

The World Organisation for Animal Health (OIE)

Prevention and control of animal diseases worldwide

Pre-feasibility study –  
Supporting insurance of disease losses

Final Report  
*Part III*

*Submitted by:*  
*Civic Consulting - Agra CEAS Consulting*

*Part III prepared by Civic Consulting*

*Contact for Part 3:*

Dr Frank Alleweldt

Civic Consulting Alleweldt & Kara GbR

Potsdamer Strasse 150

D-10783 Berlin-Germany

Telephone: +49-30-2196-2297

Fax: +49-30-2196-2298

E-mail: [alleweldt@civic-consulting.de](mailto:alleweldt@civic-consulting.de)

Prevention and control of animal diseases worldwide

Pre-feasibility study – Supporting insurance  
of disease losses

Final Report

*Part III*

*Submitted by:*

*Civic Consulting - Agra CEAS Consulting*

*Part III prepared by Civic Consulting*

September 2007

## **Expert Team**

### *Civic Consulting:*

Dr Frank Alleweldt

(Team Leader)

Dr Joanna Syroka

Mr William Dick

Dr Senda Kara

Ms Kristen Schubert

Ms Merle Achten

### *Regional contributions:*

Mr Jimmy John

Mr Roman Shynkarenko

Mr Jörn Krämer

### *Overall Management:*

Dr Frank Alleweldt

Civic Consulting Alleweldt & Kara GbR

Potsdamer Strasse 150

D-10783 Berlin-Germany

Telephone: +49-30-2196-2297

Fax: +49-30-2196-2298

E-mail: [alleweldt@civic-consulting.de](mailto:alleweldt@civic-consulting.de)

## **Executive summary**

### **Methodology used**

This pre-feasibility study was conducted by Civic Consulting in the period November 2006 to March 2007 and updated in September 2007. The study has been based on a global survey of insurers and insurance associations, often supplemented with interviews and in-depth case studies of regions with existing insurance products for epidemic livestock diseases. It also included a review of available literature.

### **Study focus**

The study gives an overview of the epidemic livestock disease insurance products that are available in some markets, and determines barriers that have prevented their development in others. Finally, it analyses preconditions for market-based insurance products in developing and in transition economies and presents options to support the development of market-based insurance products.

### **Conclusions**

A main pre-condition for developing epidemic livestock disease insurance is the existence of a well-planned government disease prevention and control programme. It is assumed that a market-based product would need to be fully aligned to a well-prepared government slaughter and compensation programme. A crucial element is an appropriate veterinary service. However, the effectiveness of the veterinary services, and of its ability to implement disease prevention and control, is also affected by the structure and degree of commercialisation of the livestock sector in each country. This varies significantly from one country to another.

Any scheme to support the development of epidemic livestock disease insurance would have to take into account that each country has different circumstances concerning rural insurance, capacity of insurers, as well as organization and disease status in the livestock sectors. Each country would require tailored adaptation of epidemic disease insurance solutions, although this could be eased within a framework for international standardization in product design, backed by international technical assistance, capacity building and reinsurance. Innovative solutions for product distribution, farmer enrollment and loss assessment seem essential in the absence of existing synergies and the current poor development of livestock insurance.

A high level of capacity building would be needed by the insurance sector in most developing countries, and high levels of technical assistance to undertake development of products, risk assessment, product pricing, and support for insurers. Within each country, an integrated approach to any market based insurance solution is required, where linkages could be forged to initiatives such as creation of farmer databases, livestock registration, classification of herds, and disease prevention. Insurers could play a part in such a process, but they would only be one stakeholder in a wider range of organisations and initiatives aimed at prevention and management of epidemic disease.

Given the infrastructural and technical constraints to market-based epidemic insurance identified throughout the study, the conclusions are very guarded as to the potential for a “scheme” for the development of market-based insurance products. In particular, no “universal” scheme can be foreseen which would be suitable for application in all countries. In spite of the negative outlook for a scheme for market-based epidemic insurance, there are high degrees of synergy between the needs of the insurance market, both for conventional livestock mortality insurance and for epidemic disease insurance, in the strengthening of governments’ measures to improve veterinary services, and associated measures, in particular in establishing a database for the registration and identification of the national livestock herds and their owners.

