an opportunity to developing countries' participation in global livestock products markets?

Generally speaking, developed countries put far greater emphasis on animal welfare issues than do developing countries. However, many consumers in developed countries are extremely concerned, some even passionate, about animal welfare. As a result, supermarkets in developed countries are likely to be extremely cautious in stocking livestock products that may be linked to "cruel" practices, such as inhumane transport or slaughter procedures. Many supermarket chains, including those in South Africa, have identified animal welfare as an opportunity and sell premium priced, "welfare-enhanced" livestock products, such as meats and eggs produced in less intensive, sometimes organic, production systems, under a specific brand label.

Two of the main reasons behind the highly intensive livestock production systems in developed countries introducing measures such as farrowing crates, veal crates, tethering of dry sows and battery chickens were the high prices of labour and land. In many developing countries labour is both plentiful and relatively cheap, and livestock is often reared under extensive systems, providing far greater freedom than is possible on most Western farms. In addition, especially under pastoralist production systems, the contact between livestock and people is close, providing high standards of animal husbandry. However, although such extensive systems can provide considerable space to move and freedom to express natural behaviour patterns, they can also present threats to animal welfare including risk of starvation and extreme thirst during droughts and exposure to predators and pests. Animal welfare issues therefore

represent both threats and opportunities to livestock producers in developing countries.

Recommendation 15 The animal welfare implications of extensive livestock production systems in developing countries should be determined and the potential for the development of premium priced, animal welfare-enhanced brands be investigated.

ANNEX 1: STRUCTURE AND ACTIVITY SEQUENCE OF THE SPS SCOPING STUDY

1. Review of the literature of the impact of SPS on market access in general, and specific examples in livestock and livestock products (ongoing).
2. Commissioning of a scoping study on OECD import regimes for meat products (Chris Stevens and Jane Keenan, Institute for Development Studies, University of Sussex, UK; completed).
3. Identification of potential case study candidate regions and countries, and their synergy with PPLPI regional hubs.
4. Workshop of SPS issues affecting market access for livestock products in South East Asia, Bangkok, August 2004 (completed).
5. Development of a conceptual framework methodology for country-level case studies (September, 2004).
6. Commissioning of case studies in South East Asia (Thailand, Vietnam and Philippines) in partnership with the FAO Regional Office in Bangkok, the OIE Regional Project for FMD Control in SE Asia, and national collaborators (September, 2004).
7. Commissioning of case studies in the Horn of Africa (Ethiopia, Sudan) in partnership with the African Union/Inter-African Bureau of Animal Resources (AU/IBAR).
8. Commissioning of case studies in Costa Rica, Guatemala, Honduras and Nicaragua (in partnership with the Common Fund for Commodities-funded project on "Enhancing Beef Productivity, Quality, Safety and Trade in Central America" and Servicios Internacionales para el Desarrollo Empresarial (SIDE); October, 2004).
9. Undertaking limited case studies in South Africa and Namibia (March and November, 2004).
10. Review of animal welfare issues affecting trade in livestock products, DEFRA, UK (August, 2004).
11. Review of SPS agreement, and livestock product-specific issues with WTO, Geneva (January, 2005).
12. Review of SPS issues and livestock product trade with the EU (DG SANCO and DG Development; January 2005).
13. Commissioning of working paper on "Certification for regional and international trade in livestock commodities" (January, 2005).

ANNEX 2: A NOTE ON COUNTRY CLASSIFICATION BASED ON LIVESTOCK TRADE DYNAMICS

A tentative country classification is proposed here to group countries with similar interests and needs in terms of animal health, compliance with SPS measures (international or domestic) and food safety in their trading enterprises. It is assumed that it is important to distinguish between specialized exporters and importers of livestock products. In the case of the exporters, compliance with SPS measures in importing countries would be a major task and a priority in terms of development of the livestock sector. On the other hand, importers would be more concerned about their own domestic regulations, and how these regulations affect development of the livestock sector, animal and human health.

Within the importer and exporter groups, a functional distinction can be made between low and high income countries.²²

- Poor exporters would likely develop a dual production sector with segmented domestic markets, differentiated products, and small domestic demand for export quality products and food safety. Market integrations, price transmission, and domestic market access of smallholder producers will be central issues.
- In the case of high income exporters, better infrastructure would allow better market integration and price transmission. Commercial producers would have a dominant position in domestic and export markets; growing demand for quality food with domestic market being an alternative destination for high quality products. Poverty issues might be related to urban consumers and market access of poor producers
- In general, specialised importers would not be concerned with international SPS regulations, but rather with assuring supply of livestock products of a certain quality and complying with the minimum standards defined by that country. In the case of poor countries, imports would likely play a role in urban markets and domestic production supplying these markets. Depending on market integration and price transmission, imports do not necessarily affect domestic markets in rural areas, with lower demands for food safety and quality.