Based on these considerations, the study discusses strategies which could directly encourage private sector epidemic insurance, and strategies which could indirectly encourage private sector epidemic insurance.

## **The report in brief (extended summary)**

This pre-feasibility study was conducted by Civic Consulting and is Part III of a series of economic studies on the financing of animal epizootics and zoonoses losses in developing and transition countries, commissioned by the OIE with support from the World Bank. The study has been based on a global survey of insurers and insurance associations, often supplemented with interviews and in-depth case studies of regions with existing insurance products for epidemic livestock diseases. It also included a review of available literature. The study gives an overview of the insurance products that are available in some markets, and determines barriers that have prevented their development in others. Finally, it analyses preconditions for market-based insurance products in developing and in transition economies and presents options to support the development of market-based insurance products.

### **Livestock disease insurance in developing and in transition countries**

#### *Insurance sector*

The development of the insurance sector in emerging markets remains limited in comparison to industrialized countries. In 2005, industrialized countries accounted for 88% of global premium, and emerging countries 12%. Average per capita non-life premiums were \$3,287 in industrialized countries compared to \$77 in emerging countries, accounting for 3.82% and 1.42% of GDP respectively. However, growth rates of premium income have been stronger in emerging markets.<sup>1</sup> Most developing countries have liberalised domestic insurance markets, which were dominated by state owned insurance companies. International insurance groups have increased their involvement, by joint venture or acquisition of local, state-owned or private companies.

In developing countries, insurers have concentrated on motor, industrial and life business, mainly focused in urban areas. There are significant difficulties for insurance companies to penetrate into rural areas. Small farm size, low insurance awareness, low economic capacity, poor rural distribution networks and high rural transaction costs all conspire to make rural markets unattractive to insurers. In spite of this, there has been a strong desire by governments and insurers to find solutions allowing improved access to risk management and insurance for farmers. Microinsurance has increased, but less rapidly than microfinance. There is a long experience of crop and livestock insurance in developed countries, where markets are mature. Where agricultural insurance has been tried in developing countries, the focus has been on crop insurance. Creating viable crop insurance programmes in developing countries has proved problematic. Innovative product development, such as weather index products, has been introduced in a few countries to try and overcome limitations of traditional crop insurance products.<sup>2</sup> Crop insurance has been a higher focus than livestock insurance for most developing countries.

---

<sup>1</sup> Swiss Re (2006) in from Sigma Report No. 5 (2006): World Insurance in 2005

<sup>2</sup> World Bank (2005)

In terms of global *agricultural* insurance premium (crop and livestock), most is generated in North America (58 percent) and Western Europe (28 percent). Asia accounts for about 4 percent and Latin America has 3 percent. The rest of the world comprises the remaining 6 percent. World-wide most agricultural insurance is for crops – representing 71 percent of the global premium for agricultural insurance (hail crop insurance is 22 percent and multiple peril crop insurance is at 49 percent). Only about 12 percent of global premium is for livestock (not including sporting or companion animals).<sup>3</sup>

*Livestock insurance products* which are marketed in developing countries are individual animal accidental mortality policies, sometimes including limited disease, targeted at high value breeding stock. Penetration is very low, reflecting the fact that this type of product is not attractive or economic to small farmers, and because of major underwriting and loss adjustment challenges for insurers. Where such individual-animal policies are sold, for example in India and some South East Asian countries, they have often been linked to credit for livestock, or linked to government programmes for the introduction of improved breeding stock. Individual-animal mortality policies are not feasible for lower value production livestock. Insurers have considered the introduction of herd-based deductibles, where a given number or value of animals must be lost before a claim can be made. Such policies would only be feasible for large herds, and sales of such policies are very limited even in developed countries.

Industrial pig and poultry sectors can be more attractive to insurers, due to controlled indoor production conditions. Cover for livestock within these units has been offered through an extension of a property insurance policy, to cover consequential loss mortality arising from specific property insurance perils, such as fire, smoke or machinery breakdown. Property and business interruption policies do not normally cover disease.

From the above review, it can be seen that from a global perspective, the current involvement of the insurance sector in agricultural areas, and particularly with livestock producers, is very limited. Epidemic cover is even more limited, and restricted to a few developed countries.

This review also shows that there is limited potential product overlap with an epidemic product, which could be linked to government measures for disease control or eradication, and there are limited existing distribution channels to livestock producers. Further, as few insurers are specialized in agriculture, they would generally require significant capacity building to become involved in epidemic insurance programme design and implementation.

#### *Reinsurance sector*

Reinsurance (the insurance of insurance companies) is a way of insurers for accessing additional capital, allowing efficient transfer of risk, and expansion of risk acceptance capacity beyond the scale which would be allowed by internal capitalisation and reserve accumulation of the insurer. Reinsurance is particularly important for products with catastrophic (co-variate) exposure, such as drought, flood or epidemic disease. Financial capacity of national insurance markets is limited in many developing countries, and reinsurers play an important role.

---

<sup>3</sup> International Cooperative and Mutual Insurance Federation (2004), p12-13

Reinsurance availability for agricultural schemes has been highly problematic in developing countries. Whilst international reinsurers have been willing to support domestic insurers in well established property, casualty and motor lines, both crop and livestock insurance present a different level of underwriting difficulty for both insurers and reinsurers.

Acceptance of any reinsurance business by a reinsurer only follows a process of due diligence, which includes not only the analysis of the specific risk or portfolio of risks being offered, but also assessment of the integrity, operational capability and financial status of the insurance company, and of country risk. Relationships between insurers and reinsurers become established over a period of time, normally based on core business (motor, property, engineering, aviation, etc). Insurers in developing countries have, either through their own initiative or under government pressure, sought to develop agricultural products and expand in the rural areas. The reinsurers are normally the first port of call of the insurers, seeking technical assistance as well as financial capacity.

Reinsurers have found it difficult to meet the demands of insurers in developing countries, mainly for the following reasons:

- First, there has been a high need for technical assistance in design and implementation, particularly in the start-up phase. The costs of technical assistance are often high in relation to expected transaction size;
- Secondly, there have often been poor underwriting results, particularly in crop insurance, so the attractiveness to provide technical assistance and reinsurance capacity is limited;
- Thirdly, agriculture is often faced with more important infrastructure constraints than lack of insurance. Both insurers and reinsurers are frequently faced with small farm sizes, high costs of distribution, low economic capacity and lack of insurance awareness of farmers. Underwriting and loss assessment is difficult for individual-farmer policies, and there is often a lack of long term, reliable statistics needed for risk assessment and pricing.

Reinsurers have provided livestock reinsurance treaties for mortality, normally on a restricted basis and for accidental mortality. Disease is often excluded, and certainly epidemic disease, or government slaughter. Demand for livestock insurance was often from a few breeders with high value animals, or for wealthy bloodstock owners. Many insurers, however, wish to demonstrate that they can offer bloodstock and livestock, even if volumes of business are minimal.

Reinsurance for agriculture is dominated by a few of the major reinsurance companies operating internationally. There are very few domestic or regional reinsurers with technical departments familiar with agricultural risks.

In spite of this negative background, some reinsurers are actively interested in expanding and diversifying their agricultural portfolios, and are willing to consider new programmes and proposals, provided that there is a prospect of viability, and volume of business which is of interest. The prospect of building a global portfolio of diversified epidemic risks would be more attractive to reinsurers than individual national programmes. However, the situation of each country is unique, requiring adapted national programme design.

## **Pre-conditions for market-based epidemic livestock disease insurance programmes in developing countries**

This report considers that there are many barriers to the introduction of market-based epidemic insurance in developing countries. However, pre-conditions can be listed, and would apply on a country-by-country basis:

The most significant pre-condition for the introduction of market-based epidemic insurance in a developing country is that there must be at least one insurance company in the country willing and able to take a commercial interest in establishing and distributing an epidemic disease product. Several insurers can be involved in a pool, and a lead insurer would normally be appointed by pool members. This collective approach has benefits where each company and specific individuals can be allocated by each insurer to contribute during the developmental phase. Once operational, the pool would agree to an annual plan, and appoint a lead insurer who would be responsible for risk acceptance. These insurer(s) would form a stakeholder group with other parties interested in market-based epidemic insurance. In reality, such an initiative would only follow a government plan to strengthen disease management and direct compensation, and would be linked to external technical assistance, and to the support of interested reinsurers.