These are just a few selected examples of the different issues that developing countries face given their links to international markets and their level of economic development. A more detailed description and elaboration of the specific problems facing countries in different groups is needed. The tentative country classification is presented in the tables that follow. The trade specialization index is defined as:

$$ESPXM = (\text{exports} - \text{imports}) / (\text{exports} + \text{imports})$$

Values of +1 mean complete export specialization; values of -1 reveal complete import specialization. This index is calculated for the whole livestock sector (total exports and imports of all livestock products) and appears in the tables under the column "livestock". GDP per capita (in US\$) is used as the measure of income. The tables also show the specialization index for each individual livestock commodity used to calculate the general index for the livestock sector.

Countries with a specialization index > 0.5 were classified as specialized exporters. Countries with an index < -0.5 were classified as importers. And countries with an index taking values between -0.5 and 0.5 were classified in a separate group (group 5 with only 12 countries). Countries within this last group need to be re-evaluated in

²² What we call high income here are actually middle income developing countries.

terms of their strengths or otherwise, and could then be incorporated as appropriate into the other four groups.

Countries with GDP/capita > US\$3,000.00 were considered high income countries, and those below these figures are the poor countries.

Group 1. Exporters high income							
	GDP/capita	Livestock	Bovine meat	Pig meat	Poultry meat	Ovine meat	Live animals
Argentina	12033	0.55	0.92	-0.98	-0.44	0.13	-0.62
CostaRica	8660	0.58	0.68	0.25	0.44	-0.75	-0.31
Uruguay	8658	0.94	1.00	-0.99	-0.36	1.00	0.99
Brazil	7348	0.89	0.81	0.97	1.00	-0.99	-0.93
Botswana	7016	0.83	0.96	-0.99	-1.00	-0.99	-0.96
Thailand	6381	0.94	0.29	0.97	1.00	-0.96	-0.89
Turkey	6065	0.92	0.90	0.79	0.95	0.99	0.91
Namibia	5920	0.63	0.87	-0.24	-0.91	0.54	0.95
Paraguay	4727	0.91	0.97	-0.87	-0.76	-1.00	0.81
Syria	3397	0.82	-0.61	-1.00	0.23	-1.00	0.82
Group1	7020	0.80	0.68	-0.21	0.01	-0.30	0.08

Group 2. Exporters low income							
	GDP/capita	Livestock	Bovine meat	Pig meat	Poultry meat	Ovine meat	Live animals
Zimbabwe	2566	0.93	0.98	0.92	0.89	-0.21	0.83
India	2437	1.00	1.00	0.55	0.89	1.00	-0.80
Nicaragua	2392	0.79	0.98	-0.37	-0.50	-1.00	0.63
VietNam	2036	0.95	-0.71	1.00	-0.49	-1.00	-1.00
Guinea	1986	0.57	-1.00	-1.00	-0.99	-1.00	0.74
Pakistan	1882	0.85	0.94	-1.00	-0.91	1.00	0.95
Sudan	1797	0.94	0.91	-1.00	-0.79	0.98	0.93
Mauritania	1775	0.85	-0.91	-1.00	-1.00	-1.00	1.00
Cambodia	1766	0.53	-1.00	-1.00	-1.00		0.64
Mongolia	1619	0.97	0.99	-0.92	-1.00	1.00	1.00
Burkina	1033	0.97	-0.17	-0.59	-0.64	0.84	0.99
Kenya	1012	0.56	0.34	0.90	-0.04	-0.72	-0.32
Chad	929	0.98	0.78	-1.00	-1.00	-1.00	1.00
Mali	844	0.97	-1.00	-1.00	-1.00		0.98
Niger	784	0.98	-0.40	-0.97	-1.00	0.80	1.00
Ethiopia	685	0.93	-0.19	-1.00	-0.36	1.00	1.00
Group2	1596	0.86	0.10	-0.47	-0.56	0.05	0.60

Group 3. Importers high income							
	GDP/capita	Livestock	Bovine meat	Pig meat	Poultry meat	Ovine meat	Live animals
Qatar	25677	-0.89	-0.99	-0.99	-1.00	-0.63	-0.83
Singapore	22152	-0.94	-0.92	-0.94	-0.93	-0.95	-0.95
UAE	19429	-0.87	-0.64	-0.87	-0.95	-0.97	-0.71
Seychelles	17372	-1.00	-1.00	-1.00	-1.00	-1.00	
Kuwait	15853	-0.98	-0.92		-0.98	-0.99	-1.00
Bahrain	15834	-0.97	-0.96	-1.00	-0.95	-0.97	-1.00
Korea	15002	-0.68	-0.99	-0.15	-0.91	-0.35	-0.77
Oman	12701	-0.65	-0.89	-0.90	-0.92	-0.95	-0.34
SaudiArabia	12581	-0.91	-0.83	1.00	-0.87	-0.96	-0.97
Mauritius	9733	-0.88	-0.69	-1.00	-0.94	-1.00	-1.00
SouthAfrica	9561	-0.64	0.22	-0.60	-0.54	-0.94	-0.90
TriniToba	8701	-0.74	-0.73	-0.59	-0.84	-0.99	-0.66
Malaysia	8563	-0.65	-0.94	-0.50	-0.46	-1.00	-0.14
Gabon	6256	-1.00	-1.00	-1.00	-0.99	-1.00	-1.00
Tunisia	6230	-0.83	-0.98	0.01	0.66	-1.00	-1.00
Iran	5961	-0.72	-1.00	0.94	-0.74	-0.97	0.99
Venezuela	5660	-0.85	-0.88	-0.82	0.04	-0.92	-0.98
Dominica	5615	-0.99	-1.00	-0.92	-1.00	-1.00	
Belize	5615	-0.86	-0.89	-0.97	-0.82	-1.00	0.42
Algeria	5423	-1.00	-1.00	-0.98	-0.96	-1.00	-1.00
CapeVerde	4871	-1.00	-1.00	-1.00	-1.00	-0.99	-1.00
Peru	4738	-0.96	-1.00	-0.86	-0.90	-1.00	-0.97
ElSalvador	4675	-0.85	-1.00	-0.68	0.24	-0.95	-1.00
Swaziland	4406	-0.64	-0.27	0.28	-0.80	-0.93	-1.00
Lebanon	4397	-0.99	-0.98	-0.99	-0.85	-0.95	-1.00
Guyana	4108	-0.98	-0.68	-0.99	-1.00	-0.96	-1.00
Jordan	3971	-0.51	-0.83	-0.04	-0.74	-0.98	-0.19
Philippines	3933	-0.99	-0.99	-0.94	-0.99	-1.00	-1.00
Guatemala	3907	-0.60	-0.34	-0.60	-0.87	-0.81	-0.34
Jamaica	3724	-0.96	-0.96	-0.86	-0.96	-1.00	-1.00
Turkmenistan	3643	-1.00	-1.00	-1.00	-1.00		
Morocco	3582	-0.93	-0.64	-0.74	-0.95	-0.68	-1.00
Egypt	3514	-0.99	-0.99	-1.00	-0.65	-0.91	-0.99
Group3	8606	-0.87	-0.84	-0.66	-0.78	-0.89	-0.75

Group 4. Importers low income							
	GDP/capita	Livestock	Bovine meat	Pig meat	Poultry meat	Ovine meat	Live animals
Honduras	2514	-0.79	0.10	-0.98	-0.99	-0.36	-0.78
PapuaNGuinea	2363	-0.94	-0.76	-0.80	-1.00	-1.00	0.12
Lesotho	2217	-0.92			-1.00		-0.88
Ghana	2010	-1.00	-0.97	-1.00	-0.99	-1.00	-1.00
Angola	1987	-1.00	-1.00	-1.00	-1.00	-1.00	-0.39
Cameroon	1882	-0.80	-0.96	-0.98	-1.00	-0.96	0.98
Haiti	1642	-1.00	-0.97	-1.00	-1.00	-1.00	
Gambia	1630	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
IvoryCoast	1586	-1.00	-0.99	-0.99	-0.99	-1.00	-1.00
Bangladesh	1554	-0.98	0.01	-1.00	-1.00	-1.00	-1.00
Senegal	1484	-0.99	-0.91	-0.68	-0.97	-0.56	-1.00
Togo	1467	-0.73	-0.42	-0.64	-0.73	0.37	-1.00
Nepal	1315	-0.58	-0.86	-0.67	-0.04	-0.97	-0.59
Uganda	1280	-0.90	-0.56	-0.96	-1.00	-0.50	-0.48
Rwanda	1099	-1.00	-1.00	-1.00	-1.00		
Benin	980	-0.91	-1.00	-1.00	-0.89	-1.00	-1.00
Mozambique	931	-1.00	-1.00	-1.00	-1.00	1.00	-1.00
Nigeria	866	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Yemen	810	-0.95	-1.00	-1.00	-1.00	-1.00	-0.82
Zambia	789	-0.70	-0.69	-0.91	0.04	-0.78	-0.82
GuineaBiss	748	-1.00	-1.00	-1.00	-1.00		
CongoDem	672	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Burundi	614	-0.88	-0.38	-1.00	-1.00		-1.00
Malawi	586	-1.00	-1.00	-1.00	-1.00	-1.00	-0.99
SierraLeone	483	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Group4	1341	-0.92	-0.81	-0.94	-0.90	-0.75	-0.76

Group 5. Other countries							
	GDP/capita	Livestock	Bovine meat	Pig meat	Poultry meat	Ovine meat	Live animals
Chile	9191	-0.16	-0.99	0.91	0.98	0.98	0.53
Mexico	8648	-0.49	-0.93	-0.28	-0.95	-1.00	0.28
Colombia	6280	-0.18	0.23	-0.99	-1.00	0.91	0.87
Panama	6141	0.10	0.72	-0.98	-0.65	-1.00	0.88
China	3902	0.32	-0.47	0.57	0.35	-0.83	0.91
Ecuador	3391	-0.11	-0.97	-0.72	0.51	-1.00	-0.93
SriLanka	3362	-0.50	0.15	0.35	-0.72	-0.99	-0.96
Indonesia	3020	-0.48	-0.99	-0.01	-0.05	-0.67	-0.38
Bolivia	2380	-0.07	-0.15	-0.99	0.14	-1.00	0.09
Eritrea	914	-0.31	-1.00				-0.20
Madagascar	800	-0.08	0.11	-1.00	-0.33	0.50	0.99
Tanzania	526	-0.31	-0.47	-0.80	0.19	-0.02	-0.61
Group5	4046	-0.19	-0.40	-0.36	-0.14	-0.37	0.12