Other pre-conditions for developing the insurance sector regarding epidemic disease insurance products would be likely to include:

- insurable client base of farmers engaged in the commercial livestock sector;
- existence of an effective national epidemic disease strategy and operational infrastructure including veterinary services;
- agreed government compensation system for direct losses, backed by access to adequate national or international funding;
- defined linkage of the market-based programme to the rules and operations of the government programme of compensation, for the purposes of declaring outbreak, defining slaughter and quarantine zones etc;
- clear definition of covered and excluded diseases, and diagnostic capacity;
- existence of, or establishment of, a geographically zoned client and livestock database;
- distribution channel(s) to reach farmers, either directly or through linkage to other organization(s);
- access to external specialists able to provide the insurer with technical assistance during the feasibility study and design phase, and ongoing support;
- access to data and modelling of each covered disease, to permit estimation of maximum probable losses, establishment of appropriate financial limits, and setting of premiums;

- access to reinsurance and financial structuring;
- a viable business plan able to demonstrate the prospect of a profit margin to the insurer, after considering distribution and overhead costs, and reinsurance costs;
- adequate legal and regulatory framework.

Pre-conditions for developing the reinsurance sector regarding epidemic disease insurance products include those points listed under “insurance sector”, plus:

- assessment of the capacity of the insurance company(ies) to manage the proposed market-based programme;
- assessment of the adequacy of operational procedures of the original programme, including risk acceptance, loss assessment, veterinary testing and controls, including catastrophic event preparedness;
- assessment of exposure to anti-selection and moral hazard;
- assessment of adequacy of proposed premium rating, limits, terms and conditions of the original programme;
- setting of reinsurance structure, particularly the layering of risk for non-proportional reinsurance, in relation to expected frequency of claims. Reinsurers will require defined limits to their financial liability, by district, province and in total;
- acceptable return on capital allocated, according to each company’s internal acceptance practices;
- an opportunity for diversification of risk nationally or internationally would make the overall programme more attractive but need not be a pre-condition to a particular national proposal.

### **Challenges faced in supporting the development of market-based insurance products**

A main pre-condition for developing this type of insurance is the existence of a well-planned government disease prevention and control programme. It is assumed that a market-based product would need to be fully aligned to a well-prepared government slaughter and compensation programme. A crucial element is an appropriate veterinary service. The OIE PVS instrument could be very valuable in assessing it. However, the effectiveness of the veterinary services, and of its ability to implement disease prevention and control, is also affected by the structure and degree of commercialisation of the livestock sector in each country. This varies significantly from one country to another.

Any scheme to support the development of epidemic livestock disease insurance would have to take into account that each country has different circumstances concerning rural insurance, capacity of insurers, as well as organization and disease status in the livestock sectors. Each country would require tailored adaptation of epidemic disease insurance solutions, although this could be eased within a framework for international standardization in product design, backed by international technical assistance, capacity

building and reinsurance. Innovative solutions for product distribution, farmer enrolment and loss assessment seem essential in the absence of existing synergies and the current poor development of livestock insurance. Key factors from an insurer's perspective include:

- In terms of **product design**, an agreed-value policy, with a claim triggered by defined government slaughter for **specified diseases**, and providing a payment to farmers which was supplementary to government compensation, would offer the simplest approach.
- In terms of **marketing**, few existing marketing channels exist for insurers to reach the rural community, and innovative solutions would need to be developed, preferably allowing **low distribution costs**. Often farmers have limited insurance awareness, and may have low willingness and ability to pay premium, and sales of such a market-based policy would need to overcome these hurdles. Demand for such a market-based product would need to be tested, as experience in crop insurance indicates that there is an unwillingness to purchase insurance for events occurring with low frequency.
- In terms of **risk acceptance**, simplified minimum acceptance criteria would need to be developed, compared to more complex risk acceptance needed for conventional livestock mortality insurance, which requires farm inspection and veterinary certification.
- In terms of **underwriting**, the key difficulty lies in **product pricing**, due to the absence of data required for risk assessment of frequency and severity of whichever specified diseases are to be insured, and difficulties in modelling expected future outbreaks. Further, new strains of disease (e.g. AI) may have unknown epidemiology and unpredictable financial impacts.
- In terms of **loss assessment**, it may be possible to follow government slaughter decisions, which for the insurer means a need for confidence in the independence and integrity of the services responsible for government slaughter decisions.

These factors demonstrate that a high level of capacity building would be needed by the insurance sector in most developing countries, and high levels of technical assistance to undertake development of products, risk assessment, product pricing, and support for insurers. Within each country, an integrated approach to any market based insurance solution is required, where linkages could be forged to initiatives such as creation of farmer databases, livestock registration, classification of herds, and disease prevention. Insurers could play a part in such process, but they would only be one stakeholder in a wider range of organisations and initiatives aimed at prevention and management of epidemic disease.

Finally, the financial management of the consequences of disease outbreak, with infrequent but potentially severe claims, require major risk transfer by domestic insurance sectors, which have low financial capacity and may be unwilling to commit significant risk capital to such types of insurance. International re-insurers would need to play an important role, and would be more interested in a programme which aimed to develop such cover in many countries, achieving some economies of scale in product and mechanisms, and some risk spread. The financial capacity and willingness of the insurance sector in each country means that major risk transfer is needed. Financial structures for national retention of risk, layers of commercial reinsurance, and possibly high-level government-backed catastrophe cover could be foreseen.

## **Conclusions on options for an Animal Epizootic Insurance Scheme to support the development of market-based insurance products**

### Global versus national approach to a scheme

Given the infrastructural and technical constraints to market-based epidemic insurance identified throughout this pre-feasibility study, our conclusions are very guarded as to the potential for a “scheme” for the development of market-based insurance products. In particular, no “universal” scheme can be foreseen which would be suitable for application in all countries. The extent to which market-based insurance could develop is strongly influenced, country-by-country, by the following national features:

- Degree of commercialisation of the livestock sector(s): Market-based epidemic insurance is a financial instrument and could only be feasible for farmers operating in the emergent or commercialised livestock sectors, where clients were willing and able to pay insurance premiums.
- Degree of development of the insurance sector in the rural areas: Current penetration of insurance markets into rural areas is, on average, low. Epidemic product sales would be hard where insurers do not have a rural client base or linkages to a distribution network. Similarly, the capacity of the national insurance market to develop expertise in underwriting an epidemic product varies according to the degree of sophistication of the market.
- Degree of development of government capacity for epidemic livestock disease management is a pre-condition to commercialised insurance: for example, veterinary services, epidemic risk management capacity, advance planning for epidemic outbreak, herd registration and databases. These characteristics differ widely from country to country, as does the current status of endemic and epidemic disease in each country.

A conclusion is that there is a wide diversity between countries in the pre-conditions existing for an epidemic product. This is in a context that there are very limited private sector epidemic insurance programmes even in industrialised countries. Hence, there is limited experience, in comparison to other classes of insurance, of epidemic scheme design and of best practices to act as examples for international transfer of know-how.

Countries could be classified according to the status of their livestock sector, of their insurance sectors, and of their government veterinary services to identify those that are likely to be most favourable to market-based epidemic insurance.

The existence of the PVS instrument provides a strong objective measure of veterinary services, and could be a starting point for assessment of the key preconditions. This is complementary to the objectives in terms of eligibility to GERFAE (see Part II).

### Synergy of market-based insurance and GERFAE objectives

In spite of the negative outlook for a scheme for market-based epidemic insurance, there are high degrees of synergy between the needs of the insurance market, both for conventional livestock mortality insurance, and for epidemic disease insurance, in the strengthening of governments’ measures to improve veterinary

services, and associated measures, in particular in establishing a database for the registration and identification of the national livestock herds and their owners.

Further, the operation of a market-based product would need to be integrally linked to a government compensation system for livestock. All the measures foreseen as necessary to strengthen the effectiveness and efficiency of emergency preparedness, for example development of pre-outbreak emergency preparedness, and developing compensation protocols, and post-outbreak response capacity, are fully aligned with the needs for commercial insurance (see Part II). Thus, in spite of the constraints identified, the development of a sound governmental epidemic prevention and response programme could lay the foundation for the private insurance market to offer parallel products. This seems most likely to occur only in those countries with better developed or innovative insurance markets, where there are insurers specialising in the rural sector, where commercial livestock sectors exist, and developed distribution networks such as agricultural banks and microfinance organisations. Wider penetration of livestock insurance is seen in some transition countries.