ANNEX 3: THE WTO AGREEMENT ON THE APPLICATION OF SANITARY AND PHYTOSANITARY MEASURES (SPS AGREEMENT)

Members,

Reaffirming that no Member should be prevented from adopting or enforcing measures necessary to protect human, animal or plant life or health, subject to the requirement that these measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between Members where the same conditions prevail or a disguised restriction on international trade;

Desiring to improve the human health, animal health and phytosanitary situation in all Members;

Noting that sanitary and phytosanitary measures are often applied on the basis of bilateral agreements or protocols;

Desiring the establishment of a multilateral framework of rules and disciplines to guide the development, adoption and enforcement of sanitary and phytosanitary measures in order to minimize their negative effects on trade;

Recognizing the important contribution that international standards, guidelines and recommendations can make in this regard;

Desiring to further the use of harmonized sanitary and phytosanitary measures between Members, on the basis of international standards, guidelines and recommendations developed by the relevant international organizations, including the Codex Alimentarius Commission, the International Office of Epizootics, and the relevant international and regional organizations operating within the framework of the International Plant Protection Convention, without requiring Members to change their appropriate level of protection of human, animal or plant life or health;

Recognizing that developing country Members may encounter special difficulties in complying with the sanitary or phytosanitary measures of importing Members, and as a consequence in access to markets, and also in the formulation and application of sanitary or phytosanitary measures in their own territories, and desiring to assist them in their endeavours in this regard;

Desiring therefore to elaborate rules for the application of the provisions of GATT 1994 which relate to the use of sanitary or phytosanitary measures, in particular the provisions of Article XX(b)

Hereby agree as follows:

Article 1: General Provisions

1. This Agreement applies to all sanitary and phytosanitary measures which may, directly or indirectly, affect international trade. Such measures shall be developed and applied in accordance with the provisions of this Agreement.
2. For the purposes of this Agreement, the definitions provided in Annex A shall apply.
3. The annexes are an integral part of this Agreement.
4. Nothing in this Agreement shall affect the rights of Members under the Agreement on Technical Barriers to Trade with respect to measures not within the scope of this Agreement.

Article 2: Basic Rights and Obligations

1. Members have the right to take sanitary and phytosanitary measures necessary for the protection of human, animal or plant life or health, provided that such measures are not inconsistent with the provisions of this Agreement.
2. Members shall ensure that any sanitary or phytosanitary measure is applied only to the extent necessary to protect human, animal or plant life or health, is based on scientific principles and is not maintained without sufficient scientific evidence, except as provided for in paragraph 7 of Article 5.
3. Members shall ensure that their sanitary and phytosanitary measures do not arbitrarily or unjustifiably discriminate between Members where identical or similar conditions prevail, including between their own territory and that of other Members. Sanitary and phytosanitary measures shall not be applied in a manner which would constitute a disguised restriction on international trade.
4. Sanitary or phytosanitary measures which conform to the relevant provisions of this Agreement shall be presumed to be in accordance with the obligations of the Members under the provisions of GATT 1994 which relate to the use of sanitary or phytosanitary measures, in particular the provisions of Article XX(b).

Article 3: Harmonization

1. To harmonize sanitary and phytosanitary measures on as wide a basis as possible, Members shall base their sanitary or phytosanitary measures on international standards, guidelines or recommendations, where they exist, except as otherwise provided for in this Agreement, and in particular in paragraph 3.
2. Sanitary or phytosanitary measures which conform to international standards, guidelines or recommendations shall be deemed to be necessary to protect human, animal or plant life or health, and presumed to be consistent with the relevant provisions of this Agreement and of GATT 1994.
3. Members may introduce or maintain sanitary or phytosanitary measures which result in a higher level of sanitary or phytosanitary protection than would be achieved by measures based on the relevant international standards, guidelines or recommendations, if there is a scientific justification, or as a consequence of the level of sanitary or phytosanitary protection a Member determines to be appropriate in accordance with the relevant provisions of paragraphs 1 through 8 of Article 5.(2) Notwithstanding the above, all measures which result in a level of sanitary or phytosanitary protection different from that which would be achieved by measures based on international standards, guidelines or recommendations shall not be inconsistent with any other provision of this Agreement.
4. Members shall play a full part, within the limits of their resources, in the relevant international organizations and their subsidiary bodies, in particular the Codex Alimentarius Commission, the International Office of Epizootics, and the international and regional organizations operating within the framework of the International Plant Protection Convention, to promote within these organizations the development and periodic review of standards, guidelines and recommendations with respect to all aspects of sanitary and phytosanitary measures.
5. The Committee on Sanitary and Phytosanitary Measures provided for in paragraphs 1 and 4 of Article 12 (referred to in this Agreement as the "Committee") shall develop a procedure to monitor the process of international harmonization and coordinate efforts in this regard with the relevant international organizations.

Article 4: Equivalence

1. Members shall accept the sanitary or phytosanitary measures of other Members as equivalent, even if these measures differ from their own or from those used by other Members trading in the same product, if the exporting Member objectively demonstrates to the importing Member that its measures achieve the importing Member's appropriate level of sanitary or phytosanitary protection. For this purpose, reasonable access shall be given, upon request, to the importing Member for inspection, testing and other relevant procedures.
2. Members shall, upon request, enter into consultations with the aim of achieving bilateral and multilateral agreements on recognition of the equivalence of specified sanitary or phytosanitary measures.

Article 5: Assessment of Risk and Determination of the Appropriate Level of Sanitary or Phytosanitary Protection

1. Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations.
2. In the assessment of risks, Members shall take into account available scientific evidence; relevant processes and production methods; relevant inspection, sampling and testing methods; prevalence of specific diseases or pests; existence of pest — or disease — free areas; relevant ecological and environmental conditions; and quarantine or other treatment.
3. In assessing the risk to animal or plant life or health and determining the measure to be applied for achieving the appropriate level of sanitary or phytosanitary protection from such risk, Members shall take into account as relevant economic factors: the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease; the costs of control or eradication in the territory of the importing Member; and the relative cost-effectiveness of alternative approaches to limiting risks.
4. Members should, when determining the appropriate level of sanitary or phytosanitary protection, take into account the objective of minimizing negative trade effects.
5. With the objective of achieving consistency in the application of the concept of appropriate level of sanitary or phytosanitary protection against risks to human life or health, or to animal and plant life or health, each Member shall avoid arbitrary or unjustifiable distinctions in the levels it considers to be appropriate in different situations, if such distinctions result in discrimination or a disguised restriction on international trade. Members shall cooperate in the Committee, in accordance with paragraphs 1, 2 and 3 of Article 12, to develop guidelines to further the practical implementation of this provision. In developing the guidelines, the Committee shall take into account all relevant factors, including the exceptional character of human health risks to which people voluntarily expose themselves.
6. Without prejudice to paragraph 2 of Article 3, when establishing or maintaining sanitary or phytosanitary measures to achieve the appropriate level of sanitary or phytosanitary protection, Members shall ensure that such measures are not more trade-restrictive than required to achieve their appropriate level of sanitary or phytosanitary protection, taking into account technical and economic feasibility.⁽³⁾
7. In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information, including that from the relevant international organizations as well as from sanitary or phytosanitary measures applied by other

Members. In such circumstances, Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time.

8. When a Member has reason to believe that a specific sanitary or phytosanitary measure introduced or maintained by another Member is constraining, or has the potential to constrain, its exports and the measure is not based on the relevant international standards, guidelines or recommendations, or such standards, guidelines or recommendations do not exist, an explanation of the reasons for such sanitary or phytosanitary measure may be requested and shall be provided by the Member maintaining the measure.

Article 6: Adaptation to Regional Conditions, Including Pest – or Disease – Free Areas and Areas of Low Pest or Disease Prevalence

1. Members shall ensure that their sanitary or phytosanitary measures are adapted to the sanitary or phytosanitary characteristics of the area – whether all of a country, part of a country, or all or parts of several countries – from which the product originated and to which the product is destined. In assessing the sanitary or phytosanitary characteristics of a region, Members shall take into account, *inter alia*, the level of prevalence of specific diseases or pests, the existence of eradication or control programmes, and appropriate criteria or guidelines which may be developed by the relevant international organizations.
2. Members shall, in particular, recognize the concepts of pest – or disease-free areas and areas of low pest or disease prevalence. Determination of such areas shall be based on factors such as geography, ecosystems, epidemiological surveillance, and the effectiveness of sanitary or phytosanitary controls.
3. Exporting Members claiming that areas within their territories are pest – or disease-free areas or areas of low pest or disease prevalence shall provide the necessary evidence thereof in order to objectively demonstrate to the importing Member that such areas are, and are likely to remain, pest– or disease–free areas or areas of low pest or disease prevalence, respectively. For this purpose, reasonable access shall be given, upon request, to the importing Member for inspection, testing and other relevant procedures.

Article 7: Transparency

Members shall notify changes in their sanitary or phytosanitary measures and shall provide information on their sanitary or phytosanitary measures in accordance with the provisions of Annex B.

Article 8: Control, Inspection and Approval Procedures

Members shall observe the provisions of Annex C in the operation of control, inspection and approval procedures, including national systems for approving the use of additives or for establishing tolerances for contaminants in foods, beverages or feedstuffs, and otherwise ensure that their procedures are not inconsistent with the provisions of this Agreement.

Article 9: Technical Assistance

1. Members agree to facilitate the provision of technical assistance to other Members, especially developing country Members, either bilaterally or through the appropriate international organizations. Such assistance may be, *inter alia*, in the areas of processing technologies, research and infrastructure, including in the establishment of national regulatory bodies, and may take the form of advice,

credits, donations and grants, including for the purpose of seeking technical expertise, training and equipment to allow such countries to adjust to, and comply with, sanitary or phytosanitary measures necessary to achieve the appropriate level of sanitary or phytosanitary protection in their export markets.