A complimentary synergy between public compensation and private sector insurance is that insurance creates a formal contractual arrangement between insurer and the individual farmer, whereas public compensation standards, guidelines and rules are targeted to livestock owners in general. This contractual arrangement requires *ex ante* establishment of databases of insured farmers and their herds, and legally binding rules for claims payment. It requires accurate definition of insured and excluded diseases, which may be more generally defined under government compensation guidelines. In crop insurance, there are examples where the databases of insured farmers are superior to any government records of farmers and their production systems.

Strategies which could *directly* encourage private sector epidemic insurance include:

- **Premium subsidy:** Subsidisation of private sector epidemic insurance does not seem convincing, given that limited government financial resources are required, as a priority, to implement national risk prevention and control services, and in particular to provide financial compensation for compulsory slaughter. Subsidisation of a supplementary, private-sector, consequential loss insurance product would not seem sustainable, and certainly not in the context of a global scheme, although might be considered as a government measure in specific countries.
- **Public sector reinsurance:** This measure does not seem to a priority, unless bottlenecks in private sector reinsurance are identified. Private sector reinsurance may be forthcoming, provided that the original insurance programmes are viable. Key factors identified by reinsurers remain data for pricing, and independence of government veterinary services. The main constraints to epidemic insurance are in building national “ground up” programmes capacity, as “top down” financial instruments will not substitute for viable local programme design and operation. The existence of a national pool of insurers, or international pool of reinsurers, cannot substitute for sound local implementation, such as animal identification systems, animal health information, and database development.
- **Promotion of public – private partnerships:** Encouragement of pilot projects funded by a scheme similar to the Canadian PSRMP programme. PSRMP is a Business Risk Management (BRM) programme funded through the Agricultural Policy Framework which provides financial and technical advice to industry-led projects seeking new risk management tools developed and/or delivered by the private sector, in order to cover gaps in available farm-level risk management

coverage. Such an initiative would bring together national and international representatives of the financial services industries to create projects, which may receive technical assistance funding.

- Technical assistance: As noted, it is unlikely that insurance or reinsurance markets will act as the prime movers for the development of private sector epidemic insurance. Preconditions to insurability are completely linked to the existence of government services, so that the development of such services is a pre-cursor. Hence, direct technical assistance to insurers does not seem useful in isolation. A phased approach could be foreseen, where insurers are increasingly involved, building on the initial development of sound epidemic preparedness and response. A degree of international standardisation implied by the current project would increase the cost-effectiveness of global technical assistance. Key aspects where technical assistance could be needed are to advise governments in strengthening disease management and in putting in place an *ex-ante* programme for direct compensation. Risk assessment tools required by governments would also benefit insurers.

Strategies which could *indirectly* encourage private sector epidemic insurance include:

- Development of government and international veterinary services capability: as a foundation for an insurance programme which supplemented the government compensation system. The synergy of this approach is described above.
- Establishment of improved information systems: available to insurers, to allow better assessment of livestock health and disease, and to encourage development of some internal technical capacity within insurers as a first step towards developing products (both epidemic insurance and traditional mortality insurance).
- Client and livestock database: An essential requirement for any insurance programme as well as for government compensation programmes is that there is a comprehensive database of farmers, and of the livestock held on farms. This is not only needed for the identification of livestock, but also geographical zoning for control purposes. An important issue in this respect is the definition of minimum requirements regarding the systems for (government) registration of herds.
- Classification of livestock sectors and disease risks: Development of best practices for management information system for a classification of livestock into categories, by livestock type, age, use and production system, which could also be a pre-requisite for government authorities responsible for disease management and direct compensation, is fully complementary to insurers' requirements. Development of herd identification, classification and databases, and access to animal health inspection and status reports, could benefit animal health management as well as provide a basis for confidence of insurers in livestock risk management by potential clients.