2. Where substantial investments are required in order for an exporting developing country Member to fulfil the sanitary or phytosanitary requirements of an importing Member, the latter shall consider providing such technical assistance as will permit the developing country Member to maintain and expand its market access opportunities for the product involved.

Article 10: Special and Differential Treatment

1. In the preparation and application of sanitary or phytosanitary measures, Members shall take account of the special needs of developing country Members, and in particular of the least-developed country Members.
2. Where the appropriate level of sanitary or phytosanitary protection allows scope for the phased introduction of new sanitary or phytosanitary measures, longer time-frames for compliance should be accorded on products of interest to developing country Members so as to maintain opportunities for their exports.
3. With a view to ensuring that developing country Members are able to comply with the provisions of this Agreement, the Committee is enabled to grant to such countries, upon request, specified, time-limited exceptions in whole or in part from obligations under this Agreement, taking into account their financial, trade and development needs.
4. Members should encourage and facilitate the active participation of developing country Members in the relevant international organizations.

Article 11: Consultations and Dispute Settlement

1. The provisions of Articles XXII and XXIII of GATT 1994 as elaborated and applied by the Dispute Settlement Understanding shall apply to consultations and the settlement of disputes under this Agreement, except as otherwise specifically provided herein.
2. In a dispute under this Agreement involving scientific or technical issues, a panel should seek advice from experts chosen by the panel in consultation with the parties to the dispute. To this end, the panel may, when it deems it appropriate, establish an advisory technical experts group, or consult the relevant international organizations, at the request of either party to the dispute or on its own initiative.
3. Nothing in this Agreement shall impair the rights of Members under other international agreements, including the right to resort to the good offices or dispute settlement mechanisms of other international organizations or established under any international agreement.

Article 12: Administration

1. A Committee on Sanitary and Phytosanitary Measures is hereby established to provide a regular forum for consultations. It shall carry out the functions necessary to implement the provisions of this Agreement and the furtherance of its objectives, in particular with respect to harmonization. The Committee shall reach its decisions by consensus.
2. The Committee shall encourage and facilitate ad hoc consultations or negotiations among Members on specific sanitary or phytosanitary issues. The Committee shall encourage the use of international standards, guidelines or recommendations by all Members and, in this regard, shall sponsor technical consultation and study with the objective of increasing coordination and integration between

international and national systems and approaches for approving the use of food additives or for establishing tolerances for contaminants in foods, beverages or feedstuffs.

3. The Committee shall maintain close contact with the relevant international organizations in the field of sanitary and phytosanitary protection, especially with the Codex Alimentarius Commission, the International Office of Epizootics, and the Secretariat of the International Plant Protection Convention, with the objective of securing the best available scientific and technical advice for the administration of this Agreement and in order to ensure that unnecessary duplication of effort is avoided.
4. The Committee shall develop a procedure to monitor the process of international harmonization and the use of international standards, guidelines or recommendations. For this purpose, the Committee should, in conjunction with the relevant international organizations, establish a list of international standards, guidelines or recommendations relating to sanitary or phytosanitary measures which the Committee determines to have a major trade impact. The list should include an indication by Members of those international standards, guidelines or recommendations which they apply as conditions for import or on the basis of which imported products conforming to these standards can enjoy access to their markets. For those cases in which a Member does not apply an international standard, guideline or recommendation as a condition for import, the Member should provide an indication of the reason therefor, and, in particular, whether it considers that the standard is not stringent enough to provide the appropriate level of sanitary or phytosanitary protection. If a Member revises its position, following its indication of the use of a standard, guideline or recommendation as a condition for import, it should provide an explanation for its change and so inform the Secretariat as well as the relevant international organizations, unless such notification and explanation is given according to the procedures of Annex B.
5. In order to avoid unnecessary duplication, the Committee may decide, as appropriate, to use the information generated by the procedures, particularly for notification, which are in operation in the relevant international organizations.
6. The Committee may, on the basis of an initiative from one of the Members, through appropriate channels invite the relevant international organizations or their subsidiary bodies to examine specific matters with respect to a particular standard, guideline or recommendation, including the basis of explanations for non-use given according to paragraph 4.
7. The Committee shall review the operation and implementation of this Agreement three years after the date of entry into force of the WTO Agreement, and thereafter as the need arises. Where appropriate, the Committee may submit to the Council for Trade in Goods proposals to amend the text of this Agreement having regard, inter alia, to the experience gained in its implementation.

Article 13: Implementation

Members are fully responsible under this Agreement for the observance of all obligations set forth herein. Members shall formulate and implement positive measures and mechanisms in support of the observance of the provisions of this Agreement by other than central government bodies. Members shall take such reasonable measures as may be available to them to ensure that non-governmental entities within their territories, as well as regional bodies in which relevant entities within their territories are members, comply with the relevant provisions of this Agreement. In addition, Members shall not take measures which have the effect of, directly or indirectly, requiring or encouraging such regional or non-governmental entities, or local governmental bodies, to act in a manner inconsistent with the

provisions of this Agreement. Members shall ensure that they rely on the services of non-governmental entities for implementing sanitary or phytosanitary measures only if these entities comply with the provisions of this Agreement.

Article 14: Final Provisions

The least-developed country Members may delay application of the provisions of this Agreement for a period of five years following the date of entry into force of the WTO Agreement with respect to their sanitary or phytosanitary measures affecting importation or imported products. Other developing country Members may delay application of the provisions of this Agreement, other than paragraph 8 of Article 5 and Article 7, for two years following the date of entry into force of the WTO Agreement with respect to their existing sanitary or phytosanitary measures affecting importation or imported products, where such application is prevented by a lack of technical expertise, technical infrastructure or resources.

Annex A: Definitions

1. Sanitary or phytosanitary measure — Any measure applied:

- a) to protect animal or plant life or health within the territory of the Member from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms;
- b) to protect human or animal life or health within the territory of the Member from risks arising from additives, contaminants, toxins or disease-causing organisms in foods, beverages or feedstuffs;
- c) to protect human life or health within the territory of the Member from risks arising from diseases carried by animals, plants or products thereof, or from the entry, establishment or spread of pests; or
- d) to prevent or limit other damage within the territory of the Member from the entry, establishment or spread of pests.

Sanitary or phytosanitary measures include all relevant laws, decrees, regulations, requirements and procedures including, *inter alia*, end product criteria; processes and production methods; testing, inspection, certification and approval procedures; quarantine treatments including relevant requirements associated with the transport of animals or plants, or with the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labelling requirements directly related to food safety.

2. Harmonization — The establishment, recognition and application of common sanitary and phytosanitary measures by different Members.

3. International standards, guidelines and recommendations

- a) for food safety, the standards, guidelines and recommendations established by the Codex Alimentarius Commission relating to food additives, veterinary drug and pesticide residues, contaminants, methods of analysis and sampling, and codes and guidelines of hygienic practice;
- b) for animal health and zoonoses, the standards, guidelines and recommendations developed under the auspices of the International Office of Epizootics;
- c) for plant health, the international standards, guidelines and recommendations developed under the auspices of the Secretariat of the International Plant

Protection Convention in cooperation with regional organizations operating within the framework of the International Plant Protection Convention; and

- d) for matters not covered by the above organizations, appropriate standards, guidelines and recommendations promulgated by other relevant international organizations open for membership to all Members, as identified by the Committee.
4. Risk assessment – The evaluation of the likelihood of entry, establishment or spread of a pest or disease within the territory of an importing Member according to the sanitary or phytosanitary measures which might be applied, and of the associated potential biological and economic consequences; or the evaluation of the potential for adverse effects on human or animal health arising from the presence of additives, contaminants, toxins or disease-causing organisms in food, beverages or feedstuffs.
 5. Appropriate level of sanitary or phytosanitary protection – The level of protection deemed appropriate by the Member establishing a sanitary or phytosanitary measure to protect human, animal or plant life or health within its territory.

NOTE: Many Members otherwise refer to this concept as the “acceptable level of risk”.

6. Pest– or disease-free area – An area, whether all of a country, part of a country, or all or parts of several countries, as identified by the competent authorities, in which a specific pest or disease does not occur.

NOTE: A pest– or disease-free area may surround, be surrounded by, or be adjacent to an area – whether within part of a country or in a geographic region which includes parts of or all of several countries -in which a specific pest or disease is known to occur but is subject to regional control measures such as the establishment of protection, surveillance and buffer zones which will confine or eradicate the pest or disease in question.

7. Area of low pest or disease prevalence – An area, whether all of a country, part of a country, or all or parts of several countries, as identified by the competent authorities, in which a specific pest or disease occurs at low levels and which is subject to effective surveillance, control or eradication measures.

Annex B: Transparency of Sanitary and Phytosanitary Regulations

Publication of regulations

1. Members shall ensure that all sanitary and phytosanitary regulations which have been adopted are published promptly in such a manner as to enable interested Members to become acquainted with them.
2. Except in urgent circumstances, Members shall allow a reasonable interval between the publication of a sanitary or phytosanitary regulation and its entry into force in order to allow time for producers in exporting Members, and particularly in developing country Members, to adapt their products and methods of production to the requirements of the importing Member.

Enquiry points

3. Each Member shall ensure that one enquiry point exists which is responsible for the provision of answers to all reasonable questions from interested Members as well as for the provision of relevant documents regarding:

- a) any sanitary or phytosanitary regulations adopted or proposed within its territory;
 - b) any control and inspection procedures, production and quarantine treatment, pesticide tolerance and food additive approval procedures, which are operated within its territory;
 - c) risk assessment procedures, factors taken into consideration, as well as the determination of the appropriate level of sanitary or phytosanitary protection;
 - d) the membership and participation of the Member, or of relevant bodies within its territory, in international and regional sanitary and phytosanitary organizations and systems, as well as in bilateral and multilateral agreements and arrangements within the scope of this Agreement, and the texts of such agreements and arrangements.
4. Members shall ensure that where copies of documents are requested by interested Members, they are supplied at the same price (if any), apart from the cost of delivery, as to the nationals of the Member concerned.

Notification procedures

5. Whenever an international standard, guideline or recommendation does not exist or the content of a proposed sanitary or phytosanitary regulation is not substantially the same as the content of an international standard, guideline or recommendation, and if the regulation may have a significant effect on trade of other Members, Members shall:
- a) publish a notice at an early stage in such a manner as to enable interested Members to become acquainted with the proposal to introduce a particular regulation;
 - b) notify other Members, through the Secretariat, of the products to be covered by the regulation together with a brief indication of the objective and rationale of the proposed regulation. Such notifications shall take place at an early stage, when amendments can still be introduced and comments taken into account;
 - c) provide upon request to other Members copies of the proposed regulation and, whenever possible, identify the parts which in substance deviate from international standards, guidelines or recommendations;
 - d) without discrimination, allow reasonable time for other Members to make comments in writing, discuss these comments upon request, and take the comments and the results of the discussions into account.
6. However, where urgent problems of health protection arise or threaten to arise for a Member, that Member may omit such of the steps enumerated in paragraph 5 of this Annex as it finds necessary, provided that the Member:
- a) immediately notifies other Members, through the Secretariat, of the particular regulation and the products covered, with a brief indication of the objective and the rationale of the regulation, including the nature of the urgent problem(s);
 - b) provides, upon request, copies of the regulation to other Members;
 - c) allows other Members to make comments in writing, discusses these comments upon request, and takes the comments and the results of the discussions into account.

7. Notifications to the Secretariat shall be in English, French or Spanish.
8. Developed country Members shall, if requested by other Members, provide copies of the documents or, in case of voluminous documents, summaries of the documents covered by a specific notification in English, French or Spanish.
9. The Secretariat shall promptly circulate copies of the notification to all Members and interested international organizations and draw the attention of developing country Members to any notifications relating to products of particular interest to them.
10. Members shall designate a single central government authority as responsible for the implementation, on the national level, of the provisions concerning notification procedures according to paragraphs 5, 6, 7 and 8 of this Annex.

General reservations

11. Nothing in this Agreement shall be construed as requiring:
 - a) the provision of particulars or copies of drafts or the publication of texts other than in the language of the Member except as stated in paragraph 8 of this Annex; or
 - b) Members to disclose confidential information which would impede enforcement of sanitary or phytosanitary legislation or which would prejudice the legitimate commercial interests of particular enterprises.

Annex C: Control, Inspection and Approval Procedures

1. Members shall ensure, with respect to any procedure to check and ensure the fulfilment of sanitary or phytosanitary measures, that:
 - a) such procedures are undertaken and completed without undue delay and in no less favourable manner for imported products than for like domestic products;
 - b) the standard processing period of each procedure is published or that the anticipated processing period is communicated to the applicant upon request; when receiving an application, the competent body promptly examines the completeness of the documentation and informs the applicant in a precise and complete manner of all deficiencies; the competent body transmits as soon as possible the results of the procedure in a precise and complete manner to the applicant so that corrective action may be taken if necessary; even when the application has deficiencies, the competent body proceeds as far as practicable with the procedure if the applicant so requests; and that upon request, the applicant is informed of the stage of the procedure, with any delay being explained;
 - c) information requirements are limited to what is necessary for appropriate control, inspection and approval procedures, including for approval of the use of additives or for the establishment of tolerances for contaminants in food, beverages or feedstuffs;
 - d) the confidentiality of information about imported products arising from or supplied in connection with control, inspection and approval is respected in a way no less favourable than for domestic products and in such a manner that legitimate commercial interests are protected;
 - e) any requirements for control, inspection and approval of individual specimens of a product are limited to what is reasonable and necessary;

- f) any fees imposed for the procedures on imported products are equitable in relation to any fees charged on like domestic products or products originating in any other Member and should be no higher than the actual cost of the service;
- g) the same criteria should be used in the siting of facilities used in the procedures and the selection of samples of imported products as for domestic products so as to minimize the inconvenience to applicants, importers, exporters or their agents;
- h) whenever specifications of a product are changed subsequent to its control and inspection in light of the applicable regulations, the procedure for the modified product is limited to what is necessary to determine whether adequate confidence exists that the product still meets the regulations concerned; and
- i) a procedure exists to review complaints concerning the operation of such procedures and to take corrective action when a complaint is justified.

Where an importing Member operates a system for the approval of the use of food additives or for the establishment of tolerances for contaminants in food, beverages or feedstuffs which prohibits or restricts access to its domestic markets for products based on the absence of an approval, the importing Member shall consider the use of a relevant international standard as the basis for access until a final determination is made.

2. Where a sanitary or phytosanitary measure specifies control at the level of production, the Member in whose territory the production takes place shall provide the necessary assistance to facilitate such control and the work of the controlling authorities.
3. Nothing in this Agreement shall prevent Members from carrying out reasonable inspection within their own territories.

